

CLEANER GREENER SOUTHERN TIER
REGIONAL SUSTAINABILITY PLAN

Appendices: Volume 2

Appendix H: Southern Tier Baseline Assessment

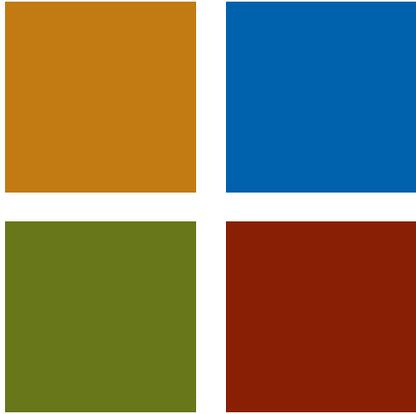
Appendix I: Best Practices Report

Appendix J: Public Comment Process

Appendix K: List of Plans Reviewed



APPENDIX H:
SOUTHERN TIER BASELINE ASSESSMENT



Cleaner Greener Southern Tier Baseline Assessment Report

December 13, 2012

(information current as of August 24, 2012)

Prepared for

Tompkins County and the
Cleaner Greener Southern Tier Planning Team

Prepared by

ICF International

Table of Contents

- Table of Contents 2
- Introduction 3
- 1 Energy and GHG Emissions 4
 - 1.1 Overview of Regional Energy Consumption and GHG Emissions 5
 - 1.2 Existing Regional Plans and Programs 15
- 2 Transportation 21
 - 2.1 Overview of Regional Transportation Network 22
 - 2.2 Existing Regional Plans and Programs 28
- 3 Land Use and Livable Communities 33
 - 3.1 Overview of Livable Communities 34
 - 3.2 Existing Regional Plans and Programs 39
- 4 Economic Development 46
 - 4.1 Overview of Economic Development 48
 - 4.2 Existing Regional Plans and Programs 54
- 5 Working Lands and Open Space 59
 - 5.1 Overview 60
 - 5.2 Existing Regional Plans and Programs 64
- 6 Climate Adaptation 71
 - 6.1 Overview 72
 - 6.2 Existing Regional Plans and Programs 75
- 7 Water Management 79
 - 7.1 Overview of Water Resources and System 80
 - 7.2 Existing Regional Plans and Programs 84
- 8 Waste Management 87
 - 8.1 Overview of Waste Management 88
 - 8.2 Existing Regional Plans and Programs 91
- 9 Governance 97
 - 9.1 Overview of Governance 98
 - 9.2 Existing Regional Plans and Programs 100

Introduction

This document includes information collected in the process of conducting research and preparing the goals, indicators, GHG inventory, implementation strategy and other deliverables. It is an interim work product, and has primarily been used to ground the team's analysis and recommended strategies in an understanding of the region across each topic area. This document is not intended as a stand-alone deliverable, and was provided to the Planning Team as a working document for reference as they review the draft implementation plan. It is included as an Appendix to the final regional sustainability plan, and is summarized in the plan.

The information included in this baseline assessment is current as of August, 2012. Since then, additional research has been conducted and updated baseline information has been incorporated into the sustainability plan and implementation strategy for each of the topic areas. Please refer to these sections of the sustainability plan for a more current synthesis of the baseline of each topic area.

For each topic area, the baseline report is structured as follows:

- 1) Overview of the topic area in the Southern Tier region
- 2) Summary of existing plans and programs relevant to the topic area.

In some cases, data has been gathered and analyses have been performed but had not been written up for inclusion in the baseline. The Regional Sustainability Plan provides a more succinct story of the state of each topic area without providing excessive detail. There are also formatting inconsistencies within this working document that have not been reconciled, including figures, tables, footnote styles, etc.

1 Energy and GHG Emissions

This topic area covers electric generation, on-site combustion, greenhouse gas (GHG) emissions, and renewable energy in the Southern Tier. **The energy and GHG emissions data were obtained from the Draft Tier II GHG emissions inventory in August 2012, and are therefore outdated.** Please see the Regional Sustainability Plan and final GHG Inventory Report in another Appendix for more current energy and GHG information.

Challenges

- Understanding how choices and behavior directly affect energy usage and costs is not universal, creating a barrier to saving energy.
- Financial barriers including a high initial investment needed for some energy efficient measures, services, and certifications.
- Renewable energy technologies continue to be more expensive than fossil fuel technologies in many applications, particularly due to current declining natural gas prices.
- Bureaucratic hurdles in energy efficiency programs include long and complicated approval processes for certain rebate programs and other program offerings.
- Lack of large industries and buildings limit large scale applications of solar photovoltaic and CHP.

Opportunities

- Local climate action plans, including the City of Binghamton Energy and Climate Action Plan, the Tompkins County 2020 Energy Strategy, and Town of Ithaca Energy Action Plan, demonstrate a strong local commitment to reducing GHG emissions and pursuing more sustainable energy consumption.
- Neighborhood scale initiatives promoting energy efficiency, awareness, basic energy upgrades, and weatherization.
- New York State Public Service Commission has mandated statewide energy reduction by 2015, and has enacted a state Renewable Energy Portfolio Standard.
- Access to strong renewable energy incentive programs through NYSERDA and U.S. Department of Agriculture (USDA) rural energy programs.
- Low cost loans can support widespread deployment of renewable and advanced energy technologies.
- A variety and bounty of natural resources for renewable energy development exist in this region, including mid-scale wind; forests, brush, and crops for biomass; dairy farm waste-to-energy (anaerobic digestion), and existing non-powered dams.
- Existing wind installations in the region can be studied for replicability, including: 3 large scale wind farms all located within Steuben County, with additional projects proposed in Steuben, Tioga, and Tompkins Counties.
- Expanding Combined Heat and Power (CHP) which currently provides 41 MW of energy in the region, including at the high-profile Cornell project.
- Research at Binghamton University to develop new energy technologies, including recent Smart Energy Initiative.
- Cornell and Ithaca College serve as leaders in developing and retrofitting LEED certified buildings that can serve as demonstration projects of new technologies and potential economic development.

1.1 Overview of Regional Energy Consumption and GHG Emissions

Energy consumption in the Southern Tier is dominated by natural gas and electricity consumption. On-site energy consumption was approximately 73 trillion Btus in 2010, according to the Draft Tier II GHG Inventory (as of August 24, 2012). Electricity and natural gas represent the large majority of building energy use in the Southern Tier, with a total of 51.4 trillion Btu of on-site building natural gas and electricity consumed in 2010, or 70 percent of the total. Table 1 presents fuel consumption by customer class for 2010, according to the Draft Tier II GHG Emissions Inventory (as of August 24, 2012).

Table 1. 2010 Energy Consumption in Buildings in the Southern Tier (Trillion Btu)

	Fuel Oil	Natural Gas	LPG	Electricity	Coal or Coke	Wood	Solar	Total
Residential	3.01	14.74	2.44	6.81	0.52	8.04	0.17	35.73
Commercial	1.38	10.25	0.68	9.70	0.03	1.60	0.05	23.68
Industrial	0.77	6.76	0.07	3.17	2.01	0.62	-	13.41
Total	5.16	31.74	3.18	19.69	2.56	10.27	0.22	72.82

From an electricity generation perspective, the region consumes a fairly balanced mix of grid electricity, dominated by natural gas (34 percent), nuclear (32 percent), and hydropower (20 percent). Generation within the region is dominated by coal (82 percent) with a growing amount of wind generation (10 percent). The grid mix is presented in Table 2 below. Electricity consumption in 2010 was approximately 5,770,000 MWh, meaning that the region was a net importer of electricity (regional generation was about 2,500,000 MWh).

Table 2. Southern Tier Electricity Grid Mix and Regional Generation Profile

	NYISO Region		Southern Tier	
	2010 Net generation (MWh)	%	2010 Net generation (MWh)	%
Coal	12,758,873	9%	2,037,379	82%
Oil	2,744,109	2%	-	0%
Natural Gas	46,590,170	34%	197,585	8%
Nuclear	43,484,614	32%	-	0%
Hydro	27,127,600	20%	2,950	0%
Biomass	2,103,935	2%	2,883	0%
Wind	2,266,339	2%	258,668	10%
Other fossil fuel	938,745	1%	-	0%
Total	138,014,385		2,499,464	

The combustion of fossil fuels to generate energy releases emissions of carbon dioxide and other GHGs. In 2010, the Southern Tier's baseline GHG emissions were approximately 8.9 million metric tons of carbon dioxide equivalents (MTCO_{2e}).¹ The inventory indicates that electricity consumption and on-site stationary energy consumption were by far the largest contributors to the region's carbon footprint, generating approximately 46 percent of the total GHG emissions for the Southern Tier. Furthermore, on-site energy consumption, which includes building energy use such as residential home heating,

¹ Note: results of the draft Tier II GHG emissions inventory; final results are presented in the GHG inventory chapter.

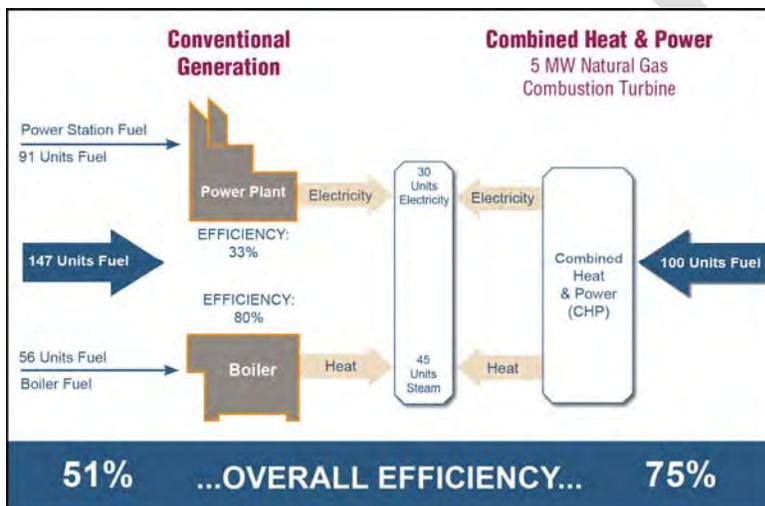
constitutes roughly two-thirds of the emissions from this sector. Per capita transportation GHG emissions are much higher for the region than they are nationally, with transportation accounting for 41 percent of regional emissions (versus 27 percent nationally).

On average, the region's GHG emissions and energy consumption were lower on a per capita basis than the rest of the country: 22 MTCO₂e per person nationally, versus 13 MTCO₂e per person in the region. The difference likely has to do with the region's relatively small share of industrial emissions and energy consumption: whereas industrial emissions account for nearly 30 percent of national emissions, regionally that share is just 16 percent.

Combined Heat and Power

Combined heat and power (CHP), or co-generation, is an innovative approach to increasing energy efficiency at existing electricity generating facilities, particularly natural gas and coal power plants. In these facilities, the "waste" heat emitted from the combustion process is instead captured and supplied to consumers. This increases the effective efficiency of the plants, as the sum efficiency for CHP is 75 percent compared to the overall efficiency of separate production of heat and power of only 56 percent, as shown in Figure 1.

Figure 1. Comparison of CHP Efficiency to Separate Production of Heat and Power



As shown in Table 3, there are 41 MW of existing CHP plants in the region. The largest project by far is the 30 MW CHP plant at Cornell University that represents about 75 percent of the region's existing CHP capacity. There are five projects at public schools, two at industrial facilities, two at health care facilities, and single examples at a government building, farm, natural gas compressor station, and a car wash.

Table 3. Existing CHP Facilities in the Southern Tier New York Region

Facility Name	City	County	Prime Mover	Fuel Class	Capacity kW
Binghamton East Middle School	Binghamton	Broome	Recip. Engine	Natural Gas	350
Binghamton High School	Binghamton	Broome	Recip. Engine	Natural Gas	350
Binghamton West Middle School	Binghamton	Broome	Recip. Engine	Natural Gas	350
New York State Dept. of Transportation	Binghamton	Broome	Microturbine	Natural Gas	60
Union Plaza Nursing Home	Union	Broome	Recip. Engine	Natural Gas	75
Chemung County Health Center	Elmira	Chemung	Recip. Engine	Natural Gas	300
Watkins Glen Refinery, Cargill Salt	Watkins Glen	Schuyler	Boiler/Steam Turbine	Natural Gas	8,000
Lockheed Martin	Owego	Tioga	Boiler/Steam Turbine	Wood	668
Waverly Central Jr-Sr High School	Waverly	Tioga	Recip. Engine	Natural Gas	300
Cornell University	Ithaca	Tompkins	Combustion Turbine	Natural Gas	30,000
Dominion - Borger Compressor Station	Ithaca	Tompkins	Microturbine	Natural Gas	260
Dryden High School	Dryden	Tompkins	Recip. Engine	Natural Gas	180
Hardie Farms	Lansing	Tompkins	Recip. Engine	Biomass	125
Ithaca Car Wash	Ithaca	Tompkins	Recip. Engine	Waste	60
Southern Tier Region Total Existing CHP					41,078

Source: ICF CHP Installation Database

Renewable Energy

To determine a baseline of operational renewable energy (RE) systems in the Southern Tier, data were collected on all renewable technologies for installed grid-connected and distributed generation (behind the meter) systems of wind, solar, hydroelectric and landfill gas behind the meter (distributed generation). In addition to these data, available public information was evaluated to analyze the potential for renewable resources in the region. Geothermal was excluded from this assessment because current drilling methods are not economically viable in the region.

Wind

Typically, large-scale (or utility-scale) wind farms have turbines of 1 MW or larger in capacity, mid-scale or community wind farms have turbines of 100 kW to 999 kW, and small wind installations have turbines of less than 100 kW. Residential wind turbines can be very small (a few kW). Community wind farms often indicate a connection between the local community and the wind project, though communities can be involved in smaller and larger projects.²

The Southern Tier has three large-scale wind farms, all located within Steuben County, with a combined capacity of approximately 175 MW.³ In addition, there are 4 community or small scale wind turbines in Chemung County and 2 residential wind turbines; one each in Steuben and Tioga Counties.⁴

The potential for community (mid-scale) wind in New York State was examined in an analysis that combined project economic, turbine technology, wind resource, population, geographic information systems (GIS), physical power pricing, and wind incentive data, including renewable energy certificates (RECs). This analysis indicated that areas free of important constraints (with wind Class 3 and above) can be economically viable for community wind in New York State if the Federal Production Tax Credit (PTC) is extended at or near its current level. If the PTC is not extended, community-scale wind would not be viable in New York State, except in limited areas with exemplary wind resources and other supportive factors.

Figure 2 shows the region's Class 3 wind resources with an overlay of the existing wind farms. According to this analysis, Class 3 wind resources can be found in Steuben and Delaware Counties. These two areas should be explored further to identify specific sites, such as farms, for either grid-connected or on-site community or mid-scale wind. In addition, a map of Class 2 wind resources shows more widespread wind resources in most counties of the Southern Tier (see Figure 3). Because these wind maps are not specific to micro wind climates, there may be much greater potential for community-scale wind resources than illustrated by the Class 3 wind map rates. Although beyond the scope of this study, the next step would be to refine this review to show distinct wind power classes, electricity infrastructure, utility boundaries, and certain physical or population constraints on maps.

²Adleman, Matt. "Transcript – What is the difference between large, community, and small scale wind energy." Illinois Wind Working Group, 2011. Available online:

<http://renewableenergy.illinoisstate.edu/wind/conferences/speaker%20presentations/2011%20Landowner%20Forum%20101%20Files/TranscriptMattDifferenceBetweenLargeCommunityAndSmallScale.pdf>

³ Gold Book

⁴ "New York Renewable Portfolio Standard." New York State Energy Research and Development Authority, 2011. Available Online: <http://www.nyserda.ny.gov/Programs/Energy-and-Environmental-Markets/Renewable-Portfolio-Standard.aspx>

Figure 2. Wind Map of Class 3 Wind Resources and Existing Wind Farms in the Southern Tier

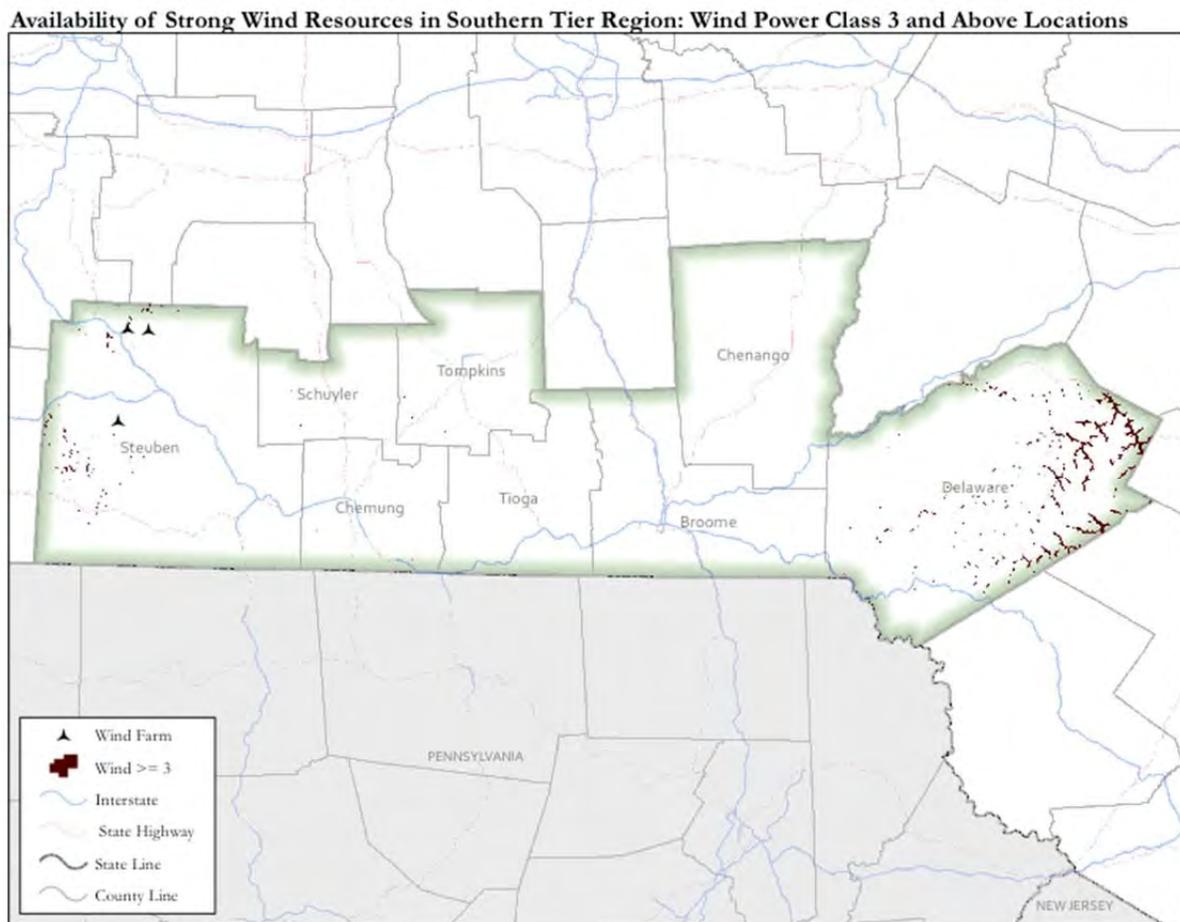
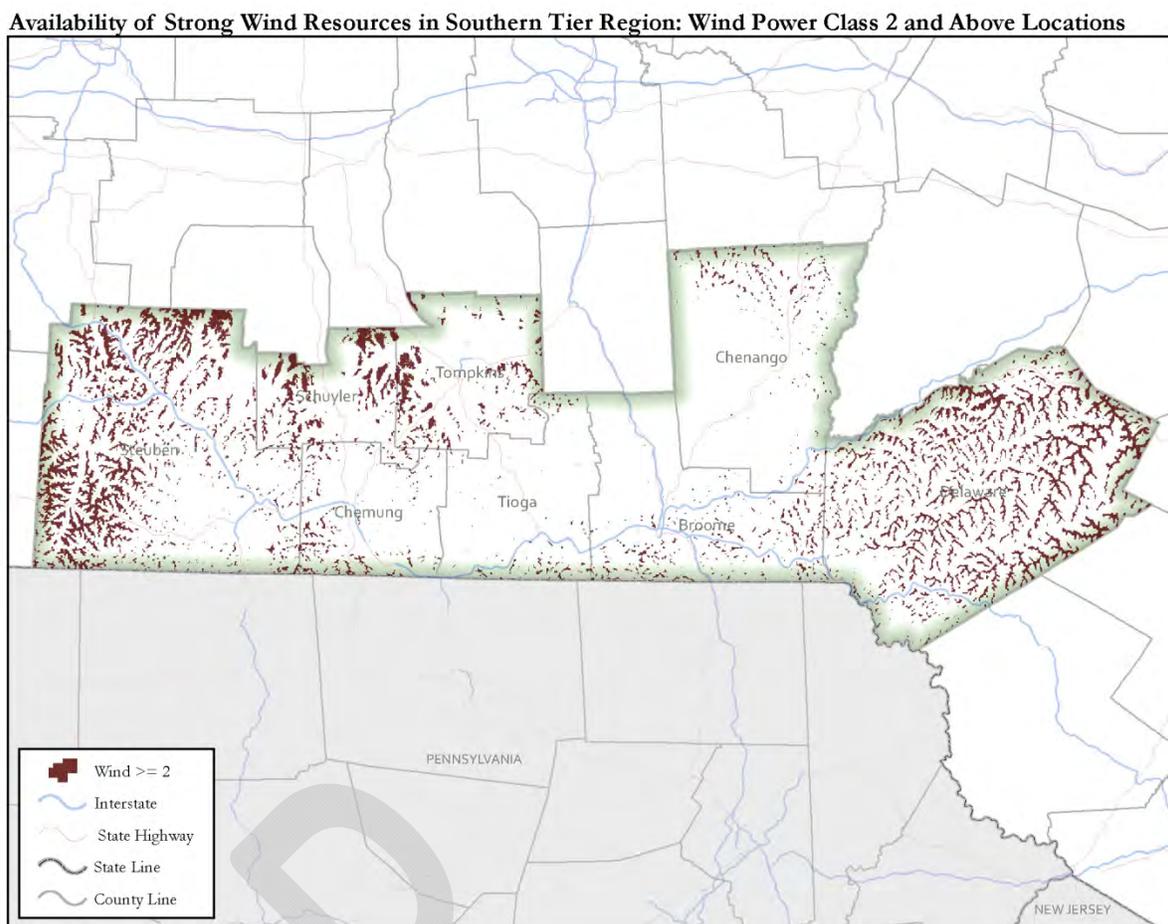


Figure 3. Wind Map of Class 2 Wind Resources in the Southern Tier



Biomass

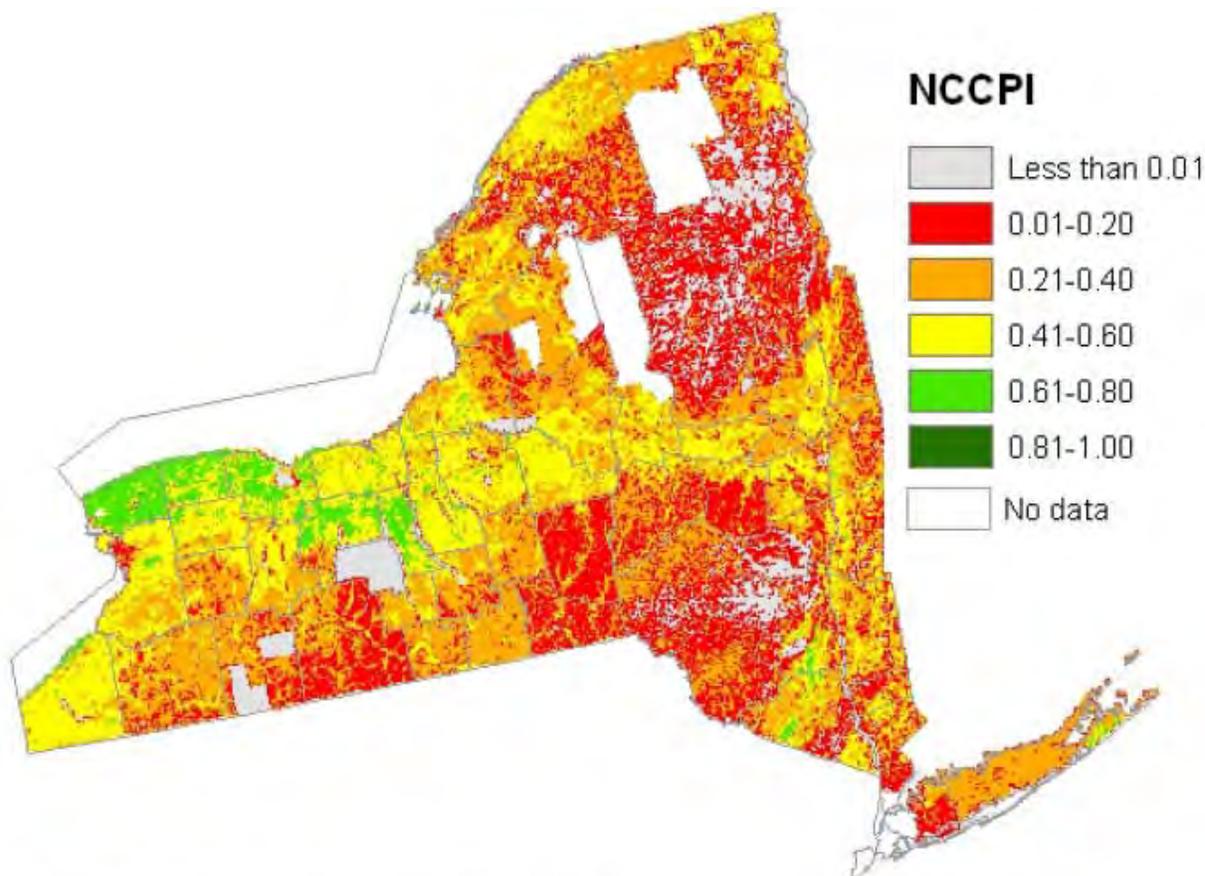
In many industrialized countries, biomass is commonly used as a source of thermal energy for residential and institutional heating and for certain industrial applications. Because of the forested environment of the Southern Tier, biomass is a renewable resource that should be examined carefully for its alternative energy potential as well as its job creation potential through the process of wood pellet production and sustainable forestry management practices that should accompany forest harvesting.

The *New York Renewable Fuels Roadmap* evaluates the future of liquid biofuel production and feedstock supplies for transportation purposes in New York State in order to address increasing GHG emissions and independence from petroleum use. The *Roadmap* presents a snapshot of New York's current biomass production, including agricultural products and forest products.⁵ For the purposes of biofuel feedstock production, the Southern Tier offers medium to low potential for growing crops, as its area ranges from 0.01 to 0.60 on the National Commodity Crop Productivity Index (NCCPI), a quantitative

⁵ "Renewable Fuels Roadmap and Sustainable Biomass Feedstock Supply for New York." New York State Energy Research and Development Authority, April 2010. Available online: http://www.nyserda.ny.gov/Publications/Research-and-Development/Biomass-Solar-Wind/~media/Files/Publications/Renewable%20Fuels%20Roadmap/report_10_05_Renewable%20Fuels%20Roadmap.ashx

measure of its soil productivity (see Figure 4; The NCCPI scale goes from 0 to 1, with 0 indicating no productivity, and 1 indicating the optimal productivity).

Figure 4. Soil Suitability for Crop Growth Represented with the National Commodity Crop Productivity Index



NOTE: White areas were incomplete as of May 2009.

According to the US Forest Service Forest Inventory Data Online (FIDO), there are over 2.5 million acres of private and public owned forest land in the region as a whole.⁶ Currently, in Tompkins County there are 140,000 acres of privately and publicly owned forestland, 22,000 acres of marginal brushland, and 19,000 acres of inactive agricultural land. It may be feasible to harvest some of this acreage for biomass production. It takes 5 to 6 acres of sustainably managed brushland or forestland to heat one typical home for one year.⁷

Biogas

Anaerobic digestion of animal manure produces biogas, which typically contains 60 – 70 percent methane gas. The biogas may be used to fuel an engine generator or turbine to generate electricity. Avoiding the open field decomposition of animal manure by digesting it and burning the resulting biogas can have significant environmental benefits - including a reduction in air and odor emissions, reduction in water

⁶ "Forest Inventory Data Online." USDA Forest Service. Available online: <http://apps.fs.fed.us/fido/>

⁷ "Tompkins County Comprehensive Plan." Tompkins County Planning Department, 2008, p.4. Available online: <http://www.tompkins-co.org/planning/compplan/documents/EGGEEElementfromPublisher.pdf>

pollution, and reduction in GHG emissions (methane has 21 times the global warming potential of carbon dioxide).

While in general all animal manure can be digested in an anaerobic digester, the actual biogas production depends on a number of factors including the type of animal, the animal's feed, the bedding, the type of digester, the digester operating temperature, the method of manure collection, and residence time in the digester. The economic feasibility of a digester project depends on the biogas production rates as well as capital and operating costs and the avoided costs of energy which the digester-generated power will displace. As a general rule-of-thumb, farms need to have more than 500 head of dairy cattle or 2,000 swine for an anaerobic digester to be technically and economically viable.⁸

Several Comprehensive Plans in the region address anaerobic digesters. The *Delaware County Agricultural Plan* notes the county's significant investment in livestock, and the potential role for digesters. Delaware County is home to approximately 30,000 head of cattle, including dairy and beef cows and calves on 409 operations. There are a few larger dairy farms, which are well-suited for digesters (500 head minimum). Dairy farms are the largest sector of the agricultural market in Delaware County, and in a survey, farmers strongly agreed for need for alternative energy resources. According to the plan, DCED might explore collaboration with the Delaware County Electric Cooperative and NYSEERDA to offer alternative energy consulting services to farmers, and with a local bank to offer attractive financing for implementation, while working with the farmer to develop a financial analysis for the investment." Cornell Agricultural Extension Service can also play a role in connecting farmers with the appropriate technical assistance.

The *Tompkins County GHG Emissions Report (2003)* notes that livestock populations have grown since 1998, as agriculture continues to be an important component of the Tompkins County economy. With this increase, in cattle in particular, GHG emissions from the agricultural sector increased between 1998 and 2008. By 2008, the agricultural sector emitted 4.6 million pounds of methane or approximately 44,000 MTCO₂e. It is important to state that this increase is likely primarily due to improved data from the 2007 Agricultural Census, which was available for the 2008 inventory. Previous inventories relied on a headcount estimate process that was not nearly as reliable.

A program suggestion found in the *Tompkins County Energy Strategy 2020*, p. 16, suggests an "Allocation of finance and technical resources to support the development of on- farm alternative energy sources."

ICF conducted an analysis and estimates that there is the potential for 31 digesters that would produce between 19,000 MWh and 70,000 MWh of electricity per year, based on public data. However, if it is assumed that only one-third of the possible number of digesters were actually constructed because of various circumstances, this would still represent a potential for 6,300 – 23,200 MWh/year of energy production from a sustainable resource. These digesters would also eliminate over 7,200 tons/year of methane gases being emitted into the atmosphere, equivalent to over 150,000 MTCO₂e, as assessed by ICF. In addition, it would help sustain local agricultural development by lowering energy costs for farmers able to deploy these systems.

⁸ The AgSTAR report Market Opportunities for Biogas Recovery Systems and economic trade studies indicate that a farm owner should have greater than 500 head of dairy cows or more than 2,000 swine to make anaerobic digestion financially viable. From "The Viability of digesters in the dairy business." Progressive Dairyman. Available online: http://www.progressivedairy.com/index.php?option=com_content&view=article&id=4367:the-viability-of-digesters-in-the-dairy-business&catid=77:manure&Itemid=121

Landfill Gas

Landfill gas has the potential to reduce greenhouse gas emissions while also providing an alternative energy source. According to baseline data from the U.S. Energy Information Administration (EIA), there are two landfill gas plants in the Southern Tier region, in Broome and Delaware counties, that are producing 3.2 MW of electricity, combined. There appear to be two other landfill gas plants in Chemung and Chenango counties that flare but do not yet capture gas for energy; these do not appear to have the potential to produce energy economically.

Solar

Solar photovoltaics (PV) and solar thermal use a free and abundant fuel source, the sun. They also produce electricity generally at peak demand times, thus replacing the most expensive electricity. However, solar PV remains costly because of the upfront costs of the solar systems. NYSERDA offers incentives for solar PV to defray some of the cost. The USDA, through its rural renewable energy program, offers incentives as well for farm based systems. In addition, the federal 30 percent Investment Tax Credit is in place until 2016. In the past few years, third party solar leasing companies have offered solar leasing models that allow the customer (both residential and commercial) to pay for solar over time with low or no upfront costs.

There are two types of solar PV: grid-connected and behind the meter (customer-sited). Grid-connected PV is typically 1 MW or greater. There are no large grid-connected solar installations in the Southern Tier and for good reason; New York state in general and the Southern Tier in particular have weak solar resources (with a capacity factor of 11 percent) combined with a light electricity load. The economics do not currently support large-scale solar development in New York. Typically, large-scale solar development is found in the Southwest U.S. and California where the capacity factor is 20-23 percent and there are large swaths of unshaded, inexpensive desert land.

Because of the low capacity factor of solar in the Southern Tier and the sparse population of the region, pursuing solar as a main renewable energy action would not have a great impact on the Southern Tier's overall energy portfolio. However, on an individual household or farm basis where the peak energy demand coincides with the peak energy solar production, and with the NYSERDA incentives mentioned above, solar installations could be economically attractive. According to the NYSERDA PowerClerk tracking system, as of July 1, 2012, there are 189 customer-sited PV systems totaling 1290 kW DC in the Southern Tier Region, with approximately 30 percent in Broome County and 30 percent in Tompkins County.

Solar thermal, on the other hand, could have more impact on lowering GHG emissions and energy costs, especially in situations where the system is replacing oil or electricity to heat water. Solar thermal systems are less expensive than solar PV systems and combined with incentives available can have a faster payback.

Hydropower

Hydropower consists of exploiting the potential energy of moving water from a higher elevation to a lower elevation in order to power machinery or make electricity. Water constantly moves through a vast global cycle, evaporating from lakes and oceans, forming clouds, precipitating as rain or snow, and then flowing back down to the ocean. The energy of this water cycle, which is driven by the sun, can be tapped to produce electricity or for mechanical tasks like grinding grain. Hydropower uses a fuel—water—that is not reduced or used up in the process. Because the water cycle is an endless, constantly recharging system, hydropower is considered a renewable energy.

Currently, according to EIA data, there is one operating dam in the Southern Tier, which is the Cornell 1.9 MW facility. Cornell recently upgraded its hydroelectric facility below Beebe Lake, which is expected to increase that facility's annual production by 20 percent, and Cornell's Lake Source Cooling project uses the deep cold waters of Cayuga Lake to cool Cornell and Ithaca High School. There is potential for more hydropower to be harnessed.⁹

A study by the Oak Ridge National Laboratory provides an estimate of non-powered dams in the Southern Tier and their potential generation capacity.¹⁰ Three usable, non-powered dams currently exist in the region: Cannonsville Dam in Delaware County (16.4 MW); Rockbottom Dam in Broome County (3.5 MW); and Whitney Point Dam in Broome County (4.1 MW). The total potential capacity from retrofitting these three non-powered dams is 24 MW. A map of hydropower potential from these non-powered dams is shown in Figure 5.

Figure 5. Map of Hydropower Potential from Non-Powered Dams, Applicable Dams in Southern Tier Region Selected in Red



A resource assessment by NYSERDA characterizes the additional potential for new small hydropower to be constructed in New York.¹¹ In addition to powering existing non-powered dams, relicensing existing hydropower plants, capacity expansion of existing dams and construction of new dam sites is assessed. The data from this report are not available at the county level, but the statewide potential for additional small hydropower development is significant. The estimated cost per kWh saved from additional hydropower development is \$0.0075, offering a benefit-to-cost ratio of 3.24. The lifetime net benefits of hydropower's share of the least-cost efficiency and renewable achievements toward New York State's 2022 GHG target are approximately \$304 million dollars.

⁹ Tompkins County Comprehensive Plan, Tompkins County Planning Department, 2008

¹⁰ DOE (2012)

¹¹ "Energy Efficiency and Renewable Energy Resource Development Potential in New York State." New York State Energy Research and Development Authority, 2003.

Geothermal

There is currently no economical way to produce electricity from geothermal sources in New York. However, Cornell University is researching an innovative deep rock geothermal technology. Tompkins County is well positioned to benefit from any of these technologies through pilot projects and perhaps spin-off technology businesses. The EIA State Data for New York shows a very small amount of geothermal being used in the residential sector, likely for geothermal heat pumps.¹²

Energy Efficiency

The Southern Tier Region and New York State as a whole have many elements in place to encourage energy efficiency in the region. Several energy efficiency programs of varying scale and scope currently exist in the region, with identifiable goals and quantifiable data; these programs are described in greater detail below. Energy providers are committed to energy efficiency due in part to the New York State Public Service Commission mandate for statewide energy reduction by 2015. Additionally, the Energy Conservation Construction Code of New York State sets stringent energy efficiency requirements on new construction. Broadly speaking, there is an increasing public awareness and popularity of energy efficiency and sustainability in the region. The value of such improvements is reinforced by the region's cold climate and severe winters, which serve as a motivating factor for owners to weatherize and upgrade their buildings.

1.2 Existing Regional Plans and Programs

A variety of plans and programs have been developed both statewide and within the Southern Tier to reduce greenhouse gas emissions from energy consumption, diversify energy generation and increase building energy efficiency. The following presents an overview of some of the key energy-related plans and programs throughout the region. They are organized into either **Regional Plans** or **Energy Efficiency Plans**. The former consists of long-term plans at the city, county, and university level or above to develop policies to reduce their communities' GHG intensity or otherwise foster low-carbon energy development. The latter consists of programs sponsored by utilities, New York State, and other agencies that currently provide residential, commercial, and industrial customers with financial incentives, technical support, and certification to encourage investments in energy efficiency in new and existing buildings.

Regional Plans

Tompkins County Comprehensive Plan Energy and Greenhouse Gas Emissions Element 2008 Amendment

The amendment to the Tompkins County Comprehensive Plan presents a four-pronged approach to reduce community GHG emissions and energy consumption: reduce energy demand, improve energy efficiency, transition to renewable energy sources, and enhance resources that naturally remove carbon from the atmosphere. The amendment includes a variety of policies and action items for improving energy efficiency and better utilizing the region's renewable energy resources.

Renewable energy sources emphasized in the plan include solar, wind and biomass. Abundant resources in the region include biomass and hydropower, which can be utilized to provide distributed heat and power, respectively. The plan also focused on improving energy efficiency in residential, commercial and government buildings—particularly addressing the 40 percent of buildings that were built prior to 1940.

The Plan identified a variety of discrete policies and action steps:

¹² http://205.254.135.7/state/seds/hf.jsp?incfile=sep_use/res/use_res_NY.html&mstate=New%20York

1. Create supportive financing mechanisms and incentives; encourage all new development and renovation including government buildings to be energy efficient and to take advantage of renewable energy systems.
2. Develop local renewable energy resources; conduct an educational campaign on energy issues; develop a plan to address the specific energy needs of low income households.
3. Incorporate energy metrics into overall Tompkins County Comprehensive Plan; adopt and expand local tax incentives for renewable energy.
4. Determine the feasibility of developing a regional consortium of sustainable biomass growers and processors to supply biomass consumers in the region.
5. Develop criteria and identify the sites most appropriate for locating community-scale wind power in Tompkins County.

Tompkins County 2020 Energy Strategy 2010

The *Tompkins County Energy Strategy* identified a number of new local measures to reduce GHG emissions 20 percent below 2008 levels by 2020. It assesses the benefits of these measures in addition to State, Federal, and Higher Education measures. Energy-focused new local measures include:

1. Property Assessed Clean Energy Program: It is envisioned that a PACE program could, through a combination of grants, bonds, and other funding sources, ultimately reduce energy consumption in 23,000 buildings/units over 25 years – including fully half of the County's housing stock.
2. Energy Business Partnership Program to help businesses evaluate energy usage and develop capacity for reducing energy consumption.
3. County Government Energy Policies, including the Facilities Management and Workplace Environment Policy to reduce energy consumption in County buildings.
4. County Facility Energy Improvements, including insulation, lighting retrofits, and solar installation.
5. Biomass for rural heating (see below under biomass for description).
6. District Heating Feasibility Study.
7. Energy Road Map to create an integrated approach to assessing the energy demand and supply for the residential and commercial sectors in the entire County today and in the future.

Additional transportation energy-related measures are included in the plan but not discussed in this chapter.

Energy Climate Action Plan City of Binghamton 2011

This plan is “designed to inspire responsible resource use, energy consumption, waste management, and development of renewable energy technology.” While the Plan addresses a variety of sectors, it includes a number of goals to encourage energy efficiency improvements in existing buildings, strengthen the energy performance of new construction, and encourage investments in renewable energy. A recommendation in the Plan is to coordinate this renewable energy education with the “Greener is Greater Binghamton Challenges” and the Energy Leadership Program. Other action steps include; lowering permitting costs, adopting PACE (if and when it becomes available) and other innovative financing measures.

Cornell University Climate Change Action Plan (CAP) 2011 Update

Cornell's CAP Update includes a number of interesting initiatives and capacities that could contribute to the overall Southern Tier Sustainability Plan. The Plan includes strong investments in energy

conservation and a number of renewable energy deployments. The Plan Update specifically mentions an evaluation underway for a wood biomass energy plant (p.4); upgrades to the hydroelectric plant, hybrid EGS (engineered geothermal systems), biogas, wind power and landfill gas at Geneva campus. With coordination and financial seed money from the David R. Atkinson Center for a Sustainable Future, which received an \$80M endowment commitment in 2010, researchers are focusing on plans for demonstration-scale research activities. These efforts, if commercializable, could have impacts on the economic development of the community at large.

Ithaca College Climate Action Plan (CAP) 2009

Ithaca College's CAP also includes a variety of specific measures to reduce energy consumption and increase renewable energy deployment. Energy efficiency measures include complete metering and control upgrades for all buildings and retro-commissioning of all building. Renewable energy plans including solar hot water heating systems in the near term and wind power as part of a 20 year plan. Both Ithaca College and Cornell include offset programs through voluntary purchases of RECs as part of their plans. More interesting in terms of community impact is a community offset program also mentioned by both institutions.

New York Renewable Fuels Roadmap

This roadmap addresses: biomass feedstock inventory; land uses; transportation and distribution infrastructure; competing uses for biomass; and biofuel conversion technologies.¹³The assessment concludes that New York possesses significant biomass feedstock resources, with approximate 1 million to 1.68 million acres of non-forest land that could be devoted to feedstock production. These feedstocks, if developed, could provide between 4.2 and 14.6 million dry tons of biomass annually and displace between 5.6 percent and 16 percent of New York's estimated 2020 gasoline consumption. In order to realize this potential, the roadmap recommends job training programs to educate the state's workforce in biofuel production, as well as long-term programs to provide cost-certainty to feedstock developers. Lastly, the plan recommends a mix of financial incentives for growers, distributors and refiners to stimulate development.

Energy Efficiency Programs

A number of active programs sponsored by utilities, New York State, and other agencies currently provide residential, commercial, and industrial customers with financial incentives, technical support, and certification to encourage investments in energy efficiency in new and existing buildings. Parties in the region are already utilizing these programs.

NYSEG/RG&E Commercial and Industrial Rebate Program

This is an extensive program that offers both prescriptive and custom rebates directly to owners looking to upgrade to or install new energy efficient equipment, features, or systems on their property. A trade ally (contractor) works directly with the owner in choosing the equipment/systems, and helps process the rebate application. Prescriptive rebates include indoor Lighting, Natural Gas Furnaces, Boilers and Controls, HVAC Chillers, Unitary HVAC, while custom rebates cover Outdoor and LED Lighting, Daylighting, Building Thermal Envelope Upgrades, Energy Efficiency Process Improvements, Geothermal Heating & Cooling, Energy Management Systems, Variable Frequency Drives, Heat Recovery Systems, Compressed Air Equipment, Infrared Radiant Heaters, and Motors. The program serves as an incentive for customers to buy and install energy efficient (beyond code requirements) equipment and products.

¹³ "Renewable Fuels Roadmap and Sustainable Biomass Feedstock Supply for New York." New York State Energy Research and Development Authority, April 2010. Available online: http://www.nyserda.ny.gov/Publications/Research-and-Development/Biomass-Solar-Wind/~media/Files/Publications/Renewable%20Fuels%20Roadmap/report_10_05_Renewable%20Fuels%20Roadmap.ashx

This program will help achieve the New York State Public Service Commission-mandated 15 percent electricity usage reduction and gas savings targets in buildings by 2015.

NYSEG Energy Efficiency Development Program

The NYSEG Energy Efficiency Development Program (EEDP) is a grant program designed to help businesses affected by Hurricane Irene and Tropical Storm Lee get back online. The program involves repair or replacement of electrical and natural gas infrastructure, end-use lighting equipment, lighting, HVAC, pumps, demolition and rebuilding of facilities/buildings, and electric and/or heating contractor's inspection. The main goal of the program is to generate and continue electrical and gas revenue for NYSEG.

LEED Certified Buildings

LEED (Leadership in Energy and Environmental Design) is a rating system overseen by the United States Green Building Council that seeks to achieve high performance in building design, site design, and neighborhood development. The program encourages sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality through multiple rating systems. LEED Rating Systems include New Construction (NC), Existing Buildings Operation and Maintenance, Commercial Interiors, Core & Shell, Schools, Retail, Healthcare, Homes, and Neighborhood Development. Owners of buildings that achieve LEED Certification are awarded through local and national recognition (LEED Certification plaque and listing) as well as overall energy savings, while the design team also gains positive recognition. There are currently 25 LEED Certified projects in the Southern Tier, a majority of them LEED NC. In addition, there are a significant number of projects in the region registered for LEED Certification.

ENERGY STAR for Homes

This program is a certification system for new homes that are significantly more energy efficient than standard construction in the marketplace. In order to achieve the ENERGY STAR Certification, a home must pass specific prescriptive and performance path requirements for Thermal Enclosure, HVAC, and Water Management Systems. During construction, a participating New York ENERGY STAR Homes HERS (Home Energy Rating System) Rater evaluates the overall energy efficiency of a home based on its insulation levels, heating and cooling system efficiency, airtightness, windows, appliances and lighting. Gathered data is input into a software system to rate the building (under the HERS Index/Energy Performance Rating) and determine if it passes certification. The Energy Performance Rating is a standardized national benchmark that helps architects and building owners assess energy use relative to similar buildings.

ENERGY STAR for Commercial Buildings

This program is similar to ENERGY STAR for Homes, except that it sets different prescriptive and performance path requirements for Thermal Enclosure, HVAC, and Water Management Systems. As with ENERGY STAR for Homes, it is rated under the HERS Index/Energy Performance Rating, and is subject to the same type construction inspections by a HERS Rater.

Passive House

Passive House is an international program with a very aggressive goal of reducing the heating energy consumption of buildings by 90 percent. With such a high standard for energy efficiency (thought to be the most stringent energy efficiency standard in the world), this program virtually excludes existing buildings. Passive House focuses on the design of a well-insulated, virtually air-tight building that is primarily heated by passive solar gain and by internal gains from people, electrical equipment, etc. Energy losses are minimized. Any remaining heat demand is provided by an extremely small source.

Though there is no direct financial incentive for homeowners, they gain from the significant equipment and energy cost reduction over the lifespan of the building.

There are currently no certified Passive House projects in the Southern Tier. However, EcoVillage at Ithaca, a cohousing community, is now building its third neighborhood, called TREE. Already the largest concentration of energy efficient homes in Tompkins County, EcoVillage intends to build as many of the homes in TREE as possible to the Passive House standard.

NYSERDA Existing Facilities Program

The Existing Facilities Program offers fixed incentives for smaller-scale lighting, HVAC, commercial refrigeration, commercial kitchen, gas equipment and other categories, and custom incentives for larger-scale electric, natural gas, energy storage, demand response and other projects.

NYSERDA FlexTech Program

NYSERDA's FlexTech Program provides New York State commercial, industrial, institutional, government, and not-for-profit sectors with objective and customized information to help customers make informed energy decisions. FlexTech's goal is to increase productivity and economic competitiveness of participating facilities by identifying and encouraging the implementation of cost-effective energy efficiency, technical evaluations, process improvement analysis, energy master plans, retro-commissioning, and development of peak load curtailment plans (PLCPs) as well as combined heat & power (CHP) projects. By participating in the program, owners can offset the cost of energy improvements in their existing commercial facilities.

NYSERDA Industrial & Process Efficiency Program

NYSERDA's Industrial and Process Efficiency (IPE) Program provides performance-based incentives to manufacturers and data centers implementing energy efficiency and process improvements which will reduce your costs. IPE's goal is to help manufacturers and data centers increase product output and data processing as efficiently as possible. Incentives are calculated, when appropriate, based on a reduction in energy usage per unit of production or workload. Incentives are available for new construction and existing facilities using either electricity or natural gas.

NYSERDA New Construction Program (and Substantial Renovation)

This program provides technical assistance, and financial and bonus incentives for the purchase and installation of energy-efficient equipment in new buildings that incorporate energy-efficiency measures into their design, construction, and operation.

NYSERDA Multifamily Building Performance Program

This program offers energy savings measures for new construction and existing buildings of four or more floors containing five or more dwelling units. Homeowners and renters can reduce their energy costs through cash incentives and low-interest loans for energy savings measures such as insulation, duct sealing, HVAC and lighting. The main goal of the program is to help achieve the New York State Public Service Commission-mandated 15 percent electricity usage reduction and gas savings targets in buildings by 2015.

NYSERDA Home Performance with ENERGY STAR Program

This program encourages renovations to existing homes through a reduced-cost or free comprehensive, whole-house energy assessment (energy audit), and low-cost financing.

NYSERDA Assisted Home Performance with ENERGY STAR

Under this program, New York State households with a total income equal to or less than 80 percent of the Uniformity with State or Area Median Income may receive additional financial incentives to improve

the energy efficiency of their home. Income-eligible households can receive a subsidy representing up to 50 percent of an approved energy efficiency project.

NYSERDA EmPower New York

The EmPower program has provided more than 61,000 income-eligible New Yorkers with insulation, draft reduction, high efficiency lighting, or appliance upgrades at no cost. Residents have also learned to reduce their energy bills further by changing the ways they use energy in their homes.

NYSERDA Low-Income Home Energy Assistance Program (HEAP)

Administered by the New York State Office of Temporary and Disability Assistance (OTDA), HEAP provides financial assistance to eligible households to help pay for their home heating costs. To be eligible, a household must meet income guidelines; 60 percent of the State Median Income or below,¹⁴ and either pay directly for heating costs or pay rent that includes heating costs.

NYSERDA Weatherization Assistance Program (WAP)

Administered by the New York State Homes and Community Renewal (HCR), WAP assists income-eligible families and individuals¹⁵ by reducing their heating/cooling costs and improving the safety of their homes through energy efficiency measures. Both single family and multifamily buildings are eligible. Program services are available to both homeowners and renters, with priority given to senior citizens, families with children and persons with disabilities.

NYSERDA Hurricane Irene and Tropical Storm Lee Disaster Assistance

Funding of up to \$6,000 per applicant is available to qualified New York State residents to help repair and replace heating equipment and systems damaged as a result of Hurricane Irene and Tropical Storm Lee. Assistance is limited to single family homes and duplexes of specific income and with liquid resources not exceeding \$5,000. Through this program, New York State Homes and Community Renewal (HCR) contracts with experienced local providers to do the work.

¹⁴ "Heap Programs." Office of Temporary and Disability Assistance, New York State. Available online: <http://otda.ny.gov/programs/heap/program.asp#income>

¹⁵ "Weatherization Assistance Program (WAP)." New York State Homes and Community Renewal. Available online: <http://www.nyshcr.org/Programs/WeatherizationAssistance/>

2 Transportation

This topic area covers energy consumption, infrastructure, and availability of both commercial and public services within the transportation sector.

Challenges

- Low congestion levels on area roads are conducive to single occupancy vehicle trips, limiting inherent incentives for using alternative modes of transportation.
- Low population density in the region's rural areas and urban areas with declining populations prevent deployment of cost-effective transit service, and limit demand for pedestrian and bicycle infrastructure.
- Growing population of elderly residents and increasing popularity of "aging in place" will require expanded transit programs that serve the elderly, which could result in diminished capacity and resources to provide other transportation services.
- In parts of the Southern Tier, established land use patterns and infrastructure are oriented toward automobile use, not walking, biking or transit. A wide variety of adopted land use and transportation plans highlight the need to revise land use codes to better support alternative modes of transportation.
- Current and projected fiscal constraints present challenges to implementing new transportation initiatives which cost money. Without public understanding of the true costs of all modes of transportation, support for spending public resources on alternative transportation may be weak.
- Many external factors that influence transportation choice, such as gas prices, vehicle fuel economy, and innovation in vehicle fuel technology, are beyond the control of Southern Tier decision makers.

DRAFT

Opportunities

- The existing road network meets most of the region's transportation needs and is in reasonably good condition. Aside from routine road maintenance needs, transportation spending does not need to be solely devoted to road construction and repair and can focus on investments to the region's multimodal system and reducing transportation emissions.
- Area colleges and universities are actively working to reduce vehicle use by students and staff. These institutions are leaders in enhancing the region's multimodal transportation system. They also provide expertise on sustainability and transportation, provide resources, and support transportation services.
- Residents and community leaders have strong interest in revitalizing existing downtowns, villages, and hamlets, and providing incentives for mixed-use infill development. Redevelopment of these areas holds potential for increasing density and activity in these hubs, and increasing demand for alternative modes of transportation.
- There are trail initiatives and a strong interest in expanding walking/biking infrastructure, as indicated by the development of several trail plans and walking and biking studies, such as the Binghamton Greenway Plan (1999) and the Delaware County Trail Initiative. Portions of existing and planned recreational trails could facilitate commuting and non-work trips within the region.
- Local climate action plans, developed by the City of Binghamton, Tompkins County, City and Town of Ithaca, Cornell, Ithaca College, and Binghamton University, and others offer direction for efforts to achieve greenhouse gas emissions reduction goals.
- Nearly a quarter (24 percent) of the region's commuters carpool, use transit, bike, walk, or work from home. However, there is a large variation between counties. Tompkins County has a particularly high non-single occupancy vehicle mode share at 43 percent, identified in one analysis as the second-highest biking and walking mode share in the country, after New York City.^{16 17} The remaining counties in the Southern Tier range from 17 to 27 percent in their non-single occupancy vehicle mode share. This demonstrates significant potential for the larger region, particularly in densely populated areas.¹⁸
- The region is home to several innovative transportation programs, including BMTS and Ithaca Carshare programs and the Zimride ridesharing website. Tompkins County's Way2Go program offers an online resource for the region's transportation options and assistance to underserved populations in navigating transportation services in the Southern Tier.
- The region's transportation planners have a good working relationship and a regional transportation study is underway that includes a significant portion of the Southern Tier.

2.1 Overview of Regional Transportation Network

The Southern Tier's transportation system includes portions of four interstate highways, multiple freight rail lines, public transit systems, and a wide variety of human service transportation organizations. The region's interstates run both east-west (I-390, I-88, and I-86) and north-south (I-81). The interstates pass through six of the eight counties in the region, with Tompkins and Schuyler Counties having only State roads. The heaviest traffic occurs in the Binghamton area where I-86, I-88, and I-81 intersect. New York

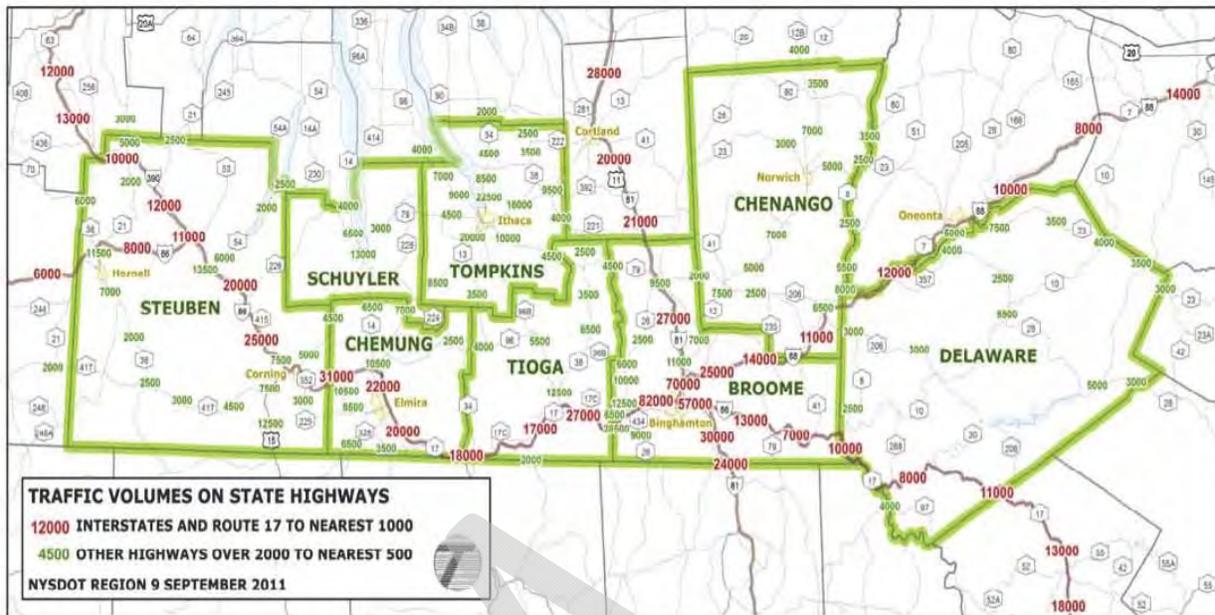
¹⁶ "Active Transportation Beyond Urban Centers: Walking and Bicycling in Small Towns and Rural America," Rails to Trails Conservancy, January 2012, Available online: <http://www.railstotrails.org/ourWork/reports/beyondurbancenters.html> p. 13.

¹⁷ "Active Transportation Beyond Urban Centers: Walking and Bicycling in Small Towns and Rural America," Rails to Trails Conservancy, January 2012, Available online: <http://www.railstotrails.org/ourWork/reports/beyondurbancenters.html> p. 13.

¹⁸ U.S. Census Bureau American Factfinder, *Table B018301: Journey to Work, American Community Survey 5-year Estimates for 2006 – 2010*. Retrieved July 18, 2012 from <http://factfinder2.census.gov>.

statewide forecasts of VMT predict an approximate increase of 1.1 percent per year between 2005 and 2030

Figure 6. Regional Highway System and Traffic Volumes¹⁹

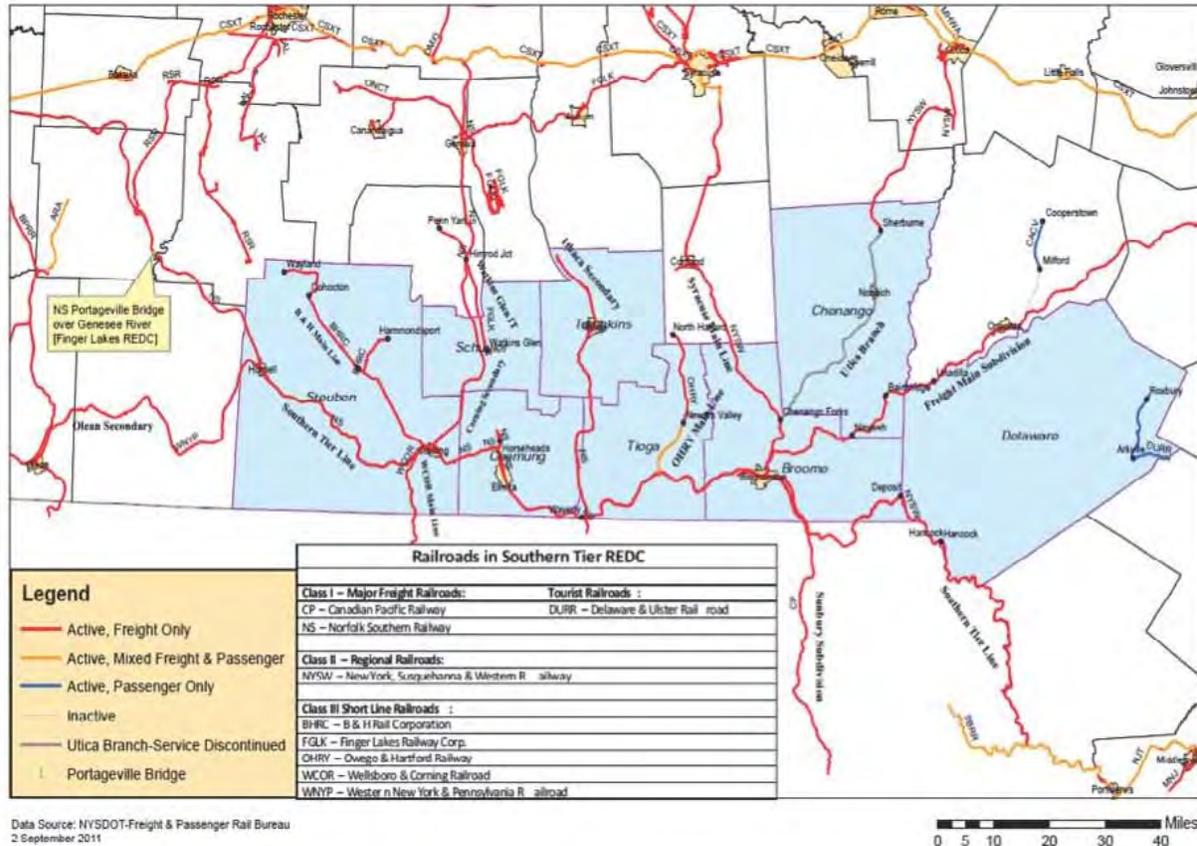


The region has three primary rail routes – a north-south route on Canadian Pacific Railway between Schenectady and Binghamton, and two east-west routes, one from Buffalo to Binghamton and the other continuing from Binghamton to Saratoga Springs and Mechanicville. The only major rail yard facilities are located in the Binghamton area, and the region is the only in the state without passenger rail. Additionally, the State has identified tens of millions of dollars needed for railway investment in the coming years.²⁰ While freight forecasts from two of the region’s MPOs do not forecast congestion impacts from projected increases in freight traffic (Ithaca-Tompkins Transportation Council and Binghamton Metropolitan Transportation Study), more recent estimates from the Regional Economic Development Council suggests that extraction of natural gas could put pressure on the existing system and require upgrades. A map of the existing rail system is provided in Figure 7.

¹⁹ “Strategic Economic Development Plan: 2011 – 2016,” Regional Economic Development Council of the Southern Tier, 2011, p. 189.

²⁰ “Strategic Economic Development Plan: 2011 – 2016,” Regional Economic Development Council of the Southern Tier, 2011, p. 12.

Figure 7. Southern Tier Railroads²¹



Data Source: NYSDOT-Freight & Passenger Rail Bureau
2 September 2011

Source, New York State Department of Transportation, Freight & Passenger Rail Bureau, 2 September 2011

Transit in the Southern Tier is provided primarily at the county level, with the largest systems provided in Binghamton and Ithaca. These systems provide fixed route bus service to their downtowns in addition to some intercity, demand response, and rural services. Universities also provide some fixed route bus service for students. These transit agencies are supplemented by a number of non-profit and private providers serving a limited number of routes or focused on medical transportation. See Table 4.

Table 4. Southern Tier Transit Service

Agency	Service Area	Service Provided	2010 Ridership ²² (unlinked trips)
County Systems			

²¹ “Strategic Economic Development Plan: 2011 – 2016,” Regional Economic Development Council of the Southern Tier, 2011, p. 188.

²² . “Table 19 – Operating Statics and Service” National Transit Database, Federal Transit Administration, 2010. Available online: http://www.ntdprogram.gov/ntdprogram/dabase/2010_database/NTDdatabase.htm

Broome County Transit (BC Transit)	Broome County	Bus service, BC Lift (paratransit), BC Country (Rural shared ride by reservation), Minibus service through the Office of Aging	3,000,000
Chemung County Transit System (CCTS)	Chemung, Tompkins (partial), and Pennsylvania (Sayre)	13 fixed routes including intercity service to Ithaca, Corning, and Sayre. Route Deviation provided on local routes.	686,000
Tioga County Transit (Ride Tioga)	Tioga, Tompkins, Broome, Pennsylvania	Scheduled bus service, dial-a-ride, and route deviation. Intercity service provided to Ithaca, Dryden, Waverly/Sayre, and Vestal.	70,000
Tompkins Consolidated Area Transit (T-CAT)	Tompkins County	Fixed route bus service, paratransit, and Gadabout service for older and disabled residents.	3,640,000
Local Systems			
Corning Erwin Area Transit System	Corning and surrounding area.	Fixed route with route deviation and free Corning Museum of Glass shuttle.	Not Available
Hornell Area Transit System (HAT)	Hornell and surrounding villages	Fixed route with route deviation and demand response. Serves Almond, Alfred, Bath, Canisteo, and Wayland.	Not Available
Universities			
Binghamton University Off Campus Transport	Campus and downtown Binghamton	Fixed route service around campus as well as to downtown areas. Drivers are students	Not Available
SUNY Morrisville MAX Shuttle Service	Campus, Oneida, Hamilton, and Utica.	Regular campus shuttles, scheduled shop-n-ride shuttles to area retailers	Not Available

Multi-use Trails and Bicycle Routes

The Southern Tier has a large number of hiking, multi-use, and biking trails or routes. While some of these are within state parks, a number connect destinations within or between counties. Several counties also have county-specific trail plans that anticipate expanding these networks in the near future.

The region also has several state designated bicycle routes: Bike Route 17 runs along I-86, Bike Route 11 runs north from Binghamton up to the New York border with Quebec, and Bike Route 14 extends north from Elmira to the shores of Ontario. Apart from a few off-road portions, each of these is a designated shared roadway, as shown in Figure 8.

Figure 8. State Bike Routes in the Southern Tier²³

Regional Travel Patterns, VMT, and Mode Share

Travel patterns and mode share varies significantly across the region's eight counties, reflecting different land uses and population characteristics. Region-wide, about 76 percent of commuters drive alone to work, with individual counties ranging from 57 percent driving alone in Tompkins to 83 percent in Tioga and Chemung counties. Those who do not drive alone tend to carpool, with much smaller numbers working from home, taking transit, walking, or biking to reach their destinations.²⁴

Travel patterns in the region appear to be driven by the major employment centers in Broome, Tompkins, and Chemung counties. The vast majority of workers in these counties work in their home county, while residents of Schuyler and Tioga, for example, leave their counties at much higher rates, presumably to reach jobs in Binghamton, Ithaca, or Corning-Elmira (See Table 5; where available, information on the out-of-county destinations is provided).

²³ "Bicycling in New York," New York State DOT. Available online: <https://www.dot.ny.gov/display/programs/bicycle/maps>.

²⁴ "Table B018301: Journey to Work, American Community Survey 5-year Estimates for 2006 – 2010." U.S. Census Bureau American Factfinder. Available online: <http://factfinder2.census.gov>.

Table 5. Proportion of Workers Who Work in the County Where They Live²⁵

County	Percentage Staying in County	Percentage Leaving County	Primary Commuter Destinations*
Broome	90%	9%	<ul style="list-style-type: none"> • Tioga (3,000 in 2008*), • Chenango** • Delaware County (2000 census)**
Chemung	78%	19%	<ul style="list-style-type: none"> • Steuben (3,400 in 2008) • Tompkins (1,245 in 2008) • Tioga (450 in 2008)
Chenango	68%	31%	<ul style="list-style-type: none"> • Broome (2,100 in 2008)
Delaware	70%	27%	<ul style="list-style-type: none"> • Broome (645 in 2008) • Otsego (2000)**
Schuyler	44%	54%	<i>No Data Available.</i>
Steuben	77%	21%	<ul style="list-style-type: none"> • Chemung (3,700 in 2008), • Tompkins (280 in 2008).
Tioga	44%	49%	<ul style="list-style-type: none"> • Broome County (6,650 in 2008), • Tompkins County (3,100 in 2008) • Chemung (1,100 in 2008) • Pennsylvania**
Tompkins	90%	9%	<ul style="list-style-type: none"> • Cortland County** • Limited number to surrounding counties.

* Data on travel patterns provided through the Ithaca-Tompkins County Transportation Council.

** Data on travel patterns from the U.S. Census as reported in "Regional Interchange Study," Southern Tier East Regional Planning Development Board, 2011.

As shown in Table 5, several counties in the Southern Tier have strong two- or one-way commuter relationships. For example, the following counties appear to have some level of bi-directional travel (more than 1,000 people each direction in 2008):

- Broome and Tioga,
- Broome and Chenango,
- Broome and Delaware,
- Chemung and Steuben.

Very few inter-county commute trips appear to be made by transit, although four percent of those arriving in Tompkins from Chemung take a bus, and one percent of those arriving in Tompkins from Tioga do as well. It is important to note, however, that data was not available to cover all eight counties and so important travel patterns may be missing. Additionally, several counties appear to have strong commuter relationships with other surrounding counties not included in the Southern Tier.

As shown in Table 6, Regional VMT per capita is estimated to be 10,688 miles per year, about a thousand miles higher than the national average (estimated as 9,620 in 2009²⁶). This means that the average Southern Tier resident drives approximately 29 miles per day. The highest VMT per capita is found in Delaware, Steuben, and Tioga counties – predominantly rural counties, while the lowest VMT per

²⁵ "Table B018301: Journey to Work, American Community Survey 5-year Estimates for 2006 – 2010." U.S. Census Bureau American Factfinder. Available online: <http://factfinder2.census.gov>.

²⁶ "Table 5-1: Highway Vehicle-Miles Traveled: 2004 and 2009." Bureau of Transportation Statistics, State Transportation Statistics, 2010, Available online: http://www.bts.gov/publications/state_transportation_statistics/state_transportation_statistics_2010/html/table_05_03.html.

capita is in Tompkins County. VMT in most counties overall corresponds to that county’s share of the regional population, with Tompkins County’s making up less than its share, and Steuben and Delaware slightly more.

Table 6. VMT by County in the Southern Tier

Geography	Daily VMT	Daily VMT per Capita	Yearly VMT	Yearly VMT per Capita	County Percent of Regional VMT	County Percent of Regional Population
Regional	18,921,945	29.3	6,906,510,071	10,688	100%	100%
Broome	5,879,343	30.2	2,145,960,148	11,026	31%	30%
Chemung	2,289,158	25.9	835,542,612	9,459	12%	14%
Chenango	1,398,917	27.6	510,604,829	10,087	7%	8%
Delaware	1,609,899	35.4	587,612,953	12,911	9%	7%
Schuyler	593,052	31.7	216,463,973	11,563	3%	3%
Steuben	3,418,953	35.4	1,247,917,755	12,925	18%	15%
Tioga	1,698,615	33.9	619,994,357	12,384	9%	8%
Tompkins	2,034,009	20.0	742,413,444	7,294	11%	16%

2.2 Existing Regional Plans and Programs

Given transportation’s critical economic, social, and environmental impacts, a large number of plans and programs in the Southern Tier address it in some way. In addition to the Federally-mandated long range plans and the Coordinated Public Transit/Human Services Transportation Plans, corridor studies, bicycle and pedestrian plans, town and village comprehensive plans, and climate action plans (CAPs) throughout the region all address transportation and outline priorities or needs.

The following presents an overview of some of the key transportation-related plans and programs throughout the region. They are organized as follows:

- Long Range Plans
- Comprehensive Economic Development Strategies
- Climate Action Plans
- Bicycle, Pedestrian, and Multi-use Trails
- Coordinated Public Transportation and Human Services Plans
- Corridor Studies, Area Studies, and Comprehensive Plans
- Freight Studies and Plans
- Additional Relevant Plans
- Innovative Programs

Long Range Plans

There are three MPOs in the Southern Tier – Binghamton Metropolitan Transportation Study (BMTS), Elmira-Chemung Transportation Council (ECTC), and Ithaca-Tompkins County Transportation Council (ITCTC). Each of these MPOs has completed a long range plan in the past three years with planning horizons of 2030 or 2035. The need to preserve and invest in existing infrastructure emerges as a common element across all three plans. In Tompkins County, this is reflected in the concept of “Sustainable Accessibility,” and priority actions include expanding multimodal mobility options (for transit, bicycle, pedestrian, and ridesharing) and studying regional transportation options for long-distance

commuters. Binghamton's recent long range plan commits to "moving inward" – channeling investment to the existing system and improving bike and pedestrian options (including updating the 1996 bicycle and pedestrian plan), improved bicycle/pedestrian access, and freight efficiency. It also considers opportunities to consolidate Broome County Transit and Off-Campus College Transport provided to Binghamton University students and staff. ECTC's plan does include some construction around primary intersections and support of the Interstate 86 conversion. However, the majority of the actions focus on providing bicycle and pedestrian-supportive infrastructure (such as through a multi-use trail network) and ways to improve system operations and asset management.

While the plans share a commitment to investments in existing infrastructure and supporting bicycle and pedestrian infrastructure, the challenges that each MPO is addressing and their existing assets reflect key differences in the economic situations of each area. Elmira and Binghamton are both confronting aging populations and some population loss, whereas Ithaca's downtown population has increased by 11 percent over the past decade.

Comprehensive Economic Development Strategies

Each of the Regional Planning Development Board's covering counties in the Southern Tier has a Comprehensive Economic Development Strategy (CEDS). In addition to providing important data and insight into the current status of the regional economy and infrastructure, these plans include goals related to transportation efficiency, livability, and sustainability. The Southern Tier East RPDB's goals for 2012 include a feasibility study for an inland port and continued participation in the I-86 coalition and the BMTS. The Southern Tier Central RPDB's goals include reducing the costs of transportation to increase efficiency and maximizing the quality of life and livability for residents and visitors. As part of its transportation goal, the RPDB plans to assist localities in analyzing the regional transportation network, promoting rail development, upgrading existing roads, and maximizing human-powered transportation options within the region.

Coordinated Public Transportation and Human Services Plans

The Federal Transit Administration (FTA) requires locally-developed coordinated public transit-human services transportation plans to coordinate transportation services for the elderly, low-income, and those with disabilities. The following coordinated plans have been identified in the Southern Tier Region:

- *BMTS Coordinated Public Transit-Human Services Transportation Plan (2007)*
- *Chemung County Coordinated Public Transit-Human Services Transportation Plan (2012)*
- *Delaware County Coordinated Public Transit-Human Services Transportation Plan (2011)*
- *Steuben Coordinated Public Transit-Human Services Transportation Plan (2012)*
- *Tompkins County (Interim) Coordinated Public Transit-Human Services Transportation Plan (2007)*

The plans cover almost the entire Southern Tier Region; the BMTS plan includes Tioga County and Steuben's includes Schuyler County. Chenango's plan is currently under development and represents the only gap. These plans highlight the differences between the counties in terms of resources and existing transit systems. For example, Chemung hired its first mobility manager in 2007, and about half of its transit ridership makes less than \$15,000 per year; the majority of Steuben's residents do not have access to transit (even with allowed fixed route deviations taken into account); and Delaware County, which does not have public transit service proposes creating a coordinated transportation system for the first time in 2011. By contrast, Tompkins and Broome counties both have relatively robust transit systems with dedicated paratransit providers. As all portions of the region confront an aging population who will likely face mobility challenges in the coming years, these plans all express a need to ensure that these

needs are met by coordinating the many private, non-profit, and charity services available across their various jurisdictions.

Corridor Studies, Area Studies, and Comprehensive Plans

In addition to the MPO long range plans, cities and towns across the region have created their own comprehensive plans and corridor or area studies focusing on needs of smaller geographic areas. These plans vary in the degree to which they focus on transportation issues, although they all include it. Transportation components typically focusing on transit needs and the possibility of adding bike and pedestrian infrastructure. The main plans are:

- *BMTS Front Street Gateway Plan* (2008)
- *Corning City-Wide Action Plan* (Year Unknown)
- *Downtown Ithaca 2020 Strategic Plan* (2010)
- *Statewide I-86 Coalition – I-86 Public Benefits Study* (Year unknown)
- *Steuben County and Three Rivers Development Foundation – Economic Development Blueprint for the Interstate 86/99 Corridor* (2009)
- *Tioga County Strategic Plan* (2005)
- *Tompkins County Comprehensive Plan* (2004)
- *Tompkins County – Northside Waterfront Access and Circulation Study* (2008)
- *Tompkins County – NYS Route 13/366 Corridor management Plan* (2008)
- *Tompkins County – Route 96 Corridor Management Study* (2010)
- *Town and Village Comprehensive Plans* – Hornell, Lisle, Conklin, Fenton, Triangle, and others.

The corridor studies directly address transportation needs along the corridors directly and Ithaca's Downtown Strategic Plan calls for new downtown transit options, whereas comprehensive plans in the smaller villages and towns seem to reflect overall satisfaction with the existing transportation infrastructure and suggest few improvements. For example, results from Tioga County's community meetings for its strategic plan generated ten categories of actions, none of which included transportation.

Freight Studies and Plans

Both Binghamton and Tompkins County have analyzed current and anticipated goods flows through the region. The studies both demonstrate that the vast majority of freight coming through the region is transported by truck with only a small portion transported by rail. The volume of traffic through Tompkins County does not appear to be anticipated to increase dramatically, and the Tompkins County study recommends identifying preferred truck routes to reduce the impact of large trucks on local roads in downtown Ithaca. Broome County does anticipate increases in traffic associated with the conversion of I-86, with a total growth of about 63 percent in truck and rail traffic forecast between 2004 and 2030. However, these are not anticipated to cause bottlenecks in the region. Both reports also express an interest in increasing the use of rail – Broome County is interested in working with private rail companies and Tompkins County would also like to expand rail shipping as rail cars can carry much more per car than trucks – thereby reducing truck traffic. Additionally, a 2001 report by the Southern Tier East RPDB explored the idea of an inland port in Binghamton but the report was inconclusive as to whether the investment would be justified. The subsequent Binghamton Regional Freight study also addressed the possibility of an inland port or new intermodal terminal in the Binghamton area.

Bicycle, Pedestrian, and Multi-use Trail Plans

With considerable natural amenities, many of the municipalities and counties in the Southern Tier are interested in ways to encourage walking, biking, and particularly the development of trail networks to take advantage of existing waterfronts and other natural features. These plans and studies include:

- *The Ithaca Neighborhood Greenways Plan* (2011) and related *City of Ithaca Bike Boulevard Plan* (2012)
- *Binghamton Greenways Plan* (1999) and *Binghamton Greenways Implementation Strategy* (2000)
- *Tompkins County Northside Waterfront Access and Circulation Study Draft* (2008)
- *Tompkins County Walkability Assessment Methodology and Case Study* (2007)
- *Tompkins County Pedestrian Facilities Inventory Data Report* (2002)
- *Tompkins County Trails and Corridor Study* (1996)
- *BMTS Pedestrian and Bicycle Plan* (1996)

While the comprehensive bike and pedestrian plans were originally written over a decade ago, the current long range plans across the region continue to reference them and call for updates. Additionally, New York State recently passed a Complete Streets law requiring that those implementing projects under New York State DOT oversight “consider the convenient access and mobility on the road network by all users of all ages, including motorists, pedestrians, bicyclists, and public transportation users.”²⁷ The New York State Office of Parks, Recreation and Historic Preservation is also completing the Black Diamond Trail to connect several of Tompkins County’s state parks to downtown Ithaca.

Climate Action Plans

Tompkins County, the City of Binghamton, and multiple universities (Cornell, Binghamton University, and Ithaca College) have each completed their own climate action plans (CAPs). Each of these assigns a specific amount of CO₂ emissions reduction to the transportation sector. Since none of the responsible entities are able to directly influence fuel economy of vehicles, proposed strategies focus on reducing VMT through transportation demand management (TDM) programs (particularly ridesharing and encouraging biking and walking), increased transit service, and through greater coordination of land use and transportation planning. Each of the governments involved also commits to greening their fleets and doing what they can to help promote and facilitate transitions to less carbon-intensive propulsion technologies for vehicles. Of note, the Cornell and Tompkins County CAPs have been coordinated so that reductions planned within the County take those planned at Cornell into account. Tompkins County also calculated the shifts in mode share required to meet its reduction objectives, and the plan calls for a 40 percent reduction in drive-alone commute trips by 2030.

New York State has also released an interim report as part of its Climate Action Planning process that is underway. This plan includes increased vehicle efficiency standards and incentives/disincentives to encourage consumers to choose more climate-friendly vehicles. If these policies are implemented, they could further support the actions currently planned in the Southern Tier to reduce transportation emissions.

Additional Relevant Plans

In addition to those categorized above, the following plans have implications for the region’s future transportation system:

- ***Regional Economic Development Council Strategy (2011)***: The plan calls for a “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

²⁷ New York State S. 05411A – Enables Safe Access to public roads for all users by utilizing complete street design principles. From “5411—A.” New York State Assembly, May 18, 2011. Available online: http://assembly.state.ny.us/leg/?default_fld=&bn=S05411&term=&Summary=Y&Actions=Y&Text=Y

existing transportation industry into a technological hub for next generation transportation development. The focus is on developing technology for MTA and other contracts in future years and creating jobs. The plan also notes that NYSDOT's statewide rail plan identifies tens of millions needed for short line freight operations in the region.

- **Southern Tier East Regional Planning Development Board *Regional Interchange Study (2011)***: This study examines the I-88, I-86, and I-90 interchanges in Broome, Chenango, Cortland, Delaware, Otsego, Schoharie, and Tioga Counties. Interstate miles in these counties make up only about 2 percent of the road miles in the region. Of the counties covered by the study that are in the Southern Tier, the study provides the percentage of residents with access to the interstate highways: Broome (94%), Delaware (28%) and Tioga (62%). It also describes the traffic volumes at the interchanges and improvements planned in the area. The largest of these will be reconstructing the I-86 and I-81 junction in Binghamton.
- **Southern Tier East Regional Planning Development Board's *Insights into the Economy of the Southern Tier East Region (2011)***: This report focuses on defining and identifying regional industry clusters, showing the impact of various industries on the region, and evaluating the implications for future development. In doing so, the report also profiles the status of regional transportation infrastructure as it relates to freight.
- ***Schuyler County Transit Needs Assessment (2007)***: The study suggests potential routes and timetables to realign service to better meet resident needs, including introducing flex route service and a carpooling program. Concerns from residents include that basic transit is insufficient for those making long distance trips.
- ***Park and Ride Options White Paper* and *Tompkins County/Cornell Employee Commuter Survey (2004 & 2006)***: ITCTC prepared a white paper on potential park and ride sites in Tompkins County and performed an accompanying survey to assess whether area residents would consider using these facilities were they provided. The survey found that about two thirds of commuters would consider taking transit if concerns with transit were addressed.

Innovative Programs

In addition to the main transit providers in the region, the following programs serve residents of the Southern Tier:

- **511NY Rideshare Southern Tier**: A pilot project through NYSDOT is examining ways to integrate upstate ridesharing with the current downstate 511NY Rideshare system using the same online ridematching platform.
- **Ithaca Carshare**: Ithaca Carshare is Ithaca's non-profit carsharing organization, which launched in 2008. The fleet includes 16 cars – 13 hatchbacks, one pick-up, one minivan, and one Scion xB. It currently has over 1,000 members. Its board of directors includes representatives of the City, County, and Cornell University.
- **Way2Go**: Way2Go is both a website and education program that aims to increase public understanding of existing transportation options and to foster public dialogue in order to improve transportation equity and sustainability. It is funded through the FTA Job Access and Reverse Commute Program.
- **Zimride**: Zimride Tompkins provides ridesharing networks for the Tompkins County community, Cornell, Ithaca College, and TC3 (area community college). Ithaca Carshare and Zimride cross-promote when booking. Zimride Tompkins was launched in 2011 (The Tompkins Rideshare Coalition received a NYSERDA grant in 2009 to support three years of implementation).

3 Land Use and Livable Communities

This section focuses on the confluence of society and the built environment, encompassing demographic change, land use, availability of housing and economic opportunity.

Challenges

- The population of downtown and main street areas in many Southern Tier cities, villages, and hamlets is decreasing, while there is a significant proportion of outmigration to peripheral areas. This trend works against regional goals to enhance economic and social activities in the Southern Tier's six cities and many historic villages.
- The housing stock in the region is aging, and much of it is in poor condition; over 40 percent of housing units in the Southern Tier were built before 1939 and many are in substandard condition. Residents do not have access to the resources that are needed to improve the quality of their housing.
- Vacancy and abandonment continue to pose significant challenges to cities, towns, and villages.
- A large portion of Southern Tier residents spend more than 30 percent of their income on housing, and those of limited means often have difficulty finding housing in the communities in which they would like to live. This has placed the extra burden of long commutes on many households. In addition, households earning less than 60 percent of the area median income have the greatest challenges finding adequate affordable housing.
- The senior population is growing rapidly in the Southern Tier, and these residents will need additional housing and transportation options in order to age in place and stay healthy.
- National trends in housing choices suggest that younger, well-educated residents are helping to revitalize older, downtown communities. Unfortunately, in the Southern Tier, economic opportunities are limited and this demographic is generally leaving the region, thus challenging redevelopment efforts.
- Challenges in rebuilding from Hurricane Irene in 2011 and flood damage persist. The storms destroyed 1,500 businesses; flooding damaged nearly 11,000 homes, resulting in total damages of over \$560 million.
- Many Southern Tier residents have poor health outcomes. Obesity rates and associated illnesses are especially high in the region and impose significant monetary and quality of life costs on residents. According to a 2009 report, nearly seven in ten adults in Steuben, Schuyler, Chemung, Tioga, Chenango, and Broome counties were overweight or obese – a proportion higher than the national average of 63 percent. Obesity in these six counties resulted in annual medical costs of approximately \$174 million, or approximately \$442 per adult resident – one of the highest rates in the state.

Opportunities

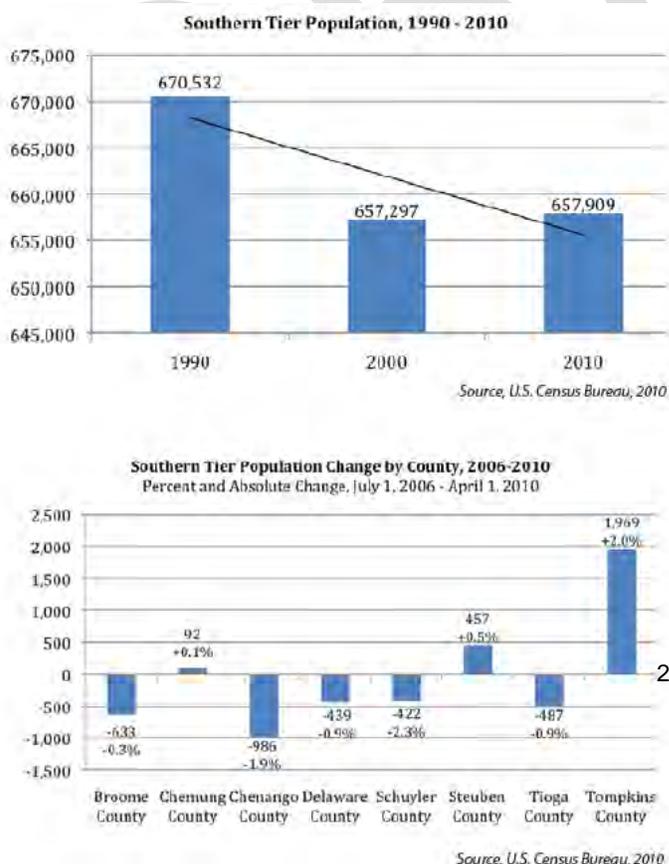
- Support and highlight the historical and architectural assets of the region. Many cities and towns have attractive storefronts and Victorian and Greek-Revival style homes that have a variety of residential and commercial uses. These can serve as a basis for revitalization and draw visitors to the area.
- Build on the New York State Land Bank Law and other efforts to remove regulatory and economic barriers to infill development that will strengthen existing core business and commercial areas.
- Expand efforts to support senior living standards, such as the proposed Tompkins County West Hill senior living development adjacent to Cayuga Medical Center, and Main Street programs that recognize and accommodate the needs of seniors and enhance community revitalization.
- Meet the demand, especially on behalf of young workers, to live and work in walkable, compact neighborhoods, which studies have shown increase economic activity.
- Build on the successes of projects such as Ithaca Neighborhood Housing Service's

- Breckenridge Place to increase the development of affordable housing in efficient locations.
- Use design standards to better incorporate affordable housing into single-family neighborhoods. Thoughtful design and a wide variety of construction practices have been successfully used in other areas to counter some of the NIMBYism that often accompanies proposals for affordable housing development.
- In areas that receive significant pedestrian and bicycle traffic, create an enhanced sense of place through streetscape enhancements to improve the desirability of the location as a destination.
- Promote location efficiency in housing development through policies and subsidies that encourage growth in existing population centers

3.1 Overview of Livable Communities

In recognition of the connection between the built environment and economic opportunity, sustainability, and overall quality of life, policymakers continue to place a greater emphasis on making both cities and villages into livable communities. Although livability as a concept can be difficult to measure, there are some features that are commonly agreed upon as being important components of livable places. Livable communities provide a variety of housing options that are affordable to residents of wide income and age ranges. The availability of housing in efficient locations – those close to transportation centers and existing population and employment centers – is also important to creating livable communities, by maximizing the value of existing infrastructure and allowing households to save on transportation costs. Strengthening existing historic downtown areas into vibrant areas through place-making initiatives and mixed-use development is also important for promoting social interactions and creating pleasant communities that retain residents and workers. Investments in energy efficient housing and development in close proximity to existing infrastructure facilities are both important to lowering the environmental impact and greenhouse gas emissions that result from development and transportation, as well as household expenses, enhancing quality of life for residents.

Figure 9. Population Trends²⁸



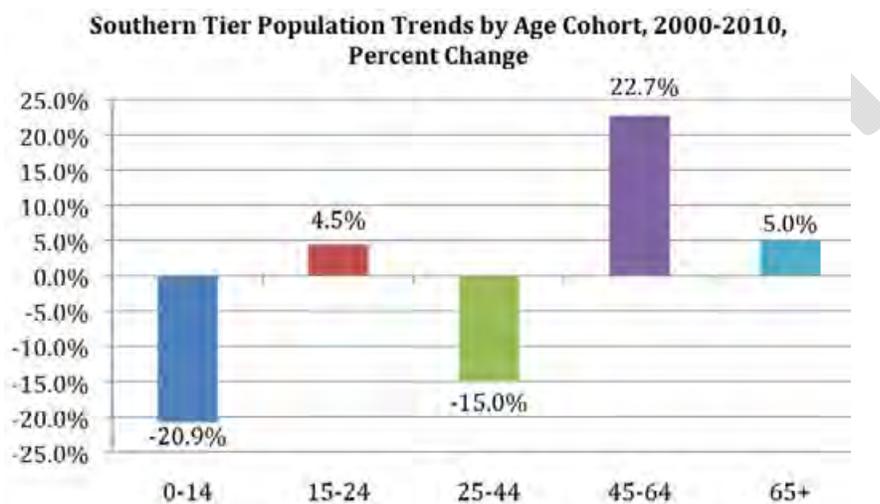
Economic and demographic trends have significant implications for the housing and community needs and lifestyle preferences of both current and future generations. The population of the entire Southern Tier region as of the 2010 census is approximately 658,000. As can be seen in Figure 9, this population count represents a decline in population of about 12,000 since 1990, though the population has grown by about 600 residents in the last 10 years. The largest population concentrations in the region are in the metro regions surrounding the Cities of Binghamton (251,700), Ithaca (101,600), and Elmira (90,100). Between 2006 and

2016.” Regional Economic Development Council of

2010, the fastest-growing County in the region was Tompkins County, with a growth rate of 2 percent, while Chenango lost 1.9 percent of its population. Most other counties in the region experienced very little population growth or slight (less than 1 percent) population loss. Compared to a national growth rate of 9.7 percent over the past decade, the Southern Tier region as a whole has experienced very little growth.

While the general population of the Southern Tier region may have been relatively constant over the past decade, breaking down the population by age group reveals significant demographic shifts. As can be seen in Figure 10,²⁹ between 2000 and 2010, the population of children up to age 14 decreased by over 20 percent, and the population ages 25-44 decreased by 15 percent. During that same time period, the 45-64 age group grew by nearly 23 percent, and the population in the 65 and over age group increased by 5 percent. With such an increase in baby boomers (those in the 45-64 age group) will likely come changes in regional housing needs. Because the senior population is growing and will grow more in the coming decade(s), there will likely be an increase in Southern Tier residents living on fixed incomes, who may struggle to pay rising property taxes and utility expenses. In Chenango County, for example, nonprofit organizations have seen a five-fold increase in the number of seniors requesting reverse mortgage counseling. The New York State Department of Housing and Community Renewal estimates that 500 people in Tompkins County are retiring every year.³⁰ The Department also notes that seniors' fixed incomes can be stretched especially thin when they assume the responsibilities of raising grandchildren, which is the case for many New York families.

Figure 10. Population Trends by Age Cohort



²⁹ Graphics Source: "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier.

³⁰ "Statewide Affordable Needs Housing Study." New York State Division of Housing and Community Renewal, 2009. Available online: <http://www.nyshcr.org/Publications/HousingNeedsStudy/StatewideHousingNeedsStudy.pdf>

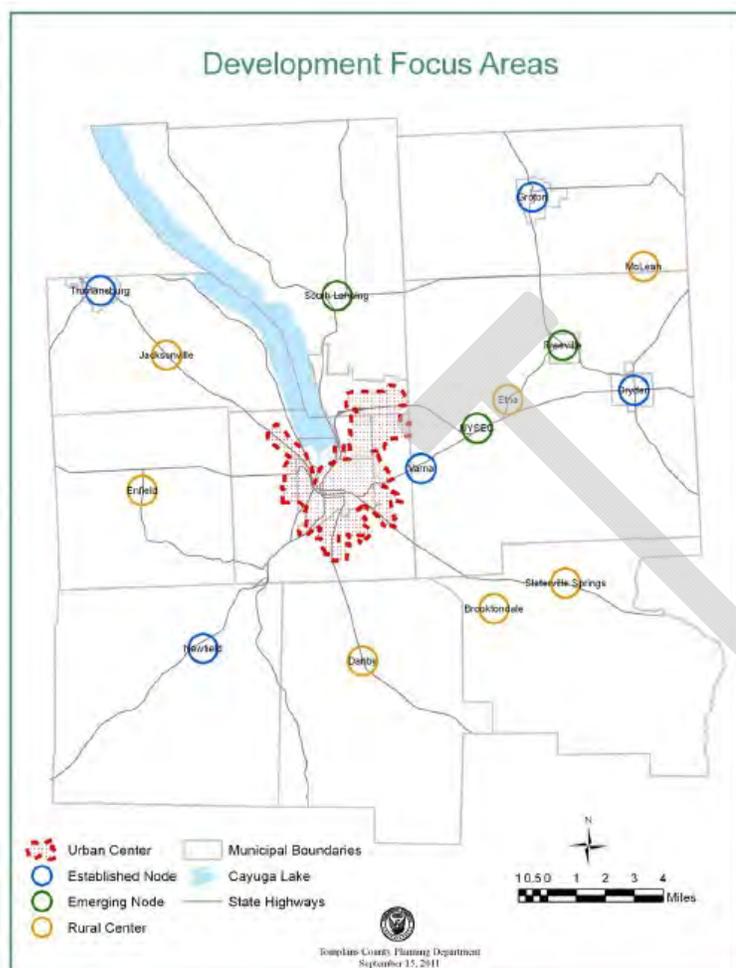
Other key components to the creation and preservation of livable communities in the Southern Tier include maintaining or increasing the population in population centers and already-developed areas, ensuring the availability of quality housing for residents with a variety of income levels, and providing residents with land use patterns and infrastructure that support the walkability and accessibility of basic amenities. Binghamton and Elmira, two of the region's largest population centers, have both experienced a

"hollowing of the core," that is, population decline in the central city area, in the last decade. Between 1990 and 2010, for example, Binghamton lost over 15 percent of its population while the Town of Lisle, 20 miles north, saw its population increase by more than 10 percent. This phenomenon of outward growth presents significant challenges to the strategy of encouraging development around the historic downtown areas of Southern Tier cities and towns. Furthermore, as the region's economic development agency has noted, some historic downtowns and main street areas in the Southern Tier have fallen into disrepair, with high vacancy rates and little there to attract residents and visitors. In light of these trends, some Southern Tier counties have attempted to identify the areas that are ideal candidates for growth, given existing settlement patterns, infrastructure, etc. In its *Building Vibrant Communities* report, Tompkins County identified 16 "Development Focus Areas" (shown in Figure 11) of both urban and more rural character that should attract growth through higher design standards, land use regulations, public investments in infrastructure, and transit, pedestrian, and bike trail connections. Broome County's *Plan for Sustainable Economic Development* includes a land use and regional planning analysis that identifies fourteen potential development sites in the Binghamton area and ranks them based on site readiness, public cost to develop, and community and regional benefit, indicating the County's intention to concentrate development where it can bring the biggest benefit at the lowest possible public cost.

"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 residents (sic) and 1,500 businesses."

Source: Regional Economic Development Council of the Southern Tier Strategic Economic Development Plan

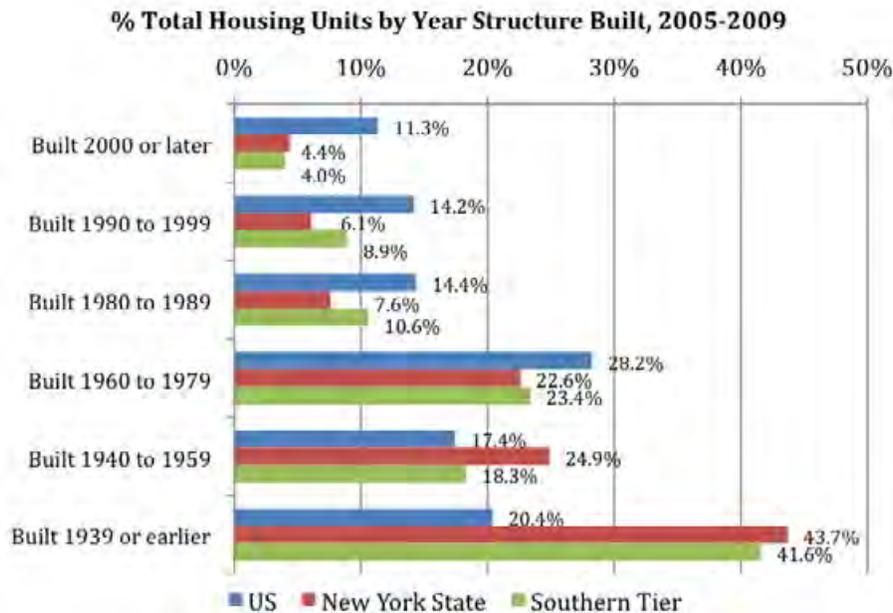
Figure 11. Development Focus Areas in Tompkins County



The availability of decent housing is another issue in the Southern Tier region. As is the case with much commercial space in downtown areas, the substandard quality of much of the housing stock poses a significant challenge for livability in the region. As can be seen in Figure 12, approximately 60 percent of the region's entire housing stock was built before 1960, with two-thirds of these units built before 1940. These figures correctly suggest that buildings and residences throughout the Southern Tier are in need of repairs, and many property owners are either unwilling or unable to provide them. It is not uncommon for a house valued at \$70,000 to be in need of \$60,000 of repairs to achieve compliance with building codes, which are not always well-enforced in the region.³¹ Problems stemming from the use of lead-based paint and other structural problems make many homes ineligible for purchase through homebuyer programs, and landlords in many areas seem reluctant or unable to make necessary upgrades to their properties. Mobile housing makes up a significant segment of the Southern Tier housing stock and in some cases is the only affordable housing option available in rural areas, particularly for young families. Many mobile homes are in need of significant repairs that cannot currently be funded.

³¹ . "Statewide Affordable Needs Housing Study." New York State Division of Housing and Community Renewal, 2009. Available online: <http://www.nyshcr.org/Publications/HousingNeedsStudy/StatewideHousingNeedsStudy.pdf>

Figure 12. Age of Housing Stock in Southern Tier Region³²



Regionwide, 75 percent of housing units are owner-occupied, while 25 percent are renter-occupied. Although housing is generally considered affordable³³ in the Southern Tier compared to other areas, almost half of renters do not live in units that meet the “affordable” definition, and the same is true for between 15 and 27 percent of homeowners as well. Table 7 shows the housing prices and (in)affordability in all of the counties of the region. An estimated 30 percent of the Tompkins County workforce commutes from outside the county due to its higher housing costs, and nearly 20 percent of Section 8 vouchers are unable to find housing in the City of Ithaca. The availability of affordable housing (also sometimes termed “workforce housing” to signify the importance of providing housing that is affordable for teachers, manufacturing workers, police officers, firefighters, etc.) is an issue that is already receiving attention in the Southern Tier.

Table 7. Housing Prices and Affordability in the Southern Tier Region³⁴

Geographic Area	Median Home Value	Renters with rent greater than 30% of household income	Homeowners with housing costs greater than 30% of household income	
			No Mortgage	With Mortgage
National Average	\$179,900	53.0%	15.5%	38.0%
Southern Tier Region		49.8%	15.7%	27.1%
Broome	\$99,500	49.6%	16.7%	25.0%
Chemung	\$85,900	51.3%	15.2%	23.9%
Chenango	\$88,200	42.3%	17.3%	30.1%

³² Graphic Source: “Strategic Economic Development Plan: 2011-2016.” Regional Economic Development Council of the Southern Tier.

³³ According to the US Department of Housing and Urban Development, “The generally accepted definition of affordability is for a household to pay no more than 30 percent of its annual income on housing. Families who pay more than 30 percent of their income for housing are considered cost burdened and may have difficulty affording [other] necessities.

³⁴ This data is taken from the American Community Survey’s 5-year estimates from 2006 – 2010. National-level data is for 2010 only.

Delaware	\$126,700	42.2%	17.2%	33.6%
Schuyler	\$86,700	43.1%	13.6%	28.0%
Steuben	\$83,000	49.4%	13.8%	27.3%
Tioga	\$98,200	41.8%	14.6%	28.5%
Tompkins	\$162,100	55.6%	15.1%	28.8%

Ithaca Neighborhood Housing Services recently began construction of a 50-unit apartment building near the city's downtown Commons area; most of the one- and two-bedroom units will be affordable to residents making less than 60 percent of the regional median income, while a few of the two-bedroom units will be available to residents earning up to 90 percent of the regional median income. In 2012, New York State's Regional Council Initiative provided over \$3 million to fund 11 projects to improve the homes of 205 families in the Southern Tier region. These projects included renovations, rehabilitation of severely substandard units, septic system repairs and replacements, and accessibility improvements. Programs and projects such as these demonstrate an awareness of critical needs in the region and could serve as models for intensified future efforts to improve housing affordability and quality issues.

Providing multiple transportation options to residents is a key component of livability, and land use patterns and design standards play an important role in determining the feasibility of other types of transportation. For example, sidewalks, bike paths and racks, pedestrian bridges, and other improvements can be made to improve bike and pedestrian accessibility to key destinations. In order to make bus or streetcar service a viable transportation option, development must occur in more compact patterns than those currently seen in some areas of the Southern Tier region.

3.2 Existing Regional Plans and Programs

This section describes existing regional plans and programs identified during the baseline assessment.

Binghamton Sustainable Development & Smart Growth Report

This report was generated out of a Binghamton Commission on Sustainable Growth and makes policy recommendations to improve smart growth moving forward. Relevant recommendations include:

- Revising existing building codes and zoning ordinances as well as existing comprehensive plan with help from smart growth experts/resources
- Work towards implementing a smart code. In the interim, advocates use of overlay districts to help cluster developments, TND/TOD, watershed protection and historic preservation.
- Initiate *regional* discussion of smart growth development through STERPDB
- Use brownfield/greyfield development and use NYS brownfield programs for First Ward, Brandywine corridor, and North Chenango corridor.
- Re-emphasize the Binghamton Commission on Architecture and Urban Design.
- Strengthening historic preservation in the city code.
- Encourage and eventually require LEED certification for renovations and new construction of city buildings; consider ways to encourage and incentivize energy efficient buildings throughout the city.

Tompkins County 2004 Comprehensive Plan and 2009 progress report

Relevant goals in the 2004 Comprehensive Plan included the following: (with updates on actions completed)

- Goal: “Housing in Tompkins County should be affordable and appealing to all residents, regardless of their income or whether they rent or own their homes.” Action items include:
 - Actions (completed): Housing needs assessments and survey of in-commuters to study patterns and needs of those currently living and who could potentially want to live in the County.
 - Actions planned for 2010 – 2014: produce a periodic housing report tracking new affordable housing; review new and existing programs to encourage private development of affordable housing; develop detailed plans to meet housing needs of segments of the population.
- Goal: “TC Residents should be safe, healthy, and comfortable with the aesthetics of their communities, and have daily opportunities to interact with neighbors and community members to build strong, cohesive communities.”
 - Actions Underway: implement a countywide multiuse trail network, conduct pedestrian LOS and walkability studies throughout the county, and provide pedestrian connections between waterfront and downtown.
- Goal: “The development patterns reflected in the existing villages, hamlets, and the City of Ithaca’s downtown area and neighborhoods should be promoted as key components of the built environment that greatly contribute to the vitality of the local economy and community life.”
 - Identify and map areas for infill and nodal development areas.
 - Work with local municipalities to develop land use plans
 - Completed: evaluate and modify existing programs to be consistent with nodal development patterns.

The BC Plan (2003)

The *Broome County Comprehensive Plan* includes the following goals:

- Address Student Housing needs and Concerns.
- Develop a comprehensive historic preservation strategy.
- Strengthen and Maintain the Integrity of Gateways.
- Develop a strategy for foreclosed properties.
- Develop design standards to maintain and improve character of development and update the zoning code to include neighborhood professional, neighborhood commercial, and light industrial zones.
- Develop Model Public/Private partnerships.
- Prepare sites for development.
- Make use of Fannie Mae Programs to Further Community Development.
- Consider TIF for challenged neighborhoods.

Tioga County Strategic Plan (2010)

The *Strategic Plan* notes that the county needs additional revenue to keep up with services and to meet regulatory requirements, but also desires to maintain as much of its rural character as possible.

Therefore, the county would like to “more effectively attract commercial, industrial and residential development at a suitable level that will increase economic viability, optimize current water and sewer

infrastructure, yet sustain its rural character and heritage.” The plan emphasizes the important role of its water and sewer infrastructure master plan and it notes that the county has a Purchase of Development Rights (PDR) program in place. The plan also notes that a 2003 Housing Market Assessment of Tioga County determined that there were substantial needs and opportunities in improving the housing stock. The housing goal is to develop a coordinated approach that incorporates smart growth principles.

Norwich Comprehensive Plan (2003)

The *Plan* notes that Norwich at the time had a 12 percent vacancy rate in its rental housing stock and that home values were increasing rapidly. At the time there were needs for improved housing in all housing markets including student housing for SUNY Morrisville students. Relevant goals include:

- Goal #3 is for a Vibrant Downtown: “Norwich’s vibrant and alive downtown will be recognized for its architecture, pedestrian amenities, retail choice and unique visual appeal. Emphasis will be placed on maintaining and enhancing Norwich BID efforts to ensure a positive downtown identity.”
- Goal 5: Standout City of Character, Architecture and History: Norwich will celebrate and protect historic and environmental resources including its waterways, urban forest, picturesque natural setting and historic buildings. These offer some of the community’s greatest competitive advantages. They must be cherished, protected, and enhanced.
- Goal 6: Residential Neighborhoods of Choice and Quality: Norwich’s neighborhoods will offer housing choice and quality across all market segments, for both owners and renters. Historic homes and buildings will be protected and new market rate and executive housing will attract business owners, managers, and their employees to live where they work.

Ithaca Neighborhood Greenways Plan (2011)

This Plan outlines the need and potential use of “neighborhood greenways” to improve non-motorized mode share in the downtown area of Ithaca. It proposes 6 corridors. It calls for 1) traffic calming, 2) signage and markings, 3) prioritization of travel, 4) intersection/crossing treatments, and 5) traffic reduction on each of the designated corridors.

Binghamton Greenways

The Binghamton Greenway plan was originally adopted in 1999 and the 2000 implementation plan provided a project prioritization scheme based on the following principles: Principle 1 (Build on Existing Trail Successes) and Principle 2 (Develop New Park Loops) are viewed as being equally important, and are considered higher priority projects, to be implemented before projects listed under Principle 3 (Develop Additional New Trail Linkages). Projects under Principle 4 (Develop New or Improve Existing Bicycle and Pedestrian River Crossings), are considered mid-term and long term projects. The city continues to implement projects from the Binghamton Greenway plan.

Cayuga Lake Waterfront Trail

The Cayuga Waterfront Trail Initiative (CWTI) is a partnership of the Tompkins County Chamber of Commerce Foundation and the City of Ithaca. The Cayuga Waterfront Trail will be a six-mile, multi-use trail providing an active, non-motorized transportation and recreation way connecting several of Ithaca’s waterfront destinations. The Waterfront Trail is intended to help Ithaca develop a sustainable transportation system, enhance quality of life and contribute to the revitalization of Ithaca’s waterfront. Currently, a two-mile Cass Park loop and a 1.7-mile connector between Stewart Park and the Farmers Market are complete.

Building Vibrant Communities in Tompkins County (2011)

This plan designates development focus areas that will each include places to “live, work, learn, play, shop, and access services.” The focus areas are based on development areas as described in the Tompkins County Comprehensive Plan. Focus areas are designated as urban centers, developing nodes, emerging nodes, or rural centers. It describes several key actions needed to implement the vision of development focus areas: Promoting infill and mixed-use development, reviewing development regulations, make needed infrastructure improvements, provide pedestrian facilities in the designated areas, and controlling sprawl by establishing distinct edges around the development focus areas.

Downtown Ithaca 2020 Strategic Plan (2010)

The *Downtown Ithaca Strategic Plan* describes its “big idea” as a “three-pronged package to revitalize the urban core, reduce regional sprawl, reduce our community carbon footprint, bolster tourism, and strengthen the linkages between our institutions of higher education and downtown.” Goals include:

- Downtown Housing: goal includes adding up to 2,000 units of housing downtown
- Maintaining and enhancing the Ithaca Commons as a draw to downtown.
- Increase available office space, focused on upper floors of buildings to leave ground floor for retail.
- Turning downtown into a destination for arts and cultural events.
- Attracting youth and also serving seniors and providing access to people with disabilities
- Collaborating with other town/regional districts.

Tompkins County Housing Strategy 2007

The *Housing Strategy* is a response to the affordable housing needs assessment. It designates locations and strategies for providing additional housing in the region that would support nodal development. It includes a breakdown of how to distribute the forecast need for 4,000 housing units across the county:

- City of Ithaca - 500 to 1,000 units, including development of the Southwest neighborhood and downtown housing development.
- Town of Ithaca - 500 to 1,000 units, including balanced growth on East, West and South hills concentrated in a nodal pattern to be determined by the Town.
- Town of Lansing – 500 to 1,000 units largely concentrated in a nodal pattern in and around the planned town center in South Lansing.
- Other Villages and Hamlets – 500 units
- Other Infill and Rural – 500 units
- Total Units: 2,500 to 4,000”

It also lays out four strategies to achieve this: 1) inclusionary and incentive zoning, 2) community housing trust, 3) employer assistance, and 4) community housing affordability fund. The community housing trust and affordability funds were since created.

Affordable Housing Needs Assessment (2006)

This assessment shows how current status of affordable housing and makes predictions of housing needs out to 2014. However, much of the data used for the assessment is from between 1999 – 2004 and so does not address how the financial crisis may have impacted the trends it portrays. It notes that median single family home sales rose by 52% between 1998 and 2004 and exceeded household income growth by more than 20% between 1996 and 2006. It also notes a sharp decline in affordability in rural

areas in particular. The assessment anticipated a need for 3,894 units between 2006 and 2014, with 67% of those needing to be affordable.

Hornell Comprehensive Plan (2002)

Hornell's plan notes a need for both business and housing development or improvement in the town. Hornell is designated as an Empire Zone, where businesses can receive tax credits. The housing in the area is aging (average age between 85 and 95 years old) and residents expressed a need for more housing of all types. Actions identified include:

- Create a "theme" for Hornell to capitalize on resources to draw tourists and improve the City's image.
- Protect historical zones within City Limits.
- Create incentives for people improving their property (particularly historic properties).
- Update zoning and improve code enforcement.
- Increase housing lot size and create new housing for all income levels.
- Corning City-wide Action Plan (2001)

The Plan includes some goals to increase single family homes and reduce unit conversion to multi-family (and to increase minimum parking requirements). Livability and housing-related goals include creating an attractive built environment that attracts new residents and economic opportunities, improving housing conditions and opportunities for all income levels (including encouraging conversion of upper story office/commercial space to residential use along main streets), developing and supporting efforts at historic preservation, and encouraging neighborhood identify through formation of neighborhood associations.

Four Rivers: An Inter-municipal Waterfront Public Access Plan for Broome County (2011)

This riverfront plan includes goals to:

- Promote active participation of all Broome County riverfront communities
- To use riverfront development to revitalize small "downtowns" located nearby
- To encourage all riverfront communities to embrace regionalism and consider their individual development as part of a larger Riverway corridor

The Plan identifies a large number of potential projects and scores them based on four categories – access, circulation, local economy, and fundability.

City of Binghamton Climate Action Plan (2011)

While the CAP includes the following goal related to land use and livability: Goal 3: Reduce energy consumed and emissions produced as a consequence of how land is used and developed.

- Adopt land use strategies which reduce emissions and encourage smart growth
- Expand waterfront development
- Consider greenhouse gas emissions in environmental evaluations of planning scenarios and individual land use decisions

- Partner with other municipalities and regional planning agencies to encourage smart growth and sustainable development throughout the region

BMTS Front Street Gateway Plan (2008)

The Front Street area currently has a significant amount of dilapidated housing and is designated in the Broome County comprehensive plan as a gateway for redevelopment. The plan's vision is that: "in 20 years, Front Street will have transformed into a middle-income, residential neighborhood that includes high-density housing, attractive to Broome community college, Binghamton university students or senior citizens. It will also include some of the homes that exist there now that have been rehabilitated and have become a reminder of the historical character of the area. Successful neighborhood businesses will be scattered throughout and many people will be attracted to this area because of the available housing and public access to the river."

Programs

Binghamton Commission on Architecture and Urban Design (CAUD)

The Commission on Architecture and Urban Design (CAUD) was established in 1970 to prevent the deterioration of property belonging to the City or property in which any City funds are involved; and to advise builders or designers in regard to the use of space and the design of structures; and to encourage protection of economic values and proper and appropriate use of surrounding areas. The renovation or removal of any building in the city that is 50 years or older requires CAUD's review. In recent years CAUD's role has diminished and homeowners and developers are increasingly unaware of the requirements when making changes to a historic structure.

Tompkins County Community Housing Affordability Program

The Community Housing Affordability Program is a locally funded and administered fund that assists with the pre-development costs associated with residential and mixed-use real estate development projects. Eligible uses of the fund include costs associated with establishing preliminary feasibility, pre-permitting, or pre-construction for a specific non-student housing project. Funds will be provided as a 0% interest loan that will be repaid from construction or permanent financing for the project. Eligible borrowers include both for-profit and non-profit developers. Funds may be available for preliminary and advanced feasibility. Funding will not be made available for administrative costs.

Community Housing Trust Program

The Community Housing Trust Program is designed to ensure that newly constructed housing units or rehabilitated housing units remain affordable to successive buyers. Permanent affordability is retained by such measures as separating the ownership of the land from the ownership of the housing unit, whereby only the housing unit is purchased by the homebuyer, and by restricting the amount of equity that a homeowner can take from the housing unit upon sale, or other equivalent mechanisms. Eligible uses of the fund include the cost of land provided that the non-student housing unit remains permanently affordable by such measures as the Community Housing Trust or another acceptable mechanism.

Binghamton Commission on Downtown Development

The Commission's goals are to:

- Facilitate coordination among all involved stakeholders
- Maximize and strategically coordinate public and private investment
- Produce a blueprint for the types of businesses, organizations and amenities that will complement downtown's changing demographic

- Develop and implement plans to attract and locate new businesses that support the growing number of downtown residents

Binghamton Local Development Corporation NYS Main Street Grant Program

Although this grant program ran only in 2009, it provided funding to help façade and building renovations along Main Street in Binghamton as well as matching grants for renovation of commercial/civic space on ground floors with residential units above.

Better Housing for Tompkins County

Better Housing for Tompkins County is the only organization devoted solely to addressing the housing needs of rural Tompkins County. Since 1981 this program has assisted low-to-moderate-income county residents living outside the City of Ithaca through their first-time homebuyer program and various home repair programs. The program manages 121 affordable apartments throughout the county for seniors and the disabled. Its programs include a home repairs program, home rehabilitation grants, affordable rental housing, and future housing development.

Ithaca Neighborhood Housing Services

Established in 1977 as a partnership between residents, funders, and local government, Ithaca Neighborhood Housing Services is a non-profit, community development corporation affiliated with NeighborWorks® America. The INHS mission is to revitalize Ithaca's neighborhoods-encouraging stability and diversity and to help people of modest incomes obtain affordable housing on a long-term basis.

4 Economic Development

This section provides an overview of the state of economic development in the region, including employment centers and the current workforce; the healthcare, biotechnology, and life sciences sector; manufacturing; higher education; and agriculture.

Challenges

- Overall statistically low educational attainment and mismatch between worker skills and business needs. The fact that some industries have labor shortages whereas others have high unemployment presents a challenge for supporting research, innovation, and competitiveness in growing industries over the long run.
- Shrinking, aging workforce. Population decline and out-migration of young residents present the same challenge of supporting businesses over the long run.³⁵
- Lower than average wages. Low wage work makes it difficult to attract young talent (although the low cost of living allows a higher standard of living with statistically lower wages). The average annual wage for workers in the Southern Tier was approximately \$20,000 below the State average and \$6,000 below the national average in 2011.³⁶ The only industries where the average wage in the Southern Tier mirrors or exceeds those of the State and the United States are the manufacturing, management of companies and enterprises, and the private educational services industry.³⁷

³⁵ As of 2011, the labor force in the Southern Tier was at its lowest level since 1990

³⁶ EMSI, 2012.

³⁷ EMSI, 2012, *EMSI Complete Employment - 2012.1*.

Opportunities

- Premiere academic institutions. The wealth of top-notch colleges and universities in the region provide employment, promote innovation, and attract and retain young talent. Strategic partnerships can position the region as a center for innovation (with its research and manufacturing facilities and supply of educated workers) and attract outside investment.³⁸ Research at the Cornell Institute for Biotechnology and Life Science Technologies promotes growth in the region's physical, engineering, and life sciences and biotechnology industries.
- Aligning education with business growth. The region's academic institutions can align educational offerings with employer needs. Graduates with degrees related to advanced manufacturing (computers, electronics, and transportation equipment) see a strong labor market with multiple job openings in the region.
- Technology transfer and entrepreneur development. Research and development in the region's universities can be coordinated to nurture business opportunities and entrepreneurship through technology transfer and licensing. The Cornell BEST program from the Cornell Center for Technology Enterprise & Commercialization helps link researchers and business opportunities.³⁹
- Nationally competitive advanced research and manufacturing fields, particularly in areas of semiconductor and electronic components; navigational, measuring, electromedical, and control instruments; and aerospace products and parts. The location quotients for these industries are expected to range from 1.91 to 7.52 in 2021; this means they will be highly competitive.⁴⁰
- Expanding biotechnology and healthcare industry. Private hospitals, research in life sciences, and biotechnology research employment are all expected to grow in the near future.
- Assets for tourism. The Southern Tier has plentiful natural resources to attract a growing tourist base, including the Finger Lakes in the northwest and the Catskill Mountains in the east, wineries and historic villages, the Corning Museum of Glass, and a variety of cultural resources and events. Increasing market niche for locally sourced food, both raw and processed. The local food movement has benefited the agriculture industry in the Southern Tier, with an increase in farmers markets and restaurants that serve locally produced vegetables, fruits, meat, and wines.
- Renewable energy development and deployment. Use of renewable energy can reduce costs associated with manufacturing and production while at the same time creating high-skill jobs. Over 1,000 businesses engage in clean energy activities in Central New York and the Southern Tier.⁴¹ Although still small, the biomass industry and production and processing of sustainably certified forest products provide a growing income base for the region.
- Connectivity to key markets. The region is linked to major markets (e.g., New York City, Southwest Connecticut, and Boston) by direct, low-congestion roads. Its capability for quick exchange of knowledge and products with these areas provides a competitive advantage.

³⁸ Regional Economic Development Council of the Southern Tier, 2011, *Strategic Economic Development Plan: 2011-2016*, p. 16.

³⁹ Cornell Center for Technology Enterprise & Commercialization, <http://www.cctec.cornell.edu/entrepreneurs/cornellbest.php>

⁴⁰ EMSI, 2012. A location quotient is a measure used by regional labor economists to compare the concentration of industrial activity in a specific area to that of a larger area. ICF analysis compared the ratio of Southern Tier regional employment to the State employment for these industries. Anything over 1 means that the area is competitive in that industry and higher numbers indicate greater competitive advantage.

⁴¹ Regional Economic Development Council of the Southern Tier, 2011, *Strategic Economic Development Plan: 2011-2016*, p. 67.

4.1 Overview of Economic Development

The Southern Tier economy is characterized by historically competitive manufacturing and agriculture industries, as well as new growth in innovation-centered industries, such as advanced manufacturing and renewable energy. The Southern Tier, along with the rest of the nation, has felt the effects of the recent national economic downturn. The manufacturing sectors are increasingly uncompetitive and the service sector has been negatively influenced by more restricted personal consumption. Moreover, the region has several challenges that make it particularly vulnerable, including a declining population, an aging workforce, and an under-educated working-age population.

As of 2011, the Southern Tier had a population of 656,695 people. Between 2001 and 2011, the population aged 49 and under shrunk by nearly 6.3 percent, while the 50 and over population grew by 6.1 percent. These figures highlight that the population of the Southern Tier is aging. Nonetheless, the 25-29 cohort has grown by 17 percent in the ten year period, representing the one bright spot in the growth of the younger population.

Employment/Workforce

The labor market in the Southern Tier, following the national trend, has contracted in recent years. As of July 2011, the total number of jobs in the region stood at 350,077, a figure that was down 4,548 jobs from ten years earlier in 2001.⁴² As discussed in the Land Use and Livable Communities chapter, the population of the Southern Tier is aging, which, combined with a decreasing population and a weak economic climate, has negatively affected the labor market in the region.

The Southern Tier's labor force contracted by approximately 1.8 percent between July 2010 and July 2011, and by approximately 4.0 percent between July 2008 and July 2011. According to the Regional Economic Development Council of the Southern Tier, the labor force in July 2011 was "the lowest level for the month in the current historical series dating back to 1990."⁴³ The conditions characterizing the labor force in the Southern Tier—that is, a smaller, older, and less-educated workforce—suggest causes for concern for the future labor market.

The Southern Tier region has a markedly lower higher-education attainment than the state of New York, and a slightly lower attainment than that of the United States, despite being home to many premiere higher education institutions. Only 37.0 percent of adults aged 25 and over in the Southern Tier, and 38.6 percent of those nationally, have at least a bachelor's degree, whereas 46.5 percent of adults aged 25 and over in the state of New York have at least a bachelor's degree. These figures suggest that many individuals that graduate from one of the region's colleges or universities leave the area shortly after graduation; this phenomenon is commonly referred to as a "brain drain." Table 8 shows each education level in the Southern Tier, New York State, and the United States.

⁴² Data from Economic Modeling Specialists Int., 2012. <http://www.economicmodeling.com/>

⁴³ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 52.

Table 8. Southern Tier Educational Attainment versus State of New York and United States (percent)⁴⁴

	Southern Tier	New York State	USA
High School Degree or Equivalent	34.1	27.7	28.5
Bachelor's Degree or Higher	25.1	32.5	28.2
Graduate Degree	11.9	14.0	10.4

The region is well known for its academic institutions, which have been a stronghold throughout the recent recession. The Southern Tier region has six State University of New York (SUNY) campuses and three private colleges and Universities. The six SUNY campuses are: Binghamton University, Broome Community College, Cornell (SUNY), Corning Community College, Delhi, and Tompkins Cortland Community College. The three private institutions are: Cornell University, Elmira College, and Ithaca College. According to the Regional Economic Development Council of the Southern Tier, Cornell and Binghamton Universities offer nationally-recognized educational programs, have advanced research and development centers, promote new technologies, and act as business incubators.⁴⁵

The Southern Tier's largest four industries are government, health care and social assistance, retail trade, and manufacturing, which combined to account for over half of all jobs in the region in 2011. The largest businesses in the region similarly coincide with the larger industries, including health care and social assistance, manufacturing, and government/education. The largest businesses by number of employees include (with the number of employees): Binghamton General Hospital (4,000), Lockheed Martin MS2 (3,324), Wilson Medical Center (3,000), Binghamton University (2,500), and Arnot Medical Services (1,800). Industries identified as economically important and of which may see potential growth include: healthcare, biotechnology, and life sciences; public and private education; manufacturing; and tourism. These are each discussed in greater detail below.

Healthcare, Biotechnology, and Life Sciences

The healthcare and social assistance industry (NAICS Code 62) is the second largest employer in the region, though the overwhelming majority of that is attributed to social assistance. In 2011, private hospitals employed 11,798 people, a number that is expected to increase 4.9 percent by 2021.⁴⁶ The private hospital sector in the region has a location quotient of 1.32, which is expected to remain largely unchanged in the next ten years. Research in the life sciences is a smaller sector in terms of employment but offers a greater competitive advantage. In 2011, the life sciences sector employed 2,462 people and had a location quotient of 2.79. Each of these figures is projected to grow modestly in the next ten years. Finally, biotechnology research is only a small sector in the region's economy, but it is expected to double in the next two years, and by 2021, have a location quotient of 1.23. These figures are presented in Table 9.

⁴⁴ Source: U.S. Census Bureau, 2006-2010 American Community Survey 5 Year Estimates

⁴⁵ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 8.

⁴⁶ Data from Economic Modeling Specialists Int., 2012. <http://www.economicmodeling.com/>

Table 9. Change in Employment and Location Quotients for Select Subsectors in the Healthcare Industry, 2001 and 2021

NAICS Code	Description	Jobs, 2011	Jobs, 2021	Percent Change	2001 LQ	2021 LQ
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	2,462	2,766	12.3	2.79	2.84
622110	General Medical and Surgical Hospitals (Private)	11,798	12,374	4.9	1.32	1.34
541711	Research and Development in Biotechnology	188	380	102.1	0.66	1.23

Manufacturing

The manufacturing industry remains an important stronghold to the Southern Tier economy, and is the strongest among all ten regions in the state.⁴⁷ The manufacturing industry employed 38,435 people in the Southern Tier in 2011, accounting for 11.0 percent of the region's workforce. This percentage is more than 2.5 times the state average of 4.3 percent, and over 1.5 times the national average of 7.0 percent.⁴⁸ Between 2001 and 2011, the manufacturing sector in the Southern Tier declined by nearly 25 percent; however this decline was far less than the state average of 34 percent, and slightly below the national average of 27 percent.⁴⁹ By 2021, the industry is expected to decline an additional ten percent, however certain subsectors are expected to grow and gain in competitiveness. For example, the advanced manufacturing sector—which includes production activities in semiconductors and electronic components, transportation equipment, aerospace products, navigational equipment, ceramics, industrial machinery and computer equipment—accounted for 14,000 of these jobs in the region according to the U.S. Department of Labor.⁵⁰ Table 10 below lists employment levels for selected advanced manufacturing sectors in 2011 and in 2021. The two largest of these, Semiconductor and Other Electronic Component Manufacturing and Navigational, Measuring, Electromedical, and Control Instruments Manufacturing employed 4,446 and 5,167, respectively, in 2011. By 2021, they are anticipated to employ 9,500 people in the region.⁵¹

Table 10. Change in Employment and Location Quotient for Select Subsectors in the Manufacturing Industry, 2001 and 2021

NAICS Code	Description	Jobs, 2011	Jobs, 2021	Percent Change, '11-'21	2001 LQ	2021 LQ
3332	Industrial Machinery Manufacturing	724	781	7.9	3.44	5.07
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	363	59	-83.7	1.85	0.34
3344	Semiconductor and Other Electronic Component Manufacturing	4,446	4,274	-3.9	5.68	7.52

⁴⁷ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 54.

⁴⁸ Data from Economic Modeling Specialists Int., 2012. <http://www.economicmodeling.com/>

⁴⁹ Data from Economic Modeling Specialists Int., 2012. <http://www.economicmodeling.com/>

⁵⁰ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 68.

⁵¹ Data from Economic Modeling Specialists Int., 2012. <http://www.economicmodeling.com/>

3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5,167	5,226	1.1	6.30	6.96
3353	Electrical Equipment Manufacturing	522	288	-44.8	1.88	1.33
3364	Aerospace Product and Parts Manufacturing	1,674	1,748	4.4	1.69	1.91
3365	Railroad Rolling Stock Manufacturing	334	38	-88.6	8.35	1.28

Source: EMSI, 2012.

As shown in Table 11, the largest sector within the manufacturing industry as of 2008 was the industrial machinery manufacturing sector. Industrial machinery manufacturing provides high-skilled, high-paying jobs to the region.

Table 11. Southern Tier Manufacturing Companies and Employment by Sector⁵²

	No. of Companies	Employment in Sector
Industrial Machinery	160	14,700
Electronics	40	7,070
Transportation Equipment	20	4,990
Materials Processing	70	2,930

The three largest employers in the manufacturing industry in the Southern Tier are: Lockheed Martin Missions Systems & Sensors (MS2), a military aircraft and software manufacturer which employs 3,324 people, and BAE Systems Platform Solutions and Amphenol Aerospace, both aerospace manufacturers which each employ 1,400 people.

There are several major companies involved with advanced energy technology and energy-related product development in the Southern Tier region. These include (along with what aspect of energy-related product they are addressing): Lockheed Martin (distributed-generation biomass combined heat and power (CHP)), Corning Incorporated (flexible transparent electronics for solar photovoltaic (PV) and LED instruments), BAE Systems (battery and fuel cell systems for hybrid buses), Raymond Corporation and Plug Power (hydrogen fuel cell powered models), Binghamton University (electrical energy storage), and Cornell University (materials development for fuel cells, batteries, and super-capacitors).⁵³

A handful of new and already-established manufacturers have also invested in expansions and new factories in the Southern Tier, in turn providing capital and jobs to the region. Impress, Inc. invested \$44 million into a new factory in the Broome County Corporate Park in 2010, which is expected to create 140 new jobs by 2013.⁵⁴ Raymond Inc. has expanded operations at its existing facility in Greene; the company invested \$46 million and originally expected to create 50 new jobs in addition to the 740 people already employed at the facility. The Regional Economic Development Councils state that the company has exceeded its original estimate of 50 additional jobs. World Kitchen has similarly invested \$45 million to its facilities and anticipates creating an additional 60 jobs above its current workforce of 450.

⁵² Empire State Development Analysis of NYS Department of Labor data, 2008.

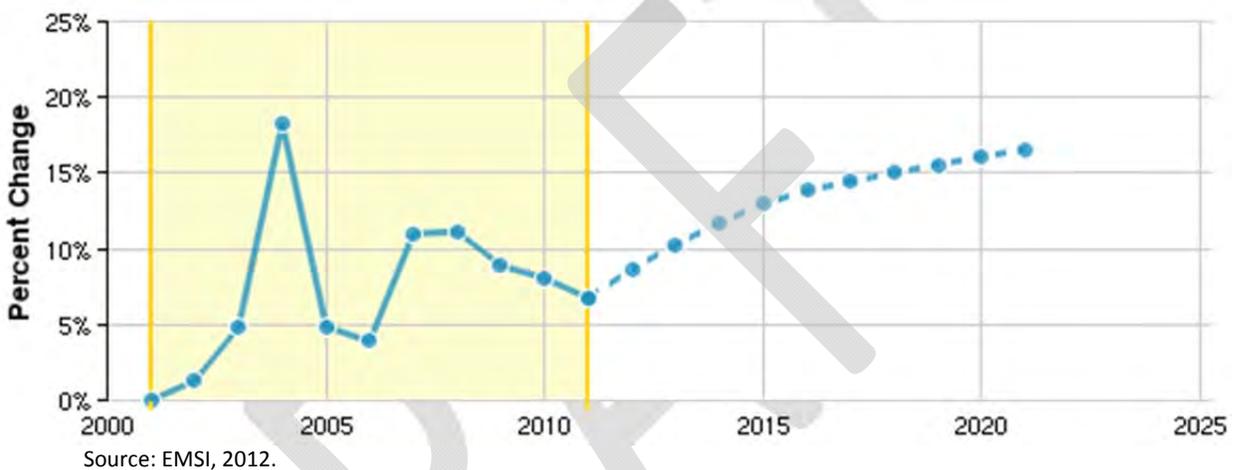
⁵³ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 87.

⁵⁴ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 23.

Public and Private Higher Education Institutions

The Southern Tier is home to many public and private colleges and universities. Private educational service jobs account for 6.7 percent of all jobs in the region, which is nearly double that of New York State's figure of 3.6 percent, and has the highest share of private educational service jobs out of all ten regions in the state.⁵⁵ According to the Regional Economic Development Council of the Southern Tier, the educational services industry is projected to be a growth industry.⁵⁶ This is supported by EMSI projections, displayed in Figure 13, which shows that private educational services employment is projected to grow by approximately 10 percent between 2011 and 2021. Although the region has several higher-education institutions that act as a steady employment base, the area still suffers from low education attainment levels, as is further discussed earlier in this report.

Figure 13. Growth Rate of Employment in Private Educational Services, Southern Tier, 2000-2025



Agriculture

The Southern Tier has extensive natural resources, but does not have a major agriculture sector in terms of total employment. The agriculture industry represents only a small portion of the job base in the region, accounting for just 2.1 percent of all jobs. As of 2011, there were 7,320 people employed at 165 establishments.⁵⁷ As of 2007, there were 5,733 farms and 1,148,449 acres of farmland in the Southern Tier region. This accounted for approximately 30 percent of the private sector land base. The market value of the products sold from these farms in 2007 was over \$432 million, an increase of 36 percent over the market value of goods produced in 2002.⁵⁸

Between 2001 and 2011, the agricultural industry contracted by over 8.5 percent, a figure only slightly larger than both the state and national averages. EMSI data projects that it will grow, although only

⁵⁵ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 54.

⁵⁶ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 64.

⁵⁷ Data from Economic Modeling Specialists Int., 2012. <http://www.economicmodeling.com/>

⁵⁸ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 69.

modestly, between 2011 and 2021. Still, it is anticipated that the industry will have contracted by 5 percent between 2001 and 2021 in the Southern Tier region.

The agriculture industry is neither extremely competitive nor large. The animal production industry is the largest and most competitive, and is expected to increase slightly in competitiveness, but decrease slightly in employment, by 2021. Forestry and logging and crop production are both small and uncompetitive; however, they are projected to increase in both employment and competitiveness by 2021, although only slightly (see Table 12).

Table 12. Change in Employment and Location Quotient for Select Subsectors of the Agriculture Industry, 2001 and 2021

NAICS Code	Description	Jobs, 2011	Jobs, 2021	Percent Change, '11-'21	2011 LQ	2021 LQ
112	Animal Production	707	671	-5.1	1.53	1.66
113	Forestry and Logging	39	42	7.7	0.35	0.43
111	Crop Production	285	315	10.5	0.27	0.33

Source: EMSI, 2012.

The top three agricultural businesses in the Southern Tier—Wagner Hardwoods, Wagner Lumber, and Double Aught Lumber Inc.—are all logging companies.

The agriculture industry will continue to benefit from educational programs, innovation, and partnerships with Cornell University, specifically the Cornell University College of Agriculture and Life Sciences (CAL S), which is internationally recognized for its agricultural contributions, including new food product development, biomass production and innovative product techniques.⁵⁹ Recent agricultural efforts and collaborations between Cornell CAL S and state and local agencies include: improving the region’s \$3.8 billion wine industry which employs 17,000 people; a new licensing agreement with the New York Apple Growers, LLC that gives New York growers exclusive rights to new varieties of apples; and developing a new maple product that helped to double the value of maple syrup in the region between 2004 and 2008.

Tourism

The Southern Tier region attracts visitors for its history and natural beauty. Among the region’s tourist attractions are its historic downtowns and villages; parks, waterways, and natural resources; museums and other educational and civic institutions; and agriculture and other industries. Although these historic, cultural, educational, and natural resources present an opportunity for tourism, the need to preserve them presents a barrier to industry growth by limiting the type and extent of tourism development possible in the Southern Tier. The tourism industry has been an important and steady growth area in the Southern Tier economy. As of 2011, tourism and recreation (which includes the arts, entertainment, and recreation and the accommodation and food services industries) employed approximately 8 percent of the region’s 350,077 employed population, or 28,000 people. Importantly, the industry has grown by over 11 percent since 2001. In 2011, there were 1,809 establishments in the arts, entertainment, and recreation and the accommodation and food services industries.⁶⁰ The travel and tourism industry, which is a slightly different grouping that includes additional businesses such as air transportation companies, had

⁵⁹ “Strategic Economic Development Plan: 2011-2016.” Regional Economic Development Council of the Southern Tier, 2011, p. 90-91.

⁶⁰ Data from Economic Modeling Specialists Int., 2012. <http://www.economicmodeling.com/>

approximately 4,500 establishments as of 2010.⁶¹ As shown in Table 13, below, tourism spending increased 8.9 percent between 2009 and 2010.⁶²

Table 13. Tourism Spending in the Southern Tier Region

	Tourism Region	2009	2010	Percent Change, '09-10
Broome	Central	\$230,879	\$257,624	11.6%
Chemung	Finger Lakes	\$82,121	\$98,184	19.6%
Chenango	Central	\$26,663	\$38,371	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%

Source: 2010, Tourism Economics commissioned by ESDC, from Econ Regional, pp. 186-187.

4.2 Existing Regional Plans and Programs

A large number of plans and programs in the Southern Tier Region address economic development in some way. The plans identified in this report outline priorities or needs for regional economic development, either exclusively or in relation to other topics, such as land use, governance, or environmental resource management.

Comprehensive Economic Development Strategies

The Southern Tier East Regional Planning Development Board (RPDB) and the Southern Tier Central RPDB have both designed Comprehensive Economic Development Strategies (CEDs) for their respective sub-region. In addition to providing important data and insight into the current status of the regional economy, these plans present regional economic development goals.

- Southern Tier Central Comprehensive Economic Development Strategy 2012 (2012)
- Southern Tier East Comprehensive Economic Development Strategy Annual Report (2011)

Southern Tier Central Comprehensive Economic Development Strategy 2012

The vision of the Southern Tier Central CEDS (2012) is to leverage its assets, including natural resources, public infrastructure, an educated workforce, and a reasonable cost of living, into the development of a superior workforce and environmentally compatible commercial and residential growth. The Southern Tier Central CEDS lists eight goals for the region. Among these goals are several that can be considered traditionally economic development-related. For example, the CEDS sets goals to improve

⁶¹ "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 66.

⁶² "Strategic Economic Development Plan: 2011-2016." Regional Economic Development Council of the Southern Tier, 2011, p. 186-187.

pairing of workers and employers and identify developable sites for current development needs. Others address quality of life issues, such as public infrastructure, education, and sustainability, which can have a significant, long-term impact on economic vitality. For example, the CEDS lays out a goal to maximize livability and enhance environmental awareness in the region. Based on the goals, the CEDS identifies eight corresponding objectives, including polling employers about necessary skills and training, assisting existing organizations to implement a regional cluster-based economic development strategy, revitalizing local water fronts, and supporting alternative energy development. The Southern Tier Central RPDB recognizes that economic development involves more than local wage levels and square footage in industrial parks. Thus, the CEDS also incorporates an analysis of land use, transportation, education, workforce, and terrain to make recommendations for 2012 and beyond.

Southern Tier East Comprehensive Economic Development Strategy Annual Report

The Southern Tier East CEDS (2011) provides an overview of the regional organization, reviews the past year's economic development activities and accomplishments, and describes the region's economic climate. It also evaluates the CEDS's effectiveness and outlines the region's goals and priority projects for the coming year. The Southern Tier East RPDB states as one of its goals that "the region's residents will have the financial and technical resources available necessary to help build a dynamic, self-sustaining and regionally and globally competitive economy." The CEDS urges a coordinated and comprehensive approach to economic development.

Comprehensive Plans and Economic Development Plans

The Southern Tier Regional Economic Development Council, as well as counties, cities, and towns across the Southern Tier Region, have created comprehensive plans and economic development plans to address regional and local economic development priorities and needs. Several representative plans are presented below, in alphabetical order, followed by brief descriptions of the regional and county plans.

Comprehensive Plans

- City of Binghamton Comprehensive Plan (2003)
- Southern Tier Regional Economic Development Council Strategic Plan 2011-2016 (2011)
- Tioga County Strategic Plan (2005)
- Tompkins County Comprehensive Plan (2004)
- Town of Masonville Comprehensive Plan (2007)

Economic Development Plans

- Broome County Economic Development Implementation Plan (2002)
- Steuben County Economic Development Plan 2011-2013 (2011)
- Town of Campbell Economic Development Strategy (2010)

Southern Tier Regional Economic Development Council (REDC) Strategic Plan 2011-2016

The Southern Tier REDC's Strategic Plan presents a vision to leverage the region's existing globally competitive businesses and higher education institutions to attract talent and investment for the development of industry clusters. The Strategic Plan seeks to increase the size and prosperity of the region's workforce and focuses on new technology-related business creation and other entrepreneurship activities. It also emphasizes the importance of healthy communities and natural resource protection. The Strategic Plan outlines several goals for targeted industry development in industries related to energy efficiency and renewable energy technology, new generation transportation technology and manufacturing, and farming and forestry.

Tioga County Strategic Plan

With respect to economic development, the purpose of the Tioga County Strategic Plan is to attract an appropriate level of commercial, industrial and residential development to increase economic viability, while preserving the County's rural character. In particular, the Plan sets a goal to expand agriculture and increase the number of basic activity jobs in the County. The Plan also addresses other quality of life issues, which can influence economic growth, including improving of transportation and water infrastructure and applying smart growth principles to housing development.

Tompkins County Comprehensive Plan

The Tompkins County Comprehensive Plan states that decisions related to economic development, housing development, and land preservation have land use implications and that planning is necessary to protect the County's finite resources, such as drinking water, prime agricultural soils, waterfront lands, and historical architecture. The Plan's goals include providing a setting where local businesses can flourish and quality employment opportunities exist for local residents and building a sustainable and diversified resource-based rural economy based on working farms and forests and agri-tourism. To achieve this goal, the Plan suggests encouraging the procurement of goods and services from local farms, businesses, and service providers and updating the Agriculture and Farmland Protection Plan to promote the viability and profitability of agriculture within Tompkins County. The Plan also outlines strategies to improve quality of life, including public infrastructure development and mixed-use community development.

Broome County Economic Development Implementation Plan

The Broome County Economic Development Implementation Plan offers recommendations to create consistent long-term economic growth in a non-damaging way (i.e., sustainable). It prioritizes recommendations that are tailored and coordinated to meet the County's long-term objectives (i.e., strategic). Desired results of implementing this Plan include: generating optimism about the County's potential; creating general knowledge the County's economic assets; using a unified marketing message countywide; and increasing the County's competitiveness for high impact business. To achieve these goals, the Plan has among its objectives: creating a single economic development organization; focusing on four or five high impact industries; integrating education, media, and the private sector into economic development efforts; committing to a unified marketing theme; supporting entrepreneurship; nourishing the County's young, educated workers; developing the workforce to meet skills demands of target industries; redeveloping brownfield sites and supporting new development; and transforming downtowns into vibrant centers for business and living.

Steuben County Economic Development Plan 2011-2013

The Steuben County Economic Development Plan 2011-2013 lays out a vision for a county-wide economic development strategy to increase support of existing businesses, attract new businesses, develop an enhanced business environment, and promote regional collaboration. In particular, it prioritizes: (1) growing the County's economic base comprised of industries like food processing, transportation, wood and furniture, glass and ceramic, and healthcare; (2) enhancing the County's economic infrastructure, especially in existing population centers; (3) managing the development of the County's natural gas and agricultural resources; (4) leveraging the innovation and creativity of local entrepreneurs, businesses, and educational institutions; and (5) expanding the service sector, including tourism, call centers, and professional services.

Agricultural Development Plans

The agricultural industry, including farming and forestry, contributes significantly to culture of the Southern Tier Region and serves to diversify the regional economy. Several Southern Tier counties have drafted development plans focused on agriculture, including the following:

- Delaware County Agricultural and Farmland Protection Plan (2000)
- Delaware County Agricultural Development Plan (2010)
- Steuben County Agricultural Expansion and Development Plan (2002)

Delaware County Agricultural Development Plan

This Plan lays out strategies for Delaware County to sustain and grow its agricultural industry. It sets goals to: (1) brand and market Delaware County farm products; (2) create new mechanisms to aggregate, sell, and distribute products; and (3) develop new products. In order to achieve these goals, the Plan recommends different forms of business development assistance (e.g., microenterprise training and resources, access to capital, and agriculture infrastructure development), as well as strategies for implementation (e.g., market development, new business development, workforce development, and supportive agricultural policies).

Delaware County Agricultural and Farmland Protection Plan

Delaware County's Plan seeks to preserve viable farmland and enhance the profitability and economic vitality of farms, agribusinesses, and natural resource-based businesses in Delaware County. The Plan identifies strategies, including supportive land use policies, incentives, and programs, to reach these ends. The Plan discusses the purchase of development rights or conservative easements on viable farms that are threatened by development. It also recommends increasing educational programs for farmers, agribusinesses, natural resource-based businesses, County government, community leaders, residents and youth, as well as funding for a specialist in agricultural economic development to collaborate with farmers to diversify, market, and develop their products.

Steuben County Agricultural Expansion and Development Plan

This Plan describes the role of farming in the Steuben County, indicating that farming is "big business," with greater economic multipliers than other sectors of the County's economy. Farming also helps to control urban sprawl, attract tourists, and create the County's rural character. The Plan provides an extensive list of goals, objectives, and measures for agricultural development. Its goals include: increasing the value of agricultural sales, promoting tourism, increasing farm profitability by building alliances that expand markets and reduce costs, establishing niche markets for new specialty crops, and incentivizing new agricultural enterprises.

Corridor Plans and Studies

Various organizations have studied the benefits of economic development along major corridors in the Southern Tier. The following documents discuss economic development along major regional corridors:

- Southern Tier Central I-86/I-99 Corridor Economic Development Blueprint (2009)
- Statewide I-86 Coalition I-86 Economic Development Benefits Study (2000)

Southern Tier Central I-86/I-99 Corridor Economic Development Blueprint

This Blueprint presents a vision for the communities of the Interstate 86/Interstate 99 Corridor to leverage regional transportation resources in order to raise the region's local, national, and international profile, as well as encourage investment, retain and create jobs, and increase wealth and well-being in the region. The Blueprint identifies three objectives: (1) help businesses and entrepreneurs identify viable development sites and develop brand identity for the corridor; (2) identify and protect areas with unique and cohesive character, considering the planning goals of each community; and (3) connect future transportation projects and inter-modal hubs to the I-86/I-99 corridor.

Statewide I-86 Coalition I-86 Economic Development Benefits Study

This study evaluates the potential economic impact on the Southern Tier and Hudson Valley as a result of the upgrade of State Route 17 to Interstate 86. The study estimates an economic impact over a 2000-

2020 time horizon of about \$3.2 billion, in 1999 dollars, assuming an eight-year construction period. These economic benefits are expected to result from: job creation and revenue associated with construction; travel efficiency and safety; and economic activity, including tourism, facilitated by improved transportation access.

Additional Relevant Plans and Studies

In addition to those categorized above, several other plans and studies have implications for the region's future economic development. They are presented below, along with a brief description of the county and regional documents.

- City of Binghamton Commission on Sustainable Development and Smart Growth Report (2009)
- Broome County Intermunicipal Waterfront Public Access Plan (2011)
- Southern Tier Central and Southern Tier East Susquehanna-Chemung Action Plan (2012)
- Southern Tier East "Insights into the Economy of the Southern Tier East Region" (2011)
- Southern Tier East Regional Interchange Study (2011)

Broome County Intermunicipal Waterfront Public Access Plan

Broome County's Intermunicipal Waterfront Public Access Plan presents a comprehensive vision that includes a focus on both regional economic development and environmental stewardship. With respect to economic development, the Plan establishes a goal to stimulate economic revitalization in the County's riverfront communities. The Plan recommends sensitive development of the riverfronts, to generate tourism, provide opportunities for small business development, revitalize local downtowns, and improve the region's quality of life.

Southern Tier Central and Southern Tier East Susquehanna-Chemung Action Plan

This watershed management plan identifies the potential for the region to capitalize on water resources as economic assets. It encourages implementation of economic development strategies that protect the region's water resources and foster regional collaboration to implement environmentally sensitive economic development strategies. In particular, the Plan recommends revitalizing waterfronts and promoting outdoor and water-based recreation.

Southern Tier East Regional Interchange Study

This study examines the historical patterns of development associated with interchanges in Broome, Chenango, Cortland, Delaware, Otsego, Schoharie, and Tioga Counties that come from I-88, I-86, and I-90. The study seeks to understand the impact of these interchanges and anticipate future land use changes associated with new interchanges. It identifies the interchanges as having high, medium, or low growth potential and determined that those with high growth potential tend to have dense existing business development, higher traffic volumes, larger populations, and an array of public utilities, while those with low potential have limiting physical settings, a lack of on-site utilities, and low settlement densities. However, the study clarifies that a "low potential" rating does not mean that the area could not be a focus for targeted development efforts.

Southern Tier East "Insights into the Economy of the Southern Tier East Region" (2011)

This report focuses on defining and identifying regional industry clusters, showing the impact of various industries on the region, and evaluating the implications for future development. Its Stage 1 and Stage 2 focus on the agricultural economy and the manufacturing economy, respectively.

5 Working Lands and Open Space

This topic area involves the preservation and management of the Southern Tier's natural resources, both in terms of wilderness lands and productive cropland, while leveraging it to expand economic opportunities.

Challenges
<ul style="list-style-type: none"> • There are increased threats from commercial, industrial and residential development along the Chemung and Susquehanna River corridors stemming from highway upgrades to the I-86 interstate highway corridor. • Rural sprawl from housing development on rural road frontage in agricultural areas negatively impacts both the natural systems and rural character of the region. • Shale gas development in Pennsylvania is now causing increased development pressure in bordering Southern Tier Counties. • Local forest products and product development have no strong local markets, and most lumber harvested in the Southern Tier is shipped to China and other international destinations. Without a buy local campaign for lumber or a regional wood products marketing campaign that promotes the use of lumber from regional certified forests, there is little incentive for landowners to pursue FSC or comparable certification. Currently, Forest Stewardship Council certification of forests is costly and does not result in increased lumber value. • Best Management Practice implementation funds, which are available for local farms through NYSDEC and Federal agriculture programs, has been reduced significantly in recent years. In much of the Southern Tier, there are many farms that would be eligible for and interested in implementing BMPs, but dwindling funds and the required 25% match for state programs and 50% for federal programs makes this out of reach for many farmers.
Opportunities
<ul style="list-style-type: none"> • The Southern Tier has many existing sustainably managed forests - 171,800 acres of publicly owned forests are certified as being sustainably managed under the Forest Stewardship Council and Sustainable Forest Initiative.⁶³ An additional 68,000 acres of private forests are certified under the American Tree Farm System. • Several active programs promote and track the use of best management practices on Southern Tier farms and forests. These provide excellent models to promote best agricultural and forestry practices. • The region boasts an abundant fresh water supply. This is one of the Southern Tier's most important natural and recreational resources, and it is an important resource for use in agriculture, food processing, and other industries. Good agricultural practices can minimize the negative impacts of agricultural activities on water quality, mitigating stormwater runoff into adjacent streams and waterways. • There are strong collaborative partnerships with academic institutions in the region, particularly with the Cornell Cooperative Extension in all eight counties in the Southern Tier. • The Finger Lakes Land Trust is a major force in the Southern Tier's pro-active conservation activities. The Trust is a non-profit conservation organization that protects farmland and natural areas with conservation easements and acquisition and has; prepared two regional conservation reports that identify numerous

⁶³ Note that all NY State Forests are certified under both programs.

protection projects to conserve key forests, farms, natural areas, and connect trail corridors.

- The significant area of agricultural land offers carbon sequestration potential and greenhouse gas emissions offset opportunities for the region. Soil carbon sequestration reduces emissions of CO₂ to the atmosphere while also improving soil quality and preserving resources. While there is currently not a Carbon Exchange Program in place for farmers in the region, best management practices are an area of opportunity for agricultural producers to prepare for future participation in an exchange.
- There is growing demand and notable potential for expansion of the local food supply and value-added products. Promoting markets and expanding infrastructure can provide greater access to locally and regionally grown agricultural products within the region and to nearby urban marketplaces, such as New York City and Rochester. Expanding value-added agricultural products will most certainly enhance the profitability of farms.
- Maximizing renewable energy production in the region through solar, biomass and biofuels can strengthen the region's farm economy. Abundant marginal farmlands present a strong opportunity for Southern Tier farmers to benefit from biomass production for on-farm energy production and to retrofit fossil-fuel dependent systems for farms, residences, and industrial facilities. Renewable energy systems are able to exist in tandem with current agricultural and forestry operations.

5.1 Overview

The Southern Tier region has an abundance of forested lands and natural areas, clean rivers and streams, and rich farmland. Cornell University, and its outreach arm, Cornell Cooperative Extension, are located in the Southern Tier and offer a wealth of intellectual capital and agricultural innovation. There are significant challenges in preserving and enhancing the working lands of the region. They include economic challenges such as a stagnant state and regional economy, the downward price pressure of globalization, and possible unexploited opportunities to boost performance in agricultural sub-sectors and related industries. Land use challenges for agriculture include rural areas being prized for their aesthetic appeal but not necessarily maintained or paid for by those who want to preserve them; more environmental regulations which can influence management practices for crop and livestock production; and development pressure that raises land values, assessments, and farm property taxes. Additional challenges result from regional variation and scale considerations that drive economic development strategies.⁶⁴ The combination of natural and intellectual resources creates many opportunities to revitalize and grow this important sector of the economy while preserving key natural resources. The Southern Tier's approach to economic growth includes an initiative called the Rural Initiative Venture Fund which is 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."⁶⁵ At the farm level, successful agricultural growth strategies must: fit with the overall business vision of farms, respond to a need (business or consumer), are outcome focused, built on sound information, managed to perform over time, added costs must add revenues and include diverse income streams.⁶⁶

The Southern Tier region has an abundance of forested lands and natural areas, clean rivers and streams, and rich farmland. Roughly, 24 percent of the 4.8 million acres of the Southern Tier's land area

⁶⁴ Bills, Cail, & Roth, 2005. Southern Tier Agriculture: A Regional Economic Resource and a Landscape in Transition. Retrieved September 12, 2012, from Northern New York Ag Development: <http://www.nnyagdev.org/ncregionalfoods-downloads/Southern%20Tier%20Agriculture%20A%20Regional%20Economic%20Resource%20and%20a%20Landscape%20In%20Transition.pdf>

⁶⁵ Regional Economic Development Council of the Southern Tier, 2011, p. 131

⁶⁶ Bills, Cail, & Roth, 2005

is in farms (i.e., 1,148,449 acres). Broome, Chemung, Steuben and Tioga Counties showed an increase in the number of acres in farms from 1997 to 2002.⁶⁷ The Southern Tier has 171,813 acres of state forests that are certified as sustainably managed under the Forest Stewardship Council (FSC) and Sustainable Forest Initiative (SFI).⁶⁸ According to the New York State American Tree Farm (ATF) Office, 68,000 acres of private forests are certified under their sustainable management program, which is more commonly used for small privately owned forests.⁶⁹ The NY Southern Tier region has working programs that promote best agricultural and forestry practices including the Upper Susquehanna Coalition (part of the Chesapeake Bay Watershed) and the New York City Department of Environmental Protection's Watershed programs. While there are significant challenges in preserving and enhancing working lands of the region, the combination of natural and intellectual resources, an understanding of the value of working lands and open space and a willingness to invest in their preservation and restoration creates many opportunities to revitalize and grow this important sector of the economy while preserving key natural resources.

Farms

Protecting the region's farmland and promoting agricultural best management practices are both supported by programs administered by the New York State Department of Agriculture and Markets. County Planning Department and Soil & Water Conservation District (SWCD) staff administer the Purchase of Development Rights program (PDR) locally with some assistance from municipal planning staff and local conservation organizations (e.g., The Finger Lakes Land Trust). While the program is now funded, funding levels could be dramatically increased to address critical farmland protection needs.

Farm best management practices are often funded by State Ag and Market programs and by the USDA's Natural Resource Conservation Service (NRCS) programs. In the Southern Tier, the New York City Watershed Agricultural Council (WAC) and the Upper Susquehanna Coalition (USC) also administer and to varying degrees fund implementation of farm best management practices. The NYC WAC is unique in the region, given that it is protecting unfiltered water supply of millions of NYC residents and funds its agricultural BMP projects at a 100 percent level, with no matching funds required. The USC is part of the Chesapeake Bay Watershed Program and provides an increased level of technical assistance and financial support for farmers. However, throughout the region and New York state, the Agricultural Environmental Management (AEM) program is the standard program for evaluating farming practices and impacts on water supply and for developing BMP recommendations.

Agriculture is a leading industry in the Southern Tier economy and is a dominant feature of the rural landscape, representing 22 percent of the region's land use.⁷⁰ The tourist industry and local residents experience tremendous recreational and scenic benefits from these working lands. While it is difficult to quantify exact dollar and non-dollar value derived from the various Agricultural Subsectors in the Southern Tier, researchers with the help of the IMPLAN model⁷¹ have attempted to identify the value of various outputs. Figure 14 illustrates that dairy farm products and forage crops have generated the highest

⁶⁷ USDA, 2004. 2002 Census of Agriculture. Retrieved September 13, 2012, from United States Summary and State Data: <http://www.agcensus.usda.gov/Publications/2002/USVolume104.pdf>

⁶⁸ Perry, 2012. Forester at NYS Department of Environmental Conservation. (R. Manning, Interviewer)

⁶⁹ New York State American Tree Farm Office, 2012. ATF Program Data for Southern Tier. Email from Rick Manning. nytreefarm@hotmail.com.

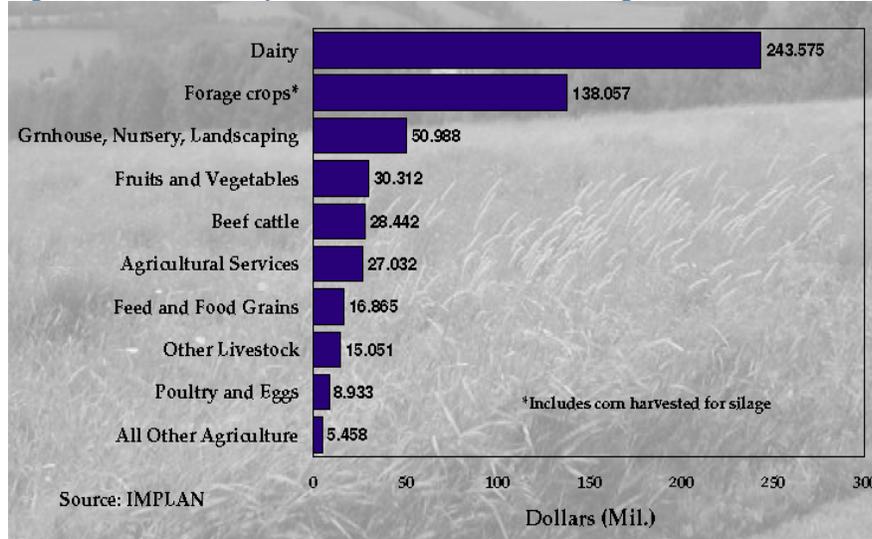
⁷⁰ STC-STERPDB, 2012. Susquehanna-Chemung Action Plan. Southern Tier Central Regional Planning and Development Board.

⁷¹ The IMPLAN model is based on software developed to study and analyze answers to the following questions: How does the local economy function; what would the economic consequences of this project be and what would the effect of the closure of the company or base be?

http://www.implan.com/v3/index.php?option=com_content&view=article&id=282%3Awhat-is.

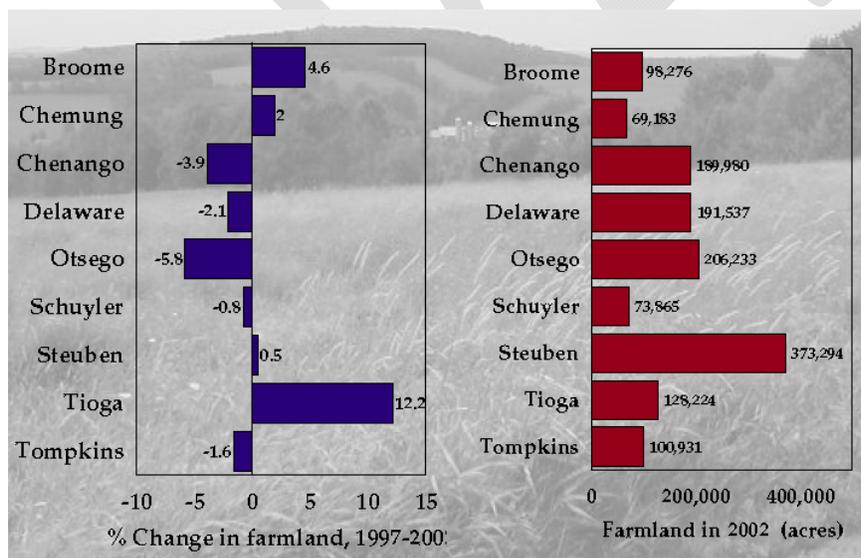
output with more than \$243 million and \$138 million respectively. Other significant sectors include the cattle and miscellaneous livestock, feed grains, vegetables, greenhouse and nursery products and forest products.⁷² Food processing and wood manufacturing dominate the Southern Tier’s agricultural sector in terms of dollar output and value added.

Figure 14. Value of outputs in various Southern Tier Agricultural Subsectors, 2000⁷³



Land use in the Southern Tier has experienced significant changes over the past several years, most notably a decline in the number of farms and owned or rented farmland in acres in all counties except for Broome, Chemung, Schuyler, Tioga, and Tompkins counties (see Figure 15).⁷⁴

Figure 15. Owned or Rented Land in Farms, Southern Tier 1997, 2002⁷⁵



⁷² Bills, Cail, & Roth, 2005.

⁷³ Graphic Source: (Bills, Cail, & Roth, 2005, p. 25)

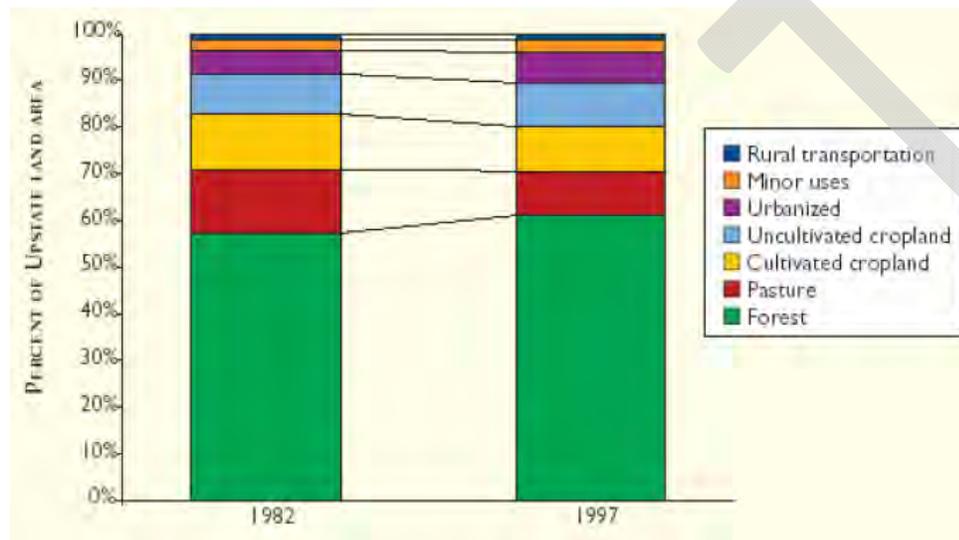
⁷⁴ Bills, Cail, & Roth, 2005

⁷⁵ Graphic Source: (USDA, 2004) as cited in (Bills, Cail, & Roth, 2005).

Forestry

Forests represent 71 percent of the Susquehanna-Chemung watershed, which encompasses a majority of the Southern Tier region. Forestland has experienced a 9 percent increase (roughly 200,000 acres) between 1993 and 2004 resulting largely from the abandonment of grazing lands.⁷⁶ Figure 16 illustrates land use change from 1982 to 1997, with agriculture (i.e., primarily pasture) decreasing and urban and Forestland increasing. Nearly half of the forests are considered “wild land-urban interface” indicating the forests occur in small plots near developed areas. Further forest fragmentation is likely to result from natural gas development and its related infrastructure. Additional threats to forestland in the region stem from a lack of forest management planning, invasive species, forest pests, and white-tailed deer populations.

Figure 16. Agricultural Declines, Urban and Forest Land Increase in Upstate, NY 1982-97⁷⁷



With these challenges come a number of opportunities. Well-managed forests can include the production of high quality hardwoods and other harvest wood products. Research and technical support are available from the US Forest Service and Cornell Cooperative Extension Services to help landowners improve their environmental management practices. Economic opportunities in the region include income from biofuel projects, developing markets for niche products, and income from natural gas.⁷⁸ All state forests in the Southern Tier region (171,813 acres) are certified by both the Forest Stewardship Council (FSC) and the Sustainable Forest Institute (SFI) for sustainable management of the forests.⁷⁹ SFI is the forest industry certification and is used primarily by very large timber companies.

County	Certified Acres
Tomkins	983
Steuben	5045
Schuyler	487
Chemung	370
Tioga	1175
Broome	5318
Chenango	7688
Delaware	47115
Total	68,181

Source:
(New York State American Tree Farm Office, 2012)

Small forest owners who are interested in sustainable management certification generally work with the

⁷⁶ STC-STERPDB, 2012.

⁷⁷ Graphic Source: (Pendall, 2003) as cited in (Bills, Cail, & Roth, 2005)

⁷⁸ STC-STERPDB, 2012

⁷⁹ Perry, 2012

American Tree Farm System (ATFS). 68,000 acres of forest lands in the Southern Tier region are ATFS certified according to the American Tree Farm Association.⁸⁰ In this region, sustainable certification does not increase the market value of the lumber, and there is no regional program to market local forest products, other than the Tompkins County Cooperative Extension Service's Local Building Materials Initiative, which focuses more on local than on any branded sustainability certification. Most hardwoods harvested and milled in this region are shipped in containers to China for their furniture making industry.

Conservation and open space

Numerous conservation and open space plans have been prepared that address the key priorities in the Southern Tier. SCORP, the New York State Comprehensive Open Space and Recreation Plan, is a key document that identifies large-scale park, trail and conservation projects. To receive state funding for these types of projects, inclusion in SCORP is essential. Most counties in the Southern Tier have prepared conservation and/or open space plans. The Finger Lakes Land Trust is a very proactive non-profit conservation organization that has prepared two key conservation plans for the Southern Tier, the *Finger Lakes Trail in the Emerald Necklace* and *Conservation Focus Areas for the Upper Susquehanna Watershed*. FLLT works closely with the NYS Department of Environmental Conservation on a variety of projects to connect, buffer and expand State-owned forests and wildlife management areas. Many of those projects are described in the two reports above. Conservation easements and land acquisition are the primary means for preserving natural areas and public open spaces. While the region is primarily rural, and the population is growing at a slower rate than other regions in NY, poor development planning can have significant impacts on the quality of life and water resources in the region. Further, development encroachments onto streams and wetlands increase flood risks and erosion damage. Loss of agriculture, forestland, and open space can lead to decreased carbon sequestration potential and decreased water quality in the region.⁸¹

Greenways

Beginning in the early 1990s, there has been an increased focus on planning for and construction of multi-use trails, sometimes along abandoned railroad or canal corridors, or rivers and streams particularly where they connect population centers, work places, and recreational destinations. In the Southern Tier, the three metropolitan planning organizations, the Ithaca Tompkins County Transportation Council, the Binghamton Metropolitan Transportation Study, and the Elmira Chemung Transportation Council have all provided leadership in planning multi-use trail networks. They have also provided funding and are implementing a variety of trail projects in partnership with their member agencies. Southern Tier Central and East, along with their member counties, have also conducted trail and river corridor studies that have identified trail projects, many of which have been planned and constructed.

5.2 Existing Regional Plans and Programs

Well-managed rural lands provide various ecosystem services including flood moderation, wildlife habitat, groundwater recharge, and carbon sequestration. On the other hand, mismanagement of agricultural lands can have the opposite effect leading to threats to water quality (i.e., sediment loading, nutrient transport, and chemical leaching). As a majority of these lands are privately owned, good stewardship is often incentivized through plans and programs. Often there is the concern that implementation of best management practices will further decrease profitability for producers, who often cannot afford uncertainty. Total Maximum Daily Load (TMDL) regulations passed by the EPA to help restore the

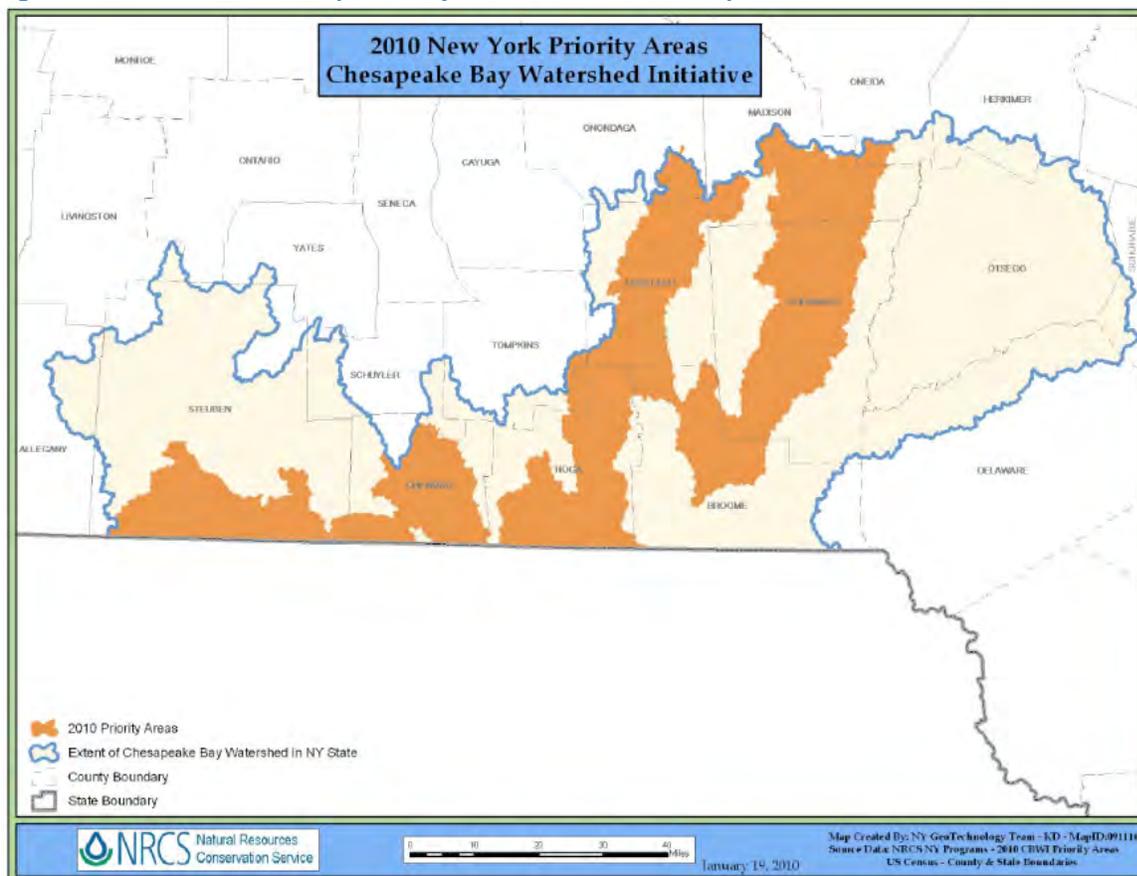
⁸⁰ New York State American Tree Farm Office, 2012.

⁸¹ STC-STERPDB, 2012

Chesapeake Bay (of which the Southern Tier forms part of the watershed) are estimated to cost New York Farmers \$250-450 million over 15 years for upgrades.⁸²

The NRCS in New York has a variety programs and initiatives available to landowners. A majority of the Southern Tier falls within the Chesapeake Bay Watershed Initiative (Figure 17). This program provides economic incentives to landowners to minimize excess nutrients and sediments to preserve and restore the Chesapeake Bay. Landowners who participate in Cropland, Grazing, and Livestock production are eligible for financial and technical assistance to incorporate cover crops, riparian forest buffers, nutrient management, prescribed grazing, and waste storage facility management.⁸³

Figure 17. USDA-NRCS Chesapeake Bay Watershed Initiative Map for New York, 2012⁸⁴



There have been multiple plans and initiatives both in the NY Southern Tier and in the surrounding region that include best management practices for farm and forestland and conservation of open space. Summaries of some of the plans in the region are provided below.

Broome County Agricultural Economic Development Plan

The Broome County Ag Plan identifies an Action Program of Major Agricultural Initiatives with associated implementation timeline and responsible parties. Four regionally chartered action task forces are proposed to focus on: Corridors; Recreation and Open Space; Brownfields, CBD Revitalization, and Environmental Stewardship. The Corridor Plans agenda is to establish specific land use/development

⁸² STC-STERPDB, 2012

⁸³ NRCS, 2012

⁸⁴ Graphic Source: NRCS, 2012

plans and transportation plans along specific corridors in the county. Recreation and Open Space's agenda is to pursue large scale and aggressive recreational and open space initiatives. Brownfields and Surplus Industrial Land's agenda is to expand the role and profile of the EMC's existing subcommittee on Brownfields; create new single purpose task force, and define role in implementing recently awarded EPA Brownfields Assessment Pilot Program. CBD Revitalization's agenda is to: 1) identify, advertise, and advocate downtown urban market niches building on the historic urban fabric of Tri-Cities; 2) aggressively support, fund, and facilitate downtown development opportunities; 3) Enhance redevelopment and rehabilitation through historic tax benefits, building code enhancement and other available resources. The environmental stewardship agenda is to 1) continue to assist municipalities to pursue sound environmental policy and smart growth initiatives; 2) Expand community indices program, establish baseline measurements, implement update and evaluation of regional planning initiatives.

Delaware County Agricultural Growth and Sustainability Plan 2010-2015

The goals of this plan include: product differentiation: marketing and branding Delaware County farm products; creating new mechanisms for aggregating, selling, and distributing products; and new product development. Delaware County Economic Development (DCED) will coordinate farmer-driven committees in each of these areas, and work to provide needed assistance and resources for each strategy including product differentiation, market exchange development, and new product development. DCED will provide the following services to these businesses: Microenterprise training and resources, access to capital, and agricultural infrastructure development. Implementation strategies include: market development, new business development, workforce development, and policy changes to support agriculture.

Delaware County Agricultural Development Plan (2000)

This Plan lays out strategies for Delaware County to sustain and grow its agricultural industry. It sets goals to: (1) brand and market Delaware County farm products; (2) create new mechanisms to aggregate, sell, and distribute products; and (3) develop new products. In order to achieve these goals, the Plan recommends different forms of business development assistance (e.g., microenterprise training and resources, access to capital, and agriculture infrastructure development), as well as strategies for implementation (e.g., market development, new business development, workforce development, and supportive agricultural policies).

Steuben County Agricultural Expansion and Development Plan

This Plan describes the role of farming in the Steuben County, indicating that farming is "big business," with greater economic multipliers than other sectors of the County's economy. Farming also helps to control urban sprawl, attract tourists, and create the County's rural character. The Plan provides an extensive list of goals, objectives, and measures for agricultural development. Its goals include: increasing the value of agricultural sales, promoting tourism, increasing farm profitability by building alliances that expand markets and reduce costs, establishing niche markets for new specialty crops, and incentivizing new agricultural enterprises.

Schuyler County Agriculture Economic Strategy

The Schuyler County Ag Plan recommends focusing on the following strategic points of focus including grassland farming, agritourism development for tourists from cities and suburbs, niche product farming, forest land and timber production, and community sense of self-sufficiency and sustainability. The specific goals of the plan are to: preserve a critical mass of both farmers and agri-business to support competition and provide a foundation for a sound agricultural economy; increase economic returns associated with farming; diversify and broaden the agricultural economic base to provide new income opportunities; increase public recognition of the value of agriculture and farmland and develop a better understanding of

farm issues by non-farmers; attract new entrepreneurs and younger households to farming ventures and expand the availability of capital to finance such enterprises; protect farmers from development and regulatory intrusions that threaten their ability to operate in a normal competitive fashion; and integrate agricultural development into town and County economic strategies and land use plans.

Tompkins City Comprehensive Plan Energy: Greenhouse Gas Emissions 2008 Amendment

This amendment to the Tompkins County Comprehensive Plan presents a four-pronged approach to reduce community GHG emissions and energy consumption. There is particular emphasis on biomass, in the form of forests, brush, and crops that can be cut or pelletized and used for home heating. This amendment states that biomass that is burned in efficient, clean-burning stoves could help residents make the transition away from nonrenewable energy.

Tompkins County 2020 Energy Strategy 2010

The 2020 Energy Strategy identified numerous strategies to achieve a 20 percent reduction below 2008 levels by 2020. Among the many strategies presented was the use of biomass for rural heating.

Tompkins County Forest Management Plan

The Tompkins County Comprehensive Plan identified a need to sustainably manage the 558 acres of forest lands owned by Tompkins County. It was also thought that a high-quality sustainable forest management plan could serve as a model for other forest owners in Tompkins County looking to obtain income generation over the long-term through sustainable harvesting practices. The overarching purpose of this plan is to provide for the sustainable management of Tompkins County's forest lands. A secondary purpose is to use the plan to achieve Forest Certification through the Forest Stewardship Council. The plan is laid out in five major sections: 1) management considerations; 2) guide to forest data sheets; 3) Newfield Forest Stands; 4) Caroline Forest Stands; and 4) Work Schedules. Management considerations include best management practices, Forest structure and old-growth stand descriptions, water quality protection initiatives, steep slope data, access constraints information, cultural resource areas, recreation and liability issues, deer population concerns, monitoring and control of invasive plants, monitoring and control of pests, non-timber forest products, and special habitat considerations.

Tompkins County Conservation Plan

The Plan identifies fourteen Natural Features Focus Areas based on the location and concentration of natural resources such as unique natural areas, wetlands, stream corridors, public drinking water resources, Important Bird Areas, and hiking and multi-use trails and trail corridors. In addition, the plan identifies six agricultural areas as being strategic for protection for land intensive agricultural uses. They are areas with high concentrations of quality agricultural soils and contiguous, actively farmed land. They are Northeast, North Lansing-West Groton, Northwest, Pony Hollow and Benjamin Hill, and Six mile Creak Valley.

Chemung River Trail River Trail Assessment & Comprehensive Master Plan

The Chemung River Comprehensive Master Plan study recommends a feasible network of riverbank trails and public access areas within the City of Elmira and the five (5) river towns. The master plan identifies safe trail, road and water connections between existing and future recreational destinations and points of interest, including a possible whitewater bypass at the Hibbard Dam.

Binghamton Metropolitan Greenways Study

In 1999 the Binghamton Metropolitan Transportation Study (BMTS) commissioned the Binghamton Metropolitan Greenways Study to determine the feasibility of developing riverbank trails along 25 miles of the Susquehanna and Chenango Rivers. The plan includes a detailed inventory of natural, historic and cultural features in the river corridors, and then assessed the opportunities and obstacles to trail

development. Where trail development was not feasible, linkages to the BMTS' on-road bikeway network were identified.

Local Building Materials Directory and Interactive Map

The directory is a guide to the building materials offered within a 100 mile radius of Ithaca, NY. It is designed to help homeowners, contractors, builders, anyone really, to realize the diversity and breadth of products available locally. The directory is divided by product type and indicates if the product is a raw material, manufactured good or locally-owned vendor. Similar to other directories and guidebooks, it is formatted to enable the consumer to make educated purchasing decisions that stimulate the economy—in this case, the local economy. Directory: <http://ccetompkins.org/home/green-building/directory>; Interactive Map: <http://ccetompkins.org/home/green-building/interactive-map>.

The Finger Lakes Trail in the Emerald Necklace

The Finger Lakes Trail in the Emerald Necklace while focusing on the trail link, also describes the vision for Tompkins County's Emerald Necklace, a linked series of protected lands (primarily state-owned), along with strategies for buffering, linking and better protecting these landscapes.

Conservation Focus Areas of the Upper Susquehanna Watershed

Conservation Focus Areas of the Upper Susquehanna Watershed within the Finger Lakes Land Trust's Service Area describes conservation threats and priorities in much of the Southern Tier, with 11 recommended projects. Regionally important natural resources include forests, wildlife habitat corridors, wetlands, and rivers and streams. Recommendations are included to combat threats of sprawl, natural gas development, and flooding include planning, education, biological inventory, model regulations, refined conservation planning. In addition, the plan proposes restoration and land protection.

Southern Tier Regional Economic Development Council Strategic Plan: 2011 – 2016

The plan describes opportunities 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.

Catharine Valley Trail Master Plan

This twelve-mile, multi-use trail links Watkins Glen and Seneca Lake to Horseheads. It spans Schuyler and Chemung counties. The master plan is to identify and describe the Catharine Valley's significant natural, historic, cultural, and recreational resources; recommend proposed trail route, trail users and proposed trail design treatments; develop proposals for a comprehensive signage system; select prototypical site amenities; develop a cost estimate of recommendations for phasing the construction of the trail; and describe trail operations and management issues.

Susquehanna-Chemung Action Plan

The "Susquehanna-Chemung Action Plan" is a watershed management plan for the Susquehanna and Chemung River Watersheds in New York. It uses an "ecosystem-based management" approach that integrates human needs, economic issues, and environmental concerns. The objective is to provide a unified vision for the region and promote funding for projects that benefit the watershed's residents. Recommendations for land use include education, training and technical assistance; land use planning,

Encourage sustainable land use patterns, and Smart Growth. Recommendations for Agricultural and Forestry include agricultural Best Management Practices; Farmland Protection; Sustainable Forest Management. The Plants and Wildlife Recommendations include: Habitat preservation and restoration; Targeting specific populations of plants and animal species; and controlling invasive and harmful species. Recommendations for Outdoor Recreation include: improve access to the water, provide an interconnected system of marked, maintained, and accessible trails that enable walking, biking, and cross country skiing long and between the region's waterways; Promote support businesses, government agencies and non-profit organizations and other groups that facilitate outdoor recreational opportunities; and engage the public in education and outreach.

Programs – Best Management Practices for Farm & Forest and Conservation & Open Space

Purchase of Development Rights (TC Program)

Tompkins County is an active partner in assisting farmers in applying for and receiving State assistance payments that cover up to 75 percent of the total costs for implementation activities to protect viable farmlands. These grants, administered by the New York State Department of Agriculture and Markets, are awarded pursuant to eligibility guidelines and criteria by which all projects are scored and ranked for funding.

Local Building Materials Initiative

The Local Building Materials Initiative (LBMI) is a new effort sponsored by Cornell Cooperative Extension of Tompkins County and the Ithaca Green Building Alliance. The greater Ithaca area has a wealth of resources when it comes to building materials, but they are underutilized. This project is designed to promote the use of local building materials within the greater spectrum of sustainable development. <http://ccetompkins.org/home/green-building/local-building-materials-initiative>

Tompkins County's Agricultural Resource Focus Area Plan

The Tompkins County Comprehensive Plan identifies a need for establishing “a program to protect and manage land for agricultural and forestry use in the focus areas using tools appropriate to the functions of those resources.” The Agricultural Resource Focus Area Plan is being developed to meet this need, highlighting the critical agricultural resource areas in the County where there is a significant concentration high quality soils, actively-farmed parcels, and land within an agricultural district. There are six identified Agricultural Resource Focus Areas (ARFAs) in the County.

Groundswell Center for Local Food & Farming

The Groundswell Center for Local Food & Farming is an agriculture education nonprofit based in Ithaca, NY, operating under the [Center for Transformative Action](#) and [EcoVillage at Ithaca](#) and serving the broader Finger Lakes area. Groundswell's core work is nurturing the next generation of farmers and cultivating knowledgeable “food citizens” through experience based educational programs.

Ithaca Farmer's Market

Ithaca Farmer's Market is a cooperative with 150 vendors who live within 30 miles of Ithaca, New York. Agricultural vendors grow and offer high quality fruits, vegetables, meats, eggs, poultry and dairy products. Food vendors bring a wide variety of freshly baked goods, jellies, honey, and sauces as well as meals to eat at the market. Many talented artists and craftspeople sell their locally made items.



Finger Lakes Land Trust

The Finger Lakes Land Trust was founded in 1989 to protect those lands that define the character of the Finger Lakes region of upstate New York. To date, the Land Trust has protected more than 13,000 acres of the region's wetlands, forests, farmland, grassland, and gorges. This has been accomplished through the establishment of nature preserves that are open to the public for quiet recreation, the use of conservation easements (voluntary agreements on private lands), and the provision of technical assistance and educational programs to local governments, landowners, and the public.

Upper Susquehanna Coalition's Ag Team

USC's Ag Team goal is to support Environmental and Economically Sustainable Agriculture by documenting farm statistics and BMPs, developing watershed and site specific agricultural plans and implementing and evaluating practices. They use the NY Agricultural Environmental Management Program approach for evaluating our farms and follow the Chesapeake Bay Program's approach for Best Management Practice information that helps determine the status of nutrient loading from the agricultural sector

NYS Dept. of Ag and Markets Pride of New York

The Pride of New York Program was developed to promote and support the sale of agricultural products grown and food products processed within New York State. The Program's growing membership now includes farmers and processors, retailers, distributors, restaurants and related culinary and support associations all working together to bring wholesome, quality New York State products. Website: www.prideofny.com

***Friends of the Chemung River***

The Friends of the Chemung River Watershed, Inc., (also known as River Friends) is a not-for-profit corporation, formed in December 2008 to preserve and promote the 45-mile-long Chemung River and encourage people to better use, enjoy and respect it. River Friends are also committed to the watershed—the Canisteo, Cohocton, Cowanesque and Tioga rivers that feed the Chemung River and the hills and valleys that surround them. They are a non-government organization, working full-time to protect these rivers and weave them into the development and improved quality of life in our communities.

Cornell Cooperative Extension of Tompkins County's Buy Local Campaign

The Buy Local Campaign is a community based initiative that evolved out of expressed interest to sustain local agriculture and build a stronger local food system in Tompkins and surrounding counties. Program goals are to foster the environmental, economic and social vitality of our community by increasing the connections between consumers and farmers. Through outreach, marketing, and special initiatives Buy Local seeks to raise individual and institutional awareness about the benefits of buying fresh locally grown and made products and to make local food an integral part of daily life.

6 Climate Adaptation

This topic area focuses on the ascertaining the impacts of current and expected climate shifts on the Southern Tier, as well as recognizing opportunities to mitigate the potential hazards of climate change through adaptive policies.

Challenges
<ul style="list-style-type: none"> • The availability of local climate projections is limited to seasonal average precipitation and average annual temperature, although NYSERDA ClimAID does have projections for NY State regions. The impacts are likely to be the greatest at the extremes of the distribution for these projections, which are difficult to extrapolate from averages. • Constrained budgets often divert local attention from long-term problems, including impacts of climate change. Despite the relatively high frequency of severe flooding, there is a limited understanding among the public and policymakers about the causes of flooding and the correlation between flooding and development decisions. • The Southern Tier contains several floodplains that have experienced two so-called “100-year flood” events within 5 years (2006 and 2011). While climate change projections suggest that such a “100-year flood” (i.e., an event that has a 1% chance of occurring in any given year) may occur more frequently, it may be difficult to garner public support to limit development since floodplains are generally attractive for construction. • The National Flood Insurance Program (NFIP) establishes minimum standards for new development, but does not prevent construction in flood-prone areas. Many floodplains have existing at-risk development that pre-dates these NFIP standards. Flood insurance is available throughout any community that enforces the NFIP development standards and is required for many buildings in the mapped 100-year flood zone. • FEMA flood insurance rate maps (FIRMs) are not representative of current flood risk. They are a nationwide set of maps and the floodplain for each waterway is not ground-truthed, unless an owner disputes the designation. They were created by using historic flooding and do not incorporate land use to delineate special flood hazard areas and the risk premium zones applicable to a community.
Opportunities
<ul style="list-style-type: none"> • The Southern Tier can work with many credible organizations in the Northeast. The Consortium for Climate Risk in the Urban Northeast⁸⁵ (CCRUN), ClimAID, the National Weather Service Forecast Office in Binghamton, and the Cornell Cooperative Extension⁸⁶ are organizations with a deep understanding of climate science and impacts on valuable resources. • NYSERDA developed an Integrated Assessment for Effective Climate Change Adaptation Strategies in New York (ClimAID) – a state-level assessment of climate change impacts and adaptation strategies that include an overview of projected climatic shifts and some region-specific information.⁸⁷

⁸⁵ Available online: <http://ccrun.org/>

⁸⁶ Available online: <http://www.cce.cornell.edu/Pages/Default.aspx>

⁸⁷ “Assessment and Action Plan,” The New York City Department of Environmental Protection, May 2008. Available Online: http://www.nyc.gov/html/dep/pdf/climate/climate_complete.pdf

- PlaNYC is an example of a city plan and a process that incorporates climate adaptation planning at a local level and continues to evolve as more specific climate information and resources become available.⁸⁸ To build climate resiliency, the 2011 update integrates climate risks into New York City codes and design standards.
- Each of the eight counties in the region is required to update a Multi-Jurisdictional Hazard Mitigation Plan every five years. Plan updates could include climate change projections as an effective and low-cost approach to establishing an assessment of local impacts on the future probability of hazards. The draft 2012 Tioga County Hazard Mitigation Plan Update⁸⁹ uses the projections in the ClimAID report to understand how the future climate will likely vary from the current and past climate.
- The Southern Tier Central Flood Assistance program provides local governments, businesses, residents, and organizations with technical support to implement a variety of flood risk management activities.⁹⁰ The counties in the Southern Tier already collaborate between jurisdictions on transportation plans, watershed management, a Regional Flood Warning Service (www.highwater.org), and on this sustainability plan. This culture of collaboration offers an opportunity to use collective resources to establish downscaled local climate projections that can be considered in future planning efforts.

6.1 Overview

Despite the best efforts to delay and reduce the severity of climate change and shifts in climate variability, scientific evidence strongly suggests that some impacts are inevitable. Countries, states, and municipalities across the world are beginning to incorporate climate projections into long-range planning. The State of New York and several local governments, including Tioga County, are leaders in climate change adaptation planning.

The State of New York is already experiencing a shift in the climate. Over the past century, temperatures across New York State have increased. Temperature increases vary by location; the NYSERDA ClimAID reports increases for the 20th century that range from less than 1°F to about 4°F in seven different cities across NY State.⁹¹ On average, throughout the state, average annual temperatures are projected to continue increasing – with warmer winters and more frequent extreme heat events during the warm season; average annual precipitation will increase – with more winter rain but decreases in summer precipitation; and sea level will rise – leading to flooding in coastal communities.⁹² Statewide projections suggest that the character and frequency of rainstorms in New York will shift to more frequent heavy downpours in the winter.

In 2008, the New York City Department of Environmental Protection⁹³ released one of first and most comprehensive climate change adaptation plans. In 2011 NYSERDA released ClimAID – A Technical Report Responding to Climate Change in New York State.⁹⁴ Both of these plans articulate the likely

⁸⁸ “PlaNYC,” The City of New York, April 2011. Available online:

<http://www.nyc.gov/html/planyc2030/html/home/home.shtml>

⁸⁹ “Tioga County Multi Hazard Mitigation Plan,” Tioga County New York. 2012. Available online:

<http://www.tiogacountyny.com/departments/emergency-management/tioga-county-all-hazards-mitigation-plan.html>

⁹⁰ “STC Flood Assistance Program,” Southern Tier Central Regional Planning & Development Board, Website. Available online: <http://www.stcplanning.org/index.asp?pageid=86>

⁹¹ <http://www.nyclimatechange.us/InterimReport.cfm>

⁹² NYSERDA ClimAID reports

⁹³ http://www.nyc.gov/html/dep/pdf/climate/climate_complete.pdf

⁹⁴ <http://www.nyseda.ny.gov/Publications/Research-and-Development/Environmental/EMEP-Publications/~media/Files/Publications/Research/Environmental/EMEP/climaid/11-18-response-to-climate-change-in-nys.ashx>

impacts that the city and state will encounter and outline a plan to address those impacts through adaptation. In June 2012, Tioga County released a draft County Hazards Mitigation Plan⁹⁵ that provides an analysis how climate change could affect each existing hazard that are current concerns in the County.⁹⁶

Fundamentally, climate change adaptation refers to adjusting decision-making to incorporate projections of future climatic conditions across a range of departments and programs. Since adaptation is both location- and threat-specific, the range of appropriate “adaptation actions” vary broadly and should reflect local economic, social, and environmental circumstances and priorities. In the Southern Tier, actions may include fortifying infrastructure to withstand potential increases in flooding, shifting agricultural practices to optimize an extended growing season and cope with drier summers, and/or expanding public health programs to respond to increased instances of extreme heat events.

Flooding in the Southern Tier Region

A floodplain is a normally dry area comprised of adjoining rivers, streams, lakes, bays, or oceans that becomes submerged during flood events.⁹⁷ The Southern Tier is subject to repeated flood damage and is considered a “flood alley”. Significant flood events occurred in the region in 1972 as a result of Tropical Storm Agnes, in 2006 the Susquehanna Basin Flooded and in 2011 as a result of Tropical Storm Lee. Not only do large scale flooding events occur, but also smaller localized flooding is a problem throughout the year.⁹⁸ Significant economic and personal costs have resulted from these floods. From 1978 to 2012, \$1.1 billion have been paid by the National Flood Insurance Program to the State of New York.⁹⁹ In an effort to respond to these disasters, municipalities have enacted floodplain management regulations based on the National Flood Insurance Program (NFIP) standards.

⁹⁵ <http://www.tiogacountyny.com/departments/emergency-management/tioga-county-all-hazards-mitigation-plan.html>

⁹⁶ The Tioga County 2012 draft County Hazards Mitigation Plan is currently available for public comment. This Plan has not been approved by FEMA nor adopted by the local government agencies.

⁹⁷ May, 2001

⁹⁸ STCRPDB, 2012

⁹⁹ FEMA-NFIP, 2012

New York State Climate Projections

Temperature

- Average annual temp increase 4.0 to 9.0 °F by 2080s (NYSERDA)
Winter: +8 to 12 °F (UCS) Summer: +6 to 14 °F (UCS)

Precipitation

- +5 to 15% by 2080s with greatest increase in north. Increase likely to be in form of winter rain (NYSERDA)
- +20-30% increase in winter precipitation with less snow and more rain (UCS)

Downpours

- Continue to increase – can lead to flooding and related impacts on water quality, infrastructure, and agriculture (NYSERDA)

Drought

- Summer drought projected to increase – affecting water supply, ag, ecosystems, and energy production (NYSERDA)

Extreme Heat

- More frequent and intense (NYSERDA)
- New York City could have 25 days per year over 100°F by 2070-2099 (UCS)

Secondary Impacts

- Heat-related illness and death, increased energy demands, pollution-related illnesses, water quality, infrastructure, agriculture, ecosystems including species range shifts, population crashes, coastal flooding (NYSERDA)

Opportunities

- Longer, warmer growing season, and potential for abundant water resources (NYSERDA)

Currently, downscaled climate projections for the Southern Tier region are limited to temperature and precipitation. Similar to trends in the rest of the state – both annual temperatures and precipitation are expected to increase in the Southern Tier.

Southern Tier Region Climate Projections (NYSERDA)

Temperature

- 2050s: +3.5 to 5.5 °F
- 2080s: +4.5 to 8.5 °F

Precipitation

- 2050s: Annual 0 to +10%
Winter: +5 to +15% Spring: 0 to +10 %
Summer: -5 to +5% Fall: -10 to +5%
- 2080s: Annual +5 to +10%

Secondary Impacts

- Milk production losses, invasive insects, weeds, and other pests moving north

6.2 Existing Regional Plans and Programs

Local governments in the Southern Tier region have begun to incorporate greenhouse gas reduction measures in several long-range plans. However the 2012 draft update of the *Tioga County Hazards Mitigation Plan*¹⁰⁰ is the only extensive example of a climate change assessment in the region. A review of the regional transportation, land use, conservation, flood mitigation, and watershed management plans revealed that climate change is not currently considered in long range plans. While climate change is mentioned in half of the current Hazards Mitigation Plans, future climate variability is not assessed in these plans.

Southern Tier Region and Local Plans and Programs

Local governments and regional agencies in the Southern Tier have recently begun discussing climate change impacts and adaptation options. The fact that climate change impacts will affect the region appears to be recognized, but municipalities and organizations in the region have yet to conduct vulnerability assessments. To date, the vast majority of climate change work in the region has been focused on mitigation and greenhouse gas emission reductions. Below are several examples of how climate change has been addressed in the region.

Elmira-Chemung Transportation Council (ECTC) is an active participant in the New York Association of Metropolitan Planning Organizations (NYSAMPO) Climate Change Working Group. In the Unified Planning Work Program 2012-2013¹⁰¹ report, ECTC highlights their contribution to the MPO's efforts to provide a forum for sharing mitigation and adaptation best practices, find slate of potential greenhouse gas reduction projects especially with co-benefits, share experiences, provide input for NYSAMPO planning process. While these efforts are mostly focused on greenhouse gas emission reduction, adaptation is recognized as an area that needs attention.

Elmira-Chemung Transportation Council 2030 Long Range Plan¹⁰² recommends that ECTC document existing processes and recommend additional methods to use for climate change impact analysis. However, this plan stops short of discussing climate change impacts or adaptation options.

Ithaca-Tompkins County Transportation Council released a 2030 Long Range Transportation Plan Update¹⁰³ in 2009. This plan provides a twenty-year vision for the regional transportation system and highlights the necessity to address climate change and the future fluctuation of the availability of fuel. While this plan discusses reducing greenhouse gas emissions and several co-benefits, it does not include a discussion of climate change impacts or adaptation.

Susquehanna-Chemung Action Plan¹⁰⁴ is a watershed management plan for the Susquehanna and Chemung watersheds. This plan discusses climate change impacts with regards to ecosystems, the watershed, and agricultural practices.

Additionally, several municipalities have made some comments about climate change and adaptation in local plans. The Village of Addison's *Comprehensive Plan*¹⁰⁵ (2009) mentions climate change, but only

¹⁰⁰ <http://www.tiogacountyny.com/departments/emergency-management/tioga-county-all-hazards-mitigation-plan.html>

¹⁰¹ <http://elmirampo.org/images/UPWP201213final.pdf>

¹⁰² <http://elmirampo.org/images/2009FinalLRP.pdf>

¹⁰³ <http://www.tompkins-co.org/itctc/lrp/2030lrp-chapters/2030lrtp-final-pdfs/2030lrtp-TOC-final.htm>

¹⁰⁴ http://www.stcplanning.org/usr/Program_Areas/Water_Resources/Susquehanna-Chemung_Action_Plan/S_C_Action_Plan_2012.pdf

¹⁰⁵ http://www.stcplanning.org/usr/Program_Areas/Local_Plans_Laws/Local_Plans/09_12_14_Adopted_Addison_Comp_PlanFINAL.pdf

that the Village of Addison is relatively isolated from potential risks. The *Tompkins County Climate Flood Mitigation Needs Assessment*¹⁰⁶ (2005) briefly mentions that climate change could be an additional hazard.

Vulnerability Assessments (at the local level, this largely equates to Hazards Mitigation Planning).

So far, vulnerability assessments have not been uncovered at the regional level, but hazard mitigation plans developed for several counties are addressing natural hazards that are related to and/or associated with changes in climate. To the extent that regional and state assessments of climate impacts projected increases in some of these natural hazards (e.g., flooding), hazard mitigation plans provide a solid starting point for adaptation planning at the local level.

The 2012 draft update of the Tioga County Hazards Mitigation Plan¹⁰⁷ uses the projections from ClimAID to assess the role of global climate change on the future probability of floods, severe winter storms, severe storms, extreme heat, and drought. The plan also notes that the effect of climate change on vulnerability should be considered, but it falls short of providing analysis. This plan is currently the most extensive discussion of climate change impacts in the Southern Tier Region.

Each county is responsible for completing and updating an All-Hazards Mitigation plan every 5 years. Across the country, a small handful of cities and counties have recently added climate change considerations into their vulnerability assessment. While climate change may not be viewed as an independent threat or hazard, changing climatic conditions will likely affect the frequency and severity of several climate-related hazards.

Table 14 summarizes the climate-related hazards that were assessed in the most recent hazards mitigation plan for counties and cities in the Southern Tier. The 2011 FEMA Local Mitigation Plan Review Guide does not require discussion of climate change, but it does specify that plans that do include climate change will not be required to remove that information.¹⁰⁸

While there are no current requirements, FEMA and other agencies are increasing the focus on climate change adaptation. FEMA and EPA have a Memorandum of Agreement in which the two agencies set the intention to collaborate on mitigation and adaptation efforts to reduce the impacts from climate change related hazards. Additionally, FEMA's Strategic Foresight Initiative lays groundwork for increasing the awareness and analysis of climate change impacts.

Table 14. Hazards Mitigation Plan for Counties and Cities in the Southern Tier

Hazard	County and Publication Year for Hazards Mitigation Plan							
	Broome 2010	Chemung 2012 DRAFT	Chenango 2008	Delaware 2006	Schuyler 2008	Steuben 2009	Tioga 2012	Tompkins 2006
Flood	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Severe Winter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

¹⁰⁶ <http://co.tompkins.ny.us/planning/documents/FINALREPORT.pdf>

¹⁰⁷ <http://www.tiogacountyny.com/departments/emergency-management/tioga-county-all-hazards-mitigation-plan.html>

¹⁰⁸ FEMA's Local Mitigation Plan Review Guide, released on October 1, 2011 states "In addition, FEMA will not require specific formats (for example, stand-alone plan, chapter in emergency operations plan, or integrated into comprehensive plan), and FEMA will not require information above or beyond the requirements to be removed (for example, non-natural, climate change).

Weather								
Severe Summer Storms	Yes	Yes	Yes	No	No	No	Yes	Yes
Extreme Heat	No	No	Yes	Yes	No	No	Yes	No
Drought / Water supply	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Wildfire	Yes	No	Yes	Yes	Yes	Yes	No	Yes
Landslide	Yes	Yes	Yes	No	Yes	Yes	No	No
Climate Change	Yes	No	Yes	No	No	Yes	Yes	No

Plans and Programs around New York State

There are several climate change adaptation plans and programs in other parts of the State of New York. Plans and programs range from a robust statewide assessment to collaboration with the Centers for Disease Control and Prevention (CDC) to New York City's detailed vulnerability assessment in PlaNYC.

The **NYSERDA ClimAID Report**¹⁰⁹ and **Adaptation Guidance** focus exclusively on climate change adaptation strategies specific to New York State. This is a state-level assessment of climate change impacts geared to assist local decision-makers in developing and adopting adaptation strategies. It was created through the collaboration of research scientists, practitioners, and local stakeholders. The report includes eight sectors that are likely to face climate change impacts in the state: water resources, coastal zones, ecosystems, agriculture, energy, transportation, telecommunications, and public health.

The **New York State Climate Action Council**¹¹⁰ was created to move the state towards meeting the Executive Order No. 24 goal of reducing statewide greenhouse gas emissions by 80 percent below the 1990 levels by the year 2050. In 2010 the council released an Interim Report¹¹¹ with the primary focus of outlining actions to reduce greenhouse gas emissions. Although the majority of the report is about mitigation, Chapter 2 provides an overview of climate projections and vulnerabilities for the state and Chapter 11 outlines options to adapt to climate change. Chapter 11 provides policy and strategy recommendations that integrate action in vulnerable sectors and principals such as equity and environmental justice, vulnerability, and economics.

Union of Concerned Scientists produced a profile for New York in **Confronting Climate Change in the U.S. Northeast**.¹¹² This profile provides projected climate changes for the state. It has general projections, some of which are relevant to the Southern Tier—including temperature increases and changes in precipitation patterns. The brief section also highlights some of the sectors that are most likely

¹⁰⁹ http://www.nyc.gov/html/dep/pdf/climate/climate_complete.pdf

¹¹⁰ <http://www.nyclimatechange.us/>

¹¹¹ <http://www.nyclimatechange.us/ewebeditpro/items/O109F24147.pdf>

¹¹² http://www.climatechoices.org/assets/documents/climatechoices/new-york_necia.pdf

to experience effects: human health, fisheries, agriculture, recreation, and forests. It concludes with some general suggestions about how to mitigate climate change, but does not offer solutions about how to cope with the shifts.

The NY State Department of Health¹¹³ is one of the states participating in the **CDC's Climate-Ready States and Cities Initiatives**.¹¹⁴ The CDC is working with the health departments in eight states, New York City, and San Francisco to investigate, prepare for, and respond to the potential health effects of climate change. New York State is part of the assessment and planning pilot program, which is utilizing the 10 Essential Public Health Services (EPHS) as a framework to measure the current capacity of its jurisdiction to confront both acute and long-term consequences of climate change.

PlaNYC¹¹⁵ is New York City's long-range city plan. Alongside the traditional driving factors of population, infrastructure, and economy, PlaNYC elevates climate change to one of the four conditions that will determine how the city grows. The 2011 Update¹¹⁶ accounts for climate risks in the city's codes and design standards. Presentations and documents illustrate how the city is building climate resiliency. The 2011 Update of PlaNYC is widely considered one of the most advanced climate change vulnerability assessments and adaptation plans in the United States.

¹¹³ <http://www.dec.ny.gov/energy/68917.html>

¹¹⁴ http://www.cdc.gov/climatechange/climate_ready.htm

¹¹⁵ <http://www.nyc.gov/html/planyc2030/html/home/home.shtml>

¹¹⁶ http://nytelecom.vo.llnwd.net/o15/agencies/planyc2030/pdf/planyc_2011_planyc_full_report.pdf

7 Water Management

This topic area covers the Southern Tier's water resources and management practices, while evaluating the potential for improving the region's water infrastructure and policies to meet the anticipated water quality impacts of projected development.

Challenges

- More than half of the Southern Tier region was disastrously impacted by two 100-year flood events, within a 5 year period. To better protect human and environmental health, development in floodplains needs to be reconsidered.
- Human activities (e.g., roadway development, gas drilling and mining, non-point source runoff from agricultural fields, economic activity and development) could threaten the region's groundwater.
- Water infrastructure is outdated and requires upgrades, including energy efficiency improvements. Limited funding and huge capital expenditures required to renovate/develop new facilities are a major barrier to modernizing water and wastewater facilities.
- The construction industry and agriculture sector contribute to sedimentation runoff. The latter is also a non-point source of nutrient runoff into nearby water bodies.
- Natural gas drilling of the Marcellus Shale poses potential risks to water quality and quantity across the region. The huge volumes of water required for hydraulic fracturing ("fracking") may pose a threat to the groundwater supplies. Some wastewater treatment plants will be faced with the challenge of treating wastewater from the fracking process, which will contain a number of chemicals that are not usually contained in wastewater. These facilities may not have the proper means for safely treating and disposing of this fluid.¹¹⁷
- Use of decentralized water treatment systems, both septic and drinking water, poses a challenge for implementing energy efficiency strategies in treatment.
- Lack of education for citizens and local communities on how they affect water quality. Despite the prevalence of water bodies in the region and the frequency of flooding, there is still a lack of education on the impacts of citizens' actions on water quality.

Opportunities

- The Southern Tier can celebrate its beautiful waterways by creating strong connections to them from communities, developing more water recreation opportunities, and supporting activities that enhance the quality and raise the awareness of this regional resource.
- Water and wastewater treatment plants can take advantage of financing for energy efficiency projects, which can be incorporated into future upgrades.
- Increased implementation of green infrastructure and LID practices is cost-effective and has several benefits other than water quality improvement (i.e., flood control, groundwater recharge).
- Planned facility upgrades should incorporate energy efficiency, including all new equipment to reduce energy use and operations and maintenance costs.
- Installing anaerobic digesters that produce biogas can reduce net energy use at wastewater facilities. New York State has made available \$57 million in funding to support the installation and operation of anaerobic digester gas-to-electricity systems through 2015, which would be a good fit for many of the region's treatment plants.¹¹⁸

¹¹⁷ "Marcellus Shale," New York State Department of Environmental Conservation, Website, 2012, Available online: <http://www.dec.ny.gov/energy/46288.html>

¹¹⁸ "Anaerobic Digester Gas-to-Electricity Program," NYSERDA, Available online: http://www.nyserdera.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/~/_media/Files/FO/Current%20Funding%20Opportunities/PON%202276/PON%202276%20Solicitation.ashx

- Water efficiency and water conservation programs can yield significant results in reducing the amount of water consumed and wastewater that needs to be treated, thus reducing energy used in water facilities. Programs that distribute water efficiency products like low-flow showerheads or provide incentives to install low flow toilets can reduce the need for expansions to water and wastewater plants.
- Several NYS program funding opportunities and entities support water and wastewater facility upgrades in the Southern Tier. New York State's Environmental Facilities Corporation is a public benefit corporation that provides low-cost capital and technical assistance for environmental projects in the state that could be tapped for water/wastewater facility work. NYSERDA's Existing Facilities Program offers incentives to offset the costs of implementing energy efficiency upgrades in existing facilities, ranging from \$30K- \$5M. NYSERDA's New Construction Program provides assistance to commercial and industrial facilities to incorporate energy-efficiency measures in new and substantially renovated buildings, including wastewater treatment and fresh water plants.¹¹⁹ There are also incentives for installing renewable energy projects on-site that could be utilized by water or wastewater at these facilities, in areas with a significant amount of unused land.
- Regional planning boards, Upper Susquehanna Coalition, and others provide water resource training for various audiences, including planning boards, highway departments, and the public

7.1 Overview of Water Resources and System

The Southern Tier's water resources provide drinking water for the region's cities and rural communities, and are critical to supporting agriculture, tourism, natural habitats, industrial, and commercial activities that are all vital to the region. The region is home to major rivers that supply freshwater to New York City and other downstream communities, the Chesapeake Bay, Great Lakes, and Atlantic Ocean. In general, plentiful water resources and rich soil provide good farming conditions and water quality ranges from satisfactory to good in many places. The greatest threats to water quality are agricultural runoff and other non-point source pollution, sewer overflows, discharges from onsite septic and rural wastewater treatment systems, and flooding. Significant wastewater treatment system upgrades are necessary to protect the region's water supply and prevent much more costly incidents in the future. Water infrastructure improvements, while needed, also present significant opportunities to improve the energy efficiency of water treatment facilities—there are already good examples from within the region for doing so.

Freshwater Resources and Water Quality

The territory of the Southern Tier is part of one of four watersheds: The Oswego River/Finger Lakes Watershed, the Chemung River Watershed, the Susquehanna River Watershed, and the Delaware River Watershed. The Chemung River joins with the Susquehanna River just south of the Waverly and the New York State border, with both Watersheds eventually flowing into the Chesapeake Bay. This Watershed continues to have high levels of nutrients and other pollutants, including almost double the load entering the Bay from NY, mostly from urban runoff and sewage treatment plants as well as agriculture. As a result, significant regulations have been passed to help protect and restore the watershed. The NYSDEC, along with the Upper Susquehanna Coalition, has developed an action plan to address the issue. The Oswego River/Finger Lakes Watershed, one of the largest in the state, flows westward across the state and empties into Lake Ontario; the Finger Lakes and other smaller lakes make up about 6 percent of the total surface of this watershed.¹²⁰ Finally, the Delaware River Watershed, which

¹¹⁹ "New Construction Financial Incentives." NYSERDA, 01 Jan. 2005, Available online: <http://www.entechassociates.com/docs/913pon.pdf>

¹²⁰ New York State Department of Environmental Conservation, <http://www.dec.ny.gov/lands/48023.html>.

covers areas in New York, Pennsylvania, New Jersey, and Delaware, flows into the Delaware Bay and eventually to the Atlantic Ocean.

Watershed-Specific Facts and Conditions¹²¹

Oswego River/Finger Lakes Watershed	
Location and Area	This watershed covers more than 5,000 square miles of land in New York, including most of Tompkins and Schuyler Counties and smaller parts of Chemung and Steuben Counties.
Major Tributaries	<ul style="list-style-type: none"> • Oneida and Clyde Rivers • Cayuga and Seneca Lake tributaries
Water Quality	Nearly 90% of rivers and 85% of lakes that were assessed were found to have good or satisfactory quality
Threats/Challenges	<ul style="list-style-type: none"> • Nonpoint sources of pollution • Protection of Finger Lakes resources, including drinking water and recreational uses

Chemung River Watershed	
Location and Area	This watershed covers 2,600 square miles – 1,740 of which are in New York State – and includes most of Chemung and Steuben Counties, as well as a portion of southwestern Schuyler County.
Major Tributaries	Cohocton, Tioga, and Canisteo Rivers
Water Quality	Nearly 98 percent of rivers that were assessed had water of good or satisfactory quality, though over 90 percent of lakes assessed had poor water quality
Threats/Challenges	<ul style="list-style-type: none"> • Agricultural and other nonpoint sources of pollution • Flooding impacts • Protection of municipal water supply in Elmira area

Susquehanna River Watershed	
Location and Area	The Susquehanna River's 444 miles drain a watershed of 27,500 square miles that covers large portions of New York, Pennsylvania, and Maryland. Excluding the Chemung River Watershed, this watershed covers 4,520 square miles within New York State and covers most of Broome, Chenango, and Tioga Counties and smaller portions of Delaware, Chemung, Schuyler, and Tompkins Counties
Major Tributaries	Chenango, Tioughnioga, and Unadilla Rivers Owego Creek
Water Quality	More than 87% of rivers that were assessed had good or satisfactory water quality, though 12% were found to have poor quality. Of lakes assessed, 84% were deemed to be of good or satisfactory quality.
Threats/Challenges	<ul style="list-style-type: none"> • Nonpoint sources of pollution • Municipal wastewater and combined sewer overflow in Binghamton-Johnson

¹²¹ Unless otherwise noted, watershed-specific facts and conditions are from the New York State Department of Environmental Conservation (DEC) Watershed information resources, available at: <http://www.dec.ny.gov/lands/60135.html>.

	<p>City area</p> <ul style="list-style-type: none"> • Onsite septic and rural community wastewater treatment • Flooding impacts
--	---

Figure 18. Susquehanna-Chemung Watershed¹²²



Delaware River Watershed ¹²³	
Location and Area	This watershed covers most of Delaware County as well as a portion of Broome County and small parts of Chenango County. It includes nearly 2,400 square miles of land area, with more than 4,000 miles of freshwater rivers and streams.
Major Tributaries	<ul style="list-style-type: none"> • East and West Branches of the Delaware River • Neversink and Mongaup Rivers
Water Quality	Over 97% of all assessed rivers had good or satisfactory water quality but nearly 100% of all assessed lakes in the watershed have poor water quality
Threats/ Challenges	<ul style="list-style-type: none"> • Acid rain • Atmospheric deposits of mercury • Protection of New York City Water Supply Reservoir

Generally speaking, lakes in the Chemung River Watershed and Delaware River Watershed have poor water quality, whereas water quality in rivers and by and large in other areas is satisfactory to good.

Threats to the Southern Tier’s Water Resources

Overall, the Southern Tier has good water quality and abundant water supply. However, land use patterns, resource extraction, and pollution present threats to the region’s water resources. The health of the region’s rivers is impacted by land use within the watershed. Poorly planned development, paved roads, and building in floodplains inhibit a watershed’s natural ability to absorb stormwater, replenish water resources, and filter pollutants. Farmland, though less developed, also has the potential to generate

¹²² STERPDB, 2009

¹²³ <http://www.dec.ny.gov/lands/48372.html>

water pollution. Improper farmland management can cause fertilizers and animal wastes to enter nearby streams and rivers.

Resource extraction, such as gas drilling or mining, continues to be a strong industry in the Southern Tier—the region sits on top of some of the largest natural gas deposits in the world—and also poses threats to water quality and water supply. Traditional drilling methods have the potential to contaminate water resources, and more recently there has been concern about use of the controversial fracking technique to extract natural gas from the Marcellus shale, which extends beneath the Southern Tier.¹²⁴ Fracking uses a mixture of water, chemicals and small particles to create fractures in a rock formation to release natural gas.¹²⁵ The use of fracking is under regulatory review by state and federal agencies. If permitted, fracking presents a new set of threats to both water supply and water quality. The fracking process requires large amounts of water, and produces a polluted byproduct that, if not disposed of or treated properly, could contaminate local water resources.

Water and Wastewater Treatment Facilities in the Region

In the Southern Tier counties, 40 water supply plants serve over 2,000 people per plant, and 50 wastewater treatment plants with capacity of over 500,000 million gallons per day (MGD) per plant. Much of the wastewater treatment infrastructure in the region is old and in need of often costly repairs. Postponing repairs can also be costly; the amount of water lost through leaks and breaks in pipes can account for 6-25 percent or more of water losses.¹²⁶ In the process of making costly upgrades, however, energy efficiency improvements can be achieved. Because the energy used to treat water and wastewater can make up nearly 35 percent of municipality's budget,¹²⁷ long term savings can be achieved, and there are already examples of ambitious plans to upgrade wastewater infrastructure in the Southern Tier. The Ithaca Wastewater Treatment Plant plans to reduce its total energy use by up to 75 percent through installation of energy efficient plant and equipment upgrades. The project is a joint effort between the City of Ithaca and the Town of Ithaca and will be managed by Johnson Controls. This project will lead to the development of significant local expertise in this area and could serve as an example for other jurisdictions.

More than 15 billion gallons of water are withdrawn each day from the lakes, rivers, streams, estuaries and ground waters of New York State for uses that include domestic consumption, industrial use, irrigation and livestock watering, mining and thermoelectric power generation. Thermoelectric power is by far the most significant of all water use categories, accounting for nearly 80 percent of total water withdrawn. Public water supply accounts for nearly 17 percent and is regulated by New York Department of Environmental Conservation (DEC).¹²⁸ Relative to the national average, NY State is above the average in energy use per volume water treated, indicating that there is room for improvement in this area.

¹²⁴ The Southern Tier's Approach to Economic Growth: Catalytic, Collaborative, Comprehensive, Competitive. Regional Economic Development Council of the Southern Tier. 2011. Available at <http://www.nado.org/wp-content/uploads/2012/07/SoutherTier.pdf>

¹²⁵ <http://www.epa.gov/hydraulicfracturing/process.html>

¹²⁶ Levin, Ronnie B., Paul R. Epstein, Tim E. Ford, Winston Harrington, Erik Olson, and Eric G. Reichard. 2002. "U.S. Drinking Water Challenges in the Twenty-First Century." *Environmental Health Perspective*. 110 (suppl 1): 43-52.

¹²⁷ "Statewide Assessment of Energy Use by the Municipal Wastewater Sector." New York State Energy Research and Development Authority. Final Report No. 08-17. 2008. http://www.nyserda.ny.gov/-/media/Files/EERP/Commercial/Sector/Municipal%20Water%20and%20Wastewater%20Facilities/nys-assessenergy-use.ashx?sc_database=web

¹²⁸ New York State Department of Environmental Conservation, 2009.

7.2 Existing Regional Plans and Programs

A number of Action Plans and Water Management Projects exist across the Southern Tier (Note: the first three plans cover a majority of the watershed region and are therefore highlighted. These plans provide comprehensive strategies for improving water quality, managing floods, and provide a unified vision for the region.)

Susquehanna-Chemung Action Plan

This action plan, put together through a partnership between Southern Tier East Regional Planning and Development Board (STERPDB) and Southern Tier Central Regional Planning and Development Board (STCRPDB), which uses an “ecosystem-based management” approach to conserving and protecting water resources. It provides a unified vision for the region and promotes funding for projects that benefit the watershed’s residents. It also integrates water recommendations with comprehensive economic development strategies for both regions.

Upper Susquehanna Coalition Wetland Program

The Upper Susquehanna Coalition (USC) has developed a “Multiple Barrier Approach” (MBA) for planning and implementing restoration projects on a watershed basis. The MBA addresses the issue at the source (e.g., headwaters), across the landscape, and in the stream corridor, as well as programmatically (e.g., regulations, training, and protection). By developing multiple projects to address problems, progress can continue and tangible results achieved even with smaller funding levels. Multiple barriers can increase the probability of success and help capture stakeholder interest by demonstrating progress through implementation.

USDA-NRCS Conservation Programs

The 2008 Farm Bill offers America’s agricultural producers and private landowners more assistance than ever before to voluntarily conserve natural resources on our Nation’s privately owned lands. These programs provide funding to assist producers in developing and implementing conservation plans on their land.¹²⁹

Additional Plans and Programs

Tompkins County Water Quality Strategy (updated in 2009)

Tompkins County has generally good water quality, but water pollution does exist as a result of inadequate on-site septic systems, stream bank erosion, agricultural activities, urban runoff, mining, logging, and other activities. Additionally, the flooding of streams and rivers also contributes to erosion and settlement problems.

Schuyler County Water Resource Strategy, Water Resource Program (2007)

Schuyler County’s principle resource is its water, which offers numerous recreational and scenic opportunities within the county. This plan outlines several goals targeted towards promoting land use decisions that preserve and restore hydrologic functions (e.g., wetlands, riparian buffer zones, infiltration areas, and flood storage areas).

Action Plan DCAP II for Watershed Protection and Economic Vitality (2002)

Delaware County provides water for both the county, and for New York City, which makes it even more important to protect and enhance the water quality. This plan provides recommendations for nutrient reduction from various point and non-point sources.

Watershed Agricultural Council (WAC)

¹²⁹ <http://www.ny.nrcs.usda.gov/technical/planning/planning.html>

The WAC collaborates with farm and forest landowners in the New York City Watershed region to protect water quality on behalf of nine million New York residents. The Council leverages land conservation techniques such as Whole Farm Plans Forest Management Plans, and Conservation Easements to help farmers, forest professionals and private landholders address water pollution concerns on properties located in the Croton and Catskill/Delaware watersheds.

Watershed Agricultural Program 2011 Annual Report and 2012 Workload for the New York City Catskill/Delaware and Croton Watersheds

The Program is a sub-component of the WAC and is a collaborative effort between the Council, local Cornell Cooperative Extensions, Soil and Water Conservation Districts, the USDA Natural Resource Conservation Service and Farm Service Agency. By engaging landowners in this voluntary Program that uses extensive environmental assessments, whole farm planning (farm-specific, water-quality protection plans) and Best Management Practices (BMPs), they are working to reduce the risk of pollutant runoff and to protect drinking water.

New York City Department of Environmental Protection (DEP): Watershed Protection Program Summary and Assessment

The report is a comprehensive evaluation of the City's watershed protection efforts to date. The report details the significant achievements made by DEP and its partners in designing and implementing the overall watershed protection program. Further, it uses information from DEP's comprehensive water quality monitoring and modeling programs to confirm that the quality of water in the Catskill/Delaware supplies remains high and that specific watershed protection programs are beginning to yield benefits and inspections are showing quantifiable improvements.

Tompkins County Conservation Plan, Part I: A Strategic Approach to Natural Resource Stewardship (2012 update)

This is a conservation plan identifies 14 Natural Features Focus Areas (bodies of water, forest lands or wetlands) and provides priority actions for conserving these natural resources. One of the categories of actions is water quality, which identifies action items in wastewater treatment systems, infiltration and paving practices, education about data and maps, impacts of roadside ditching, and water-borne bacteria.

Tompkins County Conservation Plan, Part II: A Strategic Approach to Agricultural Resource Stewardship (2010)

The plan mostly discusses issues in land use or development in relation to conservation of agricultural lands, but related is the abundance and quality of water resources and the water and sewer infrastructure. The plan gives proposed actions for preserving agricultural viability in relation to these two issues

Tioga County Infrastructure Master Plan (2004)

This plan gives implantation strategies and recommendations for specific projects that should be adopted throughout the county's water and sewer infrastructure.

Meads Creek Watershed Strategic Action Plan (2007)

Meads Creek and its tributaries (in Steuben and Schuyler Counties) are plagued by severe flooding problems and excessive stream bank erosion. There are also water quality concerns. In order to promote improved management of the watershed, STC assisted the Meads Creek Watershed Citizens' Committee with development of the [Meads Creek Watershed Strategic Action Plan](#). This plan compiles existing information about watershed characteristics, documents ongoing efforts to implement improved practices, and recommends future activities.

Setting a Course for Seneca Lake

A watershed Management strategy in Chemung, Ontario, Schuyler and Yates counties for Seneca Lake.

Seeley Creek Watershed Strategic Plan (2002)

Identifies opportunities for protecting citizens from hazards, improving hydrologic conditions, and protecting existing water quality in the Seeley Creek Watershed of New York and Pennsylvania.

Lamoka Waneta Lakes Wastewater Treatment Inspection Program

Wastewater management laws are an effort to address excess nutrient loading and underperforming waste water treatment systems on Lamoka and Waneta Lakes. These local laws establish mandatory minimum standards and maintenance requirements for onsite wastewater treatment systems on properties with access or deeded lake access (i.e., those properties within the Lamoka Waneta Lakes Water Quality Improvement District).

Water quality and resources advocacy and interest groups

Many groups are active in the Southern Tier, including: Finger Lakes/Lake Ontario Watershed Protection Alliance, Susquehanna River Basin Commission, Upper Susquehanna Coalition, Chesapeake Bay Gateways Network, Friends of the Chemung River Watershed, and others.

DRAFT

8 Waste Management

This topic area covers the waste management infrastructure, pathways and policies in place in the Southern Tier, as well as an overview of the plans to improve sustainability within this sector.

Challenges

- Due to low population density, the region faces high costs for Municipal Solid Waste collection, diversion programs, and outreach. These factors make curbside options more expensive.
- Collection of key waste streams is difficult, including construction and demolition materials; commercial, industrial, institutional, and multi-family waste; household hazardous; and electronic waste. For example, Broome County has identified barriers such as limited operating hours of waste facilities, low public and small business participation in waste diversion activities, small quantities/multiple types of materials collected and managed at facilities, and large waste streams containing usable products going to landfills.¹
- Limited data on waste managed in the private sector inhibits resource recovery. Chemung, Broome, and Tioga Solid Waste Divisions or Counties have noted difficulties acquiring waste management information from commercial waste generators, such as grocery stores and other retailers, due to proprietary information concerns.
- Limited opportunities for increased landfill gas to energy recovery. Landfills that are not already outfitted with these systems are generally not good candidates for it. In Chemung County, it was necessary to file a New York Department of Environmental Conservation permit modification to increase the annual tonnage limit, helping to make landfill gas-to-energy actually financially viable.¹

Opportunities

- Expand single source collection that is starting in the region to Chenango, Delaware, Schuyler, and Steuben Counties.
- Create and or expand municipal composting programs, such as those in Broome and Tompkins counties, and construct new infrastructure to facilitate centralized composting.
- Explore organic waste composting opportunities, particularly from rural areas that may be prime candidates. Chemung County surveyed local government, landscape contractors, and disposal companies and based on positive feedback, Chemung is exploring how to divert yard waste¹³⁰.
- Seek greater waste source reduction through product and packaging stewardship programs, such as extended producer responsibility take-back programs for appliances and electronics as well as by targeting additional material streams for recovery.
- Broome County has targeted commercial, institutional, industrial, and multi-family sites to increase recycling rates and has encouraged the reuse of construction and demolition materials as alternative daily cover at landfills.
- Initiate additional Pay as You Throw or Save Money and Reduce Trash programs/policies.
- Adopt new municipal solid waste processing technologies such as anaerobic digestion, thermal technologies, waste-to-energy, and bioreactor landfill models. The adoption of biodigesters on dairy farms in the Southern Tier could provide a new pathway to use agricultural waste as well

¹³⁰ For more information, see <http://www.dec.ny.gov/chemical/61918.html>.

as a source of energy. For example, AA Dairy farm, in Candor, NY directs a portion of its organic waste to an on-site anaerobic digester that provides energy and cost savings to the farm.¹³¹

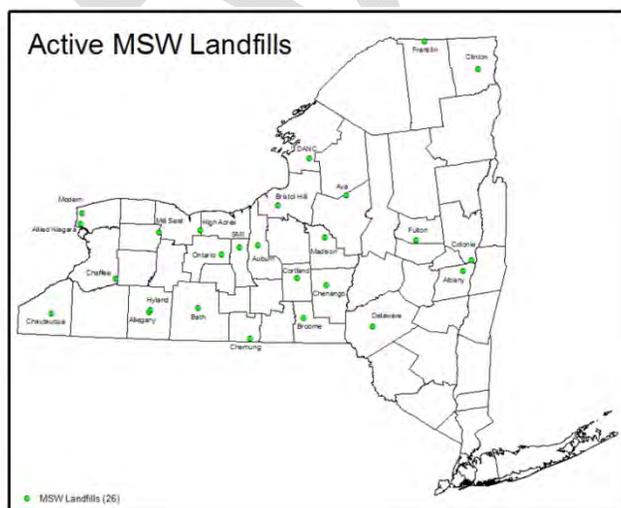
8.1 Overview of Waste Management

The pathways for waste streams in the Southern Tier consist of MSW landfills, construction and demolition (C&D) product landfills, recycling facilities and composting. Waste management in the region is organized into county-level “planning units,” which delineate high-level management strategies within the region and mark boundaries for landfilling. Depending on the county, waste is collected by a combination of private haulers, self-haul, and municipal collection in the area. There are significant waste flows between planning units and even to and from the region, as some planning units lack landfills and others import waste.

There are five municipal solid waste (MSW) landfills in the Southern Tier region, located in Broome, Chemung, Chenango, Delaware, and Steuben Counties (see Figure 19). While not every county in the Southern Tier has a MSW landfill, every county has a MSW collection program. The use of these landfills is not restricted to their own counties, as landfills receive waste both from other counties within the Southern Tier and in some cases from outside of the region. The MSW landfills in the region are required by New York State law to collect landfill gas from organic material decomposition. Landfills in Broome, Steuben, and Delaware Counties recover energy in their landfill gas collection systems, while the Chemung and Chenango MSW landfills flare the collected landfill gas.

In addition to the MSW landfills, there are also three C&D landfills, both public and private, operating in the Southern Tier (2 in Delaware County, 1 in Chemung County; see Figure 20), and 14 operating material recovery facilities (MRFs) in the region. It is noteworthy that there are no waste-to-energy combustion facilities in the Southern Tier, unlike in other regions in New York. Table 16 provides an overview of waste management plans, facilities, and services in each of the Southern Tier counties.

Figure 19. Active MSW Landfills in New York State¹³²



¹³¹ For more information, see:

<http://files.harc.edu/Sites/GulfCoastCHP/CaseStudies/AnaerobicDigesterAADairy.pdf>

¹³² Graphic Source: NYSDEC 2012, p. 199

Table 16. Overview of Baseline Assessment of Waste Management in the Southern Tier¹³⁵

		Broome	Chemung	Chenango	Delaware	Schuyler	Steuben	Tioga	Tompkins	Total
Waste management targets		60% Waste diversion (1.6 lbs. per capita)	--						75% diversion by 2015	N/A
Number of landfills	MSW	1 (accepts C&D)	1 (accepts C&D)	1 (accepts C&D)	1 (accepts C&D)	0	1 (accepts C&D)	0	0	5
	C&D	0	1	0	2	0	1	0	0	4
	Industrial/Commercial	0	0	0	0	0	0	0	1 (Ash disposal)	1
Landfill gas collection		18,223 Mwh	Flaring	Flaring	3,105 Mwh	N/A	2,183 Mwh	N/A	N/A	--
Transfer stations		2	5	2	7	0	3	1	1	21
Number of composting facilities		1	0 ¹³⁶	3 (yard waste)	1	0	0	0	1	14
Number of recycling facilities		2	0	0	1	6	4	0	1	14
Recycling System Type		Single Stream	Single Stream	Source Separated	Source Separated	Source Separated ¹³⁷	Source Separated	Source Separated	Source Separated	
Import Locations		--					C&D waste from region	--		N/A
Export Locations		Some recycling sent to Ontario County	Ontario County	Chemung	--			Chemung, Steuben	--	

N/A = Not applicable

-- = No information identified

N/A

¹³⁵ "Beyond Waste: A Sustainable Material Management Strategy--Appendix C." New York State Department of Environmental Conservation. Available at: "Beyond Waste: A Sustainable Material Management Strategy--Appendix C."

¹³⁶ NY DEC (2010, Appendix C) indicates that some composting drop-offs occur within the County

¹³⁷ Single-stream recycling is available in two towns (Orange and Reading) and two villages (Montour Falls and Watkins Glen).

8.2 Existing Regional Plans and Programs

This section summarizes solid waste management plans developed by several of the counties in the Southern Tier, and identifies an existing recycling, composting, and landfill gas capture programs established in the Southern Tier. Table 16 provides an overview of waste management plans, facilities, and services in each of the Southern Tier counties.

Waste Management Policies & Plans

New York State requires localities in the state, in a role taken up by the planning units, to develop Local Solid Waste Management Plans (LSWMPs) in order to receive permits for their solid waste management facilities. Since 1990, 60 of New York State's planning units have had their LSWMPs approved by the NYSDEC. However, more than half of the state's planning units LSWMPs have either expired already or will expire by the end of 2012.¹³⁸ The status of LSWMPs in the Southern Tier as of October, 2010, is shown in Table 17; several counties have or are in the process of updating their LSWMPs.

Table 17. LSWMP status in the Southern Tier, as of October, 2010¹³⁹

County	LSWMP Status	Sources
Broome	Original plan adopted in 1993 Expired December 31, 2010 Compliance Report issued for January 2009 through December 2010 Draft update completed February, 2010 Broome County Annual Planning Unit Recycling Report, 2011	Compliance Report for the Broome County Solid Waste Management Plan, 2009-2010 Broome County Solid Waste Management Plan Update, 2010 Personal Correspondence with Laurie Haskell and Deborah Smith, of the Broome County Solid Waste Management
Chemung	Original plan completed in 1991 Updated in August, 2006 Plan expired December 31, 2010 Update completed in April 2009	Update to the Integrated Waste Management Plan for Chemung County
Chenango	Expired December 31, 2009	NY DEC (2010) Local Solid Waste Management Plan (LSWMP) & Comprehensive Recycling Analysis (CRA) Status
Delaware	Original plan updated in 1999 Expired December 31, 2010 and currently in revision	Compliance Report for the Delaware County Solid Waste Management Plan 2009-2010 Personal Correspondence with Susan McIntyre, of the Delaware County Solid Waste Management
Schuyler	Expired December 31, 2010	NY DEC (2010) Local Solid Waste Management Plan (LSWMP) &

¹³⁸ NYSDEC 2012, p. 33

¹³⁹ Local Solid Waste Management Plan (LSWMP) & Comprehensive Recycling Analysis (CRA) Status, NY DEC, October 1st, 2010. Available online: [http://www.albanycounty.com/uploadedFiles/General Information/General Government/Executive/SWM-Authority/20101019-swm-plan-expirations.pdf](http://www.albanycounty.com/uploadedFiles/General%20Information/General%20Government/Executive/SWM-Authority/20101019-swm-plan-expirations.pdf)

		Comprehensive Recycling Analysis (CRA) Status
Steuben	Expired December 31, 2010	NY DEC (2010) Local Solid Waste Management Plan (LSWMP) & Comprehensive Recycling Analysis (CRA) Status
Tioga	Expired December 31, 2010	Personal Correspondence with Ellen Pratt, of the Tioga County Solid Waste Management
Tompkins	Expired December 31, 2011	NY DEC (2010) Local Solid Waste Management Plan (LSWMP) & Comprehensive Recycling Analysis (CRA) Status

Planning units with a LSWMP approved by the NY DEC must submit compliance reports every two years (no later than March 1st of every odd-numbered year). Compliance reports must provide a description of the planning unit, LSWMP status and accomplishments—including milestones, waste reduction and recyclables program elements and procedures, implementation obstacles, exceptional projects, differences from the last-approved LWSMP or Comprehensive Recycling Analysis, and progress towards achieving waste reduction and recovery goals, resources and funding, implementation schedule, and inventories of solid waste and recyclables. The following sections provide an overview of the current state of solid waste management planning in each county.

Broome County:

- **City of Binghamton Partnerships for Change:** Commission on Sustainable Development and Smart Growth, Final Report – This plan includes a goal for the city to encourage construction and demolition material reuse and recycling
- **Compliance Report for the Broome County Solid Waste Management Plan, 2009-2010:** This report, issued in February 2011, serves to fulfill the LSWMP requirements for Broome County by updating the state on the county's progress towards its LSWMP goals for the years 2009 and 2010. During these years, in addition to continuing existing initiatives as part of the LSWMP, Broome County reached the following milestones as part of the plan's implementation timeline: (1) conducted a recycling waste characterization; (2) re-evaluated the creation of waste districts, again finding that they are currently not feasible; (3) re-evaluated textile recycling, again finding that is currently not feasible; (4) composted sludge from small wastewater treatment plants in the Town of Chenango and the Village of Deposit; (5) encouraged backyard compost education through sale of bulk compost bins throughout the year, promotion at local farmer's markets, and the development of a composting webpage; and (6) signed a new Landfill Gas Agreement between the County and Broome Energy Resources, giving them exclusive rights to collect all landfill gas at the Broome County Sanitary Landfill until at least March 31, 2019. When this compliance report was issued, Broome County was in the process of finalizing a new LSWMP following the expiration of the previous plan at the end of 2010; for more information, see the "Broome County Solid Waste Management Plan Update" summary below.
- **Broome County Solid Waste Management Plan Update:** This plan sets goals to (1) recover an additional 19,000 tons of recyclables by increasing collection of household hazardous waste (HHW), e-waste, and C&D waste and diversion from commercial, industrial, institutional, and

multi-family units; (2) divert and reuse 20,000 tons of C&D waste per year by the end of the planning period by developing capture and processing technologies for roughly one third of the current C&D debris waste stream; (3) capture approximately 1,000 tons of HHW and e-waste by the end of the planning period by increasing diversion of these materials to 35 (percent on a tonnage basis); and (4) expand the existing compost operations to include biosolids and food waste through a phased program, resulting in the diversion and composting of up to 15,000 tons of organics per year by the end of the planning period.

Chemung County:

- **Chemung County Solid Waste Management Plan (SWMP):** This plan includes several objectives, including to (1) identify materials for which recycling markets exist; (2) develop cost-effective strategies for collecting, processing, and market recovered recyclable materials; (3) investigate emerging technologies, markets, and collection methods to add new materials to the recycling stream; (4) compost yard waste and/or MSW; (5) continue strong public education efforts to encourage public participation in waste reduction and recycling programs; and (6) evaluate the effectiveness of ongoing program efforts on an annual basis.
- **Update to the Integrated Waste Management Plan for Chemung County, New York:** This plan includes an objective of providing education materials to county residents on proper recycling and waste disposal practices and sets goals for (1) recycling 40 percent of the tonnage of landfilled material, (2) raising awareness of how much waste the county generates and opportunities for recycling, and (3) organizing special events to collect household hazardous wastes.

Delaware County:

- **Compliance Report for the Delaware County Solid Waste Management Plan, 2009-2010:** This report, issued in February 2011, serves to fulfill the LSWMP requirements for Delaware County by updating the state on the county's progress towards its LSWMP goals for the years 2009 and 2010. During this period, in addition to continuing existing initiatives as part of its LSWMP implementation, the compliance report cites two key implementation obstacles: 1) A significant increase in the amount of C&D waste in the county, potentially reducing the expected lifetime of the C&D landfill, and 2), successful performance demonstration of the new regional compost facility. The anticipated deviation from the LSWMP cited in the report is expansion of the co-mingled portion of the county's recycling program in order to maximize recovery by making it easier for private waste haulers and individual users to recycle. Additionally, the County has begun expanding the number of waste items subject to tipping fees with the inclusion of a fee for the acceptance of computers, monitors, and TVs for recycling. Lastly, the report expresses concern about the impact of New York City Department of Environmental Protection regulations resulting in an increase in sludge being landfilled as a function of increased WWTP capacity and limitations on alternative management such as land application of sludge.

Steuben County:

- **Town of Corning Master Plan Update, May 1999:** This plan notes that the Hickling Station has been reclaimed for the long term, environmentally-sound energy recovery and disposal of waste materials (i.e. tires) and for other adaptive reuse and is providing a steady tax income to the Town. The Town Board has set a goal of seeking involvement of top utility executives to devise a long term plan for selling energy from the Station that benefits both the company and the Town.

Tompkins County:

- **Tompkins County 2020 Energy Strategy:** Adopts a goal of 75 percent waste diversion by 2015 by expanding the types of materials that can be recycled, launching single-stream recycling, expanding food waste composting, expanding an existing business- and institutional-sector program encouraging waste reduction and diversion, expanding an existing reuse program, and coordinating multiple government and non-profit green purchasing programs; Creates Waste Reduction and Resource Management Policy, including provisions for a waste reduction program to assess and manage the waste of all County departments, including waste assessments to identify practices and procedures to be implemented for waste reduction, reuse, recycling, composting, and environmentally preferable purchasing based on the unique circumstances of each department; and efforts by public schools to reduce waste generation.
- **Tompkins County Solid Waste Management Plan:** This plan sets goals to (1) provide an environmentally sound, cost-effective disposal strategy for all non-recyclable waste over the 20-year planning period; (2) develop a waste reduction program that will result in 10 percent reduction in waste by 1997; (3) meet or exceed the 40 percent statewide recycling goal by 1997; and (4) maximize opportunities for reuse in the county.

New York State Department of Environmental Conservation (DEC):

Beyond Waste: A sustainable materials management strategy for New York State: This plan was developed by the state DEC to guide future state, local, and private waste efforts in New York.

The plan emphasizes making upstream waste generation a priority through a “shift from focusing on ‘end-of-the-pipe’ waste management techniques to looking ‘upstream’ and more comprehensively at how materials that would otherwise become waste can be more sustainably managed through the state’s economy.” The plan makes product stewardship a “centerpiece”, including packaging stewardship and a focus on a product-specific stewardship approach for HHW, pharmaceuticals, mercury-containing products, paint, automobiles, carpets, office furniture, roofing shingles, appliances, and tires. Other key elements include:

- DEC stresses the development of revenue-generating programs to achieve materials management goals such as state funding, bottle deposits, solid waste disposal fees, plastic bag fees, and permit fees.
- DEC’s plan includes a broad goal of reducing daily per capita MSW generation from 4.1 pounds to 0.6 pounds by 2030.
- DEC emphasizes targeting material reuse and organics, including donating food to food banks or as animal feed and composting.
- DEC endorses PAYT/SMART programs as ways to create financial incentive for consumers to waste less and recycle more.
- The plan stresses enforcing recycling requirements in all sectors, including those not usually targeted like business, institutions, C&D, industry, etc.
- The plan lays out several programmatic recommendations for the state to pursue:
 - Lead by example – demonstrate recycling practices within government agencies.

- Educate the public – public education campaigns, educate manufacturers, etc.
 - Support comprehensive materials management planning – expand local solid waste management planning technical assistance program
 - Provide outreach and technical assistance – provide guidance and assistance to municipalities, businesses, institutions, and agencies in the state to develop materials management programs.
 - Combat climate change – ensure landfills pursue every possible mechanism for achieving GHG reductions, maximize conversion of landfill gas to energy
 - Develop reuse and recycling infrastructure and end-use markets – target glass, plastic film, plastics #3-7, compost, tires and C&D debris; encourage local use of processed, mixed glass, chipped tires, and other appropriate recycled materials in engineering applications.
- The plan adopts a new metric for measuring materials: per capita waste disposal, as well as per capita diversion of recyclables and organic materials.
 - The plan calls for clarifying the waste management hierarchy, including that emphasizing that reuse is preferable to recycling, that composting and organics recycling are equivalent to recycling, and that product stewardship is the preferred approach to implementing the hierarchy.

Waste Management Programs

The following sub-section summarizes several of the existing waste management programs in the Southern Tier. The programs are described according to waste management practice.

Recycling:

- Recyclables are collected throughout the region. Most regions require source separation of recyclables, while Broome and Chemung County have single stream recycling in place to facilitate convenient recycling.
- E-Waste Disposal: The New York State Electronic Equipment Recycling and Reuse Act of 2010 requires that residents have access to “free and convenient” electronics waste recycling. The Southern Tier has numerous e-waste collection events and drop-off points.¹⁴⁰
- Tompkins County has a “ReBusiness” recycling assistance program for local businesses, which provides free recycling audits and implementation assistance to participating businesses, as well as bins and signage.¹⁴¹
- Mandatory Recycling: Tompkins County mandates the recycling of newspaper, glass bottles & jars, metal food & beverage cans and corrugated cardboard.¹⁴²

Composting:

¹⁴⁰ “E-waste Recycling.” New York Department of Environmental Conservation, Available online: <http://www.dec.ny.gov/chemical/65583.html>

¹⁴¹ “ReBusiness Partnership Program.” Tompkins County Recycling & Solid Waste, Available online: <http://www.recycletompkins.org/editorstree/view/2>

¹⁴² “Residential Recycling.” Tompkins County Recycling & Solid Waste. Available online: <http://www.recycletompkins.org/editorstree/view/162>

- Tompkins County has extensive private and public composting in place and boasts a high participation rate: 41 percent of households in the county participate in some form of composting.¹⁴³ A private stakeholder, Cayuga Compost, is permitted to process 1,500 tons / year of food waste annually.¹⁴⁴ Additionally, there is a public drop-off point for organics to be composted at a central facility.
- Several counties (Broome, Chenango, Delaware, Schuyler, Steuben, and Tioga) encourage private composting on private land. Steuben County, for example, does not accept yard trimmings at landfills or transfer stations to encourage residents to compost them or dispose them on their own land and reduce landfilling.¹⁴⁵

Landfilling:

- Pay-as-you-throw: This policy has been implemented in Tompkins County to incentivize waste diversion. The Tompkins County trash tag program requires residents to pay for waste disposal by weight. Since 1990, this has resulted in waste collection turning from a tax-based to a fee-based system. Trash tags are purchased from haulers, which are then used to pay tipping fee at landfills. Large waste producers pay tipping fees directly.¹⁴⁶
- Mandated Landfill Gas Collection: New York State law mandates the submission of a collection and control system design and permit application for all landfills whose non-methane hydrocarbon emissions exceed 50 megagrams per year.¹⁴⁷ All applicable landfills in the Southern Tier are outfitted to either flare their gas or collect it and combust it for electricity. The landfills in the Southern Tier (not C&D landfills) are already outfitted with either flaring or LFG to energy systems LFG-to-Energy implemented in Bath Sanitary Landfill (Steuben County), Broome County Landfill, and Delaware County Landfill. Chenango and Chemung counties use flaring, which has a smaller GHG abatement impact than LFG-to-energy.

¹⁴³ NYSDEC 2012, Appendix C, p. 312

¹⁴⁴ NYSDEC 2012, Appendix C, p. 312

¹⁴⁵ NYSDEC 2012, Appendix C, p. 342

¹⁴⁶ "Financial Information." Tompkins County Recycling & Solid Waste, Available online:

<http://www.recycletompkins.org/editorstree/view/154>

¹⁴⁷ "NAAQS State Implementation Plan Section 208." New York Department of Environmental Conservation, available at: <http://www.dec.ny.gov/chemical/37164.html>. (NYSDEC 2012, p. 211)

9 Governance

The governance topic area includes overarching policies, plans, codes, and ordinances that support actions in the other topic areas, and it plays a key role in the Southern Tier's sustainability efforts. This section provides a brief background on the governing arrangements of municipalities in New York State, and highlights the role that local government policies, plans, and codes can play in supporting sustainability – including local land use, zoning, building, and energy codes; land acquisition and assembly; infrastructure investment and finance; legislative proposals that influence where growth and development take place; environmental protection; and investment in transportation, infrastructure, and services. Several programs, policies, projects, and other initiatives are covered in the previous topic area sections. This section identifies examples of collaboration and coordination among government agencies and elected officials, institutions and nonprofits, the public and the private sector to develop and implement innovative policies, plans, codes and ordinances, and investment strategies together.

Challenges

- Since New York is a Home Rule state, and most decisionmaking authority is in the hands of each local community, it becomes harder to develop coordinated strategies at the regional level.
- Limited local budgets and staff time to address the need for updates to each municipality's plans, codes, and policies, plus limited staff to implement the strategies in this plan.
- Difficult to apply integrated sustainability concepts across the entire region due to the geographic and historical urban divide between rural towns and cities.
- The Southern Tier Regional Consortium, formed to support and help guide the Cleaner Greener Southern Tier planning process, is an informal group that does not have a sponsor, dedicated staff, or funding beyond this planning process. There is also no single agency that covers the dispersed rural region, which has two separate regional planning and development boards.

Opportunities

- There are many existing local government policies, plans, and codes that already support sustainability. These can be used as a starting point for new guidance documents developed under these goals.
- There is a strong opportunity to update land use regulations and zoning to support smart transportation choices. Many of the regional and county plans include these concepts, but they need to be incorporated into each jurisdiction's land use authority. The Ithaca-Tompkins County Transportation Council has key initiatives to reduce transportation demand.
- Many of the comprehensive plans, policies and code changes in the Southern Tier already support livable communities. The Southern Tier Central's Comprehensive Economic Development Strategy lists an objective to "assist communities to cultivate a distinct 'sense of place'" and promote a walkable, livable environment for both residents and visitors.
- Many of the county and regional plans already identify and target areas for compact development and focused investment. These plans can be a starting point for helping interested municipalities to select priority redevelopment areas for targeted investment. Broome County's *Plan for Sustainable Economic Development* includes a land use and regional planning analysis that identifies fourteen potential development sites in the Binghamton area.
- Policies can be revised to support economic development. The Southern Tier Central Comprehensive Economic Development Strategy has an objective to assist local governments with zoning changes to redevelop vacant industrial sites.
- Water management policies can be created that support development of more compact mixed-use communities – and land development plans and investments that focus on areas with existing water management services.
- Incorporate agriculture and farmland protection into plans, codes, and investments. In Steuben County, the planning department conducts a mandatory review of the county's Agricultural Districts every eight years, providing information about benefits of agricultural districts.

9.1 Overview of Governance

New York State governing municipalities are made up of counties, cities, towns, and villages - corporate entities known as municipal corporations.¹⁴⁸ Counties have geographical jurisdictional boundaries, employ home rule powers, and have the fiscal capacity to provide a wide range of services to their residents. Each of the eight Southern Tier counties includes a number of towns and villages – which can range from 32 towns, 13 villages, and one city in Steuben County to eight towns and four villages in Schuyler County; there are only six cities in the region. The counties, cities, towns, and villages within the Southern Tier region range from very rural to more urban – making the interests, concerns, capacity, and governing practices very diverse.

According to New York State Law, counties have the ability to draft and adopt home rule charters (which supersede New York State County Law) if they wish, although most still operate under the County Law. Every county has a legislative body that enacts laws and adopts resolutions. The legislative bodies in cities, towns, and villages may create planning boards, which oversee local zoning laws and ordinances and may play an advisory role in comprehensive plans, zoning regulations, long-range capital programs,

¹⁴⁸ Local Government Handbook. 2011. New York State Department of State. 6th Ed.

or even regulatory functions such as control of land subdivision, site plan review, and issuance of special use permits. The term 'hamlet' is used in many of the actions throughout this plan, but generally has no legal standing. Most hamlets are small, historic rural crossroads communities that are legally part of the surrounding town, and fall under its planning and legal authority.

The Southern Tier is really three regions working as one with significant differences across the region. There are several regional organizations within the eight-county region. The Southern Tier Central Regional Planning and Development Board (STC), based in Corning, includes the three western counties. The Southern Tier East Regional Planning Development Board (STE), based in Binghamton, includes the eastern counties, but also includes other counties as members that are incorporated into other NYSERDA-designated regions and sustainability plans. Tompkins County is geographically part of STE, but also has its own local council of governments and metropolitan planning organization (MPO) that develop regional policies. The three main urban centers of Binghamton-Broome County, Elmira-Chemung County, and Ithaca-Tompkins County each have MPOs that develop transportation plans and projects for the major city center, the surrounding counties and other nearby areas.

While having multiple regional agencies helps focus attention on distinct parts of the region, it also means that there is no single agency charged with research, data collection and management, planning, project implementation, and performance tracking over the entire region. Within the governance area, the overall diversity of the Southern Tier is both a strength and a challenge – and presents significant opportunities for improvement. Since New York is a Home Rule state, each municipality maintains control over land use and development decisions at the local level. This puts planning and decisionmaking authority in the hands of people who live in the community and represent their neighbors – but can also make it harder to develop coordinated strategies at the regional level.

The Southern Tier Regional Consortium consists of representatives from all counties, cities, and Climate Smart Communities in the Southern Tier; Southern Tier Regional Economic Development Council members; and other regional stakeholders, such as cooperative extension staff, local economic development agencies, metropolitan planning organizations (MPOs), colleges and universities, and agricultural agencies. Formed to support and help guide the Cleaner Greener Southern Tier planning process, it is an informal group that does not have a sponsor, staff, or funding beyond this planning process. Since the Southern Tier region spans multiple regional agencies, there is not one single agency that would be the logical host or sponsor moving forward; although the Tompkins County Planning Department is leading and administering the Cleaner Greener planning process, they might not be recognized by the other municipalities as a likely lead agency for many of the implementation strategies.

Challenges

In addition to the overall challenges of limited local budgets and staff time to address the need for updates to each municipality's plans, codes, and policies, there is also the issue of allocating staff time and resources to continue working together to review and begin to implement the strategies in this plan. Many existing planning documents may be based on outdated principles and goals that do not reflect current issues faced by communities. Chenango County's comprehensive plan was adopted in 1974, and is currently in the process of being updated.

One of the challenges in the Southern Tier will be the need to adjust and customize plans, policies, and project ideas for the different rural areas; each county and municipality is slightly different and has different community interests. It may be difficult to apply integrated sustainability concepts across the entire region. There will likely be continuing conflicts between farm and non-farm uses, or different visions for the future of the region's hamlets and small villages, arising as residential growth spreads into farming areas. Bringing the public into the conversation about these potential conflicts as part of comprehensive

plan updates can help identify and work through any differences of opinion and make sure the community, as a whole, is moving towards a more sustainable future.

9.2 Existing Regional Plans and Programs

Over 130 plans, codes, and policy documents were reviewed in developing the goals, baselines, and implementation plan. Many of those documents are summarized in the prior individual topic area sections; the general types of plans and other documents include: Regional and MPO plans and policies; County and City Comprehensive Plans and Codes; Village/Town/City Master Plans; Bicycle, Pedestrian, and Multi-Use Trails; Coordinated Public Transportation and Human Services Plans; Corridor and Area Plans and Studies; Sustainability Plans; Comprehensive Economic Development Strategies; Agricultural Development Plans; Climate Change Adaptation Plans and Programs; Water Management Plans; Wastewater and Water Quality Plans; and Solid Waste Management Plans and Compliance Reports.

Integrated Plans, Codes and Policies

Southern Tier municipalities and regional agencies have been working together on more integrated plans and policies that support sustainability for some time. There are strong working relationships between government, institutions, nonprofits, and business leaders, as well as many good examples of projects that embody the principles in this plan. Many Southern Tier municipalities' existing plans, policies, and codes reflect a move toward more sustainable practices across all topic areas. The City of Binghamton's Mayor and City Council convened the Commission on Sustainable Development and Smart Growth in 2008 to research best practices and recommend actions for the City to become more sustainable and to pursue Smart Growth. Recommendations included: integrate SmartCode into City planning, policies and codes; review and reform the City's municipal code to improve stormwater management; and promote green building practices.

Based on a review of existing municipal policies, codes, and comprehensive plans in the Southern Tier region, there are many opportunities to revise policies, codes, and ordinances towards more sustainable practices. There are also opportunities to better coordinate services and make investments more cost-effective. There are opportunities to revise zoning laws for more walkable and livable communities in light of research that homes with access to open space or greenways and parks generally have higher value and have a higher resale value than homes in tract-type layouts.

Comprehensive Plans

Comprehensive Plans (sometimes called Master Plans or Strategic Plans), while not required, are completed by many of the local governments for use as planning guides for the municipality's natural and built environment. The successful implementation of zoning ordinances requires an effective frame or structure to support these concepts. The comprehensive plan articulates the community vision and goals, which are implemented through codes, zoning, and public and private investment. Ideally, comprehensive plans will integrate land use planning with transportation, housing, infrastructure, and environmental planning. A clear set of principles, developed in a broad community process (including development stakeholders) and incorporated into the comprehensive plan, can provide a framework for determining whether proposed developments are achieving a sustainable pattern, and fit in with the desired community character. The comprehensive plan and codes can also establish a requirement that large developments include a design charrette process to incorporate community input into their concept designs.

In 2008, the Tompkins County Legislature adopted a goal of reducing greenhouse gas emission in the community by at least 80% from 2008 levels by 2050 and in September 2010, the Legislature endorsed a strategy outlining measures to achieve the first interim step. In the Tompkins County Comprehensive

Plan, proposals such as the adoption and expansion of local tax incentives for energy efficiency and renewable energy system investments and development of model building energy codes make it clear that the county is moving towards sustainable practices. The Tompkins County Planning Department has been assisting the Village of Trumansburg with revising its zoning ordinance, including changes that promote affordable housing through an inclusionary zoning provision couple with incentive zoning and integrating the newly annexed area of the Village into the zoning proposal.

In Schuyler County, four towns, two villages and the County are in the process of writing or updating their Comprehensive Plans, while two towns and one village are without Comprehensive Plans; the remaining three municipalities are within the recommended 5-10 year review mark. The County has tasked the Planning and Community Development Program through Cornell Cooperative Extension of Schuyler County to update and re-envision the Schuyler County Comprehensive Plan into a County-Wide Comprehensive Plan which all of the various municipalities could utilize.

Zoning Codes and Regulations

Updated zoning, subdivision ordinances, development codes, and design guidelines can help guide communities to become sustainable, livable, and economically viable. Communities can use comprehensive plans and codes to identify appropriate locations and regulations to encourage alternative energy production and distribution, while minimizing impacts on the surrounding community. Depending on the community, this could be solar, wind, biomass, or methane from livestock, all of which have different impact on resources and community character. Codes and conservation programs can also help preserve the economic value of working lands and farms. In the Southern Tier Central Comprehensive Economic Development Strategy, one objective is to assist local governments with zoning changes to redevelop vacant industrial sites.

The Ithaca-Tompkins County Transportation Council has key initiatives to address livability and reduce transportation demand, including changing zoning laws to increase density to allow up to 1,500 housing units to be added to downtown in the next ten years; changing design guidelines for downtown projects; and providing incentives to encourage mixed-income and affordable housing, and mixed-used developments. Tompkins County is also facilitating a review of local development regulations in relation to future performance of the transportation system.

Southern Tier Central's Comprehensive Economic Development Strategy lists an objective to "assist communities to cultivate a distinct 'sense of place'" and promote a walkable, livable environment for both residents and visitors by changing local laws to increase density allowances and create sidewalks. Tompkins County and the Village of Painted Post are looking to revise zoning laws to promote affordable housing development and mixed-use development in the community, particularly at abandoned sites, like the former foundry site in the Village of Painted Post. In Tompkins County, zoning regulations generally did not encourage affordable housing – only 5 of the 14 municipalities in Tompkins County have zoning that allow for higher density housing in areas with existing water and sewer infrastructure and none offer incentives for higher density housing development. Now the County has a Model Incentive Zoning Ordinance to provide safe and affordable housing for all incomes and a Model Inclusionary Zoning Ordinance, which requires all new residential developments of over ten units to provide at least 10% of total units as affordable housing to low-income households.

Development Targets

Some Southern Tier counties have attempted to identify the areas that are ideal candidates for growth, given existing settlement patterns, infrastructure, etc. In its Building Vibrant Communities report, Tompkins County identified 16 "Development Focus Areas" of both urban and more rural character that should attract growth through higher design standards, land use regulations, public investments in

infrastructure, and transit, pedestrian, and bike trail connections. Broome County's Plan for Sustainable Economic Development includes a land use and regional planning analysis that identifies fourteen potential development sites in the Binghamton area and ranks them based on site readiness, public cost to develop, and community and regional benefit, indicating the County's intention to concentrate development where it can bring the biggest benefit at the lowest possible public cost.

Rural Areas, Farmland, and Resource Protection

Agriculture is an important industry in several parts of the Southern Tier and any policies or codes should continue to support that industry where it is important. The New York State Agricultural District Laws already protect farmlands through landowner incentives and protections designed to prevent the conversion of farmland into non-agricultural uses. Agricultural districts support sustainability because they can discourage sprawl, leap-frog development, and expansion of costly public services. Furthermore, counties can advise on any special permits, site plans, and use or area variances submitted for areas near farms in agricultural districts and ensure that agricultural lands stay as is.

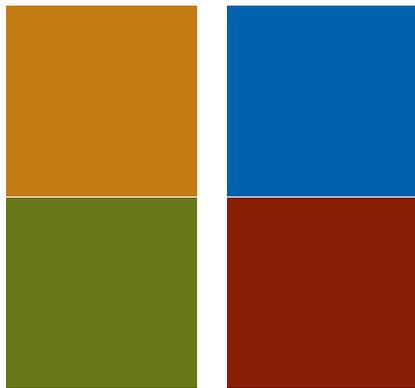
Broome County uses the New York State Agricultural District to protect farmland through landowner incentives and protections designed to forestall the conversion of farmland to non-agricultural uses (tax benefits and protections against overly restrictive local laws). Section 239-m of General Municipal Law also provides protection for farms. Broome County's Agricultural Economic Development Plan is the framework for establishing farm policy in the rural towns and includes initiatives to ensure agricultural interests are incorporated into land use planning and zoning. In Steuben County, the planning department conducts a mandatory review of the county's Agricultural Districts every eight years, providing information about the benefits of agricultural districts and determining if properties belong in agricultural districts, or if their uses have changed.

Development and water management go hand-in-hand in implementing sustainable development. The Southern Tier region can ensure that water management codes support development of more compact mixed-use communities – or that land development codes focus on areas with existing water management services. Tompkins County has proposed creating model land development regulations and design standards that support denser development in areas with existing water and sewer service, and limit development in areas without those services.

Both the Town of Lindley and Town of Hornby residents want to preserve the rural character of their communities – to keep their towns within an agricultural/rural setting. Several policies support this goal – developing incentive zoning options to encourage housing on abandoned agricultural land instead of active farmland; applying “buildable” land standards strictly to preserve steep slopes where the majority of unbroken forest lands are located; and adopting a local law requiring registration of timber harvesting operations so that the Town can provide information about good timber harvesting practices.

APPENDIX I:
BEST PRACTICES REPORT

BEST PRACTICE REPORT



Cleaner Greener Southern Tier Best Practices Report

Deliverable 3-1

August 6, 2012

Prepared for

Tompkins County and the
Cleaner Greener Southern Tier Planning Team

Prepared by

ICF International

Table of Contents

Introduction	4
Energy and Greenhouse Gas Emissions	5
Goal 1: Reduce building energy use	5
Goal 2: Develop, produce, and deploy local renewable energy sources and advanced technologies across the Southern Tier	12
Transportation	20
Goal 3: Create a regional multimodal transportation system that offers real transportation choice, reduced costs and impacts, and improved health	20
Goal 4: Reduce fossil fuel consumption and greenhouse gas emissions from transportation by reducing vehicle miles traveled (VMT), increasing efficiency, improving system operations, and transitioning to less carbon intensive fuels and power sources	28
Livable Communities.....	33
Goal 5: Strengthen and revitalize existing cities and villages	33
Goal 6: Support development of workforce and senior housing that is energy and location efficient and offers choices to reflect changing demographics	37
Economic Development.....	39
Goal 7: Create and retain more good paying jobs by building on the Southern Tier’s regional strengths, including advanced energy and transportation technologies, globally-competitive industry, and workforce development and technology transfer partnerships with educational institutions	39
Goal 8: Support tourism industry development with coordinated marketing, preservation, and enhancement of historic, cultural, educational, and natural resources and events	43
Goal 9: Support farming and related businesses to reinvigorate the rural economy, enhance residents’ incomes and standards of living, and promote local food and agriculture	45
Working Lands and Open Space	49
Goal 10: Promote best management of fields, forests, and farmland to keep working lands in production, protect natural resources, and increase carbon sequestration	49
Goal 11: Preserve and connect natural resources, open spaces, and access to waterways to protect regional environment, ecology, habitat and scenic areas, and support outdoor recreation.	53
Climate Change Adaptation	56
Goal 12: Identify and plan for the economic, environmental, and social impacts of climate change	56
Goal 13: Minimize flood losses by preserving and enhancing floodplain and watershed functions, and by limiting development in flood-prone areas.	59
Water	64
Goal 14: Efficiently manage and upgrade existing water, sewer, and other utility infrastructure to support compact development and reduce energy use	64
Goal 15: Improve and protect water quality and quantity	68

Waste 71

 Goal 16: Promote innovative waste reduction and management strategies 71

Governance 77

 Goal 17: Increase regional collaboration among transportation planning agencies and transit providers; municipal operators (such as airports and municipal water/wastewater facilities); and colleges and universities 77

 Goal 18: Increase fiscal efficiency and effectiveness in local government through energy and waste reduction, coordinated infrastructure investments, and integrated planning for smart growth 80

INTRODUCTION

The New York Cleaner, Greener Communities Program empowers regions to create more sustainable communities by funding smart development practices. The Cleaner Greener Southern Tier Plan is engaging with public and private experts across a wide range of fields, along with community residents, to lead the development of a regional sustainability plan and to implement the projects that will significantly improve the economic and environmental health of our area. This effort will guide integrated, sustainable solutions—from statewide investments to regional decision-making on energy and GHG emissions, transportation, economic development, livable communities, water management, waste management, working lands and open space, climate adaptation and governance.

Broome, Chemung, Chenango, Delaware, Schuyler, Steuben, Tompkins, and Tioga Counties are working together to develop this Plan. By building on existing plans and programs around the region, the project will encourage greater regional collaboration and action. The Plan will result in several products:

- A regional **baseline inventory** of GHG emissions and energy use
- Set of **goals, targets, and indicators** to measure progress
- Report on **best practices** examples.
- **Sustainability plan** with both a short-term **action strategy** and a long-term **implementation plan** to achieve the regional targets and goals
- **Guides for action**

This Best Practices Report summarizes a number of best practices compiled from within New York State and from around the country, chosen specifically for their relevance to the Southern Tier region and in response to the regional goals identified in the Sustainability Goals Report. These best practices provide examples of existing policies, programs, and practices that will inform the selection of strategies and actions in the implementation plan. These best practices will be used as a basis for developing relevant and effective practices for the Southern Tier region to move closer towards its sustainability goals.

Note: Prior work products – the goals, indicators, and targets reports – have listed the nine topic areas in a different order (as contained in the scope of work). This Best Practices Report introduces a new organization that lists the nine topic areas and 18 goals in a more logical order. This means that many of the goals have been re-numbered. Also, this Report is a reflection of its deliverable date of August 6, 2012, as an interim research product, and may include data and references that are incomplete out of date, and may have been updated in completion of the the final plan.

ENERGY AND GREENHOUSE GAS EMISSIONS

Goal 1: Reduce building energy use

Reducing building energy usage requires a multi-faceted approach that includes changing occupant behavior, increasing the airtightness and water tightness of the building envelope, and utilizing energy saving strategies, features, products, materials, equipment and systems (including renewable energy) in both existing buildings and new construction. This includes energy efficient retrofits, energy conservation strategies, green building codes, and smart building technologies. Best practices supporting this goal include:

- Providing education along with financial incentives and grants for weatherizing and retrofitting buildings to increase energy efficiency
- Implementing green building codes and ordinances for new residential and commercial buildings
- Using smart building technologies strategically and effectively to manage energy demand
- Conducting outreach and provide education on energy conservation to improve public understanding of the environmental and economic value of energy efficiency projects

Providing education along with financial incentives and grants for weatherizing and retrofitting buildings to increase energy efficiency

Weatherization and retrofitting of commercial and residential buildings can help reduce overall building energy consumption related to lighting, heating, and air conditioning units by improving building insulation and replacing older, less efficient appliances (such as boilers and other equipment) with newer ones. In addition, new construction or upgrades may use building materials and technologies that increase the energy efficiency of the building envelope.

Programs may also provide assistance and incentives to undertake technology improvements such as expanding the use of energy-efficient lighting devices and appliances. For example, NYSERDA currently sponsors a New Construction Program that provides technical assistance, and financial and bonus incentives for the purchase and installation of energy-efficient equipment in new buildings that incorporate energy-efficiency measures into their design, construction, and operation.

A number of active programs in the Southern Tier region sponsored by utilities, New York State, and other agencies currently provide residential, commercial, and industrial customers with financial incentives, technical support, and certification to encourage investments in energy efficiency in new and existing buildings. Parties in the region are already utilizing these programs. Existing initiatives in the Southern Tier region and beyond that represent best practices nationwide include:

- Massachusetts Green Communities Program: The Green Communities Designation and Grant Program works with municipalities toward qualification as a Green Community and provides funding to qualified municipalities for energy efficiency and renewable energy initiatives. There are five criteria that a municipality must meet to be designated a Green Community. One of the criteria requires that municipalities establish an energy use baseline inventory for municipal buildings, vehicles, street and traffic lighting, and a comprehensive program to reduce energy use by 20 percent within 5 years.

- Fort Collins, CO Electric Energy Supply Policy: The policy sets specific goals for city-wide energy consumption and peak demand reduction to be accomplished through demand-side management programs and services. One of the programs called Lighting with a Twist partners utilities with local retailers to offer customers Energy Star-rated CFLs at discounted prices. The program also provides information on cost and energy savings and other benefits of CFL lighting.
- Seattle Office of Housing's HomeWise Program: This program provides free weatherization services for income-qualified homeowners and renters. In addition, low interest home improvement loans are also available to homeowners with additional repairs beyond the program scope. Weatherization services include, air sealing, insulation, weatherstripping, caulking of the building envelope and ducts, as well as combustion appliance safety testing and specific HVAC equipment repairs and replacement.
- Seattle City Light Smart Business Program: This program offers per-fixture rebates for replacing inefficient lighting with approved energy efficient lighting fixtures in existing small businesses in the Seattle area. The customer has the choice of using their own licensed electrical contractor or selecting one pre-approved by the program. Rebates are provided to either the contractor or the customer upon completion and verification of the work
- California Public Utilities Commission Energy Savings Assistance Program: Provides free weatherization services for low income households that meet specific income guidelines. Services include attic insulation, weatherstripping and caulking, energy efficient refrigerators and furnaces, low flow showerheads, water heater blankets and building envelope repairs.
- Wisconsin Focus on Energy: A statewide, utility-funded, energy efficiency and renewable resource program. Focus on Energy features a range of programs within that offer incentives, services, information, and energy savings to residents and small businesses. The program encourages customers to implement and expedite projects from simple appliance upgrades to comprehensive, multi-measure retrofit projects. Through the program, the state and its residents benefit through the control of rising energy costs, decreased demand for electricity and natural gas, and promotion in-state economic development.
- Virginia Local Energy Alliance Program (LEAP): LEAP is a community-based non-profit serving as the energy efficiency program sponsor for communities in central and northern Virginia. LEAP serves as a one-stop shop for available cash rebates, tax credits, low interest loans, and the Home Performance with Energy Star certificate. By serving as the hub of information and expertise, the program simplifies the home energy assessment to retrofit process, and thereby minimizes costs for everyone.
- Southern Tier Renewable Energy and Efficiency Initiative (STREEI): STREEI is a region-wide program to promote energy efficiency in buildings. It includes education and information on how to improve energy efficiency for building and residential owners as well as financing for project development costs associated with large-scale energy efficiency retrofitting.
- Finger Lakes Climate Fund: An initiative through which carbon offset donations are used to provide grants to fund upgrades to reduce energy use and GHG emissions for low- and moderate-income households.
- Binghamton Energy Leadership Project: Supports and facilitates building retrofitting by educating community leaders and providing information on how to fund and implement the upgrades. The Energy Climate Action Plan City of Binghamton 2011 includes a number of goals to encourage

energy efficiency improvements in existing buildings and strengthen the energy performance of new construction.

- NYSERDA Weatherization Assistance Program (WAP): Weatherization programs are operated in all fifty states with funding from the U.S. Department of Energy. The program assists income-eligible families and individuals by reducing their heating/cooling costs and improving the safety of their homes through energy efficiency measures. Both single family and multifamily buildings are eligible. Program services are available to both homeowners and renters, with priority given to senior citizens, families with children and persons with disabilities. An array of best practices and field standards are provided by the Weatherization Assistance Program Technical Assistance Center.¹
- NYSERDA Multifamily Building Performance Program: Offers energy savings measures for new construction and existing buildings of four or more floors containing five or more dwelling units. Homeowners and renters can reduce their energy costs through cash incentives and low-interest loans for energy savings measures such as insulation, duct sealing, HVAC and lighting.
- NYSERDA Home Performance with Energy Star Program: Encourages renovations to existing homes through a reduced-cost or free comprehensive, whole-house energy assessment (energy audit), and low-cost financing.
- NYSERDA EmPower New York: Program provided more than 61,000 income-eligible New Yorkers with insulation, draft reduction, high efficiency lighting, or appliance upgrades at no cost. Residents have also learned to reduce their energy bills further by changing the ways they use energy in their homes.

Implementing green building codes and ordinances for new residential and commercial buildings

Local governments can facilitate reduction in the lifecycle energy consumption of buildings by implementing building codes and ordinances to encourage green building, i.e. the use of sustainable building materials, products, and construction methods. Several certifications, such as LEED and Energy Star, recognize buildings outstanding in their energy efficiency design and performance. These certifications provide some encouragement for high energy efficiency in new and renovated buildings. The following local and county governments in the Southern Tier are looking to adopt LEED as its construction standard for government/public facilities:

- The City of Ithaca, as part of its 2012 Energy Action Plan, is investigating requiring LEED Silver or equivalent third party certification for all public-funded construction.
- Tompkins County, as part of its 2020 Energy Strategy, is working to adopt a new policy that requires major new county government buildings or county building renovations to be certified LEED Silver or higher.

However, more widespread standards need to be specified and adopted by towns and cities to reduce energy consumption at a regional scale. Green building code programs have been adopted, and are currently under effect, in many towns, cities, regions and states nationwide. A few of the more effective of these programs are described below.

¹ <http://www.waptac.org/Best-Practices.aspx>

- **Massachusetts Green Communities Program – Stretch Energy Code:** There are five criteria that a municipality must meet to be designated a Green Community. To meet one of the criteria, municipalities must adopt the Stretch Code, an optional appendix to the Massachusetts building energy code that allows cities and towns to choose a more energy-efficient option. The Stretch Code sets more stringent requirements than the International Energy Conservation Code, 2009 Edition (IECC-2009), which is used as the base energy code for Massachusetts. The Stretch Code, for example, requires a higher quality building envelope, higher R-value insulation, and more efficient heating, cooling, and lighting systems.
- **Efficiency Vermont’s Energy Code Plus Program:** Efficiency Vermont is a program established to deliver whole house performance to residential customers. It offers services that provide financial and other incentives for homes looking to maximize their efficiency and energy savings. The Energy Code Plus service is offered as part of the program to help ensure builders comply with and exceed Vermont Energy Building Standards (VT-REBS). It is designed for homes that go beyond the minimum VT-REBS code requirements, but are not built to the higher performing Energy Star level. It also serves as an incentive for specific energy conservation upgrades.
- **Washington, DC Green Building Act:** In 2006, the District of Columbia passed the DC Green Building Act. As part of this act, DC Construction Codes were adopted based on ASHRAE 90.1-2007 for Commercial Buildings. Green Building Standards were also established, in which privately or district-owned commercial projects are required to qualify for LEED Certification. Commercial developments exceeding 50,000 square feet must qualify for LEED NC (new construction), while major commercial renovations of district-owned buildings exceeding 30,000 sf must qualify for LEED CI (Commercial Interiors). In addition, district-owned residential projects exceeding 10,000 sf must meet or exceed the Green Communities 2006 Standard, a program designed by Enterprise Community Partners that provides criteria for the design, development, and operation of affordable housing. The act has established incentives for early adoption of green building practices, in the form of grants and expedited construction documents code review.

The LEED and Energy Star programs are described as follows:

- **LEED Certified Buildings:** LEED (Leadership in Energy and Environmental Design) is a rating system overseen by the United States Green Building Council that seeks to achieve high performance in building design, site design, and neighborhood development. The program encourages sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality through multiple rating systems. Owners of buildings that achieve LEED Certification are awarded through local and national recognition well as overall energy savings, while the design team also gains positive recognition. There are currently 25 LEED Certified projects in the Southern Tier region (not including LEED for Homes), a majority of them LEED NC. In addition, there are a significant number of projects in the region registered for LEED Certification. Many communities leverage LEED in local ordinances. Communities may require that all new buildings meet LEED requirements, or they can provide incentives for meeting LEED requirements. For example, in the City of Cambridge, Massachusetts, zoning requires that large construction (generally over 25,000 sf) conform to LEED criteria. The City publishes a map of the locations of Cambridge buildings that

have received LEED recognition (Certified) or are working towards recognition.² Clean Air Cool Planet has compiled a list of incentive-based programs that leverage LEED.³

- **Energy Star for Homes:** ENERGY STAR is a certification system for new homes that are significantly more energy efficient than standard construction in the marketplace. In order to achieve the Energy Star Certification, a home must pass specific prescriptive and performance path requirements for Thermal Enclosure, HVAC, and Water Management Systems. During construction, a participating New York Energy Star Homes HERS (Home Energy Rating System) Rater evaluates the overall energy efficiency of a home based on its insulation levels, heating and cooling system efficiency, airtightness, windows, appliances and lighting. Gathered data is input into a software system to rate the building (under the HERS Index/Energy Performance Rating) and determine if it passes certification. The Energy Performance Rating is a standardized national benchmark that helps architects and building owners assess energy use relative to similar buildings.

Using smart building technologies strategically and effectively to manage energy demand

A variety of building and energy management technologies facilitate the efficient management of energy demand. These technologies can be applied to individual household, commercial and government facilities, campuses, and the electric grid as a whole. Cornell University and the Town of Ithaca have already incorporated these technologies into their energy planning.

- Heat metering and electricity/heat demand management technologies and equipment such as lighting sensors, automatic temperature controls, and demand-controlled ventilation can be used to significantly reduce energy demand in facilities region-wide. Smart Grid is a series of supply and demand management technologies and practices used to monitor, self-correct and optimize the distribution and use of electrical energy within an electric grid. Control systems and software are used to maximize loop circuit loads and distribution efficiency, while local electricity generation minimizes transformer and distribution losses. For examples, as part of its Climate Action Plan, Cornell University has initiated a Smart Grid for its campus utilities.⁴
- Demand-controlled ventilation is a strategy that adjusts the amount of outdoor air introduced into a building area based on the number of people in the space. Energy consumption is reduced without affecting occupant comfort. This strategy can be utilized in buildings/building spaces with a fluctuating occupancy level and mechanically-supplied outdoor air such as city court and assembly spaces. These strategies are included in the Ithaca Energy Action Plan 2012 (p. 32).⁵
- Lighting sensors are appropriate for spaces that are typically unoccupied or occupied for short duration, such as storage areas and restrooms. Since users typically do not turn the lights out when leaving these spaces, occupancy sensors have great capacity for

² <http://www.cambridgema.gov/CDD/zoninganddevelopment/energyefficientbuildings/leedmap.aspx>

³ http://www.cleanair-coolplanet.org/for_communities/green_building_ordinances.php

⁴ <http://www.sustainablecampus.cornell.edu/docs/CAP%20Update%202011.pdf>, pp. 34-35

⁵ "City of Ithaca Energy Action Plan 2012: Greenhouse gas emissions inventory (2010) and update to the local action plan." City of Ithaca, New York. 2012. Prepared by Taitem Engineering P.C. and Dennise Belmaker.

electricity demand reduction. Lighting levels in occupied spaces such as classrooms can be adjusted for daylighting levels through dimming controls and sensors.

- Automatic temperature controls such as programmable thermostats can be set to user or building maintenance-controlled temperature ranges, minimizing energy waste due to wide temperature fluctuations. Programmable thermostats, because they are relatively inexpensive and easy to use, are becoming more commonly used in single and multi-family residences.
- One example of a utility provider utilizing smart energy management technologies is **Great River Energy**: Great River Energy is a not-for-profit electric cooperative that transmits electricity for its member cooperatives in the Twin City suburbs and rural areas beyond. In 2005, the cooperative employed a strategy called load management or demand response, which is used to reduce electricity demand during occasional “high demand” periods such as hot summer afternoons. The main piece of this strategy involves cycled air conditioning, where customers allow Great River to control or “cycle” their air conditioner (or sometimes water heating or irrigation systems) for a period of hours on peak demand days. In return, the customer receives a reduced electric rate. By reducing peak demand, Great River avoided building new high cost electricity-generating “peaking” plants, and also avoided the purchase of high cost energy in the wholesale market. In addition to “cycling”, other strategies used to reduce demand include providing energy conservation rebates and grants for Energy Star appliances, HVAC equipment and products, renewable energy systems, and air conditioning tune-ups.

Conducting outreach and provide education on energy conservation to improve public understanding of the environmental and economic value of energy efficiency projects

Programs and strategies to encourage energy conservation should not only be targeted at upgrading technologies but also at user behavior through the use of financial and other incentives and creating awareness about actual energy consumed. Making information about energy usage readily available to consumers, including comparisons to other homes in their neighborhood, is important to help them manage and track their energy consumption.

There is often a lack of public understanding of how people’s choices and everyday behavior directly affects their energy usage and costs and a general misperception about where and how heat loss occurs. With a high initial investment need for some energy efficient measures, services, and certifications and a long and complicated approval process for certain rebate programs, financial and bureaucratic hurdles prevents some projects from moving forward. Initiatives to reduce energy use also often suffer from public misperception about the quality, effectiveness, and advantages of energy efficiency. Furthermore, energy efficiency projects that could provide real long-term benefits often don’t go forward due to the high initial investment for energy efficient measures, services, and certifications. This misperception about the return on investment of energy efficiency can lead to lost opportunities for cost and energy savings in the long term. Increased public awareness can help overcome the challenges and barriers of public apathy toward saving energy, misperception of energy efficient products, and reluctance to undertake initial investment costs.

Some examples of increasing public and municipal awareness of the advantages of energy efficiency are:

- Initiatives in the City of Charlotte, NC: Power2Charlotte is a website and advertising campaign dedicated to promoting efficiency education, environmental quality, and economic vitality in Charlotte, NC. It also serves as a central information resource and link to city-wide energy efficiency projects and conservation programs. Another initiative is the Neighborhood Energy Challenge, a city-wide program encouraging neighborhood-level involvement in developing innovative strategies for energy use improvements, is a good case study of a successful program, albeit at a smaller geographic scale. The Neighborhood Energy Challenge included high impact weatherization improvements for selected households, including attic insulation, duct and building envelope sealing, as well as neighborhood conservation workshops.
- 
- Energy education initiatives by Cornell University Community and Regional Development Institute (CaRDI) and Cornell Cooperative Extension: The Cornell Cooperative Extension's Community and Energy Program Work Team have been working on a set of resources that educators and key partners might use in hosting discussions on community and energy issues. These resources are posted on the website of CaRDI and include guidance on municipal energy planning strategies in New York State, energy strategies and objectives in NY State municipal comprehensive plans, and planning for local energy development.⁶
 - ***ENERGY STAR for Commercial Buildings***: ENERGY STAR provides many tools and resources that communities can leverage to promote energy efficiency in commercial buildings, including educational and marketing materials as well as the free online energy management and benchmarking tool, Portfolio Manager. Many communities, including New York City, have used Portfolio Manager as the basis for energy disclosure ordinances, which require buildings in the community to track energy performance and disclose results to the public, or to the purchaser at the time of sale. Communities may also use Portfolio Manager as the foundation for voluntary campaigns and competitions to reduce energy use.⁷

⁶ <http://devsoc.cals.cornell.edu/cals/devsoc/outreach/cardi/programs/energy.cfm>

⁷ http://www.energystar.gov/ia/business/government/State_Local_Govts_Leveraging_ES.pdf?2c0c-f584.

Goal 2: Develop, produce, and deploy local renewable energy sources and advanced technologies across the Southern Tier

The large number of established climate action plans and an active local population reflect a strong commitment to lowering GHGs and exploring alternative energy sources such as biomass, solar, wind, hydro, and geothermal and promoting advanced technologies include cogeneration, distributed heat and power districts, smart energy management, and energy distribution systems.

Best practices include:

- Deploying community scale wind power
- Using biomass for heating
- Repowering of non-powered dam with hydropower
- Replacing a portion of individual and farm energy demand with solar during peak demand periods, where possible
- Creating public awareness about economic and environmental benefits of renewable energy projects in the short and long term
- Using advanced energy production and distribution technologies including cogeneration, combined heat and power (CHP) districts, smart energy management and distribution systems to reduce environmental impact

Deploying community scale wind

Although the Southern Tier region does has some existing wind resources, opportunities for community level commitments can be made – deployed on farms and in communities themselves. Two case studies provide an example of each type of project.

- **Community Wind Deployment, Willmar, Minnesota:** The City of Willmar, Minnesota has installed two 2 MW wind turbines that will avoid 236,000 tons of carbon emissions over the lifespan of the turbines, while allowing residents to see a marked decrease in energy costs over the next 20 years. Willmar was already participating in a form of cooperative energy via its municipal utility before installation. Because the wind potential is not as high in Willmar as in most of Minnesota, there was a strong emphasis on proper siting and proximity to Willmar Municipal Utility (WMU) service territory. Nevertheless, WMU officials expect Willmar’s turbines to provide up to five percent of the city’s energy.⁸
- **Community Wind, Hull, MA:** In 2001, the community of Hull installed a 660 kw turbine, the first “suburban-sized” turbine installed in North America. Hull is in a densely populated area in Greater Boston metropolitan area, close to airport. The town’s average annual power consumption is 6 MW (53,000,000 kWh/year). In Hull’s case, the monetary value of the energy is relatively high, since it displaces purchases of the transmitted power that the municipal light plant buys from its supplier. It is



⁸ www.mnproject.org/pdf/TMP_Advancing-Community-Wind_Dec09.pdf, p. 10

estimated that this turbine proved a net present value of cost savings of \$2-3 million during its lifetime, past the basic payback period.⁹

Using biomass for energy and heating

In many industrialized countries, biomass is commonly used as a source of thermal energy for residential and institutional heating and for some industrial applications. Because of the forested environment of the Southern Tier, biomass is a renewable resource that should be examined carefully for its alternative energy potential as well as its job creation potential in the process of wood pellet production and the sustainable forestry management practices that should accompany forest harvesting.

- ***The Tompkins County Energy Strategy for 2020*** proposed a pilot program/study for 20 homes using wood pellets as an energy source. Three products of local biomass would be promoted for use in highly efficient furnaces and boilers: wood pellets, raw wood gasification, and grass pellets. Each of the demonstration projects would include measurement of the reduction in greenhouse gas emissions associated with the three methods of biomass burning. The plan states that the project's premise is a win-win for the environment and rural landowners: tap into underutilized land resources to generate income while creating a local, reliable, renewable, carbon-neutral energy source. There is potential to replicate this model to the approximately 11,000 households in Tompkins County, as well as across the Southern Tier.
- Some other examples of using sustainable biomass pellets for heating are listed below.
- ***Three Rivers School District, Oregon:*** In 2008, the District faced a \$2 million budget shortfall and cost uncertainty from fossil fuel heating due to the commodity boom. The District then installed a biomass boiler in that allowed operators to reduce cost uncertainty, source fuel locally, and reduce emissions. American Recovery and Reinvestment Act (ARRA) and Oregon Department of Energy (ODOE) State Energy Program grants were used to fund the project, while Energy Savings Performance Contracts (ESPC) were used as a cost-neutral mechanism to finance energy conservation and renewable energy projects.¹⁰
- ***Dartmouth Graduate Student Housing, Hanover, NH:*** On-campus heating was typically done with a wood chip system, but a cost estimate showed that installation of a new system was roughly twice that of a pellet heating system. The College opted for a pellet heating system rated at ~2 million BTU's, but it was difficult to procure as most systems are smaller. The final choice was a hybrid system. About 290 tons of pellets were used over the past year. At full capacity it generates 95% of the overall load. The rest is met by the supplementary propane heating system.¹¹
- ***Cornell Cooperative Extension of Tompkins County – Grass Bio-Energy Pilot Project, Delaware County, NY:*** This is a pilot project intended to demonstrate to the general public that grass pellets can be used for residential and small commercial use. CCE plans to educate the public about which grasses work well, and how to use the pellets. As far as feedstock production, the short term goal is to develop an adequate and reliable source of high quality grass for pelleting. Long term, the project aims to develop a local feedstock supply industry that would be able to meet an increased future

⁹ www.umass.edu/windenergy/publications/published/communityWindFactSheets/RERL_Case_Study_Hull_Wind_One.pdf

¹⁰ <http://www.sustainablenorthwest.org/resources/TRSD%20Case%20Study.pdf>

¹¹ http://www.biomasscenter.org/images/stories/dartmouth_sachem_village.pdf

demand. The program is setting up grass pellet-fueled stoves and hydronic furnaces for five demonstration sites in Delaware and Greene Counties. The furnaces being used were primarily wood pellet and corn furnaces that were modified to avoid the formation of clinkers.¹²

Anaerobic digestion is another example of using biomass. Anaerobic digestion of animal manure produces biogas which typically contains 60-70% methane gas, which can fuel an engine generator or turbine to generate electricity. Avoiding the open field decomposition of animal manure by digesting it and burning the resulting biogas gas can provide significant environmental benefits. One example from Wisconsin is applicable to New York in that it has some comparable biomass resources.

- **Wisconsin Biogas Digestion Program:** This program supports farm-based anaerobic biogas digesters producing electricity, heat, and pipeline-quality gas. Based on the success of the program, Focus on Energy's biogas program budget for calendar year 2009 has grown to \$2.3 million, five times greater than just three years ago. Nearly 90 percent of the money will be used for incentives.

Repowering of non-powered dam with hydropower

The potential for additional small hydropower development is significant in the region. In addition to powering existing non-powered dams, relicensing existing hydropower plants, capacity expansion of existing dams and construction of new dam sites is assessed, such as in Minnesota.

- **Lock and Dam Project No. 2, Hastings, MN:** This project involved an existing dam with a capacity of 4.4 MW, but this project expanded it to its full capacity. In a public-private partnership between the City of Hastings and Hydro Green Energy, the City of Hastings filed a Non-Capacity Amendment (existing project modification/new generating equipment) with the Federal Energy Regulatory Commission (FERC). This request was approved and equipment installed. Hastings and Hydro Green Energy operate the zero-head, in-stream hydrokinetic power equipment, which will be located in the tailrace of the City's project, to generate additional electricity within the existing project footprint. Hydro Green Energy will receive a portion of the power sales attributable to its equipment (this was a royalty payment in exchange for the use of its patented technology). The result is 250kW of additional capacity – 5.7% more power than before.¹³



¹² <http://ccetompkins.org/energy/renewable-energy/cce-delaware-county>

¹³ <http://www.hgenergy.com/hastings.html>

Replacing a portion of individual and farm energy demand with solar during peak demand periods, where possible

Solar photovoltaics (PV) and solar thermal use a free and abundant fuel source, the sun. It also produces electricity generally at peak demand times; thus, replacing the most expensive electricity. However, solar PV remains costly because of the upfront costs of the solar systems. NYSERDA offers incentives for solar PV to defray some of the cost. The USDA through its rural renewable energy program offers incentives as well for farm based systems. In addition, the federal 30% Investment Tax Credit is in place until 2016. In the past few years third party solar leasing companies have offered solar leasing models that allow the customer (both residential and commercial) to pay over time for solar with low or no upfront costs. Although solar energy has a low capacity factor in the region and may not have a great impact on the overall energy portfolio, it is worthwhile to use on an individual household or farm basis where the peak energy demand coincides with the peak energy solar production. With the NYSERDA incentives mentioned above, solar installations could also be economically attractive for users.

- ***Ronnybrook Dairy Farms, Ancramdale NY Solar Water Heating Project:*** This project's 30 solar collectors use the sun to produce the hot water needed for the on-site production of milk, yogurt and other dairy products, saving the farm about 2,000 gallons of oil annually.
- ***Hudson Valley Health Alliance Solar Water Heating:*** Here, 28 solar panels are used to preheat water for Benedictine Hospital's steam system.

Creating loan pool or other funding mechanisms for rural renewable energy projects/programs, and involve the private sector in development and financing of renewable energy resources

Given the high upfront cost of renewable energy projects, private sector financing may be useful in some cases. For instance, a private sector firm with technical and financial expertise to develop the renewable energy project and to capture tax benefits that would otherwise be inaccessible to a public-sector site host. Under this model, the private sector developer sells most or all of the project's electricity output to the site host under a Power Purchase Agreement (PPA) with some output being sold directly to end consumers. PPAs are a viable financing method for applicable renewable energy projects.

Third party lease financing which is now credited with 70 percent of all new residential renewable installations makes solar, in particular, more viable financially for commercial, institutional and residential customers. Public private partnerships for renewable energy and energy efficiency financing are now being used in multiple states.

Loan programs are another approach. The Southern Tier Renewable Energy and Efficiency Initiative (STREEI) is already providing education to catalyze expansion of renewable energy industries and has established \$1 million revolving loan fund to help institutions secure financing for project development costs associate with large-scale energy projects. Another existing loan fund is the following:

- **New York Residential Loan Fund:** This loan program, which is funded and administered by NYSERDA, offers reduced interest rate loans through third-party lenders in order to fund residential renovation or construction projects that improve a home's energy efficiency. These low-interest loans are used to fund energy-efficient renovations or additions such as energy-efficient appliances, solar water heating, geothermal heat pumps or improving a home's insulation. Loans can be up to \$20,000 and offer an interest rate reduction of up to 4.0% or 400 basis points less than a normal market interest rate.

Property Assessed Clean Energy Financing (PACE): This is another finance mechanism that Southern Tier can explore. Currently, PACE is not allowed for residential financing but commercial PACE is permitted. PACE is an example of public private financing by providing security to private energy lenders through a voluntary special tax added to the property tax bill. For instance, private companies such as Renewable Funding are overseeing large PACE commercial financing in California. Working with the state's largest joint powers authority, the California Statewide Communities Development Authority, Renewable Funding is designing the CaliforniaFIRST program, which will cover 14 counties and more than 100 cities in California. The program is authorized to issue up to \$14 billion in bonds to finance clean energy upgrades.¹⁴

Creating public awareness about economic and environmental benefits of renewable energy projects in the short and long term

- For example, the **Renew Broome** website provides information about access to renewable energy. NYSERDA's website provides information for Broome County residents, businesses and organizations to help them identify energy saving incentive programs. The Renew Broome website collects all relevant incentive programs available from utilities and from local, state and federal agencies and sorts them into one easy to access location. Additionally, the website features examples of energy conservation and renewable energy projects implemented by the Broome County government and by residents, businesses and organizations in Broome County in order to demonstrate the benefits of sustainability programs. One energy site for all of the Southern Tier along the lines of Renew Broome could be a "one stop shop" for renewable energy and energy efficiency programs integrating NYSERDA's programs with Southern Tier initiatives.

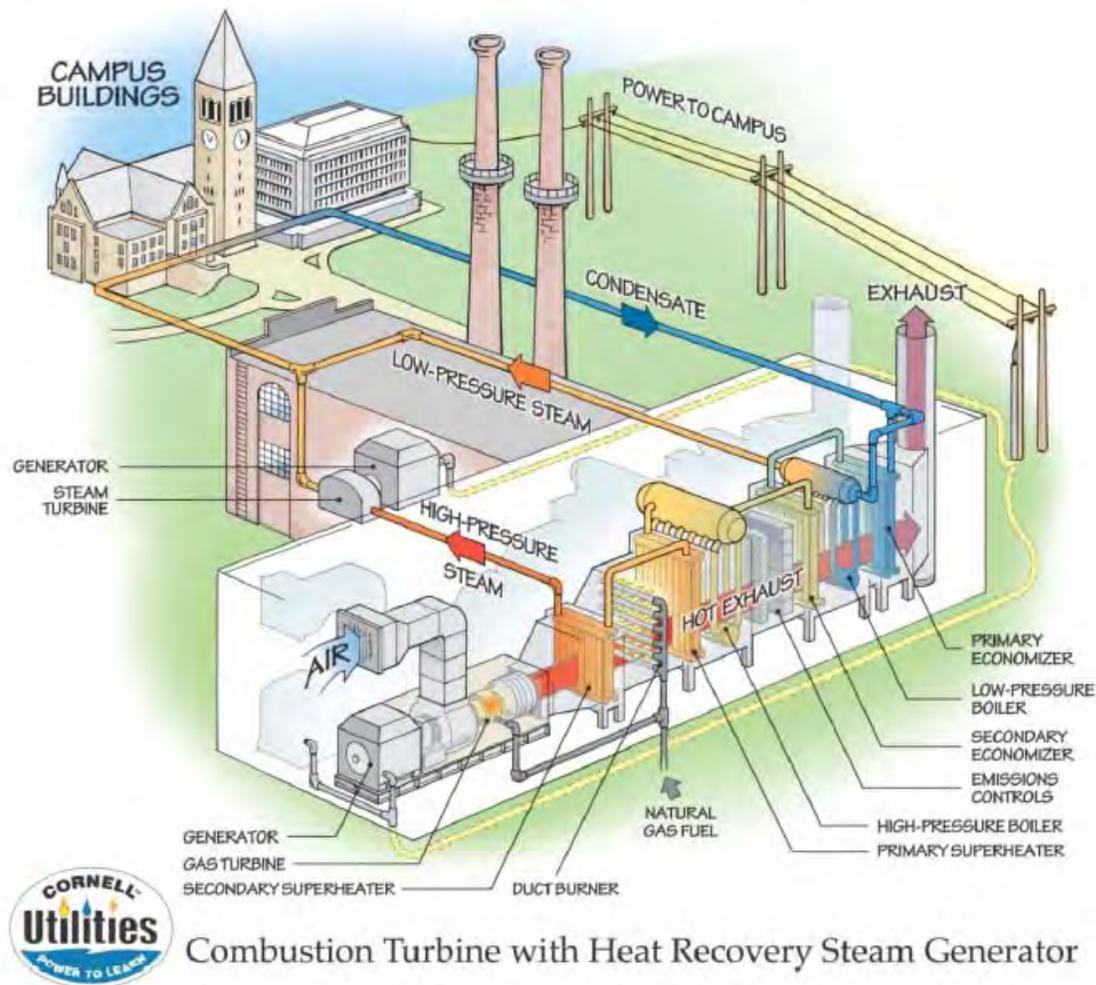
Using advanced energy production and distribution technologies including cogeneration, combined heat and power (CHP) districts, smart energy management and distribution systems to reduce environmental impact

In combined heat and power (CHP) projects, electricity and thermal heat are produced from a single fuel source. The largest system by far is the 30 MW CHP plant at Cornell University, representing about 75% of the region's existing CHP capacity.

- **Cornell University CHP:** The Cornell University System, illustrated below in Figure 1, utilizes two 15 W gas turbines to produce 70 percent of campus electricity needs. At the same time, two heat recovery steam generators provide 50-90 percent of campus steam needs. This system provides reliably power and heat while reducing annual CO₂ emissions by 64,000 metric tons per year. The Cornell Utilities Department, which includes Lake Source Cooling for campus chilled water, was recognized by the International District Energy Association as the 2001 System of the Year.

¹⁴ <http://www.renewfund.com/cafirst>

Figure 1 – Cornell University 30 MW CHP System



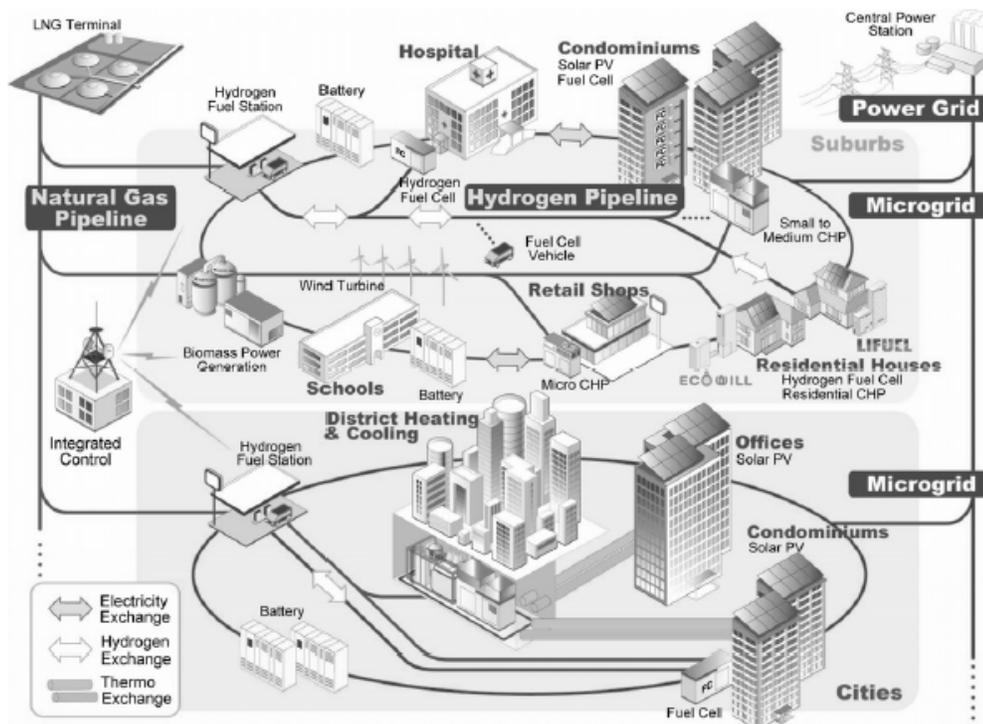
Smart Grid: Smart grid is a structural and operational concept for electric power grids that has become an important area of research, development, and demonstration. A smart grid is a digitally enabled electrical grid that gathers, distributes, and acts on information about the behavior of all participants (suppliers and consumers) in order to improve the efficiency, importance, reliability, economics, and sustainability of electricity services. There are many benefits of a smart grid framework:

- Improved fault detection and “self-healing” technologies that minimize outages and reduce the chance of cascading circuit failures
- Flexible network topology that can better handle bi-directional power flows that result from the use of multiple distributed generation (DG) power sources – allowing greater use of both renewable and non-renewable DG technologies on the system
- Interactive technologies to provide seamless integration of DG, energy efficiency, and demand-side management thereby reducing the need for infrastructure investment and increasing overall system efficiency
- Interactive load management

- Greater communication between suppliers and users and real time pricing signals to allow management strategies that minimize costs to users and suppliers through the effective use of central supply, DG, energy storage, and demand-side management

Figure 2 shows a long range concept for smart grid that is being developed by Tokyo Gas Company. The figure shows the interconnection of central gas and power supply with a microgrid combining the elements of renewable power (PV, biomass, wind), non-renewable DG (Fuel cells, CHP), energy storage, district heating and cooling systems, communications network, and hydrogen supply and delivery systems.

Figure 2: Long Range Smart Grid Concept, Tokyo Gas Company



Smart grid technologies will facilitate a greater market penetration for DG technologies by allowing better economic and operational control of DG facilities.

Natural gas Distributed Generation (DG) as a firming resource: Some renewable energy resources, such as solar PV and wind, produce intermittent power¹⁵ and grid operators integrate electricity production from these resources by shaping and firming or operating their other resources to provide a balanced generation system that meets instantaneous changes in demands. Depending on the amount of renewable resources in the system, maintaining balance can be challenging and may require utility resources to operate out of economic dispatch, effectively increasing operating costs. To address this issue on a planning and operating basis, some utilities have selected a threshold of 15% of non-utility generation on a circuit as the trigger point to

¹⁵ Power generation from photovoltaic resources is tied to the diurnal variation of incident radiation from the sun. Wind power generation is a result of the diurnal heat radiation from land and water masses.

conduct intensive studies to examine firming resource capability and the potential for collapse of the system that could lead to black outs.

CHP and other forms of gas fired DG, if properly incented and in combination with storage and smart grid technologies, can provide resources at the utility's request and be used to firm intermittent resources and provide a seamless supply of power. Effectively the "peaks and valleys" of renewable generation can be shaped and firmed by CHP and storage as demonstrated in Japan and Europe¹⁶. These demonstrations show that CHP and storage when integrated with renewables and controlled by smart grid devices can maintain power quality and ensure reliable operations without degradation to the utility power grid.

Some examples of successful integration and demonstration studies include:

- **Denmark:** Wind generators represent 80% of installed capacity and meet 20% of electric demand for the country. Denmark grid operators have completed pilot studies for the smart control of existing wind turbines and CHP during emergency and routine conditions¹⁷. The 2008 field test achieved its major goal of demonstrating coordinated operation of the power facilities, control and data acquisition infrastructure over a variety of test scenarios. Fundamentally, the Danish experience showed that CHP can be leveraged for supply security and market operations.¹⁸
- **Fort Collins, CO:** In 2011, the Renewable and Distributed Systems Integration (RDSI) project in Fort Collins, Colorado began producing successful test bed results integrating a range of distributed generation, demand side management, plug-in hybrid vehicles and smart technologies. Supported by \$14 million in federal grant funds from the U.S. Department of Energy and matching contributions, the mission is to transform the downtown area of Fort Collins and the main campus of Colorado State University into a net Zero Energy District, or FortZED¹⁹. New Belgium Brewery participated in the test, running its CHP system to meet the brewery schedule, but was available to provide excess power to the grid at times of low internal demand on a dispatchable basis.

Denmark and Fort Collins, Colorado have witnessed active community involvement and strong interest from technology enterprises. In the FortZED project, local funding partners included private foundations, the Fort Collins Downtown Development Authority and others who provided match funds for the DOE grant. The response from a broad base of parties demonstrates clear market signals for participation in the project. The operating advantages to grid operators include congestion relief and lower grid losses that result in increased power system efficiencies and therefore, lower operating costs. The production of greenhouse gases is also further reduced by integrating CHP, storage and renewable technologies.

¹⁶ Large Scale Integration of Wind Energy in the European Power Supply: analysis, issues and recommendations; A report by the European Wind Energy Association, 2005. Powering Europe: wind energy and the electricity grid; November 2010; A report by the European Wind Energy Association. Demonstration of Microgrid Through the Activities Toward Holonic Energy Systems; Tsukada, Tokumoto, Ogata and Tagami, Tokyo Gas; 2005 CHP in Japan, Matsuo and Tokumoto; Prepared for IEA CHP Program Kick-off Meeting, IEA Paris, March 2, 2007.

¹⁷ The Cell Controller Pilot Project: Testing a Smart Distribution Grid in Denmark, Grid-Interop Forum 2009.

¹⁸ Cell Controller Pilot Project: Smart Grid Technology Demonstration in Denmark for Electric Power Systems with High Penetration of Distributed Energy Resources, 2011 Public Report. <http://energinet.dk/EN/FORSKNING/Nyheder/Sider/Den-ustyrige-vind-kan-styres.aspx>

¹⁹ <http://www.nccleanenergy.com/initiatives/fortzed>.

TRANSPORTATION

Goal 3: Create a regional multimodal transportation system that offers real transportation choice, reduced costs and impacts, and improved health

This includes enhanced urban, rural, and regional transit and rail; complete street networks, interconnected sidewalks, pedestrian paths and bike trails that connect neighborhoods and employment centers; car share, carpool, park-and-ride, and telecommuting; all supported by compact mixed-use development. The Southern Tier currently benefits from a relatively uncongested road system and several local transit systems that support those who do not have access to a car. This goal would help to develop a regional system resulting in improved transit service as well as other non-SOV options (such as biking, walking, working remotely, or ridesharing), that would in turn support more vibrant downtowns. Best practices supporting this goal include:

- Improving bicycle and pedestrian infrastructure and facilities
- Expanding rural transit opportunities
- Creating multimodal corridors
- Supporting trip reduction policies and programs
- Promoting transportation demand management programs

Improving bicycle and pedestrian infrastructure and facilities

The region's downtowns – whether in cities, towns, or villages – were built and designed before cars. These centers are ripe for a renewed emphasis on active, non-motorized transportation, and possibilities to retrofit auto-centric suburbs abound. Furthermore, biking and walking as a means of transportation can be enhanced and supported through multi-use, recreational trails connecting destinations within a region. This best practice aims to help improve the facilities available for walking and biking both between and within cities and villages. Cities that have increased their bike-supportive infrastructure have found subsequent increases in biking and walking in their cities.

For example:

- **Roundabouts and road diets in Hamburg, NY:** New York State DOT reconstructed the intersection of Main Street and Buffalo Street (U.S. Route 62 and NY Route 391) with modern roundabouts in place of four previously signalized intersections. The roundabouts' designs reflected community goals to both improve traffic flow and slow down traffic so that pedestrians and cyclists could safely use and cross downtown streets. The reconstruction also incorporated new sidewalks, lighting and crosswalks with curb extensions, and a buffer zone between street parking and travel lanes for more safety. The



Hamburg roundabout and road diet (Photo Courtesy of Dan Burden)

reconstruction is also part of the community's economic development efforts aimed at attracting more people to visit, linger, and shop in the downtown.²⁰

- **Complete Streets in Westchester:** Simple, cost-effective retrofits to existing streets can make a significant difference in pedestrian and cyclist comfort – leading to increased use of non-motorized transportation. An increasing number of state and local governments now require that planners and engineers consider complete street retrofits for their projects, including New York State, whose Complete Streets law came into effect in February 2012. A coalition of downstate organizations has created a “Complete Streets in a Box” toolkit to help New York municipalities adopt complete streets policies. The toolkit includes presentation materials and sample policies that municipalities can adapt to meet their needs.
- **Bike Lanes in New York City:** New York City has installed close to 400 miles of bike lanes since 2001 and, according to the city's regular bicycle counts, cycling increased by 262 percent between 2000 and 2010.²¹ In 2009, the city set a goal to double the number of cyclists on the street between 2007 and 2012, and it met that target one year early.²²
- **Bike parking and changing facilities in Washington, DC and Vancouver, British Columbia:** A study carried out in Washington D.C. of 5,000 commuters found that those who had bike changing facilities (including showers) and bike parking available at their worksite were 4.86 times more likely to commute by bike than those with no facilities. Furthermore, those who had available bike parking only had only 1.78 greater likelihood to bike to work than those without bike parking – demonstrating the importance of additional amenities besides just bike racks.²³ While changing and showering facilities are still relatively rare (only 11 percent of commuters in the study had them available), some places are nevertheless beginning to standardize their availability. The City of Vancouver, British Columbia, requires that office buildings that are required to have more than three bike parking spaces must also provide access to showers.²⁴

²⁰ The Role of FHWA Programs In Livability: State of the Practice Summary, Federal Highway Administration, 2011. http://www.fhwa.dot.gov/livability/state_of_the_practice_summary/

²¹ Bernstein, Andrea, “NYC Biking is up 14 Percent from 2010; Overall Support Rises,” Transportation Nation, July 28, 2011, <http://transportationnation.org/2011/07/28/breaking-new-york-city-biking-is-up-14-percent-from-2010/>. Accessed 07-25-2012.

²² “Bicyclists: Network and Statistics,” New York City Department of Transportation, <http://www.nyc.gov/html/dot/html/bicyclists/bikestats.shtml>. Accessed 07-25-2012.

²³ Jaffe, Eric, “The Hidden Factor in Bike Commuting: Showers,” The Atlantic, July 20, 2012. <http://www.theatlanticcities.com/commute/2012/07/hidden-factor-bike-commuting-showers/2650/> Accessed 7-26-2012.

²⁴ “Requirement for Shower/Change Rooms (By-law 7481,” City of Vancouver. October 1995. <http://vancouver.ca/engsvcs/parking/enf/pdf/BYLA7481.pdf> Accessed 7-26-2012.

- **Bike Sharing in Washington, DC:** Increasingly, bikesharing systems, which allow users to check out a bike and ride it to the next check-in location, are helping to introduce people to cycling. In Washington, D.C., the bikesharing network includes more than 1,500 bikes at over 165 stations, allowing users to use the service for commuting or personal trips to a wide variety of destinations. The service is available to tourists for a one-time fee or by membership with monthly or annual rates. When surveyed, 40 percent of users had reduced their use of a car, reducing 5 million vehicle miles traveled (VMT), and more than half of users rode a bike to reach a transit stop.²⁵ There are currently four active systems in major cities across the U.S. and five currently under development.²⁶
- **Trail Networks in Oregon:** The State of Oregon created a Statewide Non-motorized Trails Plan that identifies trail issues along with goals, objectives and strategies to address issues. The plan also provided trail project evaluation criteria to help prioritize and select trail projects. One of the issues identified included bringing trails to where people lived and ensuring trail connectivity. Trail proximity to population centers is evaluated in the plan based on whether a trail head is present within one of Portland's urban growth boundaries.²⁷ In a related effort, the 40-Mile Loop Land Trust, a non-profit in the Portland region, helps to convene park planning for 13 jurisdictions around Portland, aiding in the provision of hiking and biking trails in both downtown Portland and in natural areas immediately adjacent to the city.²⁸



Capital Bikeshare User (Photo Courtesy of District DC DOT)

These best practices demonstrate the importance of interconnected networks of bike and pedestrian-supported infrastructure – from street design and trails, to showers and changing facilities and even the bikes themselves – in encouraging the use of non-motorized modes.

Expanding Regional and Rural Transit Opportunities

Regions with significant rural population, spread out cities and villages, and a lack of congestion often have limited transit available. Furthermore, existing intercity or rural service may be highly segmented to respond to the needs of specific populations, such as commuters to a particular employer, the disabled, and senior citizens. Coordinating and expanding eligibility for existing service can help transit to become a viable and attractive option for an increasing portion of the population. Furthermore, transit service can help to support existing nodes and areas designated for redevelopment.

- **Expanding Service in Rural Montana:** Rural Montana has extremely low population density – with an average of about six people per square mile – and an aging population. Recognizing a lack of transit and an increasing need in these areas, the state approached local governments and Councils on Aging

²⁵ "Capital Bikeshare 2011 Member Survey: Executive Summary," LDA Consulting, June 14, 2012. http://capitalbikeshare.com/assets/pdf/Capital_Bikeshare_2011_Survey_Executive_Summary.pdf. Accessed 7-26-2012.

²⁶ <http://www.bikesbelong.org/resources/stats-and-research/research/bike-sharing-in-the-united-states/>

²⁷ Oregon Trails 2005 – 2014: Non-motorized Trails Plan, Oregon Parks and Recreation Department. <http://www.oregon.gov/OPRD/PLANS/docs/trails/NonMotorized.pdf?ga=t>. Accessed 7-26-2012.

²⁸ "About the 40-Mile Loop Land Trust," 40-Mile Loop Land Trust, <http://www.40mileloop.org/about.htm>. Accessed 7-25-2012.

who ran small, population-specific services and asked them to consider broadening and expanding service to the general public. The state helped these services to apply for Federal funding and meet Federal requirements. As a result, more than 30 rural transit providers were formed as part of a coordinated planning effort, more than tripling what had previously been available.²⁹

- Intercity transit in Central Oregon: The Central Oregon Intergovernmental Council, serving the cities of Bend, Redmond, and surrounding rural areas, recently launched a new coordinated bus system that provides close to 200,000 rides per year within and between its communities, over half of which help residents reach work or school. The system includes Cascades East Transit and Bend Area Transit. Cascades East started out in 2008 as a demand-response service targeting underserved populations before expanding to a fixed route system for the general public. The system has grown by 207 percent in two years, and its intercity service is growing at twice the rate of its local systems.³⁰
- Combining human services and public access in the Greater Texarkana Region: TRAX, a project of the Ark-Tex Council of Governments (ATCOG) provides a combination of dial-a-ride, fixed-route, and human services transportation that serves area cities and towns as well as major employers. The service partners with businesses including Wal-Mart, a poultry processing plant, a community college, and local agencies to meet the transportation needs of these organizations' constituencies.³¹

Whether coordinated at the state or regional level, these examples show how access to intercity, regional mobility can be improved when organizations collaborate and expand eligibility to use existing or improved transit services.

Creating multimodal corridors

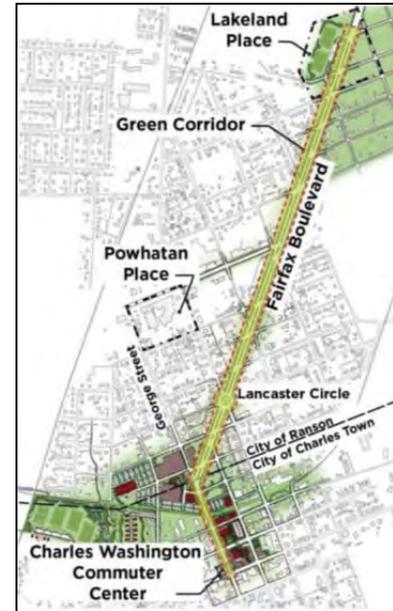
Nodal development focuses resources around particular, concentrated areas, where coordinated investments can have an outsized impact on economic development, area vitality, and transit viability. When communities designate particular nodes as targets for development and identify the corridors connecting them – whether small village main streets or entire city districts – opportunities arise to improve streetscapes, transit, and housing simultaneously. Local or regional governments can take a proactive approach to designating corridors and nodes and supporting investments to make these places viable.

²⁹ Farber, N. and D. Shinkle, *Aging in Place: A State Survey of Livability Policies and Practices*, AARP and the National Conference of State Legislatures, December 2011, pp. 28-29. <http://assets.aarp.org/rgcenter/ppi/liv-com/aging-in-place-2011-full.pdf>

³⁰ Exploring the Role of Regional Transportation Projects as Rural Economy Drivers, National Association of Development Organizations, July 2011. <http://www.ruraltransportation.org/uploads/RegTransit.pdf> . pp 10 - 14.

³¹ Hosen, Kenneth, and Bennett Powell, "Innovative Rural Transit Services," Transit Cooperative Research Program Synthesis 94, Transportation Research Board, 2011, pp. 20-22.

- **Livable Corridors in West Virginia:** Charles Town and Ranson West Virginia both have populations close to 4,000 and have been facing a loss of manufacturing jobs and exurban sprawl pressure from nearby Baltimore. Beginning in 1999, the two cities launched a “Commerce Corridor” initiative to revitalize the corridor running between the two cities with high-tech businesses, infill housing, and recreational areas. The two communities together have received extensive financial support from the Federal government related to remediating Brownfields, conducting an area-wide plan, and revising their zoning codes. They have also received funding to redesign the key corridor street to be “complete” with both amenities for cyclists and pedestrians as well as green infrastructure.³²
- **Prioritizing Multimodal Corridor Investment in Boulder:** Beginning in 1996, the City of Boulder identified ten multimodal corridors where investments would be prioritized to improve travel for all modes. Because sufficient funds were not available for all improvements on all corridors, the City conducted a prioritization process evaluating segments of the corridor by metrics such as congestion, existing or planned transit routes, lack of pedestrian links, civic centers or development areas served, and other elements. Improvements along the corridors include completing sidewalks, adding pedestrian crossings, painting bike lanes and adding signage, bus bypass lanes, and improving transit stop design.³³
- **Streetscape Improvements to Encourage Multimodal Transportation in Raleigh:** Raleigh, North Carolina’s Hillsborough Street Improvement Project recognized that a downtown street next to a major university and that also served as a connection to the expressway was overly congested and unsafe to cyclists and pedestrians. Local stakeholders collaborated to design a new vision for the street – adding pedestrian crossings, roundabouts, raised medians, and “sharrows” to allow bikes to safely share the street with cars and buses.³⁴



Ranson-Charles Town Corridor

Whether considering an inter-city or downtown corridor, strategic investments targeting the corridor have a large impact on the transportation network, livability, and economic opportunity in the surrounding area.

Supporting trip reduction policies and programs

While transportation planning typically focuses on helping people to move from their origin to destination, providing ways for people to sharply reduce the length of, or entirely eliminate a trip can be equally important. Technological improvements make it increasingly possible for employees to work from home or at a shared telework space for at least a portion of their work week. These types of efforts can help to reduce both work and personal trips, saving time and

³² “Supporting Sustainable Rural Communities,” HUD-DOT-EPA Partnership for Sustainable Communities and the U.S. Department of Agriculture, Fall 2011, http://www.epa.gov/dced/pdf/2011_11_supporting-sustainable-rural-communities.pdf

³³ “Multimodal Corridors: Be Smarter about Where and What We Invest In,” City of Boulder, http://www.bouldercolorado.gov/index.php?option=com_content&view=article&id=355&Itemid=1624. Accessed 7-27-2012.

³⁴ Livability in Transportation Guidebook: Planning Approaches that Promote Livability, U.S. Federal Highway Administration, FHWA-HEP-10-028, 2010. http://www.fhwa.dot.gov/livability/case_studies/guidebook/ Accessed 7-27-2012.

money. In fact, one report estimated that by 2016, 43 percent of American workers would work from home at least one day per week.³⁵ Local governments should support and promote initiatives that result in a “trip not taken.”

- ***Promoting Telework Statewide in Virginia:*** Telework!VA is a Virginia initiative that aims to encourage employers to provide telework as an option for their employees. Technical assistance to employers helps in establishing or improving policies and training employees on the benefits of telework and how to work from home productively. The program also provides tax incentives to employers through the State of Virginia. It has documented multiple case studies of the over 80 successful organizations who have helped their employees to save money through trips saved. For example, CALIBRE, a management and technology services firm determined that it saved \$8,209 in trips reduced over a two year period.³⁶
- ***Mobile Nursing Services in Arkansas:*** Older Americans who choose to remain in their homes as they age may find themselves far from the closest medical care – requiring time-consuming transportation to access doctors. The Arkansas Aging Initiative provides care at satellite centers on aging, owned and operated by local hospitals. Teams of nurses, a geriatrician, and social workers provide care at these facilities and follow the same patients through all of their care needs. As a result, almost all of the state’s residents can access care within an hour, and emergency room admission rates have declined amongst the target population.³⁷
- ***Broadband enabling telework in Minnesota:*** A survey conducted in Minnesota showed that 37 percent of Minnesotans work from home occasionally and 20 percent do so regularly. Additionally, 17 percent of retirees and 30 percent of homemakers responded that they would telework if they could do so, meaning that they.³⁸
- ***Shared workspaces in Felton, California:*** A private company opened a shared “co-working” space in Felton, California that caters to employees of Silicon Valley software companies. The facility has 24/7 access via a security card, and provides cubicle, offices, and conference spaces to a mix of home-based business owners, consultants, and telecommuters. When not used by workers, the facility is also able to host community events, such as meetings or classes, making it more versatile than the typical downtown office space. This type of approach might be best for small towns serving largely as a bedroom community to a neighboring city.³⁹

Expanding internet access, providing mobile services, or enabling telecommuting by working with employers or providing telework centers all offer a potential benefit in reduced SOV trips and an added co-benefit of increased quality of life associated with not having to travel as far to reach work or another destination.

³⁵ Vogel, Jennifer, “Telecommuting levels the field for some rural Minnesotans,” Minnesota Public Radio, March 24, 2011. <http://minnesota.publicradio.org/display/web/2011/03/24/ground-level-broadband-telecommuting-rural-community/>. Accessed 7-27-2012.

³⁶ “Case Study: CALIBRE,” Telework!Va, http://www.teleworkva.org/telework/assets/File/downloads/CALIBRE_CASE_STUDY.pdf. Accessed 7-26-2012.

³⁷ Gorski, Mary, “Advancing Health in Rural America: Maximizing Nursing’s Impact” AARP Public Policy Institute, June 2011. <http://assets.aarp.org/rgcenter/ppi/health-care/fs227-nursing.pdf>.

³⁸ Vogel, Jennifer, “Telecommuting levels the field for some rural Minnesotans,” Minnesota Public Radio, March 24, 2011. <http://minnesota.publicradio.org/display/web/2011/03/24/ground-level-broadband-telecommuting-rural-community/>. Accessed 7-27-2012.

³⁹ Graham, J. and B. Sprenger, “A New Take on Teleworking – Privately-Run Telework Centers,” *TDM Review*, Spring 2010, pp. 26-29, http://0356859.netsolhost.com/documents/TDM_Review_Spring_2010_NEW.pdf. Accessed 7-30-2012.

Promote Transportation Demand Management (TDM)

For those who think of “transportation” only in terms of driving their personal vehicle, TDM programs can help overcome cultural and information barriers to non-SOV modes. TDM programs help to pair potential riders in ridesharing programs and also help educate travelers about the possibilities and advantages of alternate modes. As dynamic and real-time information systems become more widespread, coordinating a shared ride or facilitating teleworking will become increasingly possible. Where TDM programs exist, there may be opportunities to expand them by working with regional employers, business associations, hospitals, and universities. Best practices to support TDM include:

- **Localized TDM Planning in Washington State:** Washington State DOT’s Growth and Transportation Efficiency Centers (GTEC) program is part of the statewide Commute Trip Reduction law. While much of the law focuses on large employers, the GTEC program helps smaller employers, neighborhoods, and schools to reduce their transportation footprints. Seven regions have partnered with transit agencies, regional planning agencies, and small employers to provide comprehensive TDM programs. Each program sets goals for VMT reduction, strategies to reach the goals, and the partnerships and financing required to bring the program to fruition. The program helped expand TDM to help over 226,000 residents.⁴⁰
- **Vanpool Programs in Mississippi:** Coast Transit Authority’s vanpool program began in 2006 serving one major regional employer – Northrup Grumman. The vanpool provider surveyed employees in order to determine where there were feasible clusters to establish vanpools and then recruited and trained drivers from the employees at the company to drive the vehicles. As of 2011, there were 30 vanpools in operation, 13 originating in rural communities, and the transit authority was beginning discussions with a nearby air force base and veterans health care system to begin additional vanpool programs.⁴¹ In areas with a few major employers, working with those employers to start vanpool or other TDM programs can serve as a base for later expansion.
- **Transit Agency-Employer Collaboration in Louisville:** Multiple employers in the Louisville, Kentucky region worked with their regional planning and development agency as well as their transit agency in order to establish a new bus route connecting West Louisville with the Bluegrass Industrial Park, located about 14 miles outside of the city center. Prior to implementing the route, employees had to transfer between multiple buses to reach their jobs. The transit agency publicized the new services widely, and since then service has expanded and adapted to commuting patterns and changing work hours, now offering an express and a circulator bus including late night and weekend trips as well as service to the central business district. In total, the service provides 65 trips per day and is funded through the job access and reverse commute program (JARC).⁴²
- **Real-Time Ridesharing Applications Emerging:** Numerous applications have emerged in recent years to facilitate dynamic, real-time ridesharing. Rather than requiring that a driver and passenger coordinate ahead of time, these apps aim to make it possible to use a smart phone to pick up a ride (and, in some cases, exchange payment) at a moment’s notice.

⁴⁰ “Growth and Transportation Efficiency Center Program: 2009 Report to the Legislature,” Washington State DOT, 2009, <http://www.wsdot.wa.gov/NR/rdonlyres/CEDBB8A1-686F-410A-BED2-282B61E43584/0/GTECProgramReport2009.pdf>. Accessed 7-27-2012.

⁴¹ “Profiles of Innovative Rural Vanpool Programs,” TDM Review, Summer 2011, pp. 9 - 10. <http://0356859.netsolhost.com/documents/TDM-Review-Summer-2011-Final.pdf>

⁴² “Profiles of Employer-Sponsored Transportation Programs,” TDM Review, Summer 2011, pp.30 - 31. <http://0356859.netsolhost.com/documents/TDM-Review-Summer-2011-Final.pdf>

Even where funding may not be available to establish an entirely separate TDM program, regional transit agencies or others can often partner directly with employers or work to publicize ridematching websites in order to shift trips from SOVs to other modes.

Goal 4: Reduce fossil fuel consumption and greenhouse gas emissions from transportation by reducing vehicle miles traveled (VMT), increasing efficiency, improving system operations, and transitioning to less carbon intensive fuels and power sources

This includes hybrid and electric vehicles, fleet management, new technologies; and systems operations strategies such as signals management, parking management, coordinated intelligent transportation systems (ITS) and real-time information technology. While the previous goal will help to get Southern Tier residents out of their cars, this goal recognizes that motorized transportation is and will remain a vital part of how most travelers reach their destinations and seeks to reduce its energy-intensity and associated emissions. Best practices supporting this goal include:

- Encouraging the use of alternative vehicle technologies in fleet management
- Promoting fuel-efficient, alternative fuel, or electric vehicles amongst the general public
- Providing real-time travel information about all modes, options, and travel conditions to facilitate efficient travel choices
- Managing parking in multimodal corridors and redevelopment zones
- Reducing fuel used for goods transport

Encouraging the use of alternative vehicle technologies in fleet management

Public and private fleets often consist of larger vehicles such as delivery trucks that may also be fuel inefficient. Replacing these vehicles can lead to substantial reductions in fuel use and emissions. In the case of some fuels (such as compressed natural gas), specialized fueling infrastructure is required to deploy these technologies, which can be quite costly. A number of state and federal programs exist to help both public and private heavy-duty fleets transition away from traditional diesel vehicles to cleaner burning fuels.

- **Electric Trucks at a Kansas City School District:** The Lee's Summit R-7 School district has a fleet of four electric trucks that it uses in its delivery and distribution routes that carry deliveries around the school district. The district obtained the vehicles using funding from the Kansas City Regional Clean Cities Coalition, the American Recovery and Reinvestment Act, and low-interest loans, since the vehicles were about twice as expensive as conventional vehicles would have been. The trucks are manufactured locally and, with fewer moving parts, have fewer maintenance needs than conventional diesel trucks. In the first year of its operation, the cost to operate the trucks was about \$2.12 per diesel gallon equivalent – estimated to result in a savings of \$169,000 over the lifetime of the trucks.⁴³



⁴³ "Lee's Summit R-7 School District Delivers with Electric Trucks," Alternative Fuels Data Center, May 5, 2012, <http://www.afdc.energy.gov/case/1009>. Accessed 7-30-2012.

- **Public Bidding Process Encouraging Green Fleets in Seattle:** Two Seattle area municipalities helped to prompt private waste management companies to reduce their fuel use and increase efficiency. In 2008, Seattle began to require that contractors use fuel that was “cleaner than diesel,” and Issaquah encouraged bidders to become “evergreen fleets,” – a regional certification system in the Puget Sound Region. As a result, Waste Management and CleanScapes began including CNG vehicles and biodiesel in their fleets, leading to over 2,000 metric tons of GHG emission reductions. These initiatives have also helped deploy alternative fueling infrastructure, since Waste Management chose to locate a public CNG fueling facility where it would be convenient for taxis and airport shuttles to use as well.⁴⁴
- **City of San Jose’s Green Fleet Policy:** The City of San Jose implemented a Green Fleet Policy in 2005 with the aim of reducing the city’s GHG emissions. The policy includes actions to optimize the fleet size, purchasing the most fuel-efficient non-emergency fleet vehicles, purchasing carbon credits in situations where purchasing a fuel-efficient or alternative-fuel vehicle is not possible, and reducing emissions of criteria pollutants through emission control technologies.⁴⁵

Whether through applying for grants, partnering with private sector organizations, incentivizing transitions to alternative fleets, or implementing an internal policy, local and regional governments have the opportunity to help transition both heavy- and light-duty fleet vehicles to reduce their emissions.

Promoting fuel-efficient, alternative fuel, or electric vehicles amongst the general public

The success of particular vehicle technologies depends on myriad factors, many of which are outside of the control of local and regional governing bodies. However, localities can help to encourage the public to purchase (and the private sector to provide) alternative fuel or highly fuel-efficient vehicles through small-scale incentive programs, infrastructure provision and planning, and public outreach.

- **Public Outreach and Education for Plug-in Electric Vehicles in Tucson:** Tucson’s Clean Cities stakeholders have helped to build regional support for PEVs, which helped to make the city one of the first where the both the Nissan Leaf and the Ford Focus were released. The initiative started with an infrastructure workshop convening stakeholders that helped manufacturers see the potential for locating charging stations and releasing the vehicles. The Clean Cities Coalition has also been working to generate publicity through media coverage, presentations to local community groups, and press events.⁴⁶
- **Guide to EVSE Permitting Practices in Washington State:** Washington State released a guide for municipalities to help them to guide commercial businesses and private citizens through the process of installing electric vehicle charging infrastructure in their businesses or at home. The sample guide

⁴⁴ “Seattle’s Waste Haulers are Going Green,” Alternative Fuels Data Center, October 1, 2011, <http://www.afdc.energy.gov/case/1053>. Accessed 7-31-2012.

⁴⁵ City of San Jose, “Green Fleet Policy 5.2.0,” City Policy Manual, September 2007, http://sanjoseca.gov/esd/PDFs/GreenFleetPolicy_091707.pdf Accessed 7-31-2012.

⁴⁶ “Tucson Well on Its Way to Go Electric,” Alternative Fuels Data Center, April 1, 2011, <http://www.afdc.energy.gov/case/1071>. Accessed 7-31-2012.

allows users to understand the different types of infrastructure available, whether permits are required, and where to go to obtain these permits.⁴⁷

- **County-level Electric Vehicle Charging Station (EVCS) Program in Sonoma County:** Sonoma County initiated a program with the goal “to provide a comprehensive network of distributed chargers throughout the County which services both public agencies and the private sector and inspires other communities to initiate their own EVCS Programs.” It includes not only information for private sector individuals, but also designates a signage system to help residents locate charging stations, outlines permitting processes for installations, and provides principles for future infrastructure expansion.⁴⁸

Municipalities and regional agencies can greatly assist in the deployment of alternative fuel vehicles by helping to plan for supportive infrastructure and providing public outreach and education to help individuals choose vehicles that reduce their carbon footprint.

Providing real-time travel information about all modes, options, and travel conditions to facilitate efficient travel choices

Transportation and planning agencies should leverage available technology to help the public optimize their transportation choices. In a dynamic and multimodal transportation system, users can quickly determine which mode or which route can best get them to their destination. Real-time travel information can help a traveler to identify accidents causing a delay, an available bike route, or when a bus will arrive and allows them to plan accordingly. It can also help a user to learn about new programs or services that might meet their needs. Providing users this kind of information makes the entire transportation system run more smoothly. Actions to support this practice will help to raise awareness of existing systems and make them more robust, while also encouraging drivers to optimize their fuel efficiency through eco-driving techniques.

- **Public-Private ITS collaboration in Idaho:** In the 27-county Yellowstone-Teton Region, residents are aging, and tourists visiting the nearby national parks challenge the regional transportation infrastructure. The region is served by numerous public and private transportation operators, making coordination and travel planning challenging. The Yellowstone Business Partnership has begun to develop an ITS system that would provide real-time trip planning services to both residents and visitors, allowing for trip booking as well as tracking real-time arrivals between the many available systems.⁴⁹
- **Open Source Data in New York City:** The Metropolitan Transportation Authority of New York City makes bus location and arrival data available to app developers and its newest real-time bus location system, Bus Time, was created using open source software so that it can be easily modified in the future. In creating Bus Time, the city collaborated with several local tech start-ups as well as local

⁴⁷ Electric Vehicle Infrastructure: A Guide for Local Governments in Washington State, Puget Sound Regional Council and Washington State Department of Commerce, July 2010, http://psrc.org/assets/4326/EVI_full_appendices.pdf. Accessed 7-31-2012.

⁴⁸ Electric Vehicle Charging Station Program and Installation Guidelines, County of Sonoma, General Services Department, July 2011, http://www.sonoma-county.org/prmd/docs/misc/ev_prog_guidelines.pdf. Accessed 7-31-2012.

⁴⁹ The Most for Our Money: Taxpayer Friendly Solutions for the Nation's Transportation Challenges, The Reason Foundation, Transportation for America, and Taxpayers for Common Sense; May 2011, http://reason.org/files/solutions_transportation_challenges.pdf

university students to develop the software and overcome several hurdles, such as tracking buses in areas without a strong satellite connection.⁵⁰

- **Integrated Real-Time App Development in the Bay Area:** Students from University of California-Berkeley are studying how real-time travel information can help to change traveler behavior. Their app, “BayTripper,” provides real time arrival information for transit systems, allows for trip planning, and will design a bike route based on the level of difficulty desired or tolerated.⁵¹ This is just one of over 30 applications available in the San Francisco Bay Area, where the local 511 organization provides data feeds for traffic, transit, driving times, and information about ridematching to developers.⁵²

Making data available to the general public and facilitating development of mobile applications can be helpful not only in congested areas, this type of information makes public transit feel more accessible to the casual user in addition to improving service quality for regular users.

Managing parking in multimodal corridors and redevelopment zones

The inability to find parking can be a deterrent to those who would visit downtowns and increase congestion as drivers circle to find a space. However, readily available and inexpensive parking encourages people to drive alone and the associated infrastructure (tall parking garages or large, flat parking lots) interrupt the streetscape and deter pedestrians or cyclists from enjoying downtown spaces. Managing parking involves appropriate pricing strategies, placing it so as to enhance, and not harm, public spaces, and sharing existing spaces between nighttime and daytime uses. This is particularly important in areas with transit or where transit is planned.

- **Real-time availability in Pittsburgh:** The Pittsburgh Cultural Trust wanted to ensure that visitors to the areas museums and cultural attractions were not deterred by the search for parking. The Trust created ParkPGH, a website and mobile application that shows area parking garages and provides the number of available spaces updated every minute. It also allows users to select their destination and will display the nearest lots with available spaces.⁵³
- **Parking Minimum Reform in San Francisco:** Recognizing that parking minimum requirements in some downtown and dense residential areas were onerous and unnecessary, parts of San Francisco have begun to reduce or eliminate parking minimum requirements when developers construct new buildings. In 2006, the City eliminated residential minimum requirements in downtown commercial zones, and subsequent changes to parking requirements in other neighborhoods have gradually reduced the number of spaces required, or allowed for shared parking.⁵⁴
- **Performance Parking in Redwood, CA:** Significant portions of drivers on the road in a downtown may just be looking for parking – one survey in Manhattan found this to be 28 percent of drivers, while another survey in Brooklyn found it to be 45 percent. By pricing parking dynamically,

⁵⁰ “MTA Launches Bus Tracker Built on Open Standards with Help from Students and Local Startups,” Metropolitan Transportation Authority, January 19, 2012, <http://www.mta.info/mta/news/releases/?agency=hq&en=120119-HQ7>. Accessed 7-27-2012.

⁵¹ “BayTripper,” BayTripper, www.baytripper.org, Accessed 7-27-2012.

⁵² “Mobile & Apps – Third Party Apps,” 511 SF Bay, <http://511.org/apps-3rd-party-apps.asp>, Accessed 7-27-2012.

⁵³ “ParkPGH,” The Pittsburgh Cultural Trust, <http://parkpgh.org>, Accessed 7-26-2012.

⁵⁴ “A Brief History of Parking Requirements in San Francisco,” Livable City, 2010, <https://livablecity.org/campaigns/parkinghistory.html>. Accessed 7-27-2012.

downtowns can achieve a target parking occupancy rate – a few spots available, but most spots occupied (and generating revenue). For example, dynamic parking pricing in Redwood City targets an 85 percent occupancy rate and raises and lowers pricing to do so. Added city revenue from this approach was estimated to be about \$1 million per year in 2007.⁵⁵ The city chose to establish this system after conducting a downtown parking management plan in 2005.

Cities and towns should be strategic about where parking is located and how it is priced, shared, and otherwise managed. While parking will continue to be critical to downtowns, understanding the role that it can play in the way public spaces are perceived and the way that its pricing alters incentives can greatly improve downtown environments.

Reducing fuel used for goods transport

Because freight transportation is subject to national and global market forces, influencing freight at a regional level can be particularly challenging. However, it is possible for regions to influence the emissions from freight traffic as it moves through a region by reducing time spent idling or by encouraging, where possible, the use of rail or water to move goods – more efficient modes for handling heavy loads.

- **Truck Stop Electrification in Paulsboro, NJ:** In addition to helping reduce GHG emissions, truck stop electrification reduces noise pollution and criteria pollutants, with direct health benefits for truck drivers and area employees or residents. The City of Paulsboro New Jersey, in partnership with the New Jersey Department of Environmental Protection, installed 98 truck electrification bays, meant to coincide with enforcement of the state’s anti-idling laws. The project provided window-mounted units with heating and cooling, cable and internet connections, and with the ability to power refrigeration units and appliances.⁵⁶
- **Municipal Anti-Idling Law in New York City:** While New York State has a five-minute idling limit for heavy-duty vehicles,⁵⁷ New York City strengthened its own anti-idling laws in 2009 to limit idling near schools to one-minute and to expand the number of agencies who were able to enforce anti-idling laws.⁵⁸ Since anti-idling laws depend heavily on enforcement to be effective, broadening the number of agencies able to enforce existing laws is an important way of enhancing the impact of existing laws.

⁵⁵ Shoup, Donald, “Gone Parkin,” *New York Times*, March 29, 2007, http://www.nytimes.com/2007/03/29/opinion/29shoup.html?_r=1, accessed 7-27-2012.

⁵⁶ Dierkers, G. et al., *CCAP Transportation Emissions Guidebook: Part two: Vehicle Technology and Fuels*, The Center for Clean Air Policy, [http://www.ccap.org/guidebook/downloads/CCAP%20Transportation%20Guidebook%20\(2\).pdf](http://www.ccap.org/guidebook/downloads/CCAP%20Transportation%20Guidebook%20(2).pdf). Accessed 7-31-2012.

⁵⁷ “Heavy Duty Vehicle Idling Laws,” New York State Department of Environmental Conservation, <http://www.dec.ny.gov/chemical/8585.html>. Accessed 7-31-2012.

⁵⁸ Homa, Becca, “NYC Council Strengthens Anti-Idling Enforcement,” *Mobilizing the Region – News and Opinion from the Tri-State Transportation Campaign*, February 10, 2009, <http://blog.tstc.org/2009/02/10/nyc-council-strengthens-anti-idling-enforcement/>. Accessed 7-31-2012.

LIVABLE COMMUNITIES

Goal 5: Strengthen and revitalize existing cities and villages

The Southern Tier region faces the challenge of declining populations in some of its downtown areas and city centers at the same time that the presence of a lively, engaging, and vibrant downtown or main street is seen as necessary to attract skilled workers, employers, and consumers. Building up downtowns and village centers will be necessary for Southern Tier cities and towns to compete with other smaller American cities, especially for younger workers, who tend to be drawn to areas with more entertainment and cultural options. Furthermore, to accomplish its goal of providing a multimodal regional transportation network, the Southern Tier will need to increase the number of people using transit service and bike and pedestrian infrastructure; compact land use patterns and density lead to increased system usage. As local governments struggle just to maintain existing infrastructure, it is especially critical to focus development in places where utility infrastructure is already available, to avoid costly expansions to the extent possible. The following best practices have been seen to revitalize lagging downtown or historic core areas across the country:

- Identifying priority areas for targeted revitalization investments, such as place-making, transit improvements, enhanced public spaces, and other investments to make downtowns walkable, accessible, and engaging places
- Identifying and addressing barriers to infill development that impede efforts to build up historic or downtown areas
- Adopting codes and design standards that promote revitalization of downtown and historic core areas and build upon the existing architecture and character of cities, towns, and villages

Identifying priority areas for targeted revitalization investments such as place-making, transit improvements, enhanced public spaces, and other investments to make downtowns walkable, accessible, and engaging places

Addressing land use issues by targeting investments in priority areas is a strategy that has been successfully used in many U.S. cities to support downtown revitalization. When limited resources are spread across an entire city, the impact can be minimal, while concentrating resources in strategic areas is often key to creative attractive and engaging public spaces. Furthermore, concentrating development and revitalization efforts in a particular area reinforces a transportation strategy of promoting the use of multiple transportation modes.

- Downtown Fargo Redevelopment Initiative in Fargo, North Dakota: Concentrates over \$100 million in public and private investments since 1999 in a 39-block “Renaissance Zone.” Streetscape improvements along the area’s main thoroughfare have enhanced pedestrian and bike access, while the initiative also leveraged a partnership with North Dakota State University to support transit improvements. The city’s efforts were further strengthened through its cooperation with the neighboring city of Moorhead, Minnesota.

- Smart Growth Redevelopment District in the City of Indianapolis:⁵⁹ Uses federal pilot funding (through HUD-EPA-DOT's Partnership for Sustainable Communities) to address abandonment, contamination, and other critical needs in the area, which contains brownfield properties. When the project began, 5 percent of properties in the District were brownfields, and a third of all properties in the area were vacant. The funds are being used to develop live-work housing, transit projects, green housing, and brownfield cleanup.
- Tax credits provided by the State of New Jersey:⁶⁰ Incentivizes the movement of businesses to areas in which it hopes to boost density to increase the efficiency and effectiveness of transit and freight investments. Since 2001, the state's Urban Transit Hub Tax Credit has provided \$352 million in investment for nine projects that have brought businesses within a half mile of a transit hub or freight rail station (for those transporting goods), which in turn has attracted \$910 million and 1,400 new jobs to targeted areas. The program has assisted private developers in creating a "Teachers Village," which includes charter schools, shops, and workforce development, and a mixed-use development that includes both market-rate and artist housing. Both of these projects, which are in Newark, have helped to revitalize that city while increasing housing opportunities for middle-income residents.

Identifying and addressing barriers to infill development that impede efforts to build up historic or downtown areas

Infill development is the transformation of vacant, abandoned, or underutilized lots or buildings into more productive uses that simultaneously improve the fabric and aesthetics of the community. In some cases, properties in urban areas are vacant and abandoned due to environmental contamination issues, which can be not only costly to address but can also raise considerable liability issues that make transferring the property to an otherwise-willing developer difficult. Cleaning up contaminated properties in residential areas can also cause health issues as well. Developers, in turn, have difficulty finding investors willing to invest in brownfield redevelopment or infill development in some areas, perceiving the investment to be too risky, from a regulatory and cost perspective. Many developers in smaller cities also lack the expertise that is necessary to undertake complicated infill projects, and land use regulations such as high minimum parking requirements can also pose additional barriers to infill development. The cost of structured parking can also be a deterrent to infill development. Despite the difficulty of doing so, overcoming these barriers can be necessary to concentrate businesses and housing to an extent great enough to produce a thriving downtown area. There are a number of examples from around the country to successful infill projects that may serve as models for areas in the Southern Tier. Furthermore, New York State's Land Bank Act may provide additional resources for redeveloping vacant and abandoned properties by facilitating the conversion of abandoned parcels to more productive uses.

- Park DuValle in Louisville, KY:⁶¹ An example of a successful infill development project that had to overcome significant obstacles including poor neighborhood conditions including crime, as well as zoning and regulatory impediments, to emerge as a successful housing development while stabilizing a community. The project involved the transformation of an area with 1,100 public housing units on

⁵⁹ http://www.epa.gov/smartgrowth/pdf/partnership_year1.pdf

⁶⁰ Schmitt, Angie "New Jersey's TOD Tax Credit is Producing Jobs," StreetsBlog Network, February 9, 2011. <http://streetsblog.net/2011/02/09/new-jerseys-tod-tax-credit-is-producing-jobs/>

⁶¹ <http://www.uli.org/ResearchAndPublications/Reports/~media/Documents/Research/Affordable%20Housing/MarketRateInfill.ashx>



96 acres into one with 1,213 new houses – 63 percent rental and 37 percent in ownership – through a \$33 million HOPE VI grant and \$5 million Homeownership Grant, city funds for infrastructure, and tax credits and private investments. The developer, The Community Builders, had to assemble a large tract of land and develop a master plan that included a new street pattern – a significant challenge without the City’s support as well as federal funding. In addition, the project required a strong marketing campaign to convince potential residents to relocate to an area with a poor reputation and the developer was proactive and formulating focus groups to determine factors of importance to consider in the project, including design standards. The city’s willingness to reevaluate its building guidelines to improve the architectural features of the homes was important in attracting higher-income households to the new mixed-income community. As a result of these steps, the first 50 lots sold a year ahead of schedule and future phases of the project saw sizable waiting lists of interested buyers.

- Bown Crossing in Boise, ID:⁶²A 35 acre development that mixes 92 residential units of different types, as well as 59,000 square feet of retail and restaurant space. This complex was designed in order to form a pedestrian oriented space that brings excitement and energy to a previously barren land. The development created a seamless connection between the new structures of the development and the older buildings that existed previously. It has become a wonderful space to experience both the past and future of Southwest Boise.

Adopting codes and design standards that promote revitalization of downtown and historic core areas and build upon the existing architecture and character of cities, towns, and villages

Design standards for streetscapes and public spaces can play a significant role in making downtown, historic, or other areas more attractive to both visitors and businesses, as well as more accommodating to eventual transit improvements and better for residents’ health. The historical character of architecture and street design in many Southern Tier areas is a significant asset that should be leveraged and expanded to further strengthen efforts to revitalize core areas. “Transit-ready” improvements – those that make streets and neighborhoods more compatible with the eventual installation of transportation improvements such as enhanced bus stops, transit-dedicated lanes, or even streetcars and light rail systems – are good long-term investments but also yield significant short-term returns and are valuable investments in and of themselves in most cases. Orienting buildings to the street by providing more windows and entrances can make sidewalks more attractive and putting auto parking behind buildings rather than in front of them can significantly improve pedestrian access. Furthermore, street trees are known to bring immense air quality, cost and safety benefits to developed corridors. According to some estimates, trees in street proximity absorb nine times more pollutants than more distant trees, while alleviating the need for additional spending on storm water runoff infrastructure, and significantly protecting pedestrians from automobile traffic.

- Form-Based Code Ordinance adopted in Arlington, VA:⁶³ In 2003 as part of its Columbia Pike Corridor Masterplan, which seeks to redevelop an auto-oriented corridor in otherwise transit-friendly Arlington. The code, which is seen as a model by other cities, uses simple and clear graphics to demonstrate height, siting, and building elements that are necessary to create quality public spaces. The code regulates building lines, parking setbacks, architecture standards, and streetscape

⁶² <http://pds.cityofboise.org/planning/infill/commercial/bown/>

⁶³ <http://www.newdesignsforgrowth.com/pages/smartgrowthresources/nationalbestpractices.html>

requirement. Although developers can also develop according to the underlying framework, the city has incentivized use of the code by awarding developers that adhere to the form-based code priority in an expedited approval process. These projects are also eligible for supplemental county investments in certain areas along the corridor.

- Form-Based Development Code in Knoxville, TN:⁶⁴ Adopted in 2007 after a process that involved obtaining input from citizens, property owners, residents of particular neighborhoods, and technical experts in conjunction with its South Waterfront Vision Plan, Action Plan, and Urban Renewal and Redevelopment Plan. The Form-Based Development Code has been written to tailor future development to achieve a vision of a riverwalk with parks and “windows” to the water, street improvements, sidewalks and bikeways, and private development of housing, retail and entertainment opportunities that will fit with the character and architecture of the city.

⁶⁴ <http://www.newdesignsforgrowth.com/pages/smartgrowthresources/nationalbestpractices.html>

Goal 6: Support development of workforce and senior housing that is energy and location efficient and offers choices to reflect changing demographics

Although housing in the Southern Tier may be more affordable than other areas in the US, housing affordability remains a significant challenge in the region. There is a need to ensure that middle-income professionals such as teachers and emergency responders have access to quality housing options, and as well as the increasing population of older Americans. Furthermore, location and energy efficiency have the potential to reduce the strain on household budgets that can be caused by high transportation and utility costs. In addition, there are many other strategies to increase the provision of location- and energy- efficient workforce and senior housing in the Southern Tier region. One of the best practices supporting this goal includes:

Using creative financing tools and partnerships to invest in the construction and rehabilitation of affordable, workforce, and senior housing that is both location- and energy-efficient.

Lack of enough affordable, workforce, and senior housing is a problem compounded by the significant presence of substandard housing in the Southern Tier region. Creative partnerships can result in the construction of quality affordable housing and the enhancement of existing housing quality to prevent currently adequate housing from falling into disrepair. Utilization of federal housing program aid, sweat equity programs, and other creative tools are commonly seen in the most successful housing developments for low- and middle-income residents. In the process of heightening the quantity and quality of affordable housing in the region, many energy-efficiency improvements can be made at marginal additional costs to yield significant long-term energy savings – a consideration that should be incorporated into investment decisions. Furthermore, efforts can be implemented to ensure that investments in affordable housing are made in location efficient areas. The Victoria Transport Policy Institute identifies the following as features of affordable-accessible housing that can minimize neighborhood opposition to affordable housing development: locating on larger and busier streets and corner lots, locating adjacent to multi-family or commercial buildings on at least one side, reflecting neighborhood design practices in terms of style, materials, color, and other features, and protecting privacy and solar access to the greatest extent possible.⁶⁵

- Wheeler Terrace housing community in Washington, DC:⁶⁶ Simultaneously met the Enterprise Green Communities criteria, achieved LEED Silver certification, and remained affordable to current tenants. Wheeler Terrace was constructed in 1947 and over decades of use had fallen into disrepair and become a hot spot for crime. When an opportunity to purchase the building arose as a result of the DC Tenants Opportunity to Purchase Act, the community's tenant association exercised their right to purchase the property to giving rights to a developer, the Community Preservation and Development Corporation (CPDC), to purchase and renovate the complex. CPDC



⁶⁵ http://www.vtppi.org/aff_acc_hou.pdf

⁶⁶ <http://www.enterprisecommunity.com/servlet/servlet.FileDownload?file=00P3000000CvlapEAB>

obtained \$12 million in Low Income Housing Tax Credit equity, a \$4 million acquisition loan, a \$50,000 green grant from Enterprise Community Partners, and a \$25,000 predevelopment loan in order to rehabilitate 116 units by replacing building systems, adding insulation and energy-efficient windows and appliances, and installing a green roof and geothermal wells. CPDC also secured renewal of Section 8 status for the building for 20 years, ensuring affordability for residents for at least two more decades. As a result of the success of this project, Enterprise Community Partners also decided to rehabilitate developments on the two plots adjacent to Wheeler Terrace.

- Tassafaronga Village in Oakland, California:^{67,68} This is a 7.5 acre development notable not only for achieving the first LEED ND Gold certification in California, but also for using innovative design features, rehabilitating former industrial properties, and providing a diverse range of housing including affordable housing. The development has 77 townhomes, 80 apartment units, and 22 Habitat for Humanity townhomes built as part of a sweat equity program, in which participants contribute 500 hours of labor in exchange for very low interest rate mortgages. Design features include the positioning of apartments to flank and hide a parking structure, grade-level entrances to individual units, a Village Square with a large public plaza, and semi-private shared spaces with play equipment for children. Energy efficiency and environmental benefits have resulted from the development's green roof, on-site solar power, and LEED platinum certification for all individual units. One of the development's most unique features is the rehabilitation and conversation of a formal pasta factory into both apartments and a neighborhood-serving medical clinic. The project was delivered through \$25.3 million in equity financing with Low-Income Housing Tax Credits through the Local Initiatives Support Corporation's (LISC) National Equity fund, HOPE VI funds, services of the Oakland Housing Authority, and the partnership with Habitat for Humanity. Although the area's walk score is currently lower than the average for Oakland, and the walk to the nearest BART station is relatively long, walkability in the area will likely improve in the future when additional shops come in and a planned bus rapid transit project is completed.⁶⁹
- The City of Charlotte land acquisition fund:⁷⁰ Established to purchase land near stations along its light rail line to ensure not only transit-oriented development but also the provision of mixed-income housing in transit-accessible areas. The Charlotte City Council provided an initial \$5 million grant that went to a housing program managed by Coldwell Banker Commercial, the Charlotte Area Transit System, and city agencies. This grant money was then combined with resources from the city's Housing Trust Fund to purchase land surrounding the Scaleybark station. In exchange for Housing Trust Fund resources, development on the site will be required to meet a minimum affordable housing threshold. The Bay Area Transit-Oriented Affordable Housing Fund and Denver's TOD acquisition fund are two additional examples of efforts to ensure the provision of affordable housing near transit.⁷¹

⁶⁷ <http://www.dbarchitect.com/images/dynamic/projects/pdf/tassafarongavillage.pdf>

⁶⁸ http://www.dbarchitect.com/project_detail/2/Tassafaronga%20Village.html

⁶⁹ http://switchboard.nrdc.org/blogs/kbenfield/tassafaronga_village_brings_af.html

⁷⁰ <http://policy.rutgers.edu/vtc/tod/newsletter/vol6-num1/CaseStudiesforTOD.pdf>

⁷¹ <http://ctod.org/pdfs/tod204.pdf>

ECONOMIC DEVELOPMENT

Goal 7: Create and retain more good paying jobs by building on the Southern Tier’s regional strengths, including advanced energy and transportation technologies, globally-competitive industry, and workforce development and technology transfer partnerships with educational institutions

This goal involves working with existing and emerging industries, entrepreneurs and educators to accelerate business growth and employment across key sectors that support regional sustainability goals. It supports the growth of both urban industry and rural businesses. It also involves facilitating a better match of skills between local workers and business needs to help reduce or reverse out-migration of young residents and retain skilled, high wage earning workers in the region. The following best practices can be deployed to generate sustainable, good paying jobs:

- Matching workforce skills to competitive export-oriented sectors for growth, including energy, transportation, and other competitive technological sectors
- Investing in local businesses in the targeted growth sectors through seed grants or “economic gardening” program
- Developing university-business partnerships that provide academic-industry feedback loops to promote workforce development and employment opportunities
- Identifying ways to ensure that redevelopment promotes employer-employee connections and greater opportunities for job growth

Matching workforce skills to competitive export-oriented sectors for growth, such as energy, transportation and other competitive technological sectors.

Competitive sectors include those that are concentrated in the region (compared to the state and nation) and have shown growth over the past decade. Focusing on these sectors can allow the region to leverage existing strengths to create jobs that will have lasting relevance and will attract young and talented workers. The existing workforce should be encouraged to transition from non-competitive sectors to growth sectors. A skills match analysis can determine which employees have skills that align with those required by growth sector occupations. By supporting this transition, the region will place qualified workers in jobs that provide opportunities for long-term employment and will capitalize on existing workforce skills to promote industry growth.

- High Country JobLink Career Center, NC: The High Country Workforce Development Board created the JobLink Center to improve the region’s workforce and to connect the workforce to growing industries. For individuals, the Center offers career guidance, resume preparation, job market information, training classes and workshops, and training and education information. Businesses use the Center’s resources that include recruitment and pre-screening, a database of potential workers, trainings to enhance skills of current employees, and on-the-job training hiring incentives.

- Lancaster County Centers of Excellence, PA: The Lancaster County Centers of Excellence (of which there are four, one for each industry cluster identified as important) see themselves as “part of a network for organizations in [the County] that form a local Innovation System.” Their goal is to assure the competitive advantages of key regional industries; that is, they aim to foster a skilled workforce as well as promote technology commercialization, entrepreneurship, and local research and development. To accomplish their goal of developing the workforce, they outline four different groups within the workforce – incumbent workers, new workers, pre-employment individuals, and a school-to-work group – and provide specific resources for each group. Working with non-profits, schools, and businesses and other industry participants, the Centers establish programs to educate and train members of the workforce for crucial positions in each industry. The Centers of Excellence help overcome the issue of a workforce that is ill-prepared for competitive jobs within the region.

Investing in local businesses in the targeted growth sectors through seed grants or “economic gardening” program

- Most economic development practitioners now recognize the importance of investing in local businesses to grow their size and increase employment opportunities and the capacity of the local workforce, even when doing so limits resources available for providing tax breaks or incentives to businesses to locate in a particular jurisdiction. The practice of “economic gardening” (rather than “economic hunting” through business attraction) is generally thought to have started in Littleton, Colorado in 1989 and spread quickly to other towns as a result of impressive returns on investment for the seed funding that was provided to small businesses. In many ways, the practice mirrors that of venture capitalists, who provide start-up capital to promising businesses but at a smaller scale.
- Michigan Economic Gardening. Michigan is now focused on providing short-term financial assistance to businesses rather than making decades-long commitments – which can be significant liabilities – to keep taxes low for businesses. In the cases in which those businesses given long-term tax breaks are successful, the benefit ends up going to a group that needs it least, rather than spending resources on enterprises that are struggling to find the capital that would allow them to grow into assets for the entire community or state.
- King County, Washington is working with the State and city governments to foster growth of its manufacturing industry. The County surveys companies about their preferred investments and strives to create a business environment that matches industry’s ideal. The County emphasizes capital investments in urban industrial zones and, along with the City of Seattle, is developing an online database to map industrial areas and guide government investments (e.g., matching companies to appropriate development sites). In addition to communicating with industry and analyzing geographic data, King County provides accelerated training programs for potential employees (e.g., a 90-day aviation industry training program). Finally, zoning regulations in Seattle allow siting of manufacturing close to the City’s downtown and protect manufacturing zones from high-end development. King County and the City of Seattle recognize that manufacturing “makes it possible for someone without a college education to build a career and earn wages on which he or she can support a family.” The County and City provide a model for coordinated planning that focuses on developing regional strengths.⁷²

⁷² Governing the States and Localities, 2012, available at: <http://www.governing.com/blogs/bfc/col-seattle-region-city-county-state-investment-manufacturing-renaissance.html>

Developing university-business partnerships that provide academic-industry feedback loops to promote workforce development and employment opportunities

Providing job training and coordinating educational resources with business opportunities will ensure that workers develop skills relevant to local business needs, thus increasing their employment options and allowing the region to maximize economic performance.

Establishing university-business partnerships can help develop the workforce in the required sectors, retain workers in the region, and provide greater certainty to local businesses that the necessary skills will be available locally to enable continued success. This can generate a virtuous cycle in which workers are drawn to the opportunity for development and skilled employment, and businesses are attracted by the promise of a reliable workforce. Some examples of such programs include:

- ***Puget South Regional Council:*** Created the “Regional Economic Strategy for the Central Puget Sound Region,” which emphasizes job training and coordination of educational and business activities. It identifies the need to develop, attract, and retain a skilled workforce. Several of the Puget Sound’s industry clusters (e.g., life sciences, information technology) depend on workers with more advanced education and skills.
- ***Syracuse Engagement Fellows program:*** Collaborates with local employers to provide the Engagement Fellows program for select graduating students. For a year following the Fellow’s graduation, the University provides tuition funding for part-time continuing education and a Central NY company or nonprofit hires the Fellow. Alternatively, the Fellow can choose to follow an entrepreneurship track to develop his or her own business. Many of the Fellows continue working with the local employer beyond the program year. This program encourages talented young people to apply their skills and energy to support regional development

Identifying ways to ensure that redevelopment promotes employer-employee connections and greater opportunities for job growth

Large scale redevelopment projects can support a diversity of construction-related jobs in the short term. Projects in this category include community revitalization projects (e.g., redevelopment of key buildings, infill of new buildings, and development of downtowns, neighborhoods, and rural population centers) and transportation improvement projects (i.e., road and bridge repair).

These regional improvements can provide new employment options and also improve the quality of life for residents, which can help the region retain the educated workforce coming from local universities. Beyond the job creation effects of the redevelopment projects themselves, investing in smart growth will increase employment density, improve transportation efficiency, and reduce city-suburb gaps. These changes will make it easier for employers and employees to connect by improving accessibility, thus expanding the employment market and leading to agglomeration benefits. An example is provided below.

- ***Pittsburgh’s use of Main Street Program investments to create employment center:*** National movement to revitalize community centers, based on the concept that developing idle or underutilized sites can improve the regional tax base and restore economic productivity. In 2011, \$53.6 billion dollars from both public and private sources were reinvested in physical improvements through the Main Streets Program. These investments produced 104,961 new businesses, 448,835 new jobs, and 229,164 building rehabilitations, with an overall reinvestment ratio of \$18:\$1.

- ***The City of Ithaca*** is working with a design firm to plan upgrades to the Ithaca Commons. The project team requested stakeholder input early on in the process and is now developing the design concept and seeking funding. The City was also recently selected to receive \$4.5 million from the U.S. Department of Transportation under the State of Good Repair program for both the Commons transportation hub and the proposed downtown to Cornell bus rapid transit corridor. This redevelopment and transportation project presents an opportunity for direct job creation, as well as indirect benefits resulting from downtown revitalization, including business attraction and retention and improved quality of life.

Goal 8: Support tourism industry development with coordinated marketing, preservation, and enhancement of historic, cultural, educational, and natural resources and events

By communicating and preserving the value of the region's natural assets through coordinated marketing, management, planning, and financial support, out-of-state visitors could be attracted to the region. It is important that promotion efforts be locally managed to maximize interest in industry sustainability. As a result of these efforts, local resources will garner greater appreciation from residents and visitors and will provide multi-dimensional (i.e. cultural and economic) value. In addition to promoting nature-based tourism, affordable cultural offerings, such as guided tours, performances, and classes that highlight the region's unique culture and history could be developed. These products cost very little, can be locally sourced, and require minimal training, supporting local procurement and employment.

Supporting eco-tourism and low-impact tourist attractions through a coordinated marketing strategy

This involves identifying the region's natural assets, resources, and amenities and investing resources into creating a coordinated marketing strategy for tourism. The unique offerings of the region could include historic downtowns, events, parks, educational institutions, entertainment opportunities, and so on. Regional resources or events that can be promoted as tourism attractions must be identified and marketed in a way that emphasizes their unique character and encourages visitor and resident stewardship. By doing so, the region can both promote tourism and preserve its historic, cultural, educational, and natural resources.

- Corning, New York: Invests resources in organizing the Finger Lakes Wine Country Restaurant Week event as a tourist attraction. During the event, local chefs are challenged to create menus using 100% local ingredients, pre-fixe lunches available for \$25 and dinners for \$30. The event enhances interest in local products in addition to stimulating economic activity.
- The Northeast Michigan Council of Governments promotes regional tourism along U.S. Route 23. The Northeast Michigan Council of Governments (NEMCOG) leveraged regional resources to promote tourism around a 200-mile stretch of US Route 23. NEMCOG built a council of representatives from the six counties along the corridor. The council developed a tourism website (us23heritageroute.org), which has garnered national acclaim. The website recommends tourism activities in a variety of categories, including active adventures; art, culture, and history; and outdoor and farm fun, among others. Several of the categories highlight Northeast Michigan's natural resource-based activities. For example, the website lists water routes for boaters and kayakers and provides an interactive map of trail systems. The website also presents stories and photos related to the regional heritage. NEMCOG determined that pooling regional resources, inventorying the regional natural resource assets, providing interpretative information about the region, and marketing Northeast Michigan as a tourism destination have enhanced the regional tourism industry.
- The Pure Catskills campaign conducts events and outreach to promote local food. Pure Catskills is a buy local campaign that supports farm and food businesses in Delaware, Greene, Otsego, Schoharie, Sullivan, and Ulster Counties in New York State. The campaign publishes a Guide to Farm Fresh Products and maintains a searchable database of local businesses, organizations, and events related to farms and food. The Pure Catskills website also provides an online forum to connect buyers with producers of local food and offers a grant program to support product development and marketing.

Pure Catskills provides an example of an online information hub that disseminates information and facilitates interaction among individuals, businesses, and organizations to promote local food.

Goal 9: Support farming and related businesses to reinvigorate the rural economy, enhance residents' incomes and standards of living, and promote local food and agriculture

This goal involves coordinating policies, plans, marketing, and investments to increase production, sales, and consumption of local food; to reduce energy/GHGs related to food transportation, production and marketing; and to increase jobs and green/agriculture tourism. The agricultural industry can be advanced and grown 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. Additionally, the national movement to consume locally made products and fresh foods is providing a new and powerful driver for growing the value-added regional agricultural sector. Best practices under this goal include:

- Coordinating plans, policies, marketing, and investments to increase production, sales, and consumption of local food.
- Supporting Energy Conservation and Renewable Energy Production on Local Farms.

Coordinating plans, policies, marketing, and investments to increase production, sales, and consumption of local food

This strategy will help to address the challenge facing the agricultural industry in the Southern Tier – local consumption of products is too low – by focusing agricultural production on regional needs and building relationships between producers and local consumers. This broad strategy includes a menu of possible actions, including building a supportive policy framework, targeting marketing, providing financial support, and training new and experienced farmers. There does seem to be growing interest in “buy local” initiatives across New York State. The Southern Tier can deploy this interest locally to support economic development in its agricultural industry.

- **Develop New Farmers Markets for Locally-Grown Foods and Expand Existing Markets:** Developing permanent seasonal farmers markets is critical in providing a predictable clientele for the sale of locally grown fruit and vegetables, value-added products, and related locally produced arts and crafts. For example, Ithaca’s Farmers Market, with a prime waterfront location, has become a huge tourist destination and event for residents with social and cultural benefits that complement economic benefits to farmers. In Ithaca, market improvements under consideration include making the market a year-round event.
- **Develop Local Processing Facilities for Value-Added Products, Including Commercial Kitchens and Regional/Mobile USDA-Certified Meat Processing Facilities:** Creating value-added agricultural products depends upon the availability of a commercial kitchen for multiple, small producers. The investment in such a facility is beyond the financial capability of most small farmers and entrepreneurs. Similarly, one limiting factor in developing a local meat industry is the availability of USDA-certified meat processing facilities that are either mobile or available regionally. Developing such processing facilities can help expand the production and sale of local food.
- **Brand local products in a way that makes them clearly identifiable and desirable to potential customers:** Brand local products to make them recognizable and desirable to potential consumers. Branding involves designing a product identity that will be used consistently in marketing and labeling materials. Consistency in a product’s image helps to build consumer familiarity and interest. Increasing use of local products in the Southern Tier will boost product demand, reduce costs

associated with transport and handling, and encourage job creation in the regional food production industry.

- A successful example of this is Sustainable South Bronx, which provides a model for branding locally grown produce, with the goal of creating accessible jobs in food production. The technique involves designing a brand identity, drawing in financial support (e.g., foundation grants and subsidies from the United States Department of Agriculture), building relationships with institutional buyers, and engaging investors.
- Hudson Valley Fresh launches a product brand from numerous farms. Hudson Valley Fresh is a dairy cooperative (co-op) founded in 2005 to address the challenge of unsustainable farm economics (i.e., the price of farm products has not kept pace with the cost of production) in Dutchess County, New York. Co-op members are pioneering a new business model that could work for small farmers across the Northeast. The members produce premium milk, process it, and sell it under the “Hudson Valley Fresh” label to local customers. Their strategy hinges on the idea that customers pay more for local, high quality products. The farmers now receive a price based on their cost of production, rather than a fixed commodity price, by selling to customers in the Hudson Valley, New York City, Long Island, New Jersey, and Connecticut.⁷³ By launching a branded product, members of the Hudson Valley Fresh co-op have overcome a common challenge facing small Northeast farmers. They provide a collaborative model for launching a product brand that will garner recognition (and better prices) from local customers.
- Use networking sites or other online tools to build bridges between producers and consumers: Increasing computer connectivity and access to online information presents an opportunity for the Southern Tier Region to promote its agricultural industry. Develop online information hubs, where individuals or businesses can share information about product availability and demand, and encourage their use by local producers and consumers. A report from Cornell University suggests that online information hubs can promote innovation and regional collaboration, by providing communication and coordination services. For example, the Environmental Finance Center in Central New York provides a platform for buying, selling, and trading agricultural byproducts and material online. It also offers a partner forum for buying, selling, or donating local products.
- Farm Fresh Rhode Island, an online food hub, addresses the missing middle in local food infrastructure. Farm Fresh Rhode Island is an online information hub that helps local consumers find sources of local food. It serves individual consumers by listing local farmers’ markets, farm stands, and restaurants that serve local food. It serves business consumers by identifying farms and distributors that sell in bulk. In addition to compiling information on local food sources, Farm Fresh Rhode Island supports the RI Harvest Kitchen Project, a training program for Rhode Island farmers and at-risk youth. The Project collaborates with local food service employers to create employment and internship opportunities for its trainees. Farm Fresh Rhode Island also supports the Open Kitchen Project, which provides guidelines on how to get started with a new food business in Rhode Island. Farm Fresh Rhode Island uses an online platform to connect producers and consumers and to provide farmers with the information they need to be successful in the local food market. It demonstrates how the use of technology can bridge gaps in local food infrastructure and yield benefits for the local agricultural industry.⁷⁴

⁷³ Hudson Valley Fresh, 2012, available at: <http://www.hudsonvalleyfresh.com/what-is-hudson-valley-fresh>

⁷⁴ Farm Fresh Rhode Island, 2012, available at: <http://www.farmfreshri.org/>

- The Vermont Farm to Plate Network uses stakeholder collaboration to build a sustainable regional food system. Started in 2011, the Vermont Farm to Plate (F2P) Network is a project run under the Vermont Sustainable Jobs Fund to coordinate action among regional food system stakeholders. The F2P Network seeks to implement the 60 high priority strategies outlined in the F2P Strategic Plan for the next 10 years. Its membership includes farms, food enterprises, and related trade associations, cooperatives, public agencies, nonprofits, private funders, and community groups. Each member agrees to share information and participate in a Working Group, Task Force, or Crosscutting Team. The Network establishes annual goals and convenes to plan the implementation approach, track its progress, and build the financial resources necessary for the work. Although the F2P Network began recently, it offers a model for action-oriented collaboration that could prove successful for implementing strategic plans in other regions, as well.⁷⁵
- Expand and Improve Community Gardens and Sites for Urban Agriculture: City residents can grow their own food or have an opportunity to purchase produce grown in their locality if more and better community garden facilities are developed and sites for commercial urban farmers are identified.
- Encourage New Farm Startups and Farm Transfers to Next Generation: Retaining existing family farms and encouraging new farm startups can help grow the agricultural sector. While improved markets and financial returns are critical, providing programs to educate new farmers and provide financing for farm acquisition and upgrades are also important.
- Provide opportunities for consumers to learn about sustainable agricultural practices: Community educational fairs and tours of organic farms can provide opportunities to help consumers understand the advantages of local, organic food and sustainable agriculture, potentially leading to greater demand for such food products. For example, in North Carolina, the Piedmont Farm Tour held each year draws local and out of state residents to the region to explore local farms, their produce, and their agricultural practices.
- NorthEast Beginning Farmers Project supports new farmers in New York and neighboring states. The NorthEast Beginning Farmers Project consists of a team of educators based at Cornell University and funded by the U.S. Department of Agriculture. The team publicizes training opportunities for new farmers and offers online courses and informational resources, including guidebooks and how-to videos. For example, one of its publications presents case studies of small dairy farms in New York State that have employed innovative methods to increase profit and leisure time; the resource seeks to share regional best practices with its readers. The goal of the Project is to recruit young people into the farming profession and help new farmers grow their operations. The Project team includes representatives from Southern Tier Counties, as well as state-wide organizations. Although originally intended to support New York farmers, the Project is now expanding to serve farmers out-of-state, as well (NorthEast Beginning Farmers Project, 2012, available at: <http://nebeginningfarmers.org/>).

Supporting Energy Conservation and Renewable Energy Production on Local Farms

The high cost of energy can be a threat to the economic viability of the local agricultural sector. At the same time, many farms have an opportunity to generate their own heat and electricity in a variety of ways – biomass for heating, waste to energy (heat and electrical generation), biodiesel, solar, wind and geothermal energy. Expertise and financing are typically the main obstacles that farmers face in taking advantage of these opportunities. Some actions that can help farms become more self-sufficient in their energy needs are:

⁷⁵ Vermont Farm to Plate Network, 2012, <http://www.vsjf.org/project-details/20/farm-to-plate-network>

- **Energy Conservation:** Energy conservation programs targeted to farmers can be implemented to ensure that houses and farm structures are energy efficient (see energy efficiency, goal 1).
- **Biomass for Farm Home Heating:** Most rural residences, including farmers, heat with LPG or oil. Converting to biomass boilers will provide a cost effective and sustainable heat source for both home and farm out buildings (see renewable energy, goal 2).
- **BioFuels:** Encouraging production of biodiesel for farm vehicle use from waste oils or farm grown oil crops is key to developing sustainable transportation in rural farming areas. Ethanol production presents another economic opportunity for some farms.

WORKING LANDS AND OPEN SPACE

Goal 10: Promote best management of fields, forests, and farmland to keep working lands in production, protect natural resources, and increase carbon sequestration

The agricultural heritage and rural character is one of the Southern Tier's greatest assets. There is a need to ensure that the working lands of the region are managed in a sustainable manner, ensuring the continuation of future generations' ability to enjoy these resources. Forests, fields, and farmlands are also a critical source of carbon sequestration and their protection will help prevent the exacerbation of negative effects resulting from climate change. This goal also includes planning, education, financial, marketing, and management support for farming and forestry and other resource-based businesses. Best practices supporting this goal include:

- Implementing educational and outreach programs that encourage landowners and lumber mills to adopt and adhere to sustainable management standards and increase the market for local, sustainably-grown lumber
- Increasing the market for local and sustainably-grown produce for consumption
- Encouraging farmers to adopt best management practices through USDA-NRCS incentive programs

Implementing educational and outreach programs that encourage landowners and lumber mills to adopt and adhere to sustainable management standards and increase the market for local, sustainably-grown lumber

Because nearly 60 percent of the nation's forests are privately owned, there is a need to encourage responsible use of this land to continue or enhance levels of carbon sequestration and the sustainable provision of plants, lumber and fresh water upon which we all rely. The Forest Stewardship Council's principles for forest management address a variety of practices necessary for equitable and sustainable use of precious natural resources as well as legal issues, indigenous and labor rights, and multiple benefits. Through some combination of education and outreach efforts and incentive programs, the Southern Tier should encourage landowners and lumber mills to adopt FSC standards in their practices. Following are examples of additional and supportive concepts that can be applied in the Southern Tier:

- Colorado Forest Products (CFP): A trademarked business membership and wood products consumer education program enhancing the production, marketing and sales of wood products harvested from forest management activities on Colorado's public and private forestlands. The Colorado Forest Products results in increased awareness about Colorado's forest and wood products industry by:
 - Promoting the use of Colorado wood in new and existing markets
 - Encouraging the development of businesses dedicated to the use of Colorado wood
 - Educating Colorado citizens on the economic, environmental and social consequences that imported wood has on our state's economy

- Informing consumers about the benefits of buying wood products from Colorado growers, manufacturers and retailers.⁷⁶
- Catskill WoodNet: A regional network of businesses that harvest and manufacture wood products from New York's Catskill Mountain Region. Through improved land stewardship in the New York City Watershed, the goal is to encourage a working landscape that connects people with local forest resources. Its members label their products with the Pure Catskills trademark to illustrate a commitment to using watershed friendly practices, buying local and supporting a centuries old tradition of craftsmanship and care for the land in the Catskills.⁷⁷ Pure Catskills is a registered trademark of the Watershed Agricultural Council.
- Vermont Wood Products Marketing Council: Connecting members of the Vermont wood products industry and promoting the Vermont quality wood products brand. The Essential Buyer's Guide for Vermont Wood Products allows you to view furniture, woodenware, toys and games, building supplies, carvings and architectural wood products from over 100 Vermont wood artisans. The Cornerstone Resource Manual connecting architects, designers and purchasers with Vermont producers and craftspeople. The Vermont Forest Heritage Trail shows where to visit Vermont wood shops and managed forests, both an integral part of Vermont's rural working landscape.⁷⁸
- The Local Building Materials Initiative (LBMI) in Tompkins County: LBMI is a new effort sponsored by Cornell Cooperative Extension of Tompkins County and the Ithaca Green Building Alliance. The greater Ithaca area has a wealth of resources when it comes to building materials, but they are underutilized. The goal of this initiative is to foster a market for local building materials in order to benefit both aspects of the market - supply and demand. By increasing awareness, they hope to increase the already present demand, and eventually encourage sustainable economic development. The LBMI aims to enable both consumers and suppliers to be more responsive to their local environment. Cooperative Extension has created a directory and interactive map of local building material suppliers; began collaborations with local organizations and businesses; developed education- fact sheets, seminars; and conducted outreach-attendance at community events.



Increasing the market for local and sustainably-grown produce for consumption

Agriculture has long played an important role in the character of towns and The Southern Tier has already earned a reputation as an area where there is a strong culture of farm-to-market examples and interactions. Nevertheless, more can be done to both take advantage of existing demand for sustainable produce and materials and to enhance demand through education efforts and incentive programs.

- Colorado Proud: This Colorado Department of Agriculture program promotes locally grown produce at grocery stores, farmers' markets, garden centers and restaurants. By buying locally grown, raised and processed food and agricultural products, consumers are receiving



⁷⁶ <http://csfs.colostate.edu/cowood/cfp.html>

⁷⁷ <http://www.catskillwoodnet.org>

⁷⁸ <http://www.vermontwood.org>

high quality fresh products and helping Colorado's economy, local farmers, ranchers, greenhouses, manufacturers and processors in your area.⁷⁹

- **Hudson Valley AgriBusiness Development Corporation:** This nonprofit aims to support the financial sustainability of farming livelihoods of farmers in the Hudson Valley by harnessing the growing demand, especially in New York City, for locally- and sustainably-produced food. With 250,000 consumers gathering four days per week in Manhattan's Union Square, and countless other restaurants, corner stores and boutique food markets striving to purchase food locally, there are significant opportunities for farmers to sell directly (or at least, more directly) to customers and diversify the products they produce without having to sell them to large corporations responsible for processing and distributing them on wide scales in less sustainable ways. HVADC aims to expand the network and efficiency of transporting goods from farms to centers of demand while allowing farmers to retain more of the profits that are generated by the sale of their goods. In Philadelphia, the Delaware Valley Regional Planning Commission, through its "Eating Here" program, is examining ways to help farmers practice more sustainable methods of farming and maintaining their properties, while Chester County Economic Development Council is working with Temple University and other groups to create a land bank from which farmers can lease.⁸⁰
- **Southwestern Wisconsin Centralized Distribution Hub:** An initiative undertaken by the Southwestern Wisconsin Regional Planning Commission to address the logistical challenges facing the producers of local foods, which included lack of access to cold storage facilities for their produce at an affordable price. With a grant of \$27,000, the Commission performed market research to identify and procure the cold storage facility, which is now shared by 15 tenants – all small- and mid-size producers. The initiative used a modest initial investment to address small-scale producers' lack of economies of scale while simultaneously supporting the state's "Buy Local, Buy Wisconsin" campaign.
- **Ithaca Farmer's Market:** A cooperative with 150 vendors who live within 30 miles of Ithaca, New York. Agricultural vendors grow and offer high quality fruits, vegetables, meats, eggs, poultry and dairy products. Food vendors bring a wide variety of freshly baked goods, jellies, honey, and sauces as well as delicious meals to eat at the market. Many talented artists and craftspeople sell their exceptional, locally made items.
- **Pride of New York:** The Pride of New York Program was developed to promote and support the sale of agricultural products grown and food products processed within New York State. The Program's growing membership now includes farmers and processors, retailers, distributors, restaurants and related culinary and support associations all working together to bring you wholesome, quality New York State products.⁸¹



Encouraging farmers to adopt best management practices through USDA-NRCS incentive programs

The USDA's National Resources Conservation Service aims to reduce erosion, protect water quality and natural habitat areas, and reduce the severity of natural disaster impacts through

⁷⁹ <http://www.colorado.gov/cs/Satellite/Agriculture-Main/CDAG/1167928162081>

⁸⁰ www.hvadc.org

⁸¹ www.prideofny.com

programs that provide financial and technical assistance to help landowners and/or farmers manage their resources in a sustainable manner. For example, the NRCS may provide reimbursement for labor and materials costs (up to predetermined allowable amounts) for projects such as wetland restoration and soil quality improvement. Many of the projects for which Southern Tier landowners and farmers could receive financial and technical assistance through this program would help to further the sustainability goals for the region with respect to conservation, water, and overall environmental impact

- **The Upper Susquehanna Coalition:** A network of 16 Soil and Water Conservation Districts in New York and 3 Conservation Districts in Pennsylvania: The Coalition’s mission is to protect and improve water quality and natural resources in the Upper Susquehanna River Basin with the involvement of citizens and agencies through education, partnerships, planning, implementation and advocating for water resources protection. A primary USC goal is to support environmental and economically sustainable agriculture by documenting farm statistics and BMPs, developing watershed and site specific agricultural plans and implementing and evaluating practices. USC uses the NY Agricultural Environmental Management Program approach for evaluating farms and follows the Chesapeake Bay Program's approach for Best Management Practice information that helps determine the status of nutrient loading from the agricultural sector. Improved data collection and support of less “structural” practices (such as rotational grazing) is a good regional approach that directly addresses water quality, stream sediment and farm viability issues. It also provides support for member counties who take the lead for the construction projects such as manure storages or barnyard renovations.
- **Chesapeake Bay Program’s Best Management Practices for Agriculture:** Nearly one-quarter of the Bay watershed's land area is devoted to agricultural production. Agriculture is essential to all people; farms supply us with grains, eggs, meat, milk, vegetables. While fertilizers, pesticides, manure and tilled soil are beneficial to crops, they become pollutants when water from irrigation and precipitation washes them into local waterways. Agriculture is the largest single source of nutrient and sediment pollution to the Bay and its rivers. Common farming practices such as applying fertilizer and tilling soil can contribute harmful pollution to the Bay and its local waterways. As part of their tributary strategies, the Bay states are implementing nutrient management plans and key conservation practices, also known as best management practices or BMPs.⁸²

⁸² www.chesapeakebay.net/issues/issue/agriculture#inline

Goal 11: Preserve and connect natural resources, open spaces, and access to waterways to protect regional environment, ecology, habitat and scenic areas, and support outdoor recreation.

This goal includes the preservation and proper maintenance of trails, parks, and open spaces. It also includes resource conservation, green infrastructure, and stream buffers; plus lake and river access. The goal also stress the importance of proper planning and education to the general public along with providing access to build public awareness and support. This goal recognizes the importance of the natural environment to Southern Tier's citizens, economy, and visitors, and under the right hands it will remain a vital part of the region. Best practices supporting this goal include:

- Establishing robust and flexible conservation programs that preserve critical forests and natural areas based on clearly identified priorities
- Protecting agricultural land from conversion into greenfield development through PDR and other agricultural protection programs
- Implementing programs to connecting waterways, greenways, and trails to enhance habitat areas, recreational opportunities, and scenic character

Establishing robust and flexible conservation programs that preserve critical forests and natural areas based on clearly identified priorities

Thousands of land trust and other conservation programs exist around the country, and there are a number of already-established conservation program in the Southern Tier region. Several examples of regional, comprehensive conservation and protection programs have achieved success in protecting critical natural lands and resources.

- Finger Lakes Land Trust's The Finger Lakes Trail in the Emerald Necklace: A Plan for Corridor Protection and Enhancement: This plan recommends that the Finger Lakes Trail and a 300' wide corridor be permanently protected through purchase or easements with landowners. In addition, 10 conservation focus areas are identified as protection priorities. These include Texas Hollow, the Cayuta Lake Waterfront and Outlet, Pony Hollow, Gorges Focus Area, West Danby Valley and North Spencer Marsh, and others. The Finger Lakes Land Trust has already protected over 13,000 acres of wetlands, forests, grasslands, farmland, and gorges through the creation of nature preserves and use of conservation easements.⁸³
- Finger Lakes Land Trust's Conservation Focus Areas of the Upper Susquehanna Watershed within the Finger Lakes Land Trust's Service Area: FLLT recently published this study that identifies conservation priorities for the Upper Susquehanna Watershed, much of which is located in the Southern Tier study area. This study was deemed important due to increased development pressures now found in the Southern Tier, due to upgrades to transportation infrastructure and associated highway corridor development, potential shale gas development pressure, and new EPA water quality regulations for the Chesapeake Bay Watershed. 11 conservation focus areas are identified as protection priorities including the Upper Cohocton River Wetlands, Six Nations Forest Block, Erwin Forests, Chemung River Valley, Upper Cayuga Watershed, Owego Creek and others.

⁸³: www.fllt.org

Protecting agricultural land from conversion into greenfield development through purchase of development rights (PDR) and other agricultural protection programs

The majority of the nation's farms, fields, and forests will be passed on to the next generation over the next 20-30 years as a result of the retirement of farmers from the baby boomer generation; this could mean that even more natural lands may be subject to potential sale to developers. One of the most commonly-cited reasons for the sale of inherited natural lands to developers is the burden of paying property taxes on these lands in the face of relatively minimal use of their benefits. PDR or easement-tax abatement programs are some of the many strategies that can be employed to prevent the development natural lands.

- **Tompkins County Farmland Protection through Purchase of Development Rights:** Since 1982, Tompkins County has lost over 20% of its farmland to development and abandonment. A variety of tools are used to help support farming in Tompkins County including the use of agricultural districts, agricultural assessment, agricultural zoning, local planning efforts (including comprehensive planning and right to farm laws) and agricultural conservation easements or PDR programs. PDR programs pay property owners to protect their land from development. Landowners voluntarily sell agricultural conservation easements to a government agency or private conservation organization. The agency or organization usually pays them the difference between the value of the land for agriculture and the value of the land for its "highest and best use," which is generally residential or commercial development. Easement value is most often determined by professional appraisals.

Implementing programs to connecting waterways, greenways, and trails to enhance habitat areas, recreational opportunities, and scenic character

There are a number of studies and plans that have been undertaken to achieve this goal in the Southern Tier, such as the Finger Lakes Trail in the Emerald Necklace, the Chemung River Greenway Master Plan, the Binghamton Metropolitan Greenways Study, and the Catharine Valley Trail Master Plan, which all identify obstacles to improving linkages along waterways and linear corridors that link population centers and attractions. What could still be done, however, is a more comprehensive regional approach to connect greenways and waterways to benefit the region's residents both economically and in terms of quality of life.

- **Rochester Regional Trail Initiative:** Undertaken by the Genesee Transportation Council, this initiative was a nationally-recognized 9-county trail study that included an action plan for developing a comprehensive, safe, accessible, and functional regional trail system that is closely integrated with the existing transportation system. The action plan included distinct phases in which the Initiative would be implemented, and the result was the inclusion of the city in *Bicycling Magazine's* list of America's Top 50 Bike-Friendly Cities. The coordinated strategy and comprehensive approach to the development of a regional trail network were two key factors in the successful development of a system that already has hundreds of miles and will continue to grow through 2015.⁸⁴
- **Binghamton Metropolitan Greenways Study:** In 1999, the Binghamton Metropolitan Transportation Study (BMTS) commissioned the **study** to determine the feasibility of developing riverbank trails along 25 miles of the Susquehanna and Chenango Rivers. Many sections of the proposed trail

⁸⁴ www.gtcmpo.org

network have been developed since 2,000 including the Vestal Rail Trail and the Otsiningo Park Trail Extension, among others.⁸⁵

- Chemung River Comprehensive Master Plan: The Chemung River is a Class 1 river, excellent for beginning and intermediate paddlers. The river corridor is very scenic and unspoiled, despite its close proximity to Elmira and other communities in Chemung County. Fish, birds and other wildlife are abundant. The Chemung River Comprehensive Master Plan will identify a network of proposed river trails that link village, town and city centers, and enhancements to riverfront recreation facilities, boat launches, historic and cultural sites, and natural areas. Since the creation of the master plan, the Friends of the Chemung River Watershed have emerged as the community's leader in the effort to enhance river access, protect river resources and link destinations along the river corridor.
- Comprehensive Recreation Trail Plan, Aitkin County, Minnesota: This project included the development of an Aitkin County Comprehensive Recreation Trail Plan for all county lands managed by the Aitkin County Land Department (ACLD). The plan will guide recreation trail management.



⁸⁵ www.bmtsonline.com

CLIMATE CHANGE ADAPTATION

Goal 12: Identify and plan for the economic, environmental, and social impacts of climate change

This goal promotes the integration of climate change projections into short and long-range plans. Since adaptation is both location- and threat-specific, the range of appropriate “adaptation actions” vary broadly and should reflect local economic, social, and environmental circumstances and priorities. Best practices supporting this goal include:

- Establishing a regional consensus on appropriate local climate projections and historic weather-related thresholds of import
- Identifying the region’s greatest vulnerabilities to the effects of climate change
- Establishing an action plan to invest in climate change adaptation actions and integrate climate change projections into decision-making

Establishing a regional consensus on appropriate local climate projections and historic weather-related thresholds of import

It is important to establish a set of consistent scenarios and parameters so that local governments, planners, builders, and other stakeholders can assess local impacts. Decisionmakers can begin by using the temperature and precipitation projections from ClimAID. Since the counties in the region share a similar climatic conditions and variability, they can share information about future rainfall and storm patterns, drought, and extreme heat events.

- Southeast Florida Regional Climate Change Compact: Four counties in Southeast Florida (Broward, Miami-Dade, Palm Beach, and Monroe) established the Southeast Florida Regional Climate Change Compact after presenting varied sea level rise⁸⁶ projections at the 2009 Local Climate Leadership Summit. Through collaboration, the counties created unified projections and successfully lobbied the Florida Legislature to officially recognize “Adaptation Action Areas” where there are emerging flooding concerns.⁸⁷



Identifying the region’s greatest vulnerabilities to the effects of climate change

In order to understand the effect of local climate change impacts, it is essential to conduct an analysis or vulnerability assessment. This can be done at the regional, county, municipal, or asset level. The assessment should include an inventory of the critical assets and how those will likely be affected by the projected climate changes. On the regional or county level the analysis should be used to broadly identify which critical assets are vulnerable and opportunities for

⁸⁶ Although sea level rise is NOT a concern in the Southern Tier Region, the collaboration and decision to agree upon a single set of projections is a best practice that should be adopted in the Southern Tier.

⁸⁷ <http://www.broward.org/NATURALRESOURCES/CLIMATECHANGE/Pages/SoutheastFloridaRegionalClimateCompact.aspx>

action. This can be done as an initial screening. PlaNYC and ClimAID provide good examples of high level reviews.

- **ClimAID:** the Integrated Assessment for Effective Climate Change Adaptation Strategies in New York State: The NYSERDA ClimAID Report is a state-level assessment of climate change impacts and adaptation strategies. The report provides an overview of projected climatic shifts and some region-specific information. Additionally, ClimAID assesses the potential impacts across eight key sectors in the state: water resources, coastal zones, ecosystems, agriculture, energy, transportation, telecommunications, and public health. ClimAID identifies some high-level adaptation options that could be adjusted to meet the needs of various communities across the state. This report demonstrates a high-level assessment and is an initial step that can assist local decision-makers in developing and implementing adaptation strategies.⁸⁸
- **PlaNYC:** New York City used climate projections to inform their long-range 2030 city plan. Similar to understanding projected population, infrastructure, and economic trends, the city elevated climate and future changes as a critical condition to consider. In a 2011 update, PlaNYC began to integrate climate risks into the city codes and design standards to build climate resiliency. PlaNYC is an example of a city plan and a process that continues to evolve as more specific climate information and resources become available.⁸⁹



Once the set of vulnerable assets is identified, a most specific assessment will be needed to understand the specific impacts and provide insight into the precise adaptation actions that would be effective. This process starts with an understanding of the climatic impacts, which may include an integrated dataset that captures information about weather-related events and their impacts on key assets and services in the region. Information would include date, nature of impact including severity and extent, direct costs of disruption (e.g., equipment replacement), indirect costs of disruption (e.g., commuter delays), etc., a complete inventory of valued assets, such as the Gulf Coast study below.

- **U.S. DOT Gulf Coast Study:** The US DOT Gulf Coast Study, Phase 2 includes an in-depth assessment of transportation assets across all modes in Mobile, Alabama. This project includes identifying critical assets, assessing relevant climate change impacts and vulnerability, and providing detailed engineering assessments that include analysis of adaptation options. The result is a very specific analysis that can inform transportation infrastructure decisions in the region.⁹⁰

Establishing an action plan to invest in climate change adaptation actions and integrate climate change projections into decision-making

Planning for climate change adaptation includes assessing future climatic conditions while making decisions about projects that are climate sensitive, have a long lifespan, and are irreversible. Establishing a plan to address climate change can be done as a separate adaptation action plan or as part of the existing planning process. A climate adaptation plan can provide a baseline for fast start projects – projects that address other needs in the community and help

⁸⁸ http://www.nyc.gov/html/dep/pdf/climate/climate_complete.pdf

⁸⁹ <http://www.nyc.gov/html/planyc2030/html/home/home.shtml>

⁹⁰ http://www.fhwa.dot.gov/environment/climate_change/adaptation/ongoing_and_current_research/gulf_coast_study/index.cfm

build resilience to shifts in the climate. Climate projections should be considered for any long-range plans that consider the current climate or weather.

- **Chicago Climate Action Plan:** The City of Chicago developed a climate action plan that includes a section on adaptation. This plan includes an assessment of critical climate-related concerns, including an increase in extreme heat events and flooding. The plan also outlines a series of adaptation programs and policies to minimize the effects of the changing climate on the city. Projects include identifying neighborhood hotspots for extreme heat, promoting the installation of green roofs on private buildings, introducing reflective roof standards into building codes, and expanding the capacity of the sewer system to prevent combined sewer overflows during flood events.⁹¹
- **Keene Climate Resilience Action Plan:** After flooding in 2005 caused extensive damage in the City of Keene, New Hampshire, the city decided to expand climate action planning to include adaptation. To minimize losses to flood damage, the plan identifies the 200-year floodplain and made a decision to prevent future development in this zone with escalating flood risk.⁹²

City of Santa Cruz Climate Adaptation Plan: The City of Santa Cruz, California used the FEMA Hazards Mitigation Plan Update process to establish a Climate Adaptation Plan. Since many of the hazards that affect the City of Santa Cruz are climate related and the city was already required to invest resources in creating a Hazards Mitigation Plan, the city seized the opportunity to address both needs simultaneously.⁹³

⁹¹ <http://www.chicagoclimateaction.org/pages/adaptation/11.php>

⁹² http://www.ci.keene.nh.us/sites/default/files/Keene%20Report_ICLEI_FINAL_v2_0.pdf

⁹³ <http://www.cityofsantacruz.com/Modules/ShowDocument.aspx?documentid=23643>

Goal 13: Minimize flood losses by preserving and enhancing floodplain and watershed functions, and by limiting development in flood-prone areas.

This goal includes plans, policies, education, and investment to preserve and restore critical lands. Many communities are located along waterways where the hazard of flooding is an environmental fact of life. Streams, rivers and lakes are naturally subject to rising and falling water levels, relocation of stream channels, flooding of valley bottoms, and wave action on lake shores. Intense storms of local and regional extent have repeatedly resulted in flooding of low-lying areas. Historically, large portions of the watershed were cleared of forest cover for timber and wetlands were drained for agricultural production and development. These widespread changes reduced the ability of the landscape to absorb water and as a result, more water now flows into the streams and it gets there faster. Best practices to minimize flood-related losses and enhancing floodplains and wetlands are listed below:

- Limiting development in flood-prone areas
- Creating an inventory of channel and corridor conditions in watersheds, stream buffers and riparian forests
- Developing a long-term program to prioritize high risk floodplain areas for conservation through acquisition and easement
- Pursuing the implementation of plans, policies, education, and incentives that preserve and restore sensitive water areas and lands
- Establishing and enhancing riparian buffers and wetland protections

Limiting development in flood-prone areas

Floodplain areas are often considered attractive for development because they are typically flat areas that provide significant recreational and aesthetic benefits. Consequently, these flood-prone properties are often high value parcels. Limiting development in the floodplain can lessen damage caused from flooding events, preserve floodplain systems, and protect the ecosystem services from floodplains, wetlands, and riparian areas.

- **King County Flood Control District:** The King County Flood Control District was established in April, 2007 to protect public health and safety, regional economic centers, public and private properties, and transportation corridors. The district is instrumental in addressing maintenance and repairs to levees and revetments, acquiring repetitive loss properties and other at-risk floodplain properties, and improving countywide flood warning and flood prediction capacity. Recent projects include the acquisition and conversion of residential properties and vacant parcels along the lower White River to make way for a setback levee, replacing over half a mile of revetment. Seven homes, in the Snoqualmie River Basin, were elevated above flood levels to protect property.⁹⁴

⁹⁴ <http://www.kingcountyfloodcontrol.org/>

Creating an inventory of channel and corridor conditions in watersheds, stream buffers and riparian forests

One step in developing a watershed plan is to create an inventory for each watershed that includes data and state-of-the-watershed information, such as flooding history, land use, water quality,⁹⁵ and biological assessments. This information can be used to identify opportunities to improve flood hazard mapping, determine the causes of increased flooding, and to prioritize to reduce development and enhance the riparian buffers in high flood risk areas. The inventory will inform the allocation of appropriate areas for development and conservation. By identifying floodplain and riparian forests to target conservation efforts in areas that are at higher risk for development, or better suited for conservation.

- Corridor Width Report, Parcel Inventory and Conceptual Stream Corridor Master Plan for Marsh, Sand, and Deer Creeks in Brentwood, CA: The Corridor Width Report summarizes the existing condition of stream protection in Brentwood and the current science of setback width requirements for urban creeks. For example, flood control easements along Marsh Creek and its tributaries are identified as insufficient to accommodate flooding, riparian habitat, wildlife corridors, and recreational opportunities. The report details the size of stream setbacks in Brentwood necessary to provide flood control, recreational, and ecological services.⁹⁶
- Puget Sound WaterShed Characterization: A regional tool that highlights the most important areas of the Sound to protect and restore, as well as those most suitable for development. The tool is intended to help planners make better decisions about land, restoration, and conservation.⁹⁷

Developing a long-term program to prioritize high risk floodplain areas for conservation through acquisition and easement

Programs that involve property acquisition and easements can be both highly affective and contentious. Given the legal and economic complications with personal property, the most effective programs are long-term plans that prioritize conservation of land in the most high risk floodplain areas. Creating a program includes identifying highly flood-prone areas and developing a plan to purchase or establish an easement on these properties.

- Vermont River Corridor: Corridor planning is conducted in Vermont to address the river instability that is largely responsible for erosion, increased sediment and nutrient loading, and a loss of river habitat. The Vermont Agency of Natural Resources (ANR) uses the river corridor to restore and protect the natural values of rivers and minimize flood damage. The Vermont Agency of Natural Resources' River Management Program (RMP) promotes the planning, designing, and protecting of river corridors that will accommodate stream meander and floodplain processes as the most economically and environmentally sustainable river management alternative.⁹⁸



⁹⁵ Please review Goal #15 in the Water Section for more information about water quality.

⁹⁶ http://www.n-h-i.org/uploads/tx_rtgfiles/6201_finalcorridorwidthreport.pdf

⁹⁷ <https://fortress.wa.gov/ecy/publications/publications/1006014.pdf>

- New York State Open Space Conservation Plan: The plan serves as the blueprint for the State's land conservation efforts. During the past several years the more than a million acres of land has been conserved. The plan includes measures to mitigate flood risks and protect water quality by establishing and enhancing riparian buffers and wetlands protection to mitigate the effects of great intensity rain events caused by climate change.⁹⁹
- Wisconsin Floodplain Easement Program (NRCS Program): The Emergency Watershed Protection Program – Floodplain Easement (EWPP-FPE) is a voluntary program established to acquire new floodplain easements on eligible lands; restore their floodplain functions and values to natural conditions to the greatest extent practicable; and help stimulate the economy. Floodplain easements are permanent conservation easements that provide the National Resource Conservation Services (NRCS) with the full authority to restore and enhance the floodplain's functions and values. In exchange, a landowner receives the least of one of the three following values as an easement payment: (i) a geographic rate established by the NRCS state conservationist; (ii) a value based on a market appraisal analysis for agricultural uses or assessment for agricultural land; or (iii) the landowner offer.¹⁰⁰

Pursuing the implementation of plans, policies, education, and incentives that preserve and restore sensitive water areas and lands

Plans, policies, education, and incentives can be useful tools to encourage development and parcel uses that minimize runoff and filter stormwater onsite. This helps to reduce flooding and minimize water quality impacts. .

- Implement a regional flood education program: Education programs are an effective method to promote and foster stewardship for riparian buffer preservation and ecosystem services restoration. This approach involves developing a flood risk communication strategy to engage and educate citizens on effective flood risk reduction. This education effort should be implemented by a combination of schools, environmental education centers, government entities, and other stakeholders.
- Regional Flood Mitigation Assistance Program Serving the Southern Tier Central Region: Heavy rainfall and a sudden snowmelt in January 1996 caused an estimated \$33 million of damages throughout Chemung, Schuyler, and Steuben Counties. The flooding impacted more than one hundred and seventy-five businesses and only the exceptional efforts of the area's emergency response crews prevented loss of life. Collaborative efforts across the county helped secure funding from the US Department of Commerce, Economic Development Administration to hire a specialist who provided flood mitigation assistance to local governments, businesses, residents, and organizations. After the initial flood recovery period, the Regional Flood Mitigation Assistance Program shifted the focus to long-term flood mitigation through specific projects, strategic planning, and public education.¹⁰¹
- Susquehanna Chemung Action Plan: The plan is a two-year water quality management project that uses an "ecosystem-based management" approach to conserving and protecting water resources. This

⁹⁸ http://www.vtwaterquality.org/rivers/htm/rv_restoration.htm

⁹⁹ http://www.dec.ny.gov/docs/lands_forests_pdf/osp09complete.pdf

¹⁰⁰ <http://www.wi.nrcs.usda.gov/programs/ewp/fpe.html>

¹⁰¹ http://www.stcplanning.org/usr/Program_Areas/Flood_Mitigation/Newsletter%20Articles/FSMANews_2001_STC_Program.pdf

holistic approach addresses water quality, streams and rivers, flood hazard, runoff containment and wetlands preservation through a variety of strategies which include education and outreach.¹⁰²

- Develop an incentive program to encourage property owners to protect streams and buffers: Private property accounts for a large portion of land and impervious surfaces that alter the hydrologic cycle, changing the amount and quality of water in streams and riparian buffers. Conservation efforts on private parcels can help lessen the flooding risk. Incentives can encourage property owners to allow native trees, shrubs and vegetation to grow in place of invasive species; reduce impervious surfaces, by using technologies such as pervious pavement; and minimize the space allocated to lawns and farm animals that require the use of fertilizers.
- Virginia Riparian Buffer Tax Credit Program: Wooded buffers along streams, rivers and the Chesapeake Bay are called riparian forests and help protect our water quality. Virginia landowners can receive a tax credit for preserving riparian forest buffers along waterways during a timber harvest operation.¹⁰³

Establishing and enhancing riparian buffers and wetland protections

Riparian forest buffers provide enormous benefits to streams, creeks, and rivers. These streamside forests filter and absorb pollution, stabilize stream banks, provide habitat, and help keep river waters cool. In order to establish and enhance riparian buffers and wetlands, development should be limited in areas where conservation of these ecosystems would be most beneficial.

- Chesapeake Bay Program and Water Quality Protection in Baltimore County: Chesapeake Bay Program is a regional partnership that leads and directs Chesapeake Bay restoration and protection through a collaborative partnership with federal and state agencies, local governments, non-profit organizations and academic institutions. Within the watershed project partners implement many projects. The retention and restoration of forest buffers are key elements of Baltimore County's effort to protect water quality, as articulated in their Regulations for the Protection of Water Quality, Streams, Wetlands and Floodplain. The regulation intends that riparian areas be left undisturbed to encourage regeneration or continued growth of existing vegetation. Establishment of forested buffers next to all perennial and intermittent streams is required for new development. Post-construction, forested buffers are protected through delineation on record plats. The County regulation has proven to be a model initiative for the preservation of riparian forests and the protection of water quality. Because the regulation applies to all Baltimore County streams, protection of the ecological health of the County's stream systems is better insured.^{104 105}
- Trees for Tribs Program: The Hudson River Estuary Program's "Trees for Tribs" Initiative (tribs as in tributaries) offers free native trees and shrubs for qualifying riparian buffer planting/restoration projects in the Hudson River Estuary watershed. By restoring the riparian buffer, Trees for Tribs helps slow down and filter runoff during storms, which reduces flooding and improves water quality.¹⁰⁶

¹⁰² http://www.stcplanning.org/usr/Program_Areas/Water_Resources/Susquehanna-Chemung_Action_Plan/S_C_Action%20Plan_2012.pdf

¹⁰³ <http://www.dof.virginia.gov/mgt/riparian/taxcredit/index.htm>

¹⁰⁴ <http://www.cbf.org/page.aspx?pid=1000>

¹⁰⁵ http://www.chesapeakebay.net/content/publications/cbp_12364.pdf

¹⁰⁶ <http://www.dec.ny.gov/lands/43668.html>

- Active River Area: The Nature Conservancy released this framework to inform river and stream protection, conservation, restoration, and management. This document provides guidance to broaden the focus of river management to include the entire system that impacts river health. The framework also provides some discussion of how climate change and shifts in rainfall patterns can impact river systems.¹⁰⁷

¹⁰⁷ http://www.floods.org/PDF/ASFPM_TNC_Active_River_%20Area.pdf

WATER

Goal 14: Efficiently manage and upgrade existing water, sewer, and other utility infrastructure to support compact development and reduce energy use

Treating and transporting water and wastewater is an energy-intensive process. Nationally, the energy used to treat water and wastewater can account for up to 35% of a municipality's energy budget. Energy use accounts for approximately 25-40 percent of the operating budgets for wastewater utilities and approximately 80 percent of drinking water processing and distribution costs. Energy efficiency in water and wastewater plants reduces both energy consumed, and greenhouse gas emissions.

In both water and wastewater treatment, the most energy-consuming processes are pumping water to and from residents and aeration of the water during processing. The most effective method for reducing energy use at utilities is replacing the equipment used in these processes with more energy efficient equipment. Another way to reduce the total energy consumed by a water or wastewater treatment plant is to reduce water consumption or the amount of wastewater that needs to be treated. This can be achieved with implementing water conservation or water efficiency plans.

Suburban sprawl is forcing municipalities to expand the distribution infrastructure connecting water and wastewater facilities with more residents. Compact and infill development can prevent the need for this expansion. Best practices to improve and protect water quality and quantity are listed below:

- Upgrading plant processes, equipment, and distribution system to increase efficiency and support already-developed areas
- Performing energy audits at major water and wastewater facilities, beginning with those that consume the most energy
- Encouraging the use of biogas at wastewater plants
- Providing funding required to undertake upgrades
- Utilizing controls that help track and minimize water losses and ensure efficient distribution
- Integrating water and energy management to reduce the energy intensity of delivered water
- Using fiscal analyses to educate policymakers and the public about the public costs of expanding service areas

Upgrading plant processes, equipment, and distribution system to increase efficiency and support already-developed areas

This practice involves installing energy efficient equipment in water and wastewater treatment facilities. The most energy-intensive process in water and wastewater treatment is pumps and aeration during secondary treatment, respectively. Most water and wastewater treatment plants have evaluation criteria that they must follow when purchasing new equipment. Energy

efficiency and the long-term operation costs of the equipment should be included in these criteria.

- **Lowell Regional Wastewater Utility:** Lowell, MA has a 32 MGD facility, which has been significantly upgraded the plant by installing motion sensors for the lighting in the tunnels and buildings with an annual payback of \$20,000 per year, installed energy efficient pump motors with an annual savings of \$145,538. Additionally, these upgrades eliminated the need for a new water treatment facility.
- **City of Bartlett Wastewater Treatment Plant:** The Bartlett Wastewater Treatment Plant in Bartlett, TN has a design capacity of 2.2 MGD. The plant recently installed new dissolved oxygen sensors and integrating the sensors with a variable frequency drive (VFD) control of the aeration rotor speed, in order to optimize the aeration in the system. This upgrade realized a 13% reduction in kWh per year consumed and a 22% in annual electrical energy costs.

Performing energy audits at major water and wastewater facilities, beginning with those that consume the most energy

An energy audit improves the understanding of the most energy-intensive processes at the plant. The facilities that consume the most energy should be prioritized as facilities that should receive energy audits first per million gallons (MG) managed (i.e., supplied or treated). Plants with equipment that is reaching the end of its life span are likely more inefficient than those with more recently installed equipment. NYSERDA offers benchmarking tools and FlexTech consultants to help perform customized energy evaluations. If utilities choose to use their own consultant to perform the energy study, NYSERDA will reimburse the municipality up to 50% of the cost.

Kits to audit and evaluate water and power use can also be provided to home owners, to help identify opportunities for reducing energy and water consumption. For example, Jacksonville Electric Authority, Jacksonville's electric utility, has provided energy efficient back packs that contain meters and other tools along with an instruction manual on identifying energy savings and reducing energy costs. The kits can be checked out at the local library just like a library book and are free to anyone with a Jacksonville Public Library card.

- **City of Oneida Wastewater Treatment Plant:** In 2005, the City of Oneida developed a sustainability model that began with an energy audit to identify energy efficiency measures and a phased approach for improving energy efficiency.
- **Big Gulch Wastewater Treatment Plant:** Big Gulch Wastewater Treatment Plant in Big Gulch, WA obtained an energy audit from their local publically owned electric utility and was able to receive incentive payments of over \$85,000 to install new aeration equipment at the plant.
- **City of Oswego Water Department:** The City of Oswego used NYSERDA's FlexTech Program to identify energy efficiency measures in the 11 MGD plant. The recommendations included an automated control system, lighting upgrades, and replacement of pumps. These upgrades were estimated to result in an annual energy cost savings of over \$173,000.
- **Gloversville-Johnstown Wastewater Treatment**



Facility: The small upstate New York cities operate a WWTF that is designed to treat 13 MGD. NYSERDA's FlexTech program provided cost sharing for the consultants on the project. The study recommended installing upgraded equipment that would have a capital cost of \$600,000 with an annual energy savings of \$175,000, which results in a payback of 3.4 years.

Encouraging the use of biogas at wastewater plants

Wastewater treatment produces sludge as a result of removing the nutrients from the water. This sludge is stored on-site either short-term or long-term, depending on the plant. Installing anaerobic digesters that produce biogas from the sludge for on-site and off-site use is another outlet for reducing net energy use at a wastewater facility. This will reduce operation and maintenance costs. New York State has made available \$57 million in funding to support the installation and operation of anaerobic digester gas (ADG)-to-electricity systems in New York State through 2015.¹⁰⁸

- Village of Essex Junction: Essex Junction, VT installed a methane co-generation at the wastewater treatment plant that has a design capacity of 3.3 MGD. The project involved the installation of two, 30 kW microturbines that combust waste methane gas to generate electricity. The waste heat from this process is used to heat the anaerobic digesters to the necessary 100°F temperatures. The funding for the project was provided by Efficiency Vermont, an energy efficiency utility that helps all Vermonters save energy, reduce energy costs, and protect Vermont's environment.¹⁰⁹
- NYSERDA Anaerobic Digester Gas (ADG)-to-Electricity Program: NYSERDA's program provides cash incentives to wastewater facilities that install ADG-to-Electricity systems. The program covers up to \$350,000 or 50% of the total purchase of equipment, engineering, and installation costs.

Providing funding required to undertake upgrades

The issue of funding can be inhibitive to making the necessary upgrades. Many projects, specifically larger projects such as a wastewater treatment plant or a flood management plan, require large amounts of funding. Although the projects may have a short payback, the large capital investments can be a challenge for local governments to secure; therefore, it is essential to make some funding available. For example:

- The Clean Water State Revolving Fund Engineering Planning Grant Program provides grants to municipalities in New York State for construction or improvement of wastewater systems, grants of up to \$30,000 require 20 percent matching funds. NYSERDA-approved energy-efficiency projects may be eligible to receive New York Energy Smart Loan Funds, which provides low interest loans to energy-efficiency improvement projects. Additionally the Municipal Water and Wastewater Research, Development, and Demonstration Program may provide funding to offset the project cost of an innovated and underused technology to enhance energy efficiency. NYSERDA is one of the leading states in providing funding for energy efficiency projects. The Southern Tier region could provide similar incentives and upgrades for water and wastewater utilities to implement energy efficient upgrades.
- Albany County Sewer District: The New York county treatment plant received funding through the Green Innovation Grant Program, a sub-program of the American Recovery and Reinvestment Act (ARRA), to install a combined heat and power (CHP) system to capture flue gas waste heat and

¹⁰⁸ <http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/-/media/Files/FO/Current%20Funding%20Opportunities/PON%202276/PON%202276%20Solicitation.ashx>

¹⁰⁹ http://www.epa.gov/owm/waterinfrastructure/pdfs/guidebook_si_energymangement.pdf

produce electricity from the existing sludge incinerator. The annual energy savings is over 3 million kWh.

Utilizing controls that help track and minimize water losses and ensure efficient distribution

Installation of new SCADA systems in any new or upgraded water and wastewater treatment facilities. Supervisory control and data acquisition (SCADA) systems are operational control systems that can automatically regulate the pumping and other processes in a plant and are widely used to help utilities reduce energy costs and save money. SCADA systems can be used to optimize system performance, adjust for time-of-day electrical rates, and warn of mechanical problems. Additionally, the system can perform monitoring, data logging, alarming and diagnostic functions that can help the system to operate safely and operators can review performance at a later time.

- Sheboygan Regional Wastewater Treatment Plant: Along with an upgrade to the aeration system, the plant that receives an 11.8 MGD average flow upgraded the dissolved oxygen control and SCADA system. The upgrades were able to reduce energy by 13% per year.

Integrating water and energy management to reduce the energy intensity of delivered water

Water and energy use are interconnected because of the significant amounts of energy required for the water supply chain in water conveyance, water treatment, distribution, end use, and wastewater treatment. Counties and municipalities should develop integrated plans to manage water and energy use. These plans should include a combination of energy infrastructure improvements as well as water conservation programs to reduce the total amount of water needed in the water supply chain.

- Santa Clara Valley Water District: The Santa Clara Valley Water District has developed a water, energy, and GHG emissions plan called “From Watts to Water” that outlines water efficiency and conservation programs and gives quantifiable savings in energy and GHGs.

Using fiscal analyses to educate policymakers and the public about the public costs of expanding service areas

Expanding water and sewer service areas is costly, due to the high costs of both expanding water distribution infrastructure and expanding existing water and wastewater treatment plants to have increased capacity. Models exist to estimate the infrastructure cost savings associated with compact development. Smart growth directs development into existing communities, rather than expanding to new communities.¹¹⁰ State and Local governments can establish policies to connect water and land use planning. If between now and 2025, just 15 percent of anticipated new U.S. growth is concentrated within a planned, existing developed area, the Country could save \$109 billion in road infrastructure costs, \$4.8 billion in water infrastructure costs, \$7.8 billion in sewer infrastructure costs, and \$4 billion in reduced public services costs.¹¹¹

¹¹⁰ EPA, 2006. http://www.epa.gov/dced/pdf/growing_water_use_efficiency.pdf

¹¹¹ Litman, Todd. "Understanding Smart Growth Savings: What We Know About Public Infrastructure and Service Cost Savings, And How They are Misrepresented By Critics." Victoria Transport Policy Institute. June 2011.

Goal 15: Improve and protect water quality and quantity

The Southern Tier region is home to an abundance of rivers and lakes, several of which are part of the Finger Lakes Watershed, which drains into the Great Lakes, as well as the Upper Susquehanna and Chemung River Watersheds that empty into the Chesapeake Bay. These waters of the region support tourism, agriculture, residential, industrial, and commercial uses as well as wildlife. These activities, as well as other land use activities, have the potential to impair the quality of the region's vast water resources.

With increasing public awareness on the importance of enhancing and protecting water resources in the region, the Southern Tier Region and New York State have already taken steps toward this goal through the development of watershed management plans and programs. Further development of these efforts through best practices will assist in accomplishing this goal and providing for the sustainable use of water resources within the region. Best practices to improve and protect water quality and quantity are listed below:

- Implementing a unified water quality monitoring and improvement program in the region
- Investing in green streets/green infrastructure to clean stormwater and recharge aquifers
- Adopting erosion control and stormwater management ordinances
- Implementing sustainable stormwater management practices described in nearly 500 case studies by ASLA members

Implementing a unified water quality monitoring and improvement program

Although many water quality related programs are in place throughout the Southern Tier region and the State of New York, these programs are largely uncoordinated. Because the counties in the Southern Tier region are connected both economically and through the watersheds, a more unified system of monitoring and implementation of stormwater best management practices (BMPs) for key target land uses will result in more efficient and effective water quality management. This unified system will also increase public awareness of issues and accomplishments, and facilitate knowledge transfer between water quality project proponents. Establishing consistent practice and consistent education throughout the Southern Tier will also facilitate the tracking of program successes. Ensuring a sustainable water supply in the region relies not only on the quantity of water available but also on the continued high quality of the water for a variety of end uses. One key strategy is implementing water contamination prevention/protection measures at the source, such as retention basins to capture stormwater runoff and industrial and commercial pollution prevention measures. Source protection measures that can help prevent water quality degradation include:

- Sediment retention basins or siltation basins: These can be operated to catch stormwater runoff and allow sediments and pollutants contained in sediments to settle out over time. These basins are most effective when capturing the "first inch" of runoff during the onset of the wet season, as this portion of runoff typically contains the highest concentrations of contaminants. Retention basins require periodic maintenance. Accumulated sediments can eventually be dredged and properly disposed of, if necessary.
- Industrial and commercial pollution prevention measures: Management practices and good housekeeping can prevent pollutants from entering water bodies. Examples of these measures include

vehicle/equipment washing and repair, proper hazardous materials storage and spill clean-up procedures, and maintaining clean work areas.

Investing in green streets/green infrastructure to clean stormwater and recharge aquifers

This involves implementing a Green City, Clean Waters-type program that replaces a large portion of city's existing impervious cover with porous surfaces that can intercept stormwater, store it, and then release it at a controlled rate. This strategy involves the Low Impact Development (LID) design approach, which involves either directing runoff from impervious surfaces to pervious surfaces (i.e., landscaped areas) or substituting impervious materials with pervious or porous surfaces that can help reduce surface flow and increase infiltration. Green infrastructure with water quality and groundwater recharge benefits include:

- Bioretention systems and/or rain gardens direct runoff to small, low-lying landscaped areas to capture and infiltrate runoff on-site. These measures slow runoff rates and provide treatment through filtration, settling, and biological uptake of pollutants.
- Pervious pavement consists of porous concrete, gravel pavers, variations on different types of grids and blocks, and loose aggregate. Pervious concrete can be used in a variety of areas including driveways, parking stalls, walkways, emergency vehicle access ways, alleys, highway shoulders and other non-high vehicle traffic areas.

Project Seneca would consolidate current wastewater facilities into a state-of-the-art, green wastewater treatment facility on Chemung Canal.

- Philadelphia Green Stormwater Infrastructure: Several different projects and programs throughout the city of Philadelphia run by the Philadelphia Water Department, which include a range of soil-water-plant systems that intercept stormwater, infiltrate a portion of it into the ground, evaporate a portion of it into the air, and in some cases release a portion of it slowly back into the sewer system.¹¹²



Adopting erosion control and stormwater management ordinances

Establishing an ordinance with minimum erosion and stormwater management requirements can require erosion and sediment control measures to be implemented during land-disturbance

¹¹² http://www.phillywatersheds.org/what_were_doing/green_infrastructure/programs

activities. The ordinance can also apply to activities that disturb less than one acre, since they are not required to be regulated under a US EPA Construction Stormwater Permit.

WASTE

Goal 16: Promote innovative waste reduction and management strategies

This goal aims to manage materials from a holistic, life-cycle perspective by increasing waste prevention, encouraging material reuse, driving improvements in the collection and processing of recyclables, and maximizing energy recovery in the remaining waste fractions. Best practices supporting this goal include:

- Reducing waste generation in priority waste streams.
- Diverting more waste from landfills and incineration
- Monitoring and tracking waste generated in different waste streams
- Managing materials at all stages of the product life cycle and supply chain
- Investing in viable waste-to-energy opportunities in agriculture, industry, wastewater management, and waste recovery systems that can convert end use products into energy sources
- Promoting public education, awareness, and engagement in waste reduction and management

Reducing waste generation in priority waste streams

- This can be done by targeting waste prevention and reuse in waste streams where there are particular barriers to and opportunities for reducing waste. Reducing waste at the source is particularly helpful in areas of the Southern Tier where collection is limited due to high costs, sparse populations, or challenges in collection. Waste prevention can be targeted priority streams where recovery rates are low, such as electronic waste and construction and demolition (C&D) materials.
- For example, establishing resource recovery parks facilitates the synergistic reuse of waste products between stakeholders by co-locating a greater variety of waste streams in one place. This increases the convenience of waste recovery for businesses as well as the general public by providing an attractive one-stop location to drop off waste and purchase reusable materials.
- Finger Lakes ReUse is a community-oriented warehouse stocked with used office supplies, construction material, housewares, and home electronics. The center promotes reuse of materials, provides employment opportunities, and education on repair and reuse skills. A key focus of the program is the retrieval of reusable construction and demolition (C&D) materials through deconstruction of buildings—both eliminating a portion of the Southern Tier’s large C&D waste stream as well as providing affordable building materials for new construction¹¹³.



¹¹³ <http://fingerlakesreuse.org/>

- The Maryland Department of the Environment provides a source reduction credit to counties that implement actions that facilitate source reduction¹¹⁴. Examples of programs that qualify for source reduction credits include: hosting material exchanges, visiting businesses to encourage source reduction, providing source reduction educational materials, and promoting source reduction in school districts. Based on the amount of actions undertaken and the level of effort of the county government, the Maryland Department of the Environment offers a credit of up to 5% towards the waste diversion target of that county.

Diverting more waste from landfills and incineration

- Expanding opportunities and markets for reuse of challenging streams such as glass, plastic films, plastics #3-7, compost, mixed paper, tires, and C&D materials will keep it away from landfills. Alternative collection schemes and technologies, such as single-stream or source-separated collection, centralized composting or bi-weekly garbage collection, can increase participation in recycling and waste diversion programs. Overall, this practice may influence the economics of recycling, allowing collection in more remote areas to become economical, and it may reduce need for out-of-county or out-of-state waste exports. This keeps the local area self-reliant in solid waste management and reduces the risks and environmental impacts of increased out-of-state transportation of waste. Examples of current programs and initiatives include:
 - ***Increase collection of recyclables through single-stream recycling collection and other methods and incentives.*** For example, Broome County has established goals to investigate the use of a larger, single recycling container to collect commingled recyclables to increase participation and the volume of recyclables collected. Tompkins County is also planning to adopt a single-stream recycling system as part of a plan to meet their GHG emissions reduction goals.
 - ***Adopt financial incentives to divert MSW from the landfill.*** New York State Department of Environmental Conservation (DEC) also suggests that Pay as You Throw/Save Money and Reduce Trash (PAYT/SMART) programs could encourage increased recycling by giving residents a financial incentive to divert waste from landfills. PAYT implementation is correlated with decreased landfilling rates as well as increases in both recycling and composting rates. Tompkins County has already adopted a PAYT program in which residents and commercial entities pay per unit of MSW landfilled through trash tags.
 - ***On-site treatment of food waste and other compostables.*** Several counties are exploring the creation or expansion of organics composting programs. For example, Chemung County conducted a survey of county and municipal governments, landscape contractors, and disposal companies to gather data on the amount of yard waste materials available for composting and to gauge interest in a composting program. After receiving positive feedback from the survey, the county is exploring the idea of composting yard waste generated within the County to divert it from landfills.
 - ***Centralized Composting.*** Food waste collection and centralized composting programs provide the opportunity to divert large quantities of organic materials from the waste stream, increase composting participation rates, and generate



¹¹⁴ Maryland Department of the Environment, "Source Reduction", Available at: http://www.mde.state.md.us/programs/Land/RecyclingandOperationsprogram/SourceReduction/Pages/programs/landprograms/recycling/source_reduction/index.aspx#source_reduction

compost for residential and commercial use. In contrast to private, on-site treatment of compostables, centralized composting programs provide residents with compost bins and guidelines on the types of organic wastes accepted. These organics are then collected through curbside pick-up similar to trash or recycling collection. Curbside collection and centralized composting programs benefit from economies of scale and are able to process large amounts of waste into compost at a specialized facility; they are consequently most-suitable in urban centers with higher population-densities.

- **Portland, OR** implemented a curbside composting program in 2011, offering weekly pickup of yard waste and food scraps from compost bins provided to city residents. By offering weekly organic waste pickup and scaling back trash pickup to once every two weeks, Portland was able to divert some organic waste from the MSW waste stream while also increasing its composting and recycling rates¹¹⁵. Other North American cities that operate “green bin” recycling collection systems include San Francisco, Seattle, Toronto, and Ottawa, Ontario. In November 2012, the City of Ottawa will switch from weekly garbage collection to collection every two weeks.¹¹⁶ In the Southern Tier, Delaware County operates the only fully-centralized mixed waste composting facility in New York State, providing composting services to all program users in Delaware. There is no curbside collection of waste, due to the low population density of the county, consequently, all collection is accomplished under either private commercial subscription or through self delivery.
- Capturing additional waste streams for recovery or reuse, including C&D debris and waste generated at commercial, industrial, institutional, and multi-family (CII&M) sites. Chemung County has proposed possible future programs to capture additional C&D debris, including recovery and sale of usable pallets from the C&D waste stream and use of select clean C&D materials as fill for embankments or roadways. Broome County has made it a goal to target CII&M sites to increase participation in recycling programs and to reuse C&D materials as alternative daily cover at landfills.

Monitoring and tracking waste generated in different waste streams

- This is important to ensure that waste management goals are met and can help plan for landfill utilization by measuring demand more accurately. In accordance with New York State’s Comprehensive Solid Waste Management Planning law, all counties in the Southern Tier must complete solid waste management plans every two years. These compliance reports provide updates on milestones and obstacles for completing both local and statewide management goals in qualitative terms. One method to improve information gathering and tracking of the flow of high-priority waste streams such as C&D waste, e-waste and organic wastes would be to mandate the tracking of recycling information by commercial entities.
- Rhode Island requires companies with more than 50 employees to submit yearly recycling reports to the state Department of Environmental Management, facilitating more convenient tracking by offering the forms through the department’s website.¹¹⁷ Under the New York State Electronic Equipment Recycling and Reuse Act, manufacturers of electronics covered by the act must submit annual reports on quantities sold, collected, and sent for recycling or reuse.¹¹⁸

¹¹⁵ Portland Mayor’s Office, 2012, “Curbside Collection Program: Six Month Progress Report”, Available at: <http://www.portlandonline.com/mayor/?a=397539&c=49522>

¹¹⁶ http://ottawa.ca/en/garbage_recycle/garbage/slr/index.html

¹¹⁷ Rhode Island State Department of Environmental Management, “Commercial Recycling Program”, Available at: <http://www.dem.ri.gov/topics/commrecy.htm>

¹¹⁸ <http://www.dec.ny.gov/chemical/66845.html>

Managing materials at all stages of the product life cycle and supply chain

- Focusing only on the end-of-life of products can prevent capitalizing on upstream opportunities in product design, production, and use that can influence waste management options (e.g., designing for recyclability, etc.). Expanded incentives would encourage manufacturers, producers, and consumers to consider the life-cycle environmental impact of their products (e.g., providing return shipping for used printer cartridges).
- The Canadian province of British Columbia has enacted an extensive Product Stewardship policy that incorporates Extended Producer Responsibility requirements for producers of a wide range of products, including fluorescent lamps and batteries, thermostats, cell phones, paints, oils, beverage containers, tires, pharmaceuticals, domestic pesticides, gasoline, solvents, and flammable liquids, and small and large appliances. Producers of these products must develop stewardship plans for managing these products across the life cycle. They must collect, recycle, and manage end-of-life products, ensuring that no costs are borne by local governments or tax payers. Producers must submit annual reports on the performance of the program.¹¹⁹
- Life-cycle materials management can also be supported by promoting demand for products that have been certified to rigorous, transparent, and third-party certified Ecolabels that incorporate life-cycle design criteria. For example, governments at national, state, and municipal levels in the United States have adopted Sustainable Procurement policies that require products in certain categories to be certified by programs such as EPEAT¹²⁰ or ENERGY STAR¹²¹.

Investing in viable waste-to-energy opportunities in agriculture, industry, wastewater management, and waste recovery systems that can convert end use products into energy sources

The collection of landfill gas and conversion to energy must be maximized, along with exploring other innovative waste-to-energy opportunities. For example, it is important to address the economic, technical, or regulatory factors that prevent smaller landfills from implementing landfill gas-to-energy technology, such as low rates of return and difficulty installing collection equipment on small sites with low gas emissions. **Delaware County** has had success implementing landfill gas capture on a small landfill, capturing methane for electricity generation that is sold over the electric grid, which collects approximately 4 million kWh annually.

Feasibility studies for the application of novel or emerging waste-to-energy technologies, such as anaerobic digestion, gasification, or pyrolysis must be done so that economic and technical barriers can be identified and addressed. **Broome County** has considered adopting several new technologies to further divert materials from landfills, including anaerobic digestion, thermal technologies (gasification, pyrolysis, and plasma technologies), composting of solid waste, waste-to-energy, and bioreactor landfill models. Some best practice examples of novel demonstration projects and technology developers include the following:

¹¹⁹ <http://www.env.gov.bc.ca/epd/recycling/history/index.htm>

¹²⁰ <http://www.epeat.net/who-is-epeat/>

¹²¹ See <http://www.energystar.gov/>. The ENERGY STAR program only covers use-phase power consumption.

- The Salinas Valley Solid Waste Authority is completing an environmental impact review of a waste-to-energy plant proposed by Plasco, a plasma gasification technology developer. The completed plant will be capable of processing 100,000 tons of waste¹²²
- The City of Edmonton partnered with Alberta Innovates and Enerkem Alberta Biofuels (eab) to begin construction of a waste-to-biofuels facility that is anticipated to produce 38 million liters of ethanol per year. For the project, eab and the City of Edmonton struck a 25-year agreement that will see the City divert 100,000 metric tons of sorted MSW (i.e., MSW that remains after recyclables and compostable fractions have been removed) to the facility annually.¹²³
- A lack of recycling markets and difficulties in separating plastics limits their recovery in the United States. Plastic-to-fuel (PTF) technologies provide a potentially valuable opportunity to develop convert these materials into energy or value-added products and divert them from the waste stream. These technologies are still at a demonstration scale of development, but several firms who operate functional PTF conversion systems abroad have had already had discussions with state and local agencies about potential policy incentives to help site and finance a U.S. facility.¹²⁴



Promoting Public Education, Awareness, and Engagement in Waste Reduction and Management

To increase the effectiveness of waste management programs, it is important to increase public knowledge, awareness, and engagement in waste prevention, management, and innovative waste reduction strategies. Local residents and businesses must be informed about local solid waste planning units, waste prevention, reuse, recycling, and composting activities.

City agencies and municipal governments can take action through “lead by example” programs, in which they follow sustainable procurement policies, follow an environmental management system (EMS) or have a mandatory sustainable waste management policy. For example, the City of Honolulu mandates recycling for all city agencies¹²⁵.

Encouraging the public to take action to reduce waste, recycle, and compost, and to participate in local materials management planning can help increase participation rates in existing recycling, reuse, and composting programs. It can also help increase compliance with local recycling laws. Education campaigns can be tailored to specific groups who are difficult to engage, or where there are challenges to increasing collection; e.g., at commercial, industrial, institutional, and multi-family (CII&M) sites.

¹²² <http://www.plascoenergygroup.com/our-opportunities/salinas-valley-california/>

¹²³ http://www.edmontonbiofuels.ca/projets.htm?yams_lang=en

¹²⁴ 4R Sustainability, Inc. (2011) Conversion technology: A complement to plastic recycling. American Chemistry Council (ACC), available at: <http://plastics.americanchemistry.com/Plastics-to-Oil>

¹²⁵ City of Honolulu Department of Environmental Services, “Mandatory Recycling”, Available at: http://www.opala.org/solid_waste/archive/Mandatory_Recycling_Laws.html

Broome County engaged residents at the “grassroots” level and enhanced program participation in its composting program through the implementation of effective collection methods at a reasonable cost. **Cornell Cooperative Extension** conducts the home composting and master composters education program and purchases bulk orders of backyard compost bins for resale at cost to the public. To increase participation in the commercial sector, the **Tompkins County Solid Waste Management Division** operates the “ReBusiness” partnership program, which allows businesses to sign up for a free waste assessment, signage and recycling bins. The program allows for a categorization of a business’s waste stream and tailored recommendations to reduce waste generation.

GOVERNANCE

Goal 17: Increase regional collaboration among transportation planning agencies and transit providers; municipal operators (such as airports and municipal water/wastewater facilities); and colleges and universities

Regional collaboration among the different stakeholders in the region could help create long-term partnerships to tackle energy and GHG emissions issues and help put coordinated policies, codes, ordinances, or design guidelines that address sustainability into place. Local governments can facilitate sustainable land use and transportation planning, community development, energy use, and improved municipal service provisions. Widespread energy standards, beyond the LEED and Energy Star building certifications, could be specified and adopted by towns and cities to reduce energy consumption at a regional scale. Implementing smart growth policies and zoning codes that support compact development and a street network that enables a variety of transportation options results in more sustainable communities. The Southern Tier Region has many governance elements that encourage or support sustainability.

Providing framework for opportunities for collaboration across local governments, service providers, and educational institutions

Regional collaboration could be enhanced with on-going regular meetings of the three MPOs and the other regional transportation groups to coordinate their policies, plans, and capital investments and TIPS. The MPOs and the transportation groups could also work with transit providers to develop or enhance inter-city and inter-county transit and rideshare.

There are several established initiatives that show successful collaboration across agencies, detailed below. There are also several other examples in the other goal sections.

- The Seven-county Regional Transportation Study is a planning project to study transportation in Cayuga, Cortland, Tioga, Chemung, Schuyler, Seneca, and Tompkins Counties. It is providing a strategic plan of programs and policies to address transportation infrastructure, systems and operation improvements, and enhancements to accommodate projected transportation needs. Collaboration among these seven counties could better connect the communities, broaden or connect mobility options, and offer opportunities for cost efficiencies.¹²⁶
- The Downtown Ithaca Alliance prepared a “Downtown Ithaca 2020 Strategic Plan”: Addresses revitalizing, developing, managing, and promoting the Downtown Ithaca Business Improvement District (BID) as a way to revitalize the urban core, reduce urban sprawl, and address emissions concerns. In this strategic plan, key initiatives included changing zoning to increase density in downtown, design guidelines for downtown projects, and incentives to encourage mixed-used and affordable housing developments. The plan provides a vision and a blueprint, as well as goals and tasks, to help downtown Ithaca



¹²⁶ http://www.tompkins-co.org/itctc/RTS/indexRTS_projectsite.html

development into a sustainable community. Development of the plan involved a variety of stakeholders, from City officials, residents, downtown BID and other local organizations,

- The Southern Tier Central Regional Planning and Development Board: Along with Chemung, Schuyler, and Steuben Counties' Planning Departments worked together to create the Municipal Guide for Energy Impacted Communities. This guide introduces planning and its relation to the energy industry, particularly natural gas development.¹²⁷
- In 2008, the City of Binghamton's Mayor and City Council convened the Commission on Sustainable Development and Smart Growth in 2008 to research best practices and recommend actions the City should take to become more sustainable and to pursue Smart Growth. The Commission discussed and developed recommendations addressing land use, stormwater management, sustainable building, and sustainable economic development. The Commission is made up of representation from the Mayor's administration, City Council, city unions, and the community.
- Tompkins County Planning Department: Assisted the Village of Trumansburg with revising its Zoning Ordinances, including changes that promote affordable housing through an inclusionary zoning provision couple with incentive zoning and integrating the newly-annexed area of the Village into the zoning proposal. Steuben County Planning department has also provided technical planning and zoning assistance to numerous municipalities within its jurisdiction.
- The Steuben County Planning Department: Played a major role in organizing the Steuben County Natural Gas Task Force, formed to address concerns and opportunities anticipated with an expected influx of new, intense natural gas extraction in the County. Several other communities have developed task forces to address natural gas issues in the Southern Tier region – there could be an opportunity for all of the task forces to combine efforts to help steer the Southern Tier region toward a sustainable nature gas future.
- There are several other ways that Southern Tier municipalities can collaborate to guide development and redevelopment that is more sustainable. This includes revising comprehensive plans, municipal codes and zoning and subdivision ordinances, design guidelines, street standards, and other standards to align with the Cleaner Greener Southern Tier Plan's vision, goals, and policies. It can also include developing and adopting strong enforceable development policies and regulations, which determine on a regional level where development can and cannot occur within floodways and flood plains. It also includes housing programs and regulations to provide more housing choice; this could potentially include local requirements for developments to offer a variety of lot sizes, building types, and prices or an ordinance to require all developments to provide a set percentage of affordable housing. It can also include an Accessory Dwelling Unit ordinance and program (garage or basement apartments or "granny flats").
- Some example model code language sources include:
 - The Massachusetts Smart Growth Toolkit provides examples of fairly simple code language for specific elements, including form-based codes, parking regulations, Transit-Oriented Development, and many other topics.¹²⁸

¹²⁷ <http://www.stcplanning.org/index.asp?pageld=153>

¹²⁸ http://www.mass.gov/envir/smart_growth_toolkit/pages/SG-bylaws.html

- The American Planning Association's Smart Codes: Model Land-Development Regulations contains examples of several different types of smart growth codes.¹²⁹
- The SmartCode is a more complex, but free, open source integrated land development ordinance. It folds zoning, subdivision regulations, urban design, public works standards and basic architectural controls into one compact document. It is also a unified ordinance, spanning scales from the region to the community to the building.¹³⁰
- Westminster Traditional Mixed-Use Neighborhood Design Guidelines, Westminster, CO's Traditional Mixed-Use Neighborhood Design Guidelines adopted by the City that are then incorporated into a PUD 1 Master Plan Application.¹³¹

¹²⁹ <http://www.planning.org/research/smartgrowth/>

¹³⁰ http://www.smartcodecentral.com/smartfilesv9_2.html

¹³¹ www.ci.westminster.co.us/files/tmund.pdf

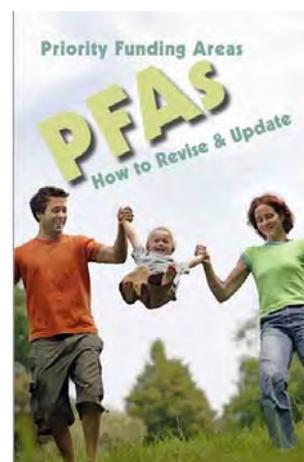
Goal 18: Increase fiscal efficiency and effectiveness in local government through energy and waste reduction, coordinated infrastructure investments, and integrated planning for smart growth

By looking at ways local government can become more fiscally efficient or effective, governments can implement sustainable practices. Regional, coordinated policies that address energy, emissions, and waste reduction or integrated planning can result in cost savings across the region as the counties and municipalities work together. And, by coordinating infrastructure and development investments regionally, counties can save when it comes time for project construction.

Becoming fiscally efficient in implementing regional sustainability

Coordination and collaboration between local governments in the Southern Tier region will result in greater efficiencies than if every county works alone, especially in the current economy, where resources and funding are limited. By working together, the local governments can also leverage each other's knowledge and experiences in implementing or funding sustainable practices.

- Maryland's Priority Funding Areas Act:** Passed in 1997, it provides a geographic focus for State investment in growth. The State identified Priority Funding Areas (PFAs), which are communities in which the State wants to invest in future growth by investing in highways, sewer and water construction, economic development assistance, and State leases or construction of new facilities.¹³²
- Steuben County Planning Department:** Used the Small Cities Community Development Block Grant (CDBG) program to administer two grants to replace failed wells and septic systems. The grants are typically used for activities that benefit low- to middle-income households and addresses health and living welfare needs.
- Chicago Infrastructure Trust:** Established by Chicago City Council, with support from the private sector, non-profit organizations, and union leaders, and allows city agencies to bring funding needs in front of the trust, which then determines how specific projects get financed. Possible financing structures include taxable or tax-exempt debt and equity investments.



Encourage collaboration between municipalities to develop coordinated regional water and wastewater system policies and to work together with water and wastewater distribution system upgrades.

- There is significant opportunity for municipalities and neighboring water and wastewater treatment systems to collaborate. Collaboration efforts could eliminate the need for upgrades to certain water supply or wastewater treatment facilities that have reached capacity by diverting the load to other nearby plants.

¹³² <http://planning.maryland.gov/OurWork/1997PFAAct.shtml>

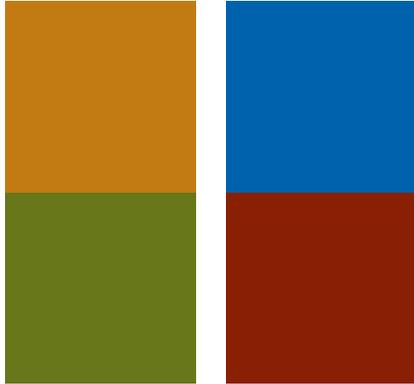
- Tompkins County has performed an inter-municipal feasibility study for the water and sewer facilities.¹³³ Bolton Point is a multi-municipal water treatment plant that has been a result of the cooperative efforts between municipalities in order to serve the needs of the County.

There are also several additional examples of best practices involving codes and governance activities in the other topic area sections.

¹³³ Miller, T.G. and Andersson, J.M., 2010. "Countywide Inter-Municipal Water and Sewer Feasibility Study for Tompkins County." Available online at: <http://www.dos.ny.gov/lg/publications/LGEProjectReports/2007/TompkinsCountyFinalReport.pdf>

APPENDIX J:
PUBLIC PARTICIPATION SUMMARY

PUBLIC COMMENT PROCESS



Cleaner Greener Southern Tier Public Participation Summary

Deliverable 5-2

November 1, 2012

Prepared for

Tompkins County and the
Cleaner Greener Southern Tier Planning Team

Prepared by

ICF International

Table of Contents

October Action Strategy Review Meetings – An Overview	1
Stakeholder Group Workshops	1
Public Meetings	2
Consortium Meeting	2
CleanerGreenerSouthernTier.org Website	3
Analyzing the Feedback	3
Stakeholder Group Workshop Notes	4
Economic Development Stakeholder Group – Corning	4
Transportation Stakeholder Group – Corning	8
Waste Stakeholder Group – Corning	11
Water and Waste Water Treatment Stakeholder Group – Chenango	12
Energy Stakeholder Group – Chenango	16
Livable Communities and Housing Stakeholder Group – Chenango	21
Working Lands, Open Space, Local Food, Agriculture Stakeholder Group – Ithaca	24
University, Education, Innovation, and Energy Technology Stakeholder Group – Ithaca	27
Public Meeting Notes	30
Public Meeting – Corning	30
Public Meeting: Chenango	33
Public Meeting: Ithaca	39
Consortium Meeting Notes	44
Consortium Meeting – Ithaca	44
Appendix A: Website Feedback	A-1
Website Feedback	A-1
Appendix B: April 2012 Kick-off Workshop Meetings	B-1
Public Kick-off Meeting Summary	B-1
Public Kick-off Vision Statement and Phrases	B-4
Public Meeting 1 Notes – Corning, NY	B-11
Public Meeting 2 Notes – Ithaca, Tompkins County	B-15
Public Meeting 3 Notes – Delaware County, NY	B-30
Public Meeting 4 Notes – Chenango-Binghamton, NY	B-34
Stakeholder Group Meeting Overview	B-39
Consortium Kick-Off Meeting Notes	B-42
CGST Southern Tier Central Stakeholder Group 1	B-45

CGST Southern Tier Central Stakeholder Group 2	B-49
CGST Southern Tier Central Stakeholder Group 3	B-53
CGST Southern Tier Central Stakeholder Group 4	B-59
CGST Tompkins County Stakeholder Group 1– Elected Officials	B-61
CGST Tompkins County Stakeholder Group 2– Land Use, Transportation, Development	B-67
CGST Tompkins County Stakeholder Group 3– Rural, Agriculture, Conservation	B-71
CGST Tompkins County Stakeholder Group 2– Energy, Environment & Livable Communities	B-77
CGST Southern Tier East Stakeholder Group 0 – Delaware County and NYC Dept. of Environmental Protection	B-80
CGST Southern Tier East Stakeholder Group 1 – Employers/Private Sector	B-83
CGST Southern Tier East Stakeholder Group 2 – Energy Production/Efficiency	B-84
CGST Southern Tier East Stakeholder Group 3 – Forestry/Conservation	B-88
CGST Southern Tier East Stakeholder Group 4 – Governance/Planning	B-92

October Action Strategy Review Meetings – An Overview

Cleaner Greener Southern Tier Plan Implementation Plan and Action Strategy Review

October 9 – 11, 2012

The Planning Team, along with the ICF International Consultant team (ICF), scheduled a series of meetings and workshops October 9-11, 2011 to present the Cleaner Greener Southern Tier Long-term Implementation Plan and Five-year Action Strategy and obtain feedback on priority actions. Seven stakeholder group workshops and three public meetings were held throughout the Southern Tier October 9-11, 2012. Stakeholders were identified and invited by the Cleaner Greener Southern Tier Planning Team (the Southern Tier Central Planning and Development Board, the Southern Tier East Regional Planning Development Board, and Tompkins County), based on their area of knowledge and experience. Both the stakeholders and public were able to weigh in on the top actions that the Southern Tier can take in the next five years to become more sustainable and to reduce greenhouse gas emissions.

A Consortium meeting was held on October 11 to inform the Consortium on stakeholder and public feedback. Feedback received during all meetings will help refine details of each action, confirm whether they should be in the Long Term Implementation Plan and Action Strategy, and narrow the proposed 68 actions list down to the top 20 actions (programs, policies, and projects) that will be included as priorities in the final regional sustainability plan, and potentially be included in applications for future NYSERDA funding.

Stakeholder Group Workshops

The workshops included small group discussions among topic-specific stakeholders and experts to get input on their reactions to the strategies provided in the Five-year Action Strategy, as well as into their sections of the Implementation Plan. The stakeholder group workshop schedule was as follows:

10/9 – 9am-11am: Economic Development topic in Corning

10/9 – 1pm-3pm: Transportation topic in Corning

10/9 – 3pm-5pm: Waste topic in Corning

10/10 – 7am-9am: Water & Waste Water Treatment topic in the Town of Chenango

10/10 – 1pm-3pm: Energy topic in the Town of Chenango

10/10 – 3pm-5pm: Livable Communities/Housing topic in the Town of Chenango

10/11 – 8am-9:30am: Working Lands, Open Space, Local Food, Agriculture topic in Ithaca

10/11 – 10am-12pm: University / Educational Innovation / Energy Technology topic in Ithaca

Each stakeholder group reviewed and discussed the specific actions pertaining to the topic area. If there was time left over, the discussion was opened up to other actions. Feedback from the stakeholders included, but was not limited to, the following:

- Removing an action from the Action Strategy because it was not a priority for the next five years
- Elevating an action from the Implementation Plan into the Action Strategy
- Combining several related actions into one, more robust action
- Clarifying the description of an action

The feedback from the stakeholders was significant to the analysis to whittle down the Action Strategy list to a recommended top 20 priority projects. The feedback also provided suggestions to content changes in both the Action Strategy and the Implementation Plan, including edits and revisions to the actions and descriptions for the actions.

Public Meetings

The public meetings were held in three locations: Corning in Steuben County on Tuesday October 9, Ithaca in Tompkins County on Wednesday October 10, and the Town of Chenango in Broome County on Thursday October 11. Meetings were coordinated by the Cleaner Greener Southern Tier Planning Team (the Southern Tier East Regional Planning Development Board, the Southern Tier Central Planning and Development Board, Tompkins County, and the ICF International team of consultants (ICF).

Meeting Format

The meeting structure was a presentation and informal group discussion.

Welcome and Introductions: A representative from one of the three regional agencies leading this project – Southern Tier East Regional Planning Development Board, Southern Tier Central Planning and Development Board, and Tompkins County – welcomed participants to the evening’s workshop. ICF facilitator Harrison Rue provided a brief introduction of work to date and regional assets, issues, and opportunities.

Action Review: Harrison then briefly presented on each action included in the Action Strategy Plan and encouraged questions and comments from the audience. He also included in the presentation some baseline data, to frame how certain actions were developed. The discussion of the actions was organized into three broad groups:

- Energy & Economy - covering actions under goals 1, 2, 7, 8, 9, and 16;
- Built Environment - covering actions under goals 3, 4, 5, 6, 17, and 18; and
- Natural Resources - covering actions under goals 10, 11, 12, 13, 14, and 15

Dot Voting: At the end of the Action Review, each participant received 10 dots to vote on the actions they believed were most important for the Southern Tier region. They were not required to use all 10 dots and were also allowed to ask for more if they felt 10 weren’t enough. The results of the public dot voting were part of the data used in the analysis of whittling down the Action Strategy list to a recommended top 20 priority projects.

Consortium Meeting

The project team held a meeting with the Cleaner Greener Southern Tier Regional Consortium to go over the Action Strategy in depth and gather input on the strengths, weaknesses, and missing opportunities of the current document. The consortium is an invited public interest group that has

a higher level of engagement with the project and has provided input at critical junctures throughout the document production process.

At the end of the discussion, the attendees were each given 20 dots to vote on what they felt were the “top 20” most important actions from the current draft Action Strategy Plan. The results of the consortium dot voting was an integral part of the analysis to whittle down the Action Strategy list to a recommended top 20 priority projects.

CleanerGreenerSouthernTier.org Website

As an additional means to solicit feedback, the team developed an actions feedback activity on the cleanergreenersoutherntier.org website so that website visitors could apply a thumbs-up vote on the actions they considered in the top half of the priorities and a thumbs-down vote on the actions they considered in the bottom half of the priorities. While website visitors could apply a thumbs-up vote to more than 20 actions, the 20 actions with the most thumbs-up votes could be construed as the public’s top 20 priorities. The results from the website thumbs-up voting was considered in the analysis of whittling down the Action Strategy list to a recommended top 20 priority projects.

We also provided the opportunity for website visitors to provide feedback on specific actions through the website. A compilation of these comments are provided in Appendix A.

Analyzing the Feedback

To analyze the feedback, we input all the data into an Excel Spreadsheet and highlighted the actions with the top 20 most votes by the Consortium, by the public meetings, and from the website activity. We looked for any overlap between the High Priority actions identified by the stakeholders and any of the top 20 actions identified from the three voting exercises. Any overlap by two or more of these forms of feedback was an indication that the action might warrant inclusion in the top 20 priorities and helped to narrow the list. This analysis, plus consideration of the greenhouse gas emissions reduction impact, helped whittle down the Action Strategy list to a recommended top 20 priority projects, plus a few alternates worth considering to add or replace actions on the list (see CGST Top 20 Selection Memo). After review/confirmation by the Planning Team, these will be reviewed/approved by the Consortium, and developed in more detail for inclusion in the Implementation Plan.

The next sections provide the notes from the eight Stakeholder Group meetings, three public workshops, and Consortium meeting, in chronological order. The Appendix contains website feedback, email comments, and notes from the April 2012 Kick-off Workshop Meetings.

STAKEHOLDER GROUP WORKSHOP NOTES

Economic Development Stakeholder Group – Corning

October 9, 2012

Location:

Three Rivers Development
Corp. Conference Room
114 Pine Street, Suite 201
Corning, NY 14830

Time: 9:00 am – 11:00 am

Attendees:

First Name	Last Name	Organization
Denise	Acklay	Corning Area Chamber
Martha	Armstrong	Tompkins County Area Development
Dawn	Burlew	Corning Enterprise
Phyllisa	DeSorano	City of Ithaca
Victoria	Ehlen	Southern Tier Central Regional Planning Board
Sherri	Geary	STEG
Martine (Marty)	Gold	Challenge/Finger Lakes Fresh
James	Johnson	Steuben County IDA
Erik	Miller	Southern Tier East Regional Planning Board
Charlene	Secondo	Three Rivers Development
Marcia	Weber	Southern Tier Central Regional Planning Board

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Eva Hsu

STAKEHOLDER GROUP NOTES

Goal #7: Create and retain more good paying jobs by building on the Southern Tier's regional strengths, including advanced energy and transportation technologies, globally-competitive industry, and workforce development and technology transfer partnerships with educational institutions

- 7.3 – Promote the Regional Broadband Communications Project (REDC)
 - Suggest removing from Action Strategies because, while everyone supports this initiative and believes that broadband coverage is important for economic development, since there's already so much support and buy-in for the initiative through the REDC work, it shouldn't be included in this list "just because"
 - Suggest adding a line in the Executive Summary that says this effort is aligned with the REDC efforts.
 - In description, tweak to include the young population
- 7.4 – Grow local businesses through targeted investment

- Suggest changing “river-based ecotourism” to “water-based” to incorporate lakes and other water-related locations
- Suggest removing from Action Strategies because could be easily combined with other initiatives or used as support for other initiatives
- **7.6 – Strengthen university-industry connections to improve and promote workforce development**
 - Add workforce investment boards into the description
 - Suggest combining 7.6 with 7.8 because it seems like these two actions are just targeting different industries, but doing the same thing. Just include: “with emphasis with energy conversation.”
 - Would keep separate because colleges are doing a lot with other conservation efforts, energy is fab du jour.
 - Determine whether or not to combine these actions based on the ultimate goal of the plan - regional economic sustainability or regional energy sustainability.
 - If 7.8 is separate, make sure it’s clear why they are separate or combine if needed.
- **7.8 – Implement the Energy Workforce Development Initiative (REDC)**
 - Include workforce investment boards and unions in the description
 - Suggest elevating energy should be elevated but quantified as energy efficiency
 - But, the region is so diverse and we see so many opportunities with shale and wind, so wouldn’t want to narrow on energy conservation of buildings
 - In the implementation plan: Qualify natural gas as “industry”
- **7.9 – Implement the Health Care Workforce Development Initiative (REDC)**
 - Add major employers
 - Include workforce investment boards
 - Deprioritize from the Action Strategy matrix
- **7.15 – Identify, train, and certify contractors to meet increased energy efficiency demand**
 - Include potential partners entities like community colleges, textile schools, Workforce Investment Boards as well as unions
 - In description, elevate the respect for the job so that contractors want to get more training and thorough training, since contractors are not required to get licenses
 - In description, add EarthCraft Virginia model on advancing sustainable, affordable, resource and energy efficient construction through education and technical support
 - Mention that an increase in trained and certified contractors will increase competition and decrease cost to consumers looking to have energy efficient upgrades performed.

Goal #8: Support tourism industry development with coordinated marketing, preservation, and enhancement of historic, cultural, educational, and natural resources and events

- **8.1 – Expand and promote culinary and agri-tourism opportunities**
 - We have a plan to open a sustainability center in Tompkins County to focus on what we’ve done already.
 - If we want our local agriculture and local wine grow from economic development, we need to focus on distribution systems that will let that happen.
 - Cornell University has a relationship with big food producers, so it’s difficult to bring in local foods.
 - It’s difficult to promote to chefs if there’s no constant source of local food
 - Marty Gold has been working on food hub in Tompkins County that is a two-pronged approach by relying on big food producers to be mechanism by which entities purchase the food, but then use pull-through marketing strategy to end-use customer. Food hub does marketing to colleges and restaurants and create the demand and the food hub will work with distributors.
- **8.4 – Coordinate and market educational and green tourism**

- Martha Armstrong wouldn't put any in the Action Strategies. But others think there are so many opportunities.

Goal #9: Support farming and related businesses to reinvigorate the rural economy, enhance residents' incomes and standards of living, and promote local food and agriculture

- **9.1 – Adopt local food purchasing policies**
 - Managers are graded on how well they can order through existing channels (the big food producers), so they get a black mark against their work performance if they order from other channels.
 - Need to be efficient – large food producer can't go to 200 small farms and asks if there is one place to go. Need to purchase an aggregated amount of food from a central location made up of a variety of farms.
 - Need to figure out a way to get local foods into existing markets, like the distributors.
 - This seems to address policy on the demand side, why not policies on the supply side?
 - Example: Tompkins County Cortland College, foundation owns land by the school, which could be developed into a sustainable farm (no animals; only fruits, vegetables and herbs) – the sustainable farm could support the school and culinary lab as well as students in local programs
- **9.2 – Develop regional programs for branding and marketing local food products**
 - Remove from Action Strategy matrix
- **9.3 – Develop and expand markets for local food and establish and expand CSA networks throughout the region**
 - Remove from Action Strategy matrix
- **9.4 – Support development of local processing facilities for value-added products**
 - Food hub should be included and promoted more, but it is the infrastructure between demand and production, so it doesn't fit well in 9 or 10 – become 9.5 and add to Action Strategy
 - Revise to include brick and mortar food hubs: Support development of Food Hubs to expand markets for local produce/agricultural products and support expanded agricultural production and profitability
 - Marty Gold to provide a write-up about Challenge to add to Action Strategy matrix: Challenge runs FingerLakes Greenhouse, but the focus has been providing jobs for people with disabilities. Challenge is now building a foodhub to work with farmers to link with distributors. The food hub will target seasonal and local foods, but also offer freezing capabilities. The food hub will be buying from local growers and selling to distributors. The food hub will also have capacity to be storage facility and a pick-up point. Currently, local farmers need to ship foods down to Kingston, NY if they want to quick freeze crops.
 - Challenge is not just focused on Tompkins County, but will be working with farmers across the Southern Tier. Every county does have the opportunity to have this.
 - Selling the social mission piece helps to sell the effort.
 - Farmers are now calling Challenge to say they have extra crop and Challenge can help get it distributed.
 - Challenge has the financing and plans to build 25,000 food hub building.
 - Steuben County is looking into similar distribution model and is watching what happens with Challenge.
 - This Action Strategy's language doesn't seem to address livestock and it should because a lot of farmers already deal with livestock and livestock are almost easier to care for. Anytime we talk about farming, should also include meat/dairy, and field crops. Add emphasis into Goal as a parenthetical (foodstock, livestock, field crops).
 - Urban Agriculture is not priority action, but long term strategy.

- Online information hub terminology confusing. Is that really what is meant? I think we are talking about a food processing and distribution hub. I could be wrong here, just seems online was originally intended to mean create a food hub.

OTHER IMPORTANT ITEMS

- 9.4 and 9.5 need funding the most, so if this document is trying to attract funding, those are most important.

Transportation Stakeholder Group – Corning

October 9, 2012

Location:

Three Rivers Development
Corp. Conference Room
114 Pine Street, Suite 201
Corning, NY 14830

Time: 1:00 pm – 3:00 pm

Attendees:

First Name	Last Name	Organization
Jim	Arey	Elmira-Chemung Transportation Council
Karin	Beers	Cornell Cooperative Extension
Mark	Bowers	
Anne	Crook	Elmira Corning Regional Airport
Jennifer	Dotson	Ithaca Carshare/ TCAT/ City of Ithaca
Victoria	Ehlen	Southern Tier Central Regional Planning Board
Cyndi	Paddick	BMTS
John	Sterbentz	BMTS
Joe	Turcotte	TCAT
Ray	Weaver	Cornell Cooperative Extension
Marcia	Weber	Southern Tier Central Regional Planning Board
Andy	Williams	NYSDOT-Region 6

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Steven Keith

STAKEHOLDER GROUP NOTES

- Suggest combining Action Strategies 3.2, 3.4 and 3.16 into one major action (all-encompassing and dealing with pedestrian, biking, and transit connectivity)
 - The group was very strong about this being a high priority
 - Action 3.2: Improve connectivity between downtown trails, bicycle, pedestrian, and transit network
 - Suggested new wording: Develop connected system between downtown trails, bicycle, pedestrian and transit network (drop "improve connectivity" because some counties need to develop the connections before they can improve it)
 - This also depends on the scale of the place, obviously the urban areas of the region are going to be more successful than the rural areas
 - Focus on connecting the current gaps between trail, bike, transit systems
 - Action 3.4: Expedite implementation of Safe Routes to School, SafeSeniors, and Safe Routes to Transit projects
 - This is within the scope of "developing connectivity for all"
 - Important in both the urban and rural areas
 - Action 3.16: Provide education and support to implement complete street design standards
 - Complete streets are about connecting people and encouraging transit use and walking, which falls in with 3.2 & 3.4
 - Pull out the bikeshare information in the details and insert it into the multimodal corridor or regional transit action

- By providing easy-to-understand guidance for municipalities, the process of complete street implementation will be clear and will avoid “re-do” cycle of creating rules and regulations
 - Focus description of combined actions less on connectivity and more on construction/creation/completion of multi-modal facilities of all types that are connected and seamless
 - Include on-road bikeways (bike boulevards, shared lanes, cycle tracks – I have good photo from Syracuse.
 - It is important to have consistency between NYSDOT regions. BMTS in NYSDOT Region 9 is very progressive in developing on-road bike lanes and systems, but Ithaca and Elmira are both in separate regions with less progressive NYSDOT planners. This is a key issue, though challenging to address.
 - **Action 3.8 is a priority but should be beefed up to include the ideas of actions 3.9, 3.10 and 3.11**
 - The language should be changed to remove the “study” portion and focus on pilot projects, “Pilot priority opportunities for intercity bus service, expanded cross-regional transit, and rural on-demand transit”
 - Focus is on inter-city, cross jurisdictions, but also rural on-demand services
 - 3.9 identifies medical service opportunities, 3.10 works with the universities, 3.11 is dealing with major employers
 - These all should be reflected in the new 3.8, because they are all interrelated and deal will serving customers
 - **Action 3.19 should be combined with 3.18 and 3.20**
 - This is a high priority action as identified by the stakeholders
 - This is primarily a TDM focused mega-goal, dealing with education and program implementation
 - 3.19: Expand ‘Way2Go’ and carsharing programs
 - New text: Expand ‘Way2Go’ and other marketing and education programs regarding ridesharing (added in marketing and education, changed carsharing to ridesharing)
 - 3.18: Coordinate 511NY Statewide transportation demand management system with local information systems
 - 511 works with TDM implementation and services
 - Must be sure to include a guaranteed ride home program
 - 3.20: Coordinate and expand transportation demand management (TDM) programs (rideshare) at institutions and major employers
 - ‘Way2Go’ is a good example under this action, and can be applicable throughout the region
 - Should include overall TDM and marketing
 - **New Action: Carsharing**
 - Should become its own priority action
 - It has to be a program to serve the people, not about making money
 - Should be community based, in high priority areas, and with practical vehicles (vans for families, high MPG, trucks for hauling things)
 - **4.1 – Encourage adoption of green fleet policies for public and private fleets**
 - Voted as a high priority
 - Hydrogen infrastructure for cars. BAE in Endicott is constructing hydrogen buses. This discussed in university Stakeholder Group).
 - **4.2 – Create a region-wide electric vehicle infrastructure deployment plan**
 - Voted as a high priority, but there must be a footnote describing how the increase in electricity will be generated (in a sustainable manner?)

OTHER IMPORTANT ITEMS

- 4.10 – Explore increasing use of rail and water for goods transport
 - Demote from the 5 year action plan, should remain in the IP with water removed
- 4.12 – Electrify truck stops and transfer points throughout the region
 - Demote from the 5 year action plan, change the identified partners to private industry with incentives to implement
- For Action 4.7 (Promote the 511NY information system and integrate with existing systems) – Do not use 511 in the title without explaining its purpose a little further
- For Action 4.9 (Update parking policies, codes, management plans, and pricing) – move back to Goal 3, because it has larger impacts on walkability than GHG reductions
- Look up the Route 434 Greenway project for good ideas

Waste Stakeholder Group – Corning

October 9, 2012

Location:

Three Rivers Development
Corp. Conference Room
114 Pine Street, Suite 201
Corning, NY 14830

Time: 3:00 pm – 5:00 pm

Attendees:

No participants attended this Stakeholder meeting

Water and Waste Water Treatment Stakeholder Group – Chenango

October 10, 2012

Location:

Town of Chenango Town Hall
1529 New York 12
Binghamton, NY 13901

Time: 7:00 am – 9:00 am

Attendees:

First Name	Last Name	Organization
Ed	Crumb	Binghamton-Johnson City Joint Sewage Plant board
David	Curley	Village of Delhi
Jim	Cummings	Shumaker Consulting Engineering & Land Surveying
Edwin	Gent	Town of Chenango
Jen	Gregory	Southern Tier East Regional Planning Board
Erik	Miller	Southern Tier East Regional Planning Board

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Eva Hsu

STAKEHOLDER GROUP NOTES

Goal #13: Minimize flood losses by preserving and enhancing floodplains and wetlands, and by limiting development in flood-prone areas

- 13.1 – Update local floodplain maps to improve accuracy of flood hazard information
 - Have draft maps based on ACOE new requirements of floodwalls, not what they were built on actually – so more areas are actually in floodplains because they are 12 inches below what the current standards are
 - Some new FEMA maps have been released but are not being adopted due to a change in methodology which caused significant increase in areas considered part of the 100 year floodplain (new methodology did not take into account existing levees which were built using older standards).
 - Needs to be done
- 13.5 – Prioritize high risk floodplains for conservation through acquisition and easement
- 13.7 – Establish and promote minimum buffer widths for streams and wetlands
 - Buffering livestock makes a lot of sense; but also planting and crops
 - Contacted anyone at Delaware Watershed and Ag Program, but provide full funding because of drinking water
- 13.9 – Develop incentives to encourage property owners to protect streams and buffers



Goal #14: Efficiently manage and upgrade existing water, sewer, and other utility infrastructure to support compact development and reduce energy use

- **14.1 – Incorporate energy efficiency, renewables, and advanced controls into policies for new equipment, new plants, and plant upgrades**
 - State of the art SCADA isn't there yet. Need to be conscious that the manpower needs to be there to man it and people trained on it.
 - Waiting for TMDL to happen. Dates for improvements haven't changed. Didn't see that in Action Plan. Chenango doesn't have to do a lot. TMDL is only applied to Chesapeake Bay watershed, but EPA is pushing enhanced nutrient removal from nitrogen and phosphorus. This is happening in the New York City watershed, where the phosphorus limit is 1.
 - One of the biggest phosphorus issues was milk plants, because those plants were using phosphorus-based cleaning materials, which would bring too much phosphorus into the plant.
 - Suggest add funding for sub-metering in plants, can't just have one meter at the street – as part of an upgrade
 - In Binghamton-Johnson City, operations and treatment are separate
 - Explicitly state that metering can be wrapped together
 - NYSERDA will not fund any studies for metering
 - Town of Dickinson had access to Department of State efficiency project to replace all water meters, 3 years ago.
 - There is a huge need for accurate metering
 - NYCOM has public works conference. Rural water has annual conference. New York Water Environment conference.
 - Flow management plan in place. Has steering committee overseeing the operations who operate the system.
 - Need an asset management plan to have consensus on policy and to be able to expect upgrade costs.
 - Governing boards should be aware of full cost of rate setting for water and sewer – needs to be more important.
 - DEC is sending out bills to require people to maintain stormwater in their leases – need to change ordinance so that property owners need to maintain any stormwater on their properties
 - Add sentence that in addition to getting policy passed, get board to do education on why this is important
 - This action strategy is not the highest priority
 - Delhi did conservation-based billing (more you use, more you pay)
 - Ithaca plant and Chenango plant may be good model programs
- **14.2 – Perform energy audits and install retrofits at major water and wastewater facilities**
 - Suggest separating water and wastewater plant counts
 - Would like to get funding for energy strategy study – combined econometric study for best bang for the buck (is it from lighting? VFDs from motors?). Not strictly an energy audit because not doing prioritization to show cost of changes
 - It is higher priority than 14.1
 - Add reference to biogas
- **14.4 – Develop new distribution system repair, replacement, and expansion policies that prioritize repair/replacement rather than expansion of service areas**
 - Collection and distribution systems are very important Infiltration and leaky sewers (INI – inflow and infiltration) need to be fixed, especially when it means you're treating more – add acronym and reference (groundwater coming into the pipe, in all systems)
 - Add metering
 - Do smoke testing
 - 14.4 should be higher priority than 14.1
 - Add implementation portion, not just have the policies
 - Add reference to New York State Smart Growth Law – see chapter 5 on growth

OTHER IMPORTANT ITEMS

- Aggressive water conservation (reducing demand) and leak prevention is key to water conservation because it takes a lot of energy to pump water uphill.
- Sub metering to understand system flow is important.
- Should folks pay real cost to encourage conservation? Given upstate cost of living, I hate to suggest this, but of course it makes sense.
- Implementation Plan's Chapter 14: 25% energy efficiencies seems wrong. Need to articulate that the amount varies depending on who controls it. Energy costs are probably only 10%.
- Implementation Plan's Chapter introduction: 500,000 MGD is wrong. Maximum is 20 MGD – is 0.5 MGD (500,000, not 500,000 million)
- 14.5 – biogas: was in the news, section is good.
- Implementation Plan Chapter 15: In the 8-county area, constructed wetlands is a major issue. For stormwater treatment. Could be used for treatment as well – example by Albany Airport to treat glycol run-off and landowner/wetland constructor could sell land us

Goal #15: Improve and protect water quality and quantity

- **15.3 – Expand education, outreach and pilot projects for green infrastructure and Low-Impact Development practices**
 - Binghamton has sustainable development planner and has codes and commitment to promote sustainable practices.
 - Add codes, land use policy language.
 - In NY, all MS4s have plan in place to do this
 - Need to education the public
 - Include Chesapeake Bay – green infrastructure funding program
- **15.4 – Develop program and guidelines to improve stormwater drainage design and maintenance for rural roadways**
 - Need to be careful on getting in trouble financially by putting stuff back in developer's lap and making them pay for a lot of this stuff – don't want to price ourselves out of the market. Need to be a balance between savings and costs to implement. There are larger impact mitigation strategies versus single-impact mitigation/adaptation strategies.
 - Cornell local roads and water conservation districts could try to reseed the soil, so the soil continues to erode and sediment carry-off. If can re-grow the soil, then will reduce sediment carry-off.
 - Engage county water conservation district on this effort
 - Delhi: We have cooperative with hydroseeder – if there was way to get funding for more cooperative efforts. Some water conservation districts have hydroseeders and loan out to counties as needed
- **15.5 – Support regular updates to County-based water quality strategy plans**
 - Higher on list than 15.4?
 - In description, reference Syracuse's "Save the Rain" program: They are modeled after Philly. Giving for free rain barrels. Trying to clean and lower run-off to Onandaga Lake. Trying to prevent trash and sewer overflow construction projects. Pervious pavements in city lots. Green roofs. Really saves from building sewer overflows.

OTHER IMPORTANT ITEMS

- Add soil and water conservation partners in each of these
- Stormwater wetland development should be aggressively implemented.
- Instead of a plan, create a program that plans, and implements.
- 15.2 – example 1: Kennedy Park
- 15.2 – example 2: Southside Commons – porous asphalt/porous pavement
- 15.4- "increased vegetative" won't happen because it's taking more ROW

Energy Stakeholder Group – Chenango

October 10, 2012

Location:

Town of Chenango Town Hall
1529 New York 12
Binghamton, NY 13901

Time: 1:00 pm – 3:00 pm

Attendees:

First Name	Last Name	Organization
Peter	Bardaglio	TCCPI/Black Oak Wind Farm
Jim	Baumgartner	Broome County Legislature
Katie	Borgella	Tompkins County
Chris	Burger	Binghamton Sustainability
Herb	Duyer	ASI Energy
Adam	Flint	CCE Broome, PPEF-Southern Tier, BRSC
Dee	Gamble	Energy Smart Communities Coordinator
Al	George	Cornell
Jen	Gregory	Southern Tier East Regional Planning Board
Ken	Schlather	TC CCE
Erik	Miller	Southern Tier East Regional Planning Board
Katie	Stoner	Park Foundation

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Steven Keith

STAKEHOLDER GROUP NOTES

Goal #1: Reduce building energy use

- 1.1 – Establish the Southern Tier Renewable Energy and Efficiency Initiative (Regional Economic Development Council)
 - Keep in Action Strategy
 - There are existing programs like EnergyCore and 'Get Your Green Back'. Is there an update on Energy Efficient Loan fund?
 - Model work in Broome against work in Tompkins. There is a problem with reaching the entire region. Need more robust financing, funding will run out by Oct. 2013. Tompkins devotes lots of resources to get other programs up-to-speed.
 - This is a top priority according to the audience, but needs a better description. Some Stakeholder Group attendees had problems seeing how 1.1 was different from the other action strategies and thought 1.1 encompassed all the others, which are just initiatives to do stuff
 - Simple as saying action 1.1, is about financing
 - NYSERDA regs, programs and funding applications are very cumbersome. Streamlining and simplification is key to successful implementation
 - Why not make Goal #1: Establish the Southern Tier Renewable Energy and Efficiency Initiative?



- Just because it is the “way it has to be” doesn’t make it satisfying
 - Made a decision to go with energy use and efficiency together
 - Fundamental concept at issue right now. Renewable energy tends to trump common sense of efficiency (wanting solar panels vs. the more useful insulation)
 - The crowd reluctantly agrees
 - Trying to implement energy efficiency and renewable energy is a god awful process for citizens and contractors
- **1.4 – Develop a regional energy road map**
 - Can't start any initiative without this process
 - Should energy efficiency and renewables be spoken in the same road map?
 - Get people off of propane and other high energy gases
 - Road map with actions taken from existing experiences
 - High priority
- **1.6 – Explore and create financing options for renewable energy and energy efficiency systems (REDC)**
 - Money is a key part of getting over the obstacles
 - People that need help now are not getting it. For low income people, there is a 4 year wait for weatherization (Tiago keeps them under wrap from the private contractors).
 - Need to address what we do about people who have trouble making their way through the low income programs
 - Anecdotal, low-income groups tend to have older housing stock.
 - Is the real goal to make older housing stock weatherized/retrofitted in the next 20 years? 100% done? If so, that can only happen if you ramp up the program.
 - Tompkins County was pretty close to the 5% retrofit per year number, so 100% is not unrealistic; but this was looking at home performance, not weatherization
 - What needs to be in the plan to be included in the group?
 - Market rate (home performance, assisted)
 - Two separate groups with two separate programs
 - Lots of contractors leaving home programs
 - In the commercial world, nothing gets done without money
 - Also a point for residential
 - Contractor doesn't get paid until the homeowner signs off
 - 80-100% and below should get grouped into the low income group, and get the job done
 - The rest that could pay a loan do so
 - Clearly needs to be a priority action
 - Most of the work in energy efficiency doesn't work well with 3rd party financing, not cookie cutter. Not proven in economies of scale.
 - Rental housing is 70% of the housing stock in Ithaca and they do not get incentives
 - Home performance industry – Full price and assisted are generally private, low income by coop extension and non-profit (Better Housing of TC, etc.)
 - NYSERDA regulations, programs and funding applications are very cumbersome. Streamlining and simplification are key to successful implementation.
 - Cost for conservation (according to Bardaglio) is \$0.01 to \$0.02 per KW hour, cost for renewables is \$0.08 to \$0.10 per KW. Consultant team to verify.

- **1.7 – Assess energy performance; implement and monitor energy efficiency upgrades in government facilities and school systems**
 - Wording change: Add in “and municipal buildings” after government facilities
 - Focused on government facilities because of a large market
 - 1.8 switches the focus to non-government buildings
 - 1.10 is a training program for government employees
 - It feels important to look at ICLEI. Learn from these and use the same language so as to not duplicate effort.
 - Passed resolution to follow the priorities, other agencies provided tools to monitor
 - Not always a plus in the rural counties to associate with a particular association
 - But rural people do like to hear about saving money
 - Can also use it for benchmarking
 - More so trying to avoid re-inventing the wheel
 - NYSIG, trying to get data for comparative benchmarking
 - Private information issue
 - 40 percent of utilities are paid by for by landlords, who take the cash and then leverage it. NYSEERDA bases the low income on income of the tenant, unless they are students. It would be important for student housing to be considered for low income energy retrofits.
 - It is import to leverage private financing in order to have good data. If it's not in the plan, then it should be inserted.
 - No mention of outdoor lighting, tremendous opportunities for energy saving there

OTHER IMPORTANT ITEMS

- Street Lighting is owned by NYSEG and is very inefficient
- Conservation of Energy, Water, is KEY and should be strengthened in the report
- While goal 1 on conservation and 2 on renewables should be made distinct, a coordinated delivery of education for homeowners and industry is important – conservation first, renewables and efficient energy production second.
- Not sure where Road Map lives – here or goal 2 or an overarching recommendation.
- There are excellent private companies in Ithaca to consider highlighting – Taitem engineering, Performance systems, Snug Planet.

Goal #2: Develop, produce, and deploy local renewable energy and advanced technologies across the Southern Tier

- **2.1 – Study and facilitate mid-scale wind projects**
 - Identify whether these community projects are small scale or mid-scale (mid-scale is defined as around 20 mw)
 - Target: get one on a farm, get one into a small town (defines best practices)
 - Black Oak development is an example that will happen
 - Community wind is defined at 20 mw or below, so ours maybe considered
- **2.2 – Facilitate deployment of demonstration anaerobic digester systems**
 - Identified over 30 farms where it is feasible (economically feasible)
 - Quick payback period
 - Can also look into an opportunity of capturing waste; waste to energy
 - Should it stay a priority?
 - Has a high success rate
 - What about waste and capturing biogas there? (organics out of landfills; waste to energy)
 - Community Anaerobic digester- corporation takes on some of the cost of the facility vs the farmer

- Transport the waste manure to fuel the community digester where it all is processed
 - Chobani is considering this
 - A company in Chenango county is looking at the milk product waste (whey)
 - One key to biomass is developing the pellet market. Currently, pellets are shipped to New England – we need more burners here, at all scales.
- **2.3 – Facilitate deployment of geothermal heat pump (GHP) systems**
 - Small commercial and residential properties
 - Should we broaden to include wastewater
 - Nope, this is separate program
 - Payback works, but they still are expensive (even under Green jobs)
 - Solution to get off of oil or propane
 - Great for homeowners
- **2.4 – Facilitate deployment of solar photovoltaic and solar thermal systems**
 - As the cost of PV goes down, it might be a more cost effective than solar thermal (look at which has the better payback)
 - Research which makes sense (PV vs. solar thermals)
 - Incentives drive decision making
 - Bigger issue is addressing larger commercial solar support:
 - No utility scale plans to put power back into the grid in NY
 - Distributed solar, through feed and tariffs
 - Issues involved beyond solar roofs of homes and small businesses
 - There are some political issues in the state of NY (vs NJ and CA)
 - Incentives on the bidding of megawatt subsidies
 - Need to be concerned about the power/sustainability about the Southern Tier grid, because of the nuclear facilities going off-line and the economic impact of rolling brownouts
 - Review subsidies and determine which of these ideas override others currently in place of the government
- **2.6 – Explore transitioning existing power and thermal generation facilities to more sustainable fuel**
 - Do not focus on utility scale; rather, focus on commercial, industrial, or institutional scale, specifically those that don't have access to natural gas
- **2.7 – Facilitate biomass demonstration projects for production of pellets for heating across region**
- **2.11, Add in the action strategy plan now**
- **2.12 – Study feasibility of combined heat and power (CHP) in current development projects**
 - Makes sense for heavy density areas (district energy)
 - Great opportunity for reduced GHG emissions
 - Hospitals, hotels, government building
 - Want to see a quick payback system
 - Deprioritize from the Action Strategies matrix

OTHER IMPORTANT ITEMS

- Herb Dwyer's (ASI Renovations) new business venture is a Combined Heat and Power consulting and boiler manufacturing company.
- Include the biodiesel program because it's a similar situation – small growers need portable equipment and joint marketing and distribution.
- Need to clearly distinguish CHP boilers from District Heating.
- Priorities are solar, biomass and CHP (ideally biomass, but not exclusively where natural gas available).

Livable Communities and Housing Stakeholder Group – Chenango

October 10, 2012

Location:

Town of Chenango Town Hall
1529 New York 12
Binghamton, NY 13901

Time: 3:00 pm – 5:00 pm

Attendees:

First Name	Last Name	Organization
Judy	Ceelli	Arbor Housing & Development
Jen	Gregory	Southern Tier East Regional Planning Board
David	Kay	Cornell Regional
Amelia	LoDolce	City of Binghamton
Erik	Miller	Southern Tier East Regional Planning Board
Caroline	Quidort	City of Binghamton

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Eva Hsu

Goal #5: Strengthen and revitalize existing cities, villages, and hamlets

- 5.1 – Encourage development and strategic investment in cities, villages, and hamlets
 - Is a priority
- 5.2 – Implement the Southern Tier Community Revitalization Project (REDC)
 - To what extent is 5.2 consistent with 5.1?
 - In description, include sidebar on State's public infrastructure policy act (<http://lawoftheland.wordpress.com/2010/10/25/ny-enacts-smart-growth-public-infrastructure-policy-act/>)
 - In description, add a focus on place-based (near transit, schools, historic centers) and smart growth population centers – and places that are supported by a land use planning document or comprehensive plan
 - In description, include emphasis on developing assistance for finding funding
 - Should expand scope by continuing existing programs that work
 - Should be strategic redevelopment: certain places already have some density to support redevelopment, but some don't
 - Could move beyond flood recovery
 - Need to figure out where the strategic areas are
 - Add that these areas being invested in should be supported by a land use planning document or comprehensive plan
 - Make crosswalk in baseline and introduction to public infrastructure policy act
 - Development assistance for other funding later
- 5.3 – Support development in downtown areas at appropriate densities
 - Some think 5.1 and 5.3 combine; other thought 5.3 is distinct
 - Is density and diversity missing?
 - This one is really focused on urban areas and doing incentives to encourage density
 - 2 critical steps to move forward:
 - Move “appropriate density” from 5.3 into 5.1 – where does it need to happen

- 5.3 is what are the mechanisms/tools needed to make 5.1 happen
 - Model projects (mostly Tompkins County) – Eco April 2012 Kick-off Workshop Meetings
illage at Ithaca/TREE, Aurora pocket neighborhood, Downtown development projects in Ithaca, Bing U dorms/student housing in Bing City center, and proposed bikeway connection to campus, Windsor Whip
- **5.5 – Support redevelopment of brownfield sites and vacant properties (REDC)**
 - This is the planning aspect
 - Add into examples: EJ one in JC , First ward neighborhood BOA, north Chenango Corridor BOA
 - Called them strategic sites or areas of disinvestment instead of brownfields to revitalize broader area than just at that site – not just vacant and brownfields
- **Wrap 5.7, 5.8, 5.9 together and use circuit rider terminology and promote to Action Strategy**

OTHER IMPORTANT ITEMS

- Perhaps strategic sites should be all encompassing of floodplains and brownfields
- Discuss the phenomenon of sprawl with no population growth. This is the upstate condition, where there is sprawl from largely single family homes along road frontage, rather than subdivisions.
- Address here, or elsewhere, how to direct any development associated with Shale Gas developments in appropriate land use patterns.
- Urban Agriculture probably belongs elsewhere.

Goal #6: Support development of workforce and senior housing that is energy and location efficient and offers choices to reflect changing demographics

- **6.1 – Assess affordable housing needs and identify target areas for rehabilitation programs**
 - Tweak language so that it is not required at the 8-county level, but at a regional (MPO or RPC) or County level
 - Address new construction, not just rehabilitation programs
- **6.2 – Provide financial and technical support to rehabilitate housing and mobile homes for low-to-moderate-income households**
- **6.4 – Remove barriers to converting upper floors to residential uses in city and village downtowns**
 - The bigger issue is the mixed-housing, related to 6.4, so maybe say mixed-income for moderate housing. This should not just address affordable housing, but community diversity.
 - It's hard to get a specific site to do mixed and affordable housing, but if you site the whole affordable housing property among high-income housing, it still applies because there is mixing among several sites.
 - Check the code to make sure it is correct
 - Highlight an example in downtown Binghamton where there existing buildings have exemptions from parking requirements
 - Ithaca also has downtown zoning that has a density policy that doesn't require parking
- **6.5 – Provide technical assistance and gap financing for construction and rehabilitation of energy-efficient affordable housing**
 - Make sure it is clear this address both single and multi-family housing and mobile and modular homes

OTHER IMPORTANT ITEMS

- Add mobile and modular homes
- Reorder: 6.1, 6.2, 6.5, etc

- Describe the workforce housing issue, which is key in Ithaca to reducing commuter from Tioga, Chemung and Schuyler counties to Cornell, by creating affordable housing options. Ed Marx speaks of the Affordable Living that factors in a higher housing cost for urban living along with reduced transportation cost.
- Look into the Tom Hill model, where the state said it's a special area worth pouring extra resources into and supporting circuit riders.
- In the implementation plan: The heading for 5.7-5.9 is more about developing resources for small municipalities to make smart or cost-effectiveness investments for land use decisions
- In Implementation Plan, Goal 6's should be rewritten to "Support development of housing..." to support a range of housing choices
- I don't think universal design is mentioned (and in a way that supports density) and should be added

Working Lands, Open Space, Local Food, Agriculture Stakeholder Group – Ithaca

October 11, 2012

Location:

Tompkins County Public Library
 Borg Warner West
 101 East Green Street
 Ithaca, NY 14850

Time: 8:00 am – 9:30 am

Attendees:

First Name	Last Name	Organization
David	Diaz	Finger Lakes Land Trust
Scott	Doyle	Tompkins County
Martin	Gold	Challenge/Finger Lakes Fresh
Steve	Holzbaur	Finger Lakes Fresh
Dan	Kwashowski	Town of Dryden
Jane	Nicholson	Town of Dryden
Monika	Roth	Cooperative Extension
Leslie	Schill	Tompkins County Planning Department
Craig	Schutt	Tompkins County SWCD
Janet	Thigpen	STC RPDB
Bradd	Vickers (on phone)	Chenango Co Farm Bureau

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Eva Hsu

STAKEHOLDER GROUP NOTES

Goal #10: Promote best management of fields, forests, and farmland to keep working lands in production, protect natural resources, and increase carbon sequestration

- 10.2 – Develop regional program to promote sustainable forestry and wood products
 - In description: Add necessity of a management plan in place
 - Need to deal with invasive species, such as emerald ash
 - Onondaga Co inventoried ash on county land and roadways to get an idea when the ash spreads
 - Need some management planning
 - Need to talk about deer and pest management issue that impacts forest land and farmland



- Potential to work with local officials on a sustainable plan for forested land to give landowners who have forested, unused land a tax break/incentive
 - Needs to go to state policies because ag exemptions are at state
- 10.3 – Support lumber mills to obtain sustainable forestry certification
 - Work at level of building trades and understanding demand for lumber
 - Deprioritize to long-term
 - Talk to local furniture companies (e.g., Stickley) to see if certified would could be considered
- 10.6 – Develop a regional biomass consortium
 - There's a lot of vacant land without strong agriculture production
 - This action could be a way to get critical mass
 - We have the technology local to do this
 - Is a priority
 - In description, include natural resources/conservation and agricultural experts as potential members of the consortium
 - Could incentivize management plans
 - Harvesting biomass opens up opportunities for landowners to access tax incentives
 - Emphasize biodiesel – oil seed crops can be used in crop rotation and should be included
- 10.10 – Support new farm startups and farm transfers to next generation
 - Over last 10 years, tons of new farms and micro-farms. Concerns were raised that if no assistance is provided and farms fail, it will affect new farmers
 - In description, include non-family in "next generation" farm definitions
 - Consider fact that many farm lifespans are shorter businesses (10 years or less)
- 10.14 – Maximize farm-based renewable energy production opportunities
 - In description, mention biodiesel production
- Combine 10.7 and 10.8
 - Is a priority
 - Climate adaptation is missing and needs to be considered in in sustainable forest management

OTHER IMPORTANT ITEMS

- Mention alternative farm products, such as agro forestry (wooded pastures), mushrooms, nuts, etc.
- While Ag BMP's don't seem popular, they are key and I think need to be a priority for water quality, given increased dairy pressure and food production, possible shale gas impacts, and regulatory changes from TMDL, Chesapeake watershed regs, etc.
- Perhaps a natural gas severance fund can be used for Ag BMP and conservation

Goal #11: Preserve and connect natural resources, open spaces, and access to waterways, to protect regional environment, ecology, habitat and scenic areas, and support outdoor recreation

- 11.1 – Develop a Southern Tier priority open space conservation and agricultural protection plan
 - Already have plans that are largely unfunded
 - Need to have a big, regional plan, but needs to include local municipality input and understanding what they are doing
 - Change to: Basically, support local planning and coordinate existing local planning efforts and fund and act on priorities highlighted in plans
 - Wrap 11.2 and 11.3 into this one – supporting priorities in these plans because we generally know what the priorities are

- Increase funding for conservation easement action and include natural resource purchasing conservation easements
- 11.4 – Develop and implement a model conservation zoning ordinance
 - Support idea on open space, but don't like rules and regulations on private property
 - Remove zoning, take out of action strategy, change to conservation planning, but would like to take it out altogether
 - Is a priority
 - Change from zoning ordinance to conversation planning sample/example/template
- 11.6 – Create a regional trails network plan and develop and connect priority segments
 - Is a priority
 - Lots of public support but difficult to implement

OTHER IMPORTANT ITEMS

- Emphasize biodiesel in Section 2.7 – oil seed crops can be used in crop rotation and should be included
- Add in implementation plan 12.10: Climate adaptation in sustainable forest management
- It may not make sense to combine conservation and agriculture; it might depend on the county and the landowner
- Transfer development rights should be regional: “more dense development is desired” may be hard, but is doing
- Need preface that there are some areas that require state action or coordination with state
- In implementation plan, mention urban forest and tree canopy and park maintenance
- Fully fund the Environmental Protection fund (State EPF) and State PDR programs to implement underfunded programs
- Instead of a plan, create a program that plans and implements

University, Education, Innovation, and Energy Technology Stakeholder Group – Ithaca

October 11, 2012

Location:

Tompkins County Public Library
Borg Warner West
101 East Green Street
Ithaca, NY 14850

Time: 10:00 am – 12:00 pm

Attendees:

First Name	Last Name	Organization
Sandy (phone)		Binghamton University
Claudia	Haile	Corning Community College (CCC)
	Nguyen	Ithaca College
Paul	Mutolo	Cornell University & SHC Inc.
Karryn	Olson Ramanujan	Ithaca College
Leslie	Schill	Tompkins County
James	Turner	Tompkins Cortland Community College

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Steven Keith

STAKEHOLDER GROUP NOTES

Goal #1: Reduce building energy use

- 1.10 was more focused on behaviors on the building, add in:
 - Big learning curve for the LEED buildings
 - Behavior change is often the biggest challenge
 - Can add in 'green team'

Goal #3: Create a regional multimodal transportation system that offers real transportation choice, reduced costs and impacts, and improved health

- 3.19 – Expand 'Way2Go' and other carsharing programs
 - Ridesharing and carpooling (new TDM goal) would be a high priority
 - ZimRide is also a good/popular solution
 - Binghamton promotes 'GreenRide', but have to participants have to overcome the fear of driving with someone you don't know
 - Could collect a student fee up-front to incentivize such transit options

Goal #4: Reduce fossil fuel consumption and GHG emissions from transportation by reducing vehicle miles traveled (VMT), increasing efficiency, improving system operations, and transitioning to less carbon intensive fuels and power sources

OTHER IMPORTANT ITEMS

- Surprised that fuel cells did not make an action
- More direct fossil fuel use possible with locally generated hydrogen

- The only footprint for hydrogen is how it's produced
- Ithaca might be a showcase city for hydrogen vehicles
- Fuel cell is an electric generator (like an electric car), but you need a hydrogen station (can dictate how hydrogen is created and how green it is)
- Bring hydrogen fuel bus into the city
- Need to establish a hydrogen fuel site for this
- Look at a way to generate hydrogen on-site (hydrolysis, driven by renewable sources and in the future looking at waste to energy implementation)
- Not experimental
- Consider how to minimize location transfers of hydrogen fuel
- Fuel cell production is becoming more commercial

Goal #7: Create and retain more good paying jobs by building on the Southern Tier's regional strengths, including advanced energy and transportation technologies, globally-competitive industry, and workforce development and technology transfer partnerships with educational institutions

- 7.6 – Strengthen university-industry connections to improve and promote workforce development
 - Is a priority
 - Runs the gambit from learning weatherization techniques up to advanced degrees
 - TC3.biz works with students in electric techniques but they usually get local jobs right after the course is over
 - Seems to be a valuable course/workshop
 - "Center of Excellence" trying to work with universities to promote technology transfer
 - Can this task add much more to this effort?
 - Need the technology in Corning, working on a marketing piece
 - Binghamton works very closely with students and have interns in the sustainability department. Do not offer 'technical training' but offer the opportunity to learn the background and theories of their interest
 - To promote awareness, want to see the real time usage of energy in campus buildings
- 7.15 – Identify, train, and certify contractors to meet increased energy efficiency demand
 - Is a priority
 - Includes the auditors and others
 - Do it right without losing all the benefits

Goal #8: Support tourism industry development with coordinated marketing, preservation, and enhancement of historic, cultural, educational, and natural resources and events

- 8.1 – Expand and promote culinary and agri-tourism opportunities
 - The TC3 (25 acres) farm would be a working farm, with permanent workers
 - Encourage the produce to go into the culinary lab
 - Educate culinary workers on sustainable food practices

OTHER IMPORTANT ITEMS

- When looking at the advanced technology opportunities, schools can bring forward their specialties to work together and create a package (relating to governance goals)
- Continue to develop a regional entity
- The region knows what stuff is marketable here
- Examples of transportation efforts:
 - At Ithaca community college, students are encouraged to use transit by offering them cheaper fares
 - Looking at creating a 'sustainability fee' for students that goes to specific community projects and reducing carbon footprints
 - Promote carpooling and car share
 - Corning bus system has new routes being implemented
- Ithaca College sustainable efforts include many student-led initiatives (these tend to work faster and get implemented quicker)
 - Example of biking initiatives: free access to gyms to shower, safe/coverage storage for bikes
 - Raise the rate of parking to discourage parking
- Is there any link between new construction and hands-on learning opportunities on campus?
 - Solar panels being added onto the electricity building, students can see the process from the classroom
 - Looking at the economic side (financing, how to sell such a technology)
 - Project management class could potential do site tours
 - Solar rooftop in Binghamton, professors already want to explore the project collect data with their classrooms to see how it can be further applied in the Southern Tier
 - Applied for LEED Platinum certification
- What is important that needs to be clear in the plan
 - Renewable energy is not be utilized
 - NYSERDA is looking to tie wind generation
 - Getting over the hump of connecting existing wind to the grid to use off peak
 - Move some operation to off-peak hours/demand size production
 - Explicit language needed about devising curriculum for sustainable course (required) for new students, to educate
 - Need coordinated regional planning documents
 - If no common goals are set (what is the return on the investment? How to quantified baselines) people won't see the results until they happen, and won't support.
 - Natural step is a non-profit
 - There is not enough about equity and social justice

PUBLIC MEETING NOTES

Public Meeting – Corning

October 9, 2012

Location:

Three Rivers Development
Corp. Conference Room
114 Pine Street, Suite 201
Corning, NY 14830

Time: 6:30 pm – 8:30 pm

Attendees:

First Name	Last Name	Organization
Jack	Benjamin	Three Rivers Development Corporation
Bill	Boland	
Betsy	Bonsignore	Corning Business
Eugene	Conkline	
Victoria	Ehlen	Southern Tier Central Regional Planning Board
Dee	Gamble	NYSERDA Energy Smart Communities Coordinator
Gary	Judson	Schuyler
Josie	Mochier	
Robert	Popejoy	Steuben EMC
Jane	Stebela	
Rachel	Treichler	Steuben EMC
Susan	Wayne	
Marcia	Weber	Southern Tier Central Regional Planning Board
Chris	Witte	
Ruth	Young	PHE

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Eva Hsu, Steven Keith

PUBLIC MEETING NOTES

- There was a discussion about natural gas drilling and its place in the Implementation Plan
 - Some of the crowd felt that natural gas should be addressed in the IP, and were not satisfied with an appendix at the end of the document. They felt it should be address at the beginning or incorporated throughout, because of the magnitude of the issue.
 - Natural gas effects the Southern Tier, even if drilling does not take place there
 - Drillers and operators from Pennsylvania stay in hotels, eat, and drive in the region
 - 8 coal operated factories have been shut down because of fracking
 - A few others in the crowd wished for the IP to remain silent about natural gas and push other cleaner and renewable energy practices
- Maybe there needs to be some focus on relation for people in living in flood prone areas. Providing some sort of incentive program may be a solution? In order to manage this problem we need to take effective action.

- The plan needs to check on the numbers of rural populations depending on well water vs. water systems
- A participant noted that he felt the transportation section actions seemed insignificant compared to the impact transportation has on the overall environment
- Participant asked about construction projects currently going on in the area and whether or not they were being built with “green” practices in mind. (dorm: http://www.corning-cc.edu/alumni/devfoundation/student_housing.php, hospital: <http://www.guthrie.org/press-releases/guthrie%E2%80%99s-new-corning-hospital-recommended-approval>)
- Concerns with Pennsylvania drill cuttings coming to the Southern Tier regional landfills. Is this happening?
- Question about the feasibility of incineration to deal with waste? Cited Europe (Sweden in particular) as an example
- Even those in the economic development section have come to realize the importance of good design and how it relates to better economic opportunities



DOT VOTE RESULTS

The table below provides the results of the dot voting by this public meeting group, listed in descending order based on the dot vote tally. Actions that received zero dot votes are not included.

Goal/Action Number	Goal/Action Text	Dot Vote Tallies
Action 7.15	Identify, train, and certify contractors to meet increased energy efficiency demand	8
Action 1.6	Explore and create financing options for renewable energy and energy efficiency systems (REDC)	7
Action 7.6	Strengthen university-industry connections to improve and promote workforce development	6
Action 2.4	Facilitate deployment of solar photovoltaic and solar thermal systems	5
Goal 3	Create a regional multimodal transportation system that offers real transportation choice, reduced costs and impacts, and improved health	5
Action 3.19	Expand ‘Way2Go’ and other carsharing programs	4
Action 5.1	Encourage development and strategic investment in cities, villages, and hamlets	4
Action 6.2	Provide financial and technical support to rehabilitate housing and mobile homes for low-to-moderate-income households	4
Action 7.4	Grow local businesses through targeted investment	4
Action 14.1	Incorporate energy efficiency, renewables, and advanced controls into policies for new equipment, new plants, and plant upgrades	4
Action 2.12	Study feasibility of combined heat and power (CHP) in current development projects	3
Action 7.8	Implement the Energy Workforce Development Initiative (REDC)	3
Action 10.3	Support lumber mills to obtain sustainable forestry certification	3
Action 2.6	Explore transitioning existing power and thermal generation facilities to more sustainable fuel	3
Action 16.2	Introduce innovative reuse strategies to reduce waste stream	3

Goal/Action Number	Goal/Action Text	Dot Vote Tallies
Action 16.6	Expand and improve access to recycling	3
Action 18.1	Encourage participation and certification in the Climate Smart Communities program	3
Action 9.1	Adopt local food purchasing policies	3
Action 7.3	Promote the Regional Broadband Communications Project (REDC)	2
Action 14.2	Perform energy audits and install retrofits at major water and wastewater facilities	2
Action 1.7	Assess energy performance; implement and monitor energy efficiency upgrades in government facilities	2
Action 5.2	Implement the Southern Tier Community Revitalization Project (REDC)	2
Action 15.3	Expand education, outreach and pilot projects for green infrastructure and Low-Impact Development practices	2
Action 13.5	Prioritize high risk floodplains for conservation through acquisition and easement	2
Action 13.9	Develop incentives to encourage property owners to protect streams and buffers	2
Action 11.1	Develop a Southern Tier priority open space conservation and agricultural protection plan	2
Action 2.7	Facilitate biomass demonstration projects for production of pellets for heating across region	1
Action 5.5	Support redevelopment of brownfield sites and vacant properties (REDC)	1
Action 8.4	Coordinate and market educational and green tourism	1
Action 9.4	Support development of local processing facilities for value-added products	1
Action 10.6	Develop a regional biomass consortium	1
Action 12.8	Incorporate anticipated climate projections, impacts and proposed mitigation strategies into Hazard Mitigation Plan updates	1
Action 16.1	Implement pay as you throw trash collection	1
Action 4.10	Explore increasing use of rail and water for goods transport	1
Action 9.2	Develop regional programs for branding and marketing local food products	1
Action 9.3	Develop and expand markets for local food and establish and expand CSA networks throughout the region	1
Action 6.5	Provide technical assistance and gap financing for construction and rehabilitation of energy-efficient affordable housing	1
Action 2.1	Study and facilitate mid-scale wind projects	1
Action 2.2	Facilitate deployment of demonstration anaerobic digester systems	1
Action 6.4	Remove barriers to converting upper floors to residential uses in city and village downtowns	1
Action 14.4	Develop new distribution system repair, replacement, and expansion policies that prioritize repair/replacement rather than expansion of service areas	1
Action 10.10	Support new farm startups and farm transfers to next generation	1
Action 10.14	Maximize farm-based renewable energy production opportunities	1
Action 16.7	Expand and improve access to composting services	1
Action 8.1	Expand and promote culinary and agri-tourism opportunities	1
Action 1.4	Develop a regional energy road map	1

Public Meeting: Chenango

October 10, 2012

Location:

Town of Chenango Town Hall
1529 New York 12
Binghamton, NY 13901

Time: 6:30 pm – 8:30 pm

Attendees:

First Name	Last Name	Organization
Chris	Burger	Binghamton Sustainability
Rainy	Collins-Vickers	Chenango County Farm Bureau
Jen	Gregory	Southern Tier East Regional Planning Board
Erik	Miller	Southern Tier East Regional Planning Board
Charlie	Niebling	New England Wood Pellet
Greg	Nowark	
John	Patterson	BLDG Green for Binghamton
Dick	Rehberg	Bing Regional Sustainability Coalition
Louis	Roma	NYSERDA Outreach Consultant
Ted	Shatara	Americans for Restoring the Constitution (AFTRC)
Mary	Shatara	AFTRC
Jane	Stebela	Citizen
Jan	Spoor	AFRTC
Janet	Thomas	Oraft (Owego Residents)
Tyrone	Webb	Citizen Action
Gerri	Wiley	O'RAFT
Bradd	Vickers	Chenango County Farm Bureau

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Eva Hsu, Steven Keith

PUBLIC MEETING NOTES

Goal #2: Develop, produce, and deploy local renewable energy and advanced technologies across the Southern Tier

- 2.4 – Facilitate deployment of solar photovoltaic and solar thermal systems
 - Madison County has an example of community buy-in on solar photovoltaic and solar thermal systems
- 2.6 – Explore transitioning existing power and thermal generation facilities to more sustainable fuel



- Do not focus on Utility Scale; rather, focus on commercial, industrial, or institutional scale, specifically those that don't have access to Natural Gas
- Not really realistic due to lack of carbon policy
- 2.7 – Facilitate biomass demonstration projects for production of pellets for heating across region
 - Focus on Market Development
 - 70-80% of capacity and most of production is being shipped into New England
 - The demand is NOT in NY
 - 80-95% feedstock is coming from Southern Tier counties
 - Sawmill chips, sawdust, shavings, grindings, etc.
 - Need is to create the market pull, not creating more capacity
- 2.12 – Study feasibility of combined heat and power (CHP) in current development projects
 - Biodiesel needs to be included for home heating and transportation
 - Mandated in NYC, Canada, Europe,
 - Need help for farmers to produce oil
 - In Vermont, PA, and Montana, growing it in the highway medians
 - State 25 by 25

Goal #3: Create a regional multimodal transportation system that offers real transportation choice, reduced costs and impacts, and improved health

- 3.2 – Improve connectivity between downtown trails, bicycle, pedestrian, and transit networks
 - Commuting by bicycle would be more popular here if it were safe (not riding in the road itself). Need a safe barrier
 - Need multiuse trails and bike boulevards
 - There needs to be a big entity to connect the 8 counties. High speed passenger rail service is an opportunity here
 - Need train service
 - Applies to public, private, universities, etc.
 - Provides connectivity and access to the entire southern tier and the northern PA communities.

Goal #4: Reduce fossil fuel consumption and GHG emissions from transportation by reducing vehicle miles traveled (VMT), increasing efficiency, improving system operations, and transitioning to less carbon intensive fuels and power sources

- 4.10 – Explore increasing use of rail and water for goods transport
 - Dovetails with economic development. Rail service is desired by businesses, and vice-versa

Goal #6: Support development of workforce and senior housing that is energy and location efficient and offers choices to reflect changing demographics

Largest stumbling block is funding availability. Underwriting is not favorable for these types of properties. GAP financing is usually needed to achieve a purchase

Goal #7: Create and retain more good paying jobs by building on the Southern Tier's regional strengths, including advanced energy and transportation technologies, globally-competitive industry, and workforce development and technology transfer partnerships with educational institutions

- 7.3 – Promote the Regional Broadband Communications Project (REDC)
 - Rural areas need help in this area
 - Need to provide broadband in rural communities—issue is low population density
 - Need expansion of capabilities and reduction of cost
- 7.4 – Grow local businesses through targeted investment
 - Develop businesses that are owned by workers rooted in the communities so that they don't leave(IBM example of a homegrown business that left)
 - Make sure agriculture is included in the “for example” section
 - Low interest loans are available leads to façade development, jobs creation, etc. Money is there in the City of Binghamton
 - Just got a grant from USDA and one other foundation to loan out money for any company that wants to open a business in the energy field or for equipment/facilities. Not for training
 - Must be in the City of Binghamton
- 7.8 – Implement the Energy Workforce Development Initiative (REDC)
 - Training in Binghamton for young folks that can go to work for the insulation companies. Also training in work ethics. The issue is that they cannot find people to do the training

Goal #8: Support tourism industry development with coordinated marketing, preservation, and enhancement of historic, cultural, educational, and natural resources and events

- 8.4 – Coordinate and market educational and green tourism
 - City of Binghamton and the University are rich with culture and the arts - Opera, Symphony, various events at the Anderson Center, Artist Row, Whip Works in Windsor (converted factory that's an art gallery) aka Windsor Whip, Window on the Arts, etc
 - Water trails—please include fishing contests, such as Cayuga Lake Salmon Fishing Contest. The general Susquehanna River could be used for tourism too
 - Birding is also a major tourism draw

Goal #9: Support farming and related businesses to reinvigorate the rural economy, enhance residents' incomes and standards of living, and promote local food and agriculture

- 9.4 – Support development of local processing facilities for value-added products
 - Ancillary products is being imported because they cannot find enough in NY

Goal #10: Promote best management of fields, forests, and farmland to keep working lands in production, protect natural resources, and increase carbon sequestration

- 10.14 – Maximize farm-based renewable energy production opportunities
 - Make sure to mention biodiesel here

Goal #11: Preserve and connect natural resources, open spaces, and access to waterways, to protect regional environment, ecology, habitat and scenic areas, and support outdoor recreation

- 11.4 – **Develop and implement a model conservation zoning ordinance**
 - This may not really need to be in the 5 year action.
 - Zoning is a hot topic and of a concern
 - Maybe suggest conservation plan not conservation zoning ordinance. Develop and Implement a model conservation plan

Goal #12: Identify and plan for the economic, environmental and social impacts of climate change

- 12.10 – **Assess the viability of current and potential future crops**
 - Redundancy and resilience of communication systems and utility systems should also be included

Goal #15: Improve and protect water quality and quantity

- 15.5 – **Support regular updates to County-based water quality strategy plans**
 - Separation of sewage from runoff water may need to be considered
 - Water conservation program seems to be overlooked, and should be considered, perhaps targeting businesses

Goal #16: Promote innovative waste reduction and management strategies

- 16.6 – **Expand and improve access to recycling**
 - Working with Cornell on recycling Ag Plastics (plastic wrappings on white marshmallows), bail wrap, silage bags, greenhouse plastic, plastic containers that vegetable oil comes from restaurants, yacht wraps, etc
 - Chenango and Madison County program to send plastic to Buffalo and convert it back to oil for use as a fuel oil
 - Most companies that would consider it don't want dirty plastic, but the companies that convert to oil are happy to take it dirty
- 16.7 – **Expand and improve access to composting services**
 - This wouldn't work on the community level and is better on an individual basis. For example, Toronto gave people compost bins and training sessions
 - Have the universities, hospitals, etc, do their own composting
 - Cayuga Compost in Tompkins County
 - Tompkins County wastewater treatment plant is collecting composting
 - Composting collection is not needed in the rural areas- if you were to do it, it should be in the urban corridors

DOT VOTE RESULTS

The table below provides the results of the dot voting by this public meeting group, listed in descending order based on the dot vote tally. Actions that received zero dot votes are not included.

Goal/Action Number	Goal/Action Text	Dot Vote Tallies
Action 10.10	Support new farm startups and farm transfers to next generation	7
Action 1.6	Explore and create financing options for renewable energy and energy efficiency systems (REDC)	6

Goal/Action Number	Goal/Action Text	Dot Vote Tallies
Action 2.7	Facilitate biomass demonstration projects for production of pellets for heating across region	6
Action 10.6	Develop a regional biomass consortium	6
Action 1.1	Establish the Southern Tier Renewable Energy and Efficiency Initiative (REDC)	6
Action 7.4	Grow local businesses through targeted investment	5
Action 10.14	Maximize farm-based renewable energy production opportunities	5
Action 2.6	Explore transitioning existing power and thermal generation facilities to more sustainable fuel	4
Action 16.6	Expand and improve access to recycling	4
Action 7.3	Promote the Regional Broadband Communications Project (REDC)	4
Action 14.2	Perform energy audits and install retrofits at major water and wastewater facilities	4
Action 16.1	Implement pay as you throw trash collection	4
Action 4.10	Explore increasing use of rail and water for goods transport	4
Action 8.1	Expand and promote culinary and agri-tourism opportunities	4
Action 7.15	Identify, train, and certify contractors to meet increased energy efficiency demand	3
Action 2.12	Study feasibility of combined heat and power (CHP) in current development projects	3
Action 7.8	Implement the Energy Workforce Development Initiative (REDC)	3
Action 10.3	Support lumber mills to obtain sustainable forestry certification	3
Action 1.7	Assess energy performance; implement and monitor energy efficiency upgrades in government facilities	3
Action 8.4	Coordinate and market educational and green tourism	3
Action 6.5	Provide technical assistance and gap financing for construction and rehabilitation of energy-efficient affordable housing	3
Action 16.7	Expand and improve access to composting services	3
Action 5.1	Encourage development and strategic investment in cities, villages, and hamlets	2
Action 6.2	Provide financial and technical support to rehabilitate housing and mobile homes for low-to-moderate-income households	2
Action 14.1	Incorporate energy efficiency, renewables, and advanced controls into policies for new equipment, new plants, and plant upgrades	2
Action 11.1	Develop a Southern Tier priority open space conservation and agricultural protection plan	2
Action 9.2	Develop regional programs for branding and marketing local food products	2
Action 2.1	Study and facilitate mid-scale wind projects	2
Action 2.2	Facilitate deployment of demonstration anaerobic digester systems	2
Action 1.4	Develop a regional energy road map	2
Action 3.8	Study and pilot priority opportunities for intercity bus service, expanded cross-regional transit, and rural on-demand transit	2
Action 4.1	Encourage adoption of green fleet policies for public and private fleets	2
Action 5.3	Support development in downtown areas at appropriate densities	2
Action 13.7	Establish and promote minimum buffer widths for streams and wetlands	2
Action 6.1	Assess affordable housing needs and identify target areas for rehabilitation programs	2
Action 7.6	Strengthen university-industry connections to improve and promote workforce development	1
Action 2.4	Facilitate deployment of solar photovoltaic and solar thermal systems	1
Goal 3	Create a regional multimodal transportation system that offers real transportation choice, reduced costs and impacts, and improved health	1
Action 16.2	Introduce innovative reuse strategies to reduce waste stream	1

Goal/Action Number	Goal/Action Text	Dot Vote Tallies
Action 15.3	Expand education, outreach and pilot projects for green infrastructure and Low-Impact Development practices	1
Action 13.5	Prioritize high risk floodplains for conservation through acquisition and easement	1
Action 5.5	Support redevelopment of brownfield sites and vacant properties (REDC)	1
Action 9.4	Support development of local processing facilities for value-added products	1
Action 12.8	Incorporate anticipated climate projections, impacts and proposed mitigation strategies into Hazard Mitigation Plan updates	1
Action 9.3	Develop and expand markets for local food and establish and expand CSA networks throughout the region	1
Action 14.4	Develop new distribution system repair, replacement, and expansion policies that prioritize repair/replacement rather than expansion of service areas	1
Action 3.2	Improve connectivity between downtown trails, bicycle, pedestrian, and transit networks	1
Action 3.20	Coordinate and expand transportation demand management (TDM) programs at institutions and major employers	1
Action 2.3	Facilitate deployment of geothermal heat pump (GHP) systems	1
Action 13. 1	Update local floodplain maps to improve accuracy of flood hazard information	1
Action 17.2	Develop regional coordinated planning and policy guidance documents	1

Public Meeting: Ithaca

October 11, 2012

Location:

Tompkins County Public Library
Borg Warner West
101 East Green Street
Ithaca, NY 14850

Time: 6:30 pm – 8:30 pm

Attendees:

First Name	Last Name	Organization
Sharon	Anderson	CCE – Tompkins
Eric	Banford	Tompkins Weekly
Dennise	Belmaker	Resident/environmental consultant
John	Burger	DRAC - Schleshock
Patricia	Coulthart	NYSDOT R3 Syracuse
Nicole	Dauria	Ithaca resident
Diane	Dunham	
Brian	Eden	EMC
Cathy	Emilian	Assembly Woman Lifton's Office
Jeanne	Fudala	People for Health, Environment
Jeane	Fudala	
Dee	Gamble	CCE Tompkins
Bill	Goodman	Tof Ithaca
John	Graves	South Hill Civic Association
Bill	Halton	Tomp County EMC
Becca	Harber	PAUSE (People Advocating Use of Sustainable Energy)
Jaimi	Hendrix	
Sonya	Hicks	Community Church
Rod	Howe	Town of Ithaca/CCE/Card1
James	Jones-Rounds	Ithaca Biodiesel Cooperative Inc.
Elizabeth	Keokosky	Danby Land Bank Coop
Zack	McKenna	
Candace	Mingins	
Laurie	Murray	Resident/Ulysses District
Jan	Myers	Solarize New York
Gay	Nicholson	Sustainable Tompkins
Carolyn	Peterson	TO Co EMC
Jeff	Piestrak	Mann Library, Cornell University
Liz	Pruch	

Marie	Rae	Dryden Resource Awareness Coalition
Ajay	Raghava	Cornell
Leslie	Schill	Tompkins County
Vivian	Smith	Resident
Maura	Stephens	CPNY
John	Suter	Center for Transformative Action
Edward	Weissman	
Francis	Weissman	Ithaca

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Eva Hsu, and Steven Keith

PUBLIC MEETING NOTES

Goal #1: Reduce building energy use

- 1.7 – Assess energy performance; implement and monitor energy efficiency upgrades in government facilities
 - Conduct audits
 - Certain people who are certified profit from it and have a monopoly. How do you avoid that?
 - There is a need to train people for this type of work – just need more contractors and more auditors
 - When funding is issued to municipalities, are non-profits included?
 - SolarizeMadison is a huge success
 - Solarize model doesn't have to be a government model
 - Implemented a solar community program
 - Triple their installation rate in Madison Co through a community model
 - To do a community model you need seed money, but there isn't any currently
 - Good example of solar in Ithaca itself (EcoVillage)



Goal #2: Develop, produce, and deploy local renewable energy and advanced technologies across the Southern Tier

- 2.1 – Study and facilitate mid-scale wind projects
 - Any policy changes to get these working?
 - Buy-back onto the grid
 - Lots of policy in the plan (State action)
- 2.7 – Facilitate biomass demonstration projects for production of pellets for heating across region
 - The word “demonstration” is unsettling
- 2.12 – Study feasibility of combined heat and power (CHP) in current development projects
 - Consider the Geothermal (lake system)

Goal #3: Create a regional multimodal transportation system that offers real transportation choice, reduced costs and impacts, and improved health

- Does expensive transportation infrastructure really have a positive cost-effectiveness?
- Sometimes, these strategies become “revenue neutral”

Goal #7: Create and retain more good paying jobs by building on the Southern Tier’s regional strengths, including advanced energy and transportation technologies, globally-competitive industry, and workforce development and technology transfer partnerships with educational institutions

- 7.3 – Promote the Regional Broadband Communications Project (REDC)
 - There are regulations in place that prevent business from growing
 - Is it clear that getting GHG’s reduced will help grow the economy?

Goal #9: Support farming and related businesses to reinvigorate the rural economy, enhance residents’ incomes and standards of living, and promote local food and agriculture

- The School board is looking to buy a certain percentage of the food
- If they know government is behind it, they will fund it (big retirement funds/investments)

Goal #12: Identify and plan for the economic, environmental and social impacts of climate change

- 12.10 – Assess the viability of current and potential future crops
 - Need to do something about current damages and dangers
 - This plan is not doing anything about real hazards right now

Goal #16: Promote innovative waste reduction and management strategies

- Don’t see an example of using natural waste as a fertilizer

Goal #18: Increase fiscal efficiency and effectiveness in local government through energy and waste reduction, coordinated investments, and integrated planning

- 18.1 – Encourage participation and certification in the Climate Smart Communities program
 - Includes a form-based code or design guidelines, developers do not want uncertainty

Other information

- What are the extremely super-low cost, simple things done on a large scale that can make a big difference instantly?

DOT VOTE RESULTS

The table below provides the results of the dot voting by this public meeting group, listed in descending order based on the dot vote tally. Actions that received zero dot votes are not included.

Goal/Action Strategy Number	Goal/Action Strategy Text	Dot Vote Tallies
Action 6.4	Remove barriers to converting upper floors to residential uses in city and village downtowns	9
Action 1.6	Explore and create financing options for renewable energy and energy efficiency systems (REDC)	6
Action 7.4	Grow local businesses through targeted investment	5
Action 9.1	Adopt local food purchasing policies	5
Goal 9	Support farming and related businesses to reinvigorate the rural economy, enhance residents’ incomes and standards of living, and promote local food and agriculture	5

Goal/Action Strategy Number	Goal/Action Strategy Text	Dot Vote Tallies
Action 2.7	Facilitate biomass demonstration projects for production of pellets for heating across region	3
Action 10.6	Develop a regional biomass consortium	3
Action 7.3	Promote the Regional Broadband Communications Project (REDC)	3
Action 2.12	Study feasibility of combined heat and power (CHP) in current development projects	3
Action 9.4	Support development of local processing facilities for value-added products	3
Action 2.6	Explore transitioning existing power and thermal generation facilities to more sustainable fuel	2
Action 7.15	Identify, train, and certify contractors to meet increased energy efficiency demand	2
Action 1.7	Assess energy performance; implement and monitor energy efficiency upgrades in government facilities	2
Action 6.5	Provide technical assistance and gap financing for construction and rehabilitation of energy-efficient affordable housing	2
Action 1.4	Develop a regional energy road map	2
Action 5.3	Support development in downtown areas at appropriate densities	2
Action 7.6	Strengthen university-industry connections to improve and promote workforce development	2
Action 2.4	Facilitate deployment of solar photovoltaic and solar thermal systems	2
Action 9.3	Develop and expand markets for local food and establish and expand CSA networks throughout the region	2
Goal 16	Promote innovative waste reduction and management strategies	2
Action 1.1	Establish the Southern Tier Renewable Energy and Efficiency Initiative (REDC)	1
Action 10.14	Maximize farm-based renewable energy production opportunities	1
Action 14.2	Perform energy audits and install retrofits at major water and wastewater facilities	1
Action 16.1	Implement pay as you throw trash collection	1
Action 8.1	Expand and promote culinary and agri-tourism opportunities	1
Action 7.8	Implement the Energy Workforce Development Initiative (REDC)	1
Action 8.4	Coordinate and market educational and green tourism	1
Action 6.2	Provide financial and technical support to rehabilitate housing and mobile homes for low-to-moderate-income households	1
Action 11.1	Develop a Southern Tier priority open space conservation and agricultural protection plan	1
Action 2.1	Study and facilitate mid-scale wind projects	1
Action 4.1	Encourage adoption of green fleet policies for public and private fleets	1
Action 13.7	Establish and promote minimum buffer widths for streams and wetlands	1
Action 16.2	Introduce innovative reuse strategies to reduce waste stream	1
Action 15.3	Expand education, outreach and pilot projects for green infrastructure and Low-Impact Development practices	1
Action 3.20	Coordinate and expand transportation demand management (TDM) programs at institutions and major employers	1

Goal/Action Strategy Number	Goal/Action Strategy Text	Dot Vote Tallies
Action 2.3	Facilitate deployment of geothermal heat pump (GHP) systems	1
Action 3.19	Expand 'Way2Go' and other carsharing programs	1
Action 13.9	Develop incentives to encourage property owners to protect streams and buffers	1
Action 10.2	Develop regional program to promote sustainable forestry and wood products	1
Action 11.4	Develop and implement a model conservation zoning ordinance	1
Goal 13	Minimize flood losses by preserving and enhancing floodplains and wetlands, and by limiting development in flood-prone areas	1
Goal 17	Increase collaboration among regional agencies, institutions, and local governments	1
Goal 18	Increase fiscal efficiency and effectiveness in local government through energy and waste reduction, coordinated investments, and integrated planning	1

CONSORTIUM MEETING NOTES

Consortium Meeting – Ithaca

October 11, 2012

Location:

Tompkins County Public Library
Borg Warner West
101 East Green Street
Ithaca, NY 14850

Time: 1:30 pm – 4:30 pm

Attendees:

First Name	Last Name	Company
Brian	Bentley	Greater Southern Tier BOCES
Marian	Brown	Ithaca College – Sustainability
Jim	Cummings	Shumaker Engineering
Sandy	DeJohn	Binghamton University
Andy	Fagan	CCE Chemung & Tioga
Nick	Goldsmith	Town of Ithaca, Town of Dryden
Elaine	Jardine	Tioga County EDP
Rocky	Kambo	CCE Schuyler
Beth	Lucas	Broome County Planning
Ed	Marx	Tompkins County
Erik (phone)	Miller	Southern Tier East Regional Planning Board
Tim (phone)	O’Hearn	Schuyler County
Randy (phone)	Olthof	Chemung County
Daniel	Roth	Cornell University
Beth (phone)	Ruckus	Delaware County Planning
Leslie	Schill	Tompkins County
Ken	Schlafler	Cornell Cooperative
Jim	Turner	Tompkins Cortland Community College
Marcia	Weber	Southern Tier Central Regional Planning Board

*Project Staff in attendance: Harrison Rue, Rick Manning, Toby Mandel, Eva Hsu, and Steven Keith

ACTION STRATEGIES LIST

Goal #1: Reduce building energy use

- 1.7 – Assess energy performance; implement and monitor energy efficiency upgrades in government facilities
 - The emphasis should not on be just government facilities, but all buildings

- Coming from a county with very small, conservation municipalities, it is faster to implement than to do policies
- You have a much higher ROI when you do energy efficiency, so it's a priority

Goal #2: Develop, produce, and deploy local renewable energy and advanced technologies across the Southern Tier

- Most government projects are not as feasible to put in CHP project, compared to larger buildings
- In favor of combining 2.11 and 2.12, and keeping it broader

Goal #3: Create a regional multimodal transportation system that offers real transportation choice, reduced costs and impacts, and improved health

- In response to the suggestions by stakeholders to combine several actions - if you combine too many, it's hard to measure
- Don't think 3.2 and 3.16 are related and should be combined; one addresses connectivity, the other addresses developing complete streets.
- Like 3.X2: BMTS is doing all of that

Goal #5: Strengthen and revitalize existing cities, villages, and hamlets

- I think 5.8 flows well in 5.1 and 5.3
- Need continuing assistance, but not sure it can happen.

Goal #6: Support development of workforce and senior housing that is energy and location efficient and offers choices to reflect changing demographics

- Like the change in the goal to address all types of housing
- 6.2: Statements need to be more concise to reflect the two programs
- Needs to include of universal design

Goal #7: Create and retain more good paying jobs by building on the Southern Tier's regional strengths, including advanced energy and transportation technologies, globally-competitive industry, and workforce development and technology transfer partnerships with educational institutions

- 7.3 – Promote the Regional Broadband Communications Project (REDC)
 - Contrary to comments by Stakeholder Group, we would say this one is priority to address GHG (work from home opportunities aren't available if this isn't there)
 - Tioga Co has most backbone coverage but lack a lot of last mile coverage – this action strategy needs to cover middle and last mile
- 7.4 – Grow local businesses through targeted investment
 - Is a priority

Goal #9: Support farming and related businesses to reinvigorate the rural economy, enhance residents' incomes and standards of living, and promote local food and agriculture

- 9.1 – Adopt local food purchasing policies
 - We want more in local production
- If we take off what suggestions, there's nothing in here for food security; 9.3 is the last piece of food security
- Season extension is one of the largest explosive areas

Goal #10: Promote best management of fields, forests, and farmland to keep working lands in production, protect natural resources, and increase carbon sequestration

- 10.10 – Support new farm startups and farm transfers to next generation
 - This should address sustainable farming practices
- Bump up support of BMPs
- 10.7 seemed like low-hanging fruit. Program is in place, just underfunded. Could use cooperative extension, don't necessarily need funding
- Regarding, 10.2 - Maybe just say need a system and remove 10.3
- Could wrap up 10.2, 10.3, 10.5 as a Priority Action and beefs it up

Goal #11: Preserve and connect natural resources, open spaces, and access to waterways, to protect regional environment, ecology, habitat and scenic areas, and support outdoor recreation

- 11.1 – Develop a Southern Tier priority open space conservation and agricultural protection plan
 - Is regional plan a feasible thing? Maybe not, that's why there's a shift
 - Take out looking at gap areas (there's probably a reason there's a gap)
- 11.4 – Develop and implement a model conservation zoning ordinance
 - If we don't think it will fly, then take it out. The idea was to have a regulatory framework for land use planning
 - Take out of action strategy?
 - Put it in the governance section?
- 11.6 – Create a regional trails network plan and develop and connect priority segments
 - Doesn't address GHG emissions, more about recreation or healthy communities

Goal #12: Identify and plan for the economic, environmental and social impacts of climate change

- 12.8 – Incorporate anticipated climate projections, impacts and proposed mitigation strategies into Hazard Mitigation Plan updates
 - Who stewards hazard mitigation plan? Counties, sometimes planning. Becoming more of a priority

Goal #13: Minimize flood losses by preserving and enhancing floodplains and wetlands, and by limiting development in flood-prone areas

- 13.1 – Update local floodplain maps to improve accuracy of flood hazard information
 - Focus on where it hasn't been done and update where it has
- Any overlay with transportation corridors?
- Will anyone still build in high-risk floodplains? Key outcome should be that no one is building in high risk floodplains. The plan should address rules not allowing building. There are rules in FEMA that they won't pay for it again.

OTHER IMPORTANT ITEMS

- Consortium should meet and be in public eye

DOT VOTE RESULTS

The table below provides the results of the dot voting by the consortium, listed in descending order based on the dot vote tally. Actions that received zero dot votes are not included.

Goal/Action Number	Goal/Action Text	Dot Vote Tally
--------------------	------------------	----------------

Goal/Action Number	Goal/Action Text	Dot Vote Tally
Action 3.20	Coordinate and expand transportation demand management (TDM) programs at institutions and major employers	9
Action 1.6	Explore and create financing options for renewable energy and energy efficiency systems (REDC)	8
Action 2.7	Facilitate biomass demonstration projects for production of pellets for heating across region	8
Action 1.1	Establish the Southern Tier Renewable Energy and Efficiency Initiative (REDC)	7
Action 5.1	Encourage development and strategic investment in cities, villages, and hamlets	7
Action 8.4	Coordinate and market educational and green tourism	7
Action 4.1	Encourage adoption of green fleet policies for public and private fleets	6
Action 14.2	Perform energy audits and install retrofits at major water and wastewater facilities	6
Action 3.8	Study and pilot priority opportunities for intercity bus service, expanded cross-regional transit, and rural on-demand transit	6
Action 7.8	Implement the Energy Workforce Development Initiative (REDC)	6
Action 7.15	Identify, train, and certify contractors to meet increased energy efficiency demand	5
Action 6.2	Provide financial and technical support to rehabilitate housing and mobile homes for low-to-moderate-income households	5
Action 2.4	Facilitate deployment of solar photovoltaic and solar thermal systems	5
Action 7.3	Promote the Regional Broadband Communications Project (REDC)	5
Action 9.4	Support development of local processing facilities for value-added products	5
Action 16.1	Implement pay as you throw trash collection	5
Action 7.6	Strengthen university-industry connections to improve and promote workforce development	5
Action 5.5	Support redevelopment of brownfield sites and vacant properties (REDC)	5
Action 12.8	Incorporate anticipated climate projections, impacts and proposed mitigation strategies into Hazard Mitigation Plan updates	5
Action 6.5	Provide technical assistance and gap financing for construction and rehabilitation of energy-efficient affordable housing	4
Action 1.4	Develop a regional energy road map	4
Action 2.1	Study and facilitate mid-scale wind projects	4
Action 2.6	Explore transitioning existing power and thermal generation facilities to more sustainable fuel	4
Action 1.7	Assess energy performance; implement and monitor energy efficiency upgrades in government facilities	4
Action 16.6	Expand and improve access to recycling	4
Action 14.4	Develop new distribution system repair, replacement, and expansion policies that prioritize repair/replacement rather than expansion of service areas	4
Action 3.4	Expedite implementation of Safe Routes to School, SafeSeniors, and Safe Routes to Transit projects	4
Action 10.6	Develop a regional biomass consortium	4
Action 14.1	Incorporate energy efficiency, renewables, and advanced controls into policies for new equipment, new plants, and plant upgrades	3
Action 3.2	Improve connectivity between downtown trails, bicycle, pedestrian, and transit networks	3
Action 10.10	Support new farm startups and farm transfers to next generation	3
Action 7.4	Grow local businesses through targeted investment	3
Action 13.5	Prioritize high risk floodplains for conservation through acquisition and easement	3
Action 2.12	Study feasibility of combined heat and power (CHP) in current development projects.	2
Action 10.2	Develop regional program to promote sustainable forestry and wood products	2
Action 4.2	Create a region-wide electric vehicle infrastructure deployment plan	2
Action 5.3	Support development in downtown areas at appropriate densities	2
Action 16.7	Expand and improve access to composting services	2

Goal/Action Number	Goal/Action Text	Dot Vote Tally
Action 9.1	Adopt local food purchasing policies	2
Action 16.2	Introduce innovative reuse strategies to reduce waste stream	2
Action 15.3	Expand education, outreach and pilot projects for green infrastructure and Low-Impact Development practices	2
Action 9.3	Develop and expand markets for local food and establish and expand CSA networks throughout the region	2
Action 13.7	Establish and promote minimum buffer widths for streams and wetlands	2
Action 4.12	Electrify truck stops and transfer points throughout the region	2
Action 17.2	Develop regional coordinated planning and policy guidance documents	2
Action 12.10	Assess the viability of current and potential future crops	2
Action 9.2	Develop regional programs for branding and marketing local food products	2
Action 10.14	Maximize farm-based renewable energy production opportunities	1
Action 6.4	Remove barriers to converting upper floors to residential uses in city and village downtowns	1
Action 8.1	Expand and promote culinary and agri-tourism opportunities	1
Action 2.3	Facilitate deployment of geothermal heat pump (GHP) systems	1
Action 5.2	Implement the Southern Tier Community Revitalization Project (REDC)	1
Action 11.4	Develop and implement a model conservation zoning ordinance	1
Action 13. 1	Update local floodplain maps to improve accuracy of flood hazard information	1
Action 6.1	Assess affordable housing needs and identify target areas for rehabilitation programs	1
Action 15.5	Support regular updates to County-based water quality strategy plans	1
Action 3.19	Expand 'Way2Go' and other carsharing programs	1
Action 3.16	Provide Education and support to implement complete street design standards	1
Action 15.4	Develop program and guidelines to improve stormwater drainage design and maintenance for rural roadways	1

APPENDIX A: WEBSITE FEEDBACK

Website Feedback

Comments Received

We reorganized the cleangreenersoutherntier.org website ahead of the October workshops and invited the public to visit the website. Besides postings of updated reports, we developed a voting activity in which the public could apply a thumbs-up vote for actions they considered higher priority and a thumbs-down vote for actions they considered lower priority. We also invited website visitors to comment on the strategies and compiled all comments submitted between October 7 and October 21 into the table below.

Table 1: Action-specific comments

Action	Website Comment
Goal 1: Reduce building energy use.	
Action 1.1: Establish the Southern Tier Renewable Energy and Efficiency Initiative (REDC)	Strongly favor coordinated regional approach (Form:Collector_Strategy_A,19535)
	How does forming another org reduce GHG? Qualify us for funding? (Form:Collector_Strategy_A,19535)
	After going to the Plan workshop, I am not convinced that the cost of this plan will out way the benefits. Many of the action ideas sound good, but we don't know how much the action plan will cost. (Form:Collector_Strategy_A,19535)
	I am quite disturbed by this entire project and the assumptions upon which it is based. All of this will likely cost a lot of taxpayer money, with little or no benefit to most of us taxpayers (Form:Collector_Strategy_A,19535)
Action 1.4: Develop a regional energy road map	Our company can help with this work and is prepared to commit significant resources in support of the development of this plan. (Form:Collector_Strategy_A,19535)
	If a technology is good, has a positive cost-benefit ratio, the public will figure it out without a bunch of bureaucrats having to inform them. (Form:Collector_Strategy_A,19535)
Action 1.6: Explore and create financing options for renewable energy and energy efficiency systems (REDC)	The single greatest challenge we face in more widespread adoption of renewable energy heating systems is the high capital cost barrier to entry. Operating cost is so much lower than heating oil or propane that once we overcome capital barrier, payback is very favorable. Creative financing, demonstration projects with public info outreach, and grants or loans for qualified home or business owners are all critical needs. (Form:Collector_Strategy_A,19535)
	The private sector is the best option for this. Previous government attempts to push towards green energy have been an abject failure. (Form:Collector_Strategy_A,19535)
	Public dollars do not belong in this equation. (Form:Collector_Strategy_A,19535)
	Studies by the NYC Transit Authority have shown that transportation emissions to buildings more than outweigh energy efficiencies in the building. Addressing public transport is key. (Form:Collector_Strategy_A,19535)

Action	Website Comment
Action 1.7: Assess energy performance; implement and monitor efficiency upgrades in government facilities	It is vital that if a building owner is considering renewable energy, that they do a whole building energy audit and make efficiency investments first. (Form:Collector_Strategy_A,19535)
	Make things more efficient by using the most efficient means available, for example natural gas and other fuels that are widely available and have an infrastructure in place. (Form:Collector_Strategy_A,19535)
	These routines should be applied to any facility by the owner. (Form:Collector_Strategy_A,19535)
	Addressing transport emissions to these buildings will have a greater impact than retrofits. (Form:Collector_Strategy_A,19535)
Goal 2: Develop, produce, and deploy local renewable energy sources and advanced technologies across the Southern Tier.	
Action 2.1: Study and facilitate mid-scale wind projects	Large scale wind would require subsidies. (Form:Collector_Strategy_A,19535)
	Again, this has been tried. The cost of windmills exceeds any benefits they provide. (Form:Collector_Strategy_A,19535)
	there is no extant technology for wind energy now which is effective and efficient. Further, it requires more energy to produce and maintain a windmill than it will ever produce. They are nothing more than cuisinarts for living birds. (Form:Collector_Strategy_A,19535)
	Why not large scale projects? They are working in Steuben (Form:Collector_Strategy_A,19535)
Action 2.2: Facilitate deployment of demonstration anaerobic digester systems	In the Town of Guilford, the Hanehan Farm on NYS Route 8 could partner with Chobani for an anaerobic digester. Chobani could use the electricity and Hanehan's have a large number of cows. (Form:Collector_Strategy_A,19535)
	If a farmer deems this an advisable course of action, he doesn't need government. If a farmer deems this inadvisable, he doesn't need government. This is another unnecessary cost to the taxpayer. (Form:Collector_Strategy_A,19535)
	this seems reasonable, but more basic research is needed (Form:Collector_Strategy_A,19535)
Action 2.3: Facilitate deployment of geothermal heat pump (GHP) systems	If this is a viable energy alternative, no facilitation would be necessary. Private companies would be doing it already (Form:Collector_Strategy_A,19535)
	Again, if there is a benefit,no government advise is necessary. People are smart and they will recognize it. (Form:Collector_Strategy_A,19535)
Action 2.4: Facilitate deployment of solar photovoltaic and solar thermal systems	Private sector is doing okay here, any government handouts have proven to be ineffectual. (Form:Collector_Strategy_A,19535)
	Less than 1% of the energy in this country is supplied by renewables at this time. When the technology is there, the adoption of such technologies will follow. How many "green energy" companies have to fail with taxpayers footing the bill for exorbitant loans to companies that go belly up. Facilitation is a waste of taxpayer resources. (Form:Collector_Strategy_A,19535)
Action 2.6: Explore transitioning existing power and thermal generation facilities to more sustainable fuel	Strongly favor. Many large commercial/industrial consumers, especially in rural areas, do not have access to natural gas. Thus their heating option is expensive oil or propane. Any building being heated with these fuels can be converted to biomass - pellets or chips. Supply in Southern Tier is plentiful and sustainable with careful oversight. (Form:Collector_Strategy_A,19535)
	The costs benefit analysis of more sustainable fuels needs to be carefully undertaken before any such exploration should be done. (Form:Collector_Strategy_A,19535)

Action	Website Comment
	<p>There ARE clean burning fossil fuels. Coal gassification emissions, for instance, are water vapor. It's government restrictions including "energy credits" that make these plants expensive and their attempt to close them down causes major disruptions. Examine the un legislated Regional Greenhouse Gas Initiative foisted upon the public by decree. (Form:Collector_Strategy_A,19535)</p> <p>Natural gas = lower CO2 emissions. (Form:Collector_Strategy_A,19535)</p>
<p>Action 2.7: Facilitate biomass demonstration projects for production of pellets for heating across region</p>	<p>Agree with this recommendation but need to build market first. We are shipping over 50% of production from these facilities out of NY state. There is enormous growth potential and opportunity to build additional pellet manufacturing capacity, but enabling it through strong consumer demand is the best way to achieve this goal. (Form:Collector_Strategy_A,19535)</p> <p>again, no facilitation. The public is smart and will go with what's good. (Form:Collector_Strategy_A,19535)</p> <p>sounds like a good job for the private sector. (Form:Collector_Strategy_A,19535)</p>
<p>Action 2.12: Study feasibility of combined heat and power (CHP) in current development projects</p>	<p>Strongly agree - most cost effective energy strategy is to better utilize waste heat from power generation. Any large new energy consumer that has significant thermal load should be looking at on site CHP as an option. (Form:Collector_Strategy_A,19535)</p> <p>This should be done at the university or national laboratory level (Form:Collector_Strategy_A,19535)</p>
<p>Goal 3: Create a regional multimodal transportation system that offers real transportation choice, reduced costs and impacts, and improved health</p>	
<p>Action 3.2: Improve connectivity between downtown trails, bicycle, pedestrian, and transit networks</p>	<p>Evaluate First mile-Last mile problems and dysfunctional intermodal connections for users of local, regional & intercity bus services from a consumer point of view. Identify the rolling top 5 priorities in each county. BTW, priority #1 in Tompkins County is the functionally obsolescent Ithaca Bus Station. (Form:Collector_Strategy_A,19535)</p> <p>I think this is a great idea, but at what cost will we have to pay for this???</p>
<p>Action 3.4: Expedite implementation of Safe Routes to School, SafeSeniors, and Safe Routes to Transit projects</p>	<p>the schools in this area are already doing this. I voted to give them more money, why do we need a plan to do this. (Form:Collector_Strategy_A,19535)</p>
<p>Action 3.8: Study and pilot opportunities for intercity bus service, expanded cross-regional transit, and rural on-demand transit</p>	<p>Can this be done without heavy subsidy? (Form:Collector_Strategy_A,19535)</p> <p>my local community is already doing this and they are choosing to cut back because there are not enough people taking a bus. It only takes me 8 mins to work, people can choose to live farther or closer to work. (Form:Collector_Strategy_A,19535)</p> <p>This is backwards thinking. The public hires government. It is NOT incumbent upon government to mold (force) people into patterns that government endorses. (Form:Collector_Strategy_A,19535)</p> <p>Reduction of transportation emissions is key. If you provide public transportation, density will follow. (Form:Collector_Strategy_A,19535)</p>
<p>Action 3.16: Provide education and support to implement complete street design standards</p>	<p>People will only use streets to walk and ride bikes if they are safe. (Form:Collector_Strategy_A,19535)</p>
<p>Action 3.19: Develop incentives to encourage property owners to protect streams and buffers</p>	<p>First you must show that the public's goal is identical to the "county's goal." Having hearings and educational sessions cannot do that. (Form:Collector_Strategy_A,19535)</p>

Action	Website Comment
Action 3.20: Coordinate and expand transportation demand management (TDM) programs at institutions and major employers	Reducing transportation emissions is key and more than outweighs retrofits for green buildings. (Form:Collector_Strategy_A,19535)
Goal 4: Reduce fossil fuel consumption and GHG emissions by reducing vehicle miles traveled (VMT), increasing efficiency, improving operations, and transitioning to less carbon intensive fuels and power sources	
Action 4.1: Encourage adoption of green fleet policies for public and private fleets	<p>This EXCLUDES the use of "natural" gas for vehicles! (Form:Collector_Strategy_A,19535)</p> <p>I do not want my tax money going to buy extra vehicles for the community. (Form:Collector_Strategy_A,19535)</p> <p>Needs a cost-benefit analysis (Form:Collector_Strategy_A,19535)</p>
Action 4.2: Create a region-wide electric vehicle infrastructure deployment plan	<p>low priority for now. (Form:Collector_Strategy_A,19535)</p> <p>Cost benefit analysis needed. I don't believe that electric cars really will save on money or pollution (consider all the resources to make and dispose huge number of batteries) If this was worthwhile, industry would have done it already (Form:Collector_Strategy_A,19535)</p> <p>According to new information on electric vehicles, they have increased GHG compared to oil based cars. Therefore I feel we still do not know the best directions to go to eliminate GHG and should not be spending tax payer money to initiate some of these plans. (Form:Collector_Strategy_A,19535)</p> <p>A viable, safe electric battery does not now exist. Spontaneous combustion is a huge problem. (Form:Collector_Strategy_A,19535)</p> <p>Build out of NG facilities only increases our dependence on fossil fuels. (Form:Collector_Strategy_A,19535)</p>
Action 4.10: Explore increasing use of rail and water for goods transport	<p>An inland port? Now there is a plan! (Form:Collector_Strategy_A,19535)</p> <p>this is crazy. Rail already carries a huge amount of goods (Form:Collector_Strategy_A,19535)</p> <p>We have rail access to ship pellets from Deposit plant, and regional shortline very eager to find market that will enable use of rail. Need customers! (Form:Collector_Strategy_A,19535)</p>
Goal 5: Strengthen and revitalize existing cities, villages, and hamlets	
Action 5.3: Support development in downtown areas at appropriate densities	<p>increasing density reduces emissions because of decreased transportation emissions (Form:Collector_Strategy_A,19535)</p> <p>It is not up to the government to decide what is an appropriate density. (Form:Collector_Strategy_A,19535)</p>
Action 5.5: Support redevelopment of brownfield sites and vacant properties (REDC)	If the land is useful, private investors would already be buying it up (Form:Collector_Strategy_A,19535)
Goal 6: Support development of workforce and senior housing that is energy and location efficient and offers choices to reflect changing demographics	
Action 6.1: Assess affordable housing needs and identify target areas for rehabilitation programs	<p>If this hasn't been done already, our local government is not doing its job (Form:Collector_Strategy_A,19535)</p> <p>Affordable housing is always a euphemism that means the inhabitants of that housing cannot afford it. It is unconscionable to expect the tax payer to house both himself and somebody else while simultaneously killing the soul of the subsidized by thwarting his natural initiative and desire to be upwardly mobile. (Form:Collector_Strategy_A,19535)</p>
Action 6.2: Provide financial and technical support to rehabilitate	This is important not just for GHG reduction but also environmental equity (Form:Collector_Strategy_A,19535)

Action	Website Comment
housing and mobile homes for low-to-moderate-income households	Again, hoping this is through the (many) existing agencies, rather than creating new programs. (Form:Collector_Strategy_A,19535)
Action 6.4: Remove barriers to converting upper floors to residential uses in city and village downtowns	increasing density will reduce transportation emissions and revitalize downtown areas (Form:Collector_Strategy_A,19535)
Action 6.5: Provide technical assistance and gap financing for construction and rehabilitation of energy-efficient affordable housing	So important to have all housing be truly energy efficient and well built (Form:Collector_Strategy_A,19535)
	I don't want my tax dollars used for such things (Form:Collector_Strategy_A,19535)
	It is more important that housing be dense than energy efficient, if there is a tradeoff between density planning and retrofitting/new LEED construction. building energy efficient housing away from work and shopping centers increases overall emissions (Form:Collector_Strategy_A,19535)
Goal 7: Create and retain more good paying jobs by building regional strengths, including advanced energy transportation technologies, globally-competitive industry, and workforce development and technology transfer partnerships with educational institutions.	
Action 7.3: Promote the Regional Broadband Communications Project (REDC)	This may help reduce emissions by allowing some work to be done from home, etc. but primarily this is important as a social justice issue. (Form:Collector_Strategy_A,19535)
	People can get satellite dishes if they want access (Form:Collector_Strategy_A,19535)
Action 7.4: Grow local businesses through targeted investment	I do not know what this means (Form:Collector_Strategy_A,19535)
	It is not the role of government to pick winners and losers. (Form:Collector_Strategy_A,19535)
Action 7.6: Strengthen university-industry connections to improve and promote workforce development	This has potential for real conflict of interest, improper choices based on industry's influence over academia through money (Form:Collector_Strategy_A,19535)
	I am not sure what this means (Form:Collector_Strategy_A,19535)
Action 7.8: Implement the Energy Workforce Development Initiative (REDC)	I am in favor of developing local jobs in green energy but NOT related to any kind of hydrofracking, oil or gas development - let's encourage truly sustainable energy development (Form:Collector_Strategy_A,19535)
	through community colleges? (Form:Collector_Strategy_A,19535)
	Tremendous growth potential for existing HVAC businesses to diversify into residential and commercial biomass heating technology installation, and bulk fuel delivery. (Form:Collector_Strategy_A,19535)
Action 7.9: Implement the Health Care Workforce Development Initiative (REDC)	Why do you mention healthcare? This seems out of scope (Form:Collector_Strategy_A,19535)
Action 7.15: Identify, train, and certify contractors to meet increased energy efficiency demand	increasing density and public transportation has a higher bang for the buck than retrofits (Form:Collector_Strategy_A,19535)
	This kind of government control over private contractors will substantially increase the cost of even menial jobs because the "cost" of training will be passed onto the consumer either in the form of higher taxes or higher rates from the contractor or both. (Form:Collector_Strategy_A,19535)
Goal 8: Support tourism industry development with coordinated marketing, preservation, and enhancement of historic, cultural, educational, and natural resources and events.	
Action 8.1: Expand and promote culinary and agri-tourism opportunities	The GHG reduction is low, but this could be low-hanging fruit, easy to implement (Form:Collector_Strategy_A,19535)
	Some of these seem like actions that would manifest with a more broad ranged action put forth.

Action	Website Comment
	The industries can figure out for themselves what is in their own best interest and act on it. (Form:Collector_Strategy_A,19535)
	Free beer! (Form:Collector_Strategy_A,19535)
Action 8.4: Coordinate and market educational and green tourism	The GHG is low, but this could also be low-hanging fruit, easy to implement (Form:Collector_Strategy_A,19535)
Goal 9: Support farmers and rural businesses by investing in a reinvigorated rural economy, to enhance the incomes and standards of living of rural residents and to promote local food and the agriculture industry.	
Action 9.1: Adopt local food purchasing policies	Food is definitely important but I worry that when the government gets involved making choices, you end up picking farms and picking food items that a few group of people decide on. I was involved in a CSA for 4 years but I found that I was limited to the food that they chose to offer and it was not always the food I liked. I think the grocery stores in our area are exceptional at offering local food. I am happy making my own food choices. (Form:Collector_Strategy_B,19504)
	I don't feel like the government should be choosing the farms to support and the foods we should eat. (Form:Collector_Strategy_B,19504)
Action 9.3: Develop and expand markets for local food and establish and expand CSA networks throughout the region	Boutique foods for the rich (Form:Collector_Strategy_B,19504)
Action 9.4: Support development of local processing facilities for value-added products	very important (Form:Collector_Strategy_B,19504)
Goal 10: Promote best management of fields, forests, and farmland to keep working lands in production, protect natural resources, and increase carbon sequestration	
Action 10.3: Support lumber mills to obtain sustainable forestry certification	I disagree about the L for this initiative. Forestry Certification can make a big difference. (Form:Collector_Strategy_B,19504)
Action 10.6: Develop a regional biomass consortium	Link this and other bioenergy strategies to the Southern Tier Regional Bioenergy Partnership (Form:Collector_Strategy_B,19504)
Action 10.10: Support new farm startups and farm transfers to next generation	The "next generation" is outmoded terminology. Farms are no longer always passed down within families. New farmers need different ways to access land from non-relatives. (Form:Collector_Strategy_B,19504)
	What does "encourage" mean? New York ranks last of all states as business friendly. Taxes and government regulations are the culprits. Family farms need to be able to passed on to othe nes generation without paying the State for that "privilege." (Form:Collector_Strategy_B,19504)
	very imporTANT (Form:Collector_Strategy_B,19504)
Action 10.14: Maximize farm-based renewable energy production opportunities	OTHER than unacceptably dangerous hydrofracking. You bloody planners are so trixy about your fixed survey. Makes me ashamed to be one... well, at least I don't do these kinds of "pretend we got feedback" exercises. (Form:Collector_Strategy_B,19504)
Goal 11: Preserve and connect natural resources, open spaces, and access to waterways, to protect regional environment, ecology, habitat and scenic areas, and support outdoor recreation	
Goal 12: Identify and plan for the economic, environmental and social impacts of climate change	
Action 12.10: Assess the viability of current and potential future crops	Huh? Isn't that why the land grant colleges got the land grant funding? (Form:Collector_Strategy_B,19504)
	in a way that would help the local farmers (Form:Collector_Strategy_B,19504)

Action	Website Comment
Goal 13: Minimize flood losses by preserving and enhancing floodplains and wetlands, and by limiting development in flood-prone areas	
Action 13.1: Update local floodplain maps to improve accuracy of flood hazard information	I think this is the responsibility of the local governments (Form:Collector_Strategy_B,19504)
Goal 14: Efficiently manage and upgrade existing water, sewer, and other utility infrastructure to support compact development and reduce energy use	
Action 14.1: Incorporate energy efficiency, renewables, and advanced controls into policies for new equipment, new plants, and plant upgrades	I agree that the local governments should be involved in making sure our water is safe, but I don't agree with spending any money to upgrade if everything is working efficiently now. (Form:Collector_Strategy_B,19504) I think if upgrades are necessary, they should be done (Form:Collector_Strategy_B,19504)
Action 14.4: Develop new distribution system repair, replacement, and expansion policies that prioritize repair/replacement rather than expansion of service areas	This is reasonable as long as there is acceptance of private water development (digging wells) on one's own rural property for one's own use. (Form:Collector_Strategy_B,19504)
Goal 15: Improve and protect water quality and quantity	
Action 15.3: Expand education, outreach and pilot projects for green infrastructure and Low-Impact Development practices	It needs to be understood that government cannot force adaptation to technologies that do not yet exist. People are smart. When a viable technology comes along, people will adopt it. You do not need to educate them. You do not need to incentivize them. You most certainly must not force them. (Form:Collector_Strategy_B,19504)
Action 15.5: Support regular updates to County-based water quality strategy plans	Yes, I agree that regular updates should be the responsibility of the local governments (Form:Collector_Strategy_B,19504)
Goal 16: Promote innovative waste reduction and management strategies	
Action 16.1: Implement pay as you throw trash collection	This wouldn't work until we put in place measures to encourage people to buy less heavily packaged/more locally produced foods and goods that are reasonably priced for those who have limited incomes. I.e., it can't stand alone. (Form:Collector_Strategy_B,19504) I feel this is an area that can be done with relatively little money. (Form:Collector_Strategy_B,19504) I used to like the Idea of pay-as-you throw, but Cassella is a much better deal/service than municipal garbage. If the muni system provided WONDERFUL bins and zero sort recycling, I would switch back. (Form:Collector_Strategy_B,19504)
Action 16.2: Introduce innovative reuse strategies to reduce waste stream	Who will pay for this. Our resources are scarce enough as it is. If some private enterprise comes along who will purchase said waste and be able to turn it inot a profitable business, then go ahead. (Form:Collector_Strategy_B,19504)
Action 16.6: Expand and improve access to recycling	Until most/all products are made with recycled material, there is no real reason to bother recycling at all. (If the secondary market is flooded with recyclables, recyclables are just land-filled with the other trash.
Action 16.7: Expand and improve access to composting services	to the extent that we don't poor too much money into this, I think some of this of this can be done relatively at a low cost. (Form:Collector_Strategy_B,19504) Requires maintenance. Will eventually cause more problems than it solves. (Form:Collector_Strategy_B,19504)

Action	Website Comment
Goal 17: Increase collaboration among regional agencies, institutions, and local governments.	
Action 17.2: Develop regional coordinated planning and policy guidance documents	This is HUGELY important!!! (Form:Collector_Strategy_B,19504)
	I think this should already be the responsibility of our local government. (Form:Collector_Strategy_B,19504)
	I like collaboration. Coordination seems to usually end up way too top-down, with the wealthy folks calling the shots. (Form:Collector_Strategy_B,19504)
Goal 18: Increase fiscal efficiency and effectiveness in local government through energy and waste reduction, coordinated investments, and integrated planning.	
Action 18.1: Encourage participation and certification in the Climate Smart Communities program	I really don't want to see our tax money being spent on Climate Smart projects. (Form:Collector_Strategy_B,19504)

Table 2: General Comments

Thanks for your efforts to engage community members in this process and for making connections across plans, and agencies/organizations/local government. (Form:DemoForm,19484)
I went to the transportation meeting in Corning. I wanted to reiterate what I said there, as I don't think I explained myself clearly: I think the main focus of the transportation plan--if we are true to the commitment to significantly reduce GHG emissions--is to a) focus on shifting short trips in SOV towards active transportation (walking, biking, bus) and b) thinking of connecting longer distances with effective transit. These shifts must be pursued through appropriate policy, including land use, as we need density for transit, parking, etc. Also we need to think about appropriate infrastructure (e.g. protected spaces for cyclists and pedestrians), education, encouragement (like the Streets Alive! activity recently celebrated in Ithaca), and enforcement.
It seems to me the transportation plan has a little bit of everything. This is fine. But we need to make priorities clear. 2/3 of all oil in the country goes to transportation. 2/3 of that is passenger travel. Most trips are short. We won't see real GHG reduction unless we seriously address passenger travel, especially in short trips.
Thank you, Karim (Form:DemoForm,19484)
Excellent ideas. Urgent action mandatory to avoid probable climate change catastrophes within 50 years. (Form:DemoForm,19484)
Live in Pa. Own business in NYS/Corning. (Form:DemoForm,19484)
I want to be clear that I oppose any plans to open the Southern Tier to unconventional gas drilling. It would interfere with implementation of these other great efforts to reduce greenhouse gases and improve healthful living in the Southern Tier. Thank you for your work on this. (Form:DemoForm,19484)
I know a fair amount of community oriented and very involved, young professionals whose decision to stay in the ST would be bolstered by productive measures such as the ones outlined and proposed by this project. (Form:DemoForm,19484)
This is nice, but until we can pull up to a gas station (for example) and fill up with wind, or solar energy, we need to continue to develop all our natural resources, which very much include oil, gas, coal, and alternatives. With all the bad investments of taxpayer dollars from the Obama administration, let's not go total religion on green issues only!! (Form:DemoForm,19484)
I Chair an organization called Sustainable Chenango and am so excited about the work you are doing. Is there any way our organization can be involved or is there a chance that a speaker could come to Chenango County and update our area on the progress of this project? Thanks so much. (Form:DemoForm,19484)
great ideas. love the website. (Form:DemoForm,19484)
I am concerned that you will push "UNECONOMIC" applications of capital, for the driving purpose of lowering GHG emissions. Doing uneconomic things with anybody's capital, ESPECIALLY taxpayer's \$, is a lousy, misdirected purpose. the GHG connection to man-made global-warming is being rapidly debunked by REAL scientists, as well as Mother Nature herself. (Form:DemoForm,19484)

Thumbs-up / Thumbs-down Voting Results

Website visitors were given the opportunity to apply a thumbs-up vote on each action they considered in the top half of the priorities and a thumbs-down vote on the actions they considered in the bottom half of the priorities. While website visitors could apply a thumbs-up vote to more than 20 actions, the 20 actions with the most thumbs-up votes could be construed as the public's top 20 priorities. The table below lists the thumbs-up / thumbs-down voting result.

Goal/Action Number	Goal/Action Text	Thumbs Up Vote Tallies – Top Half of Priorities	Thumbs Down Vote Tallies – Bottom Half of Priority
Action 1.1	Establish the Southern Tier Renewable Energy and Efficiency Initiative (REDC)	47	10
Action 1.6	Explore and create financing options for renewable energy and energy efficiency systems (REDC)	46	11
Action 7.15	Identify, train, and certify contractors to meet increased energy efficiency demand	46	7
Action 2.12	Study feasibility of combined heat and power (CHP) in current development projects	43	8
Action 4.1	Encourage adoption of green fleet policies for public and private fleets	43	8
Action 6.5	Provide technical assistance and gap financing for construction and rehabilitation of energy-efficient affordable housing	42	8
Action 1.4	Develop a regional energy road map	42	11
Action 14.2	Perform energy audits and install retrofits at major water and wastewater facilities	42	5
Action 14.1	Incorporate energy efficiency, renewables, and advanced controls into policies for new equipment, new plants, and plant upgrades	42	5
Action 3.8	Study and pilot priority opportunities for intercity bus service, expanded cross-regional transit, and rural on-demand transit	42	9
Action 6.2	Provide financial and technical support to rehabilitate housing and mobile homes for low-to-moderate-income households	40	9
Action 2.1	Study and facilitate mid-scale wind projects	40	9
Action 5.1	Encourage development and strategic investment in cities, villages, and hamlets	40	9
Action 3.2	Improve connectivity between downtown trails, bicycle, pedestrian, and transit networks	40	12
Action 2.6	Explore transitioning existing power and thermal generation facilities to more sustainable fuel	39	11
Action 2.4	Facilitate deployment of solar photovoltaic and solar thermal systems	39	11
Action 1.7	Assess energy performance; implement and monitor energy efficiency upgrades in government facilities	37	8
Action 3.20	Coordinate and expand transportation demand management (TDM) programs at institutions and major employers	37	10
Action 7.3	Promote the Regional Broadband Communications Project (REDC)	35	13
Action 9.4	Support development of local processing facilities for value-added products	35	6

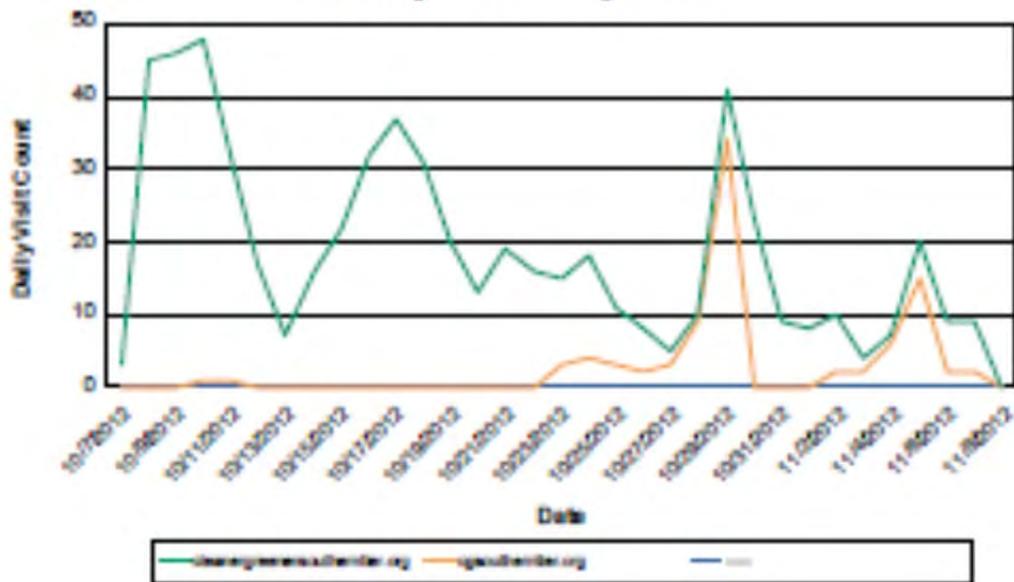
Goal/Action Number	Goal/Action Text	Thumbs Up Vote Tallies – Top Half of Priorities	Thumbs Down Vote Tallies – Bottom Half of Priority
Action 10.14	Maximize farm-based renewable energy production opportunities	35	8
Action 10.2	Develop regional program to promote sustainable forestry and wood products	35	10
Action 4.2	Create a region-wide electric vehicle infrastructure deployment plan	35	13
Action 5.3	Support development in downtown areas at appropriate densities	34	12
Action 10.10	Support new farm startups and farm transfers to next generation	34	7
Action 16.6	Expand and improve access to recycling	34	7
Action 6.4	Remove barriers to converting upper floors to residential uses in city and village downtowns	33	8
Action 2.7	Facilitate biomass demonstration projects for production of pellets for heating across region	33	14
Action 16.1	Implement pay as you throw trash collection	33	8
Action 4.10	Explore increasing use of rail and water for goods transport	33	15
Action 16.7	Expand and improve access to composting services	33	10
Action 2.2	Facilitate deployment of demonstration anaerobic digester systems	32	13
Action 14.4	Develop new distribution system repair, replacement, and expansion policies that prioritize repair/replacement rather than expansion of service areas	32	9
Action 9.1	Adopt local food purchasing policies	31	10
Action 8.1	Expand and promote culinary and agri-tourism opportunities	31	12
Action 16.2	Introduce innovative reuse strategies to reduce waste stream	31	11
Action 7.8	Implement the Energy Workforce Development Initiative (REDC)	30	11
Action 15.3	Expand education, outreach and pilot projects for green infrastructure and Low-Impact Development practices	30	12
Action 2.3	Facilitate deployment of geothermal heat pump (GHP) systems	30	11
Action 9.3	Develop and expand markets for local food and establish and expand CSA networks throughout the region	29	10
Action 18.1	Encourage participation and certification in the Climate Smart Communities program	29	11
Action 7.4	Grow local businesses through targeted investment	28	15
Action 5.2	Implement the Southern Tier Community Revitalization Project (REDC)	28	12
Action 11.4	Develop and implement a model conservation zoning ordinance	26	12
Action 13.7	Establish and promote minimum buffer widths for streams and wetlands	25	14
Action 7.6	Strengthen university-industry connections to improve and promote workforce development	24	16
Action 3.4	Expedite implementation of Safe Routes to School, SafeSeniors, and Safe Routes to Transit projects	24	18

Goal/Action Number	Goal/Action Text	Thumbs Up Vote Tallies – Top Half of Priorities	Thumbs Down Vote Tallies – Bottom Half of Priority
Action 4.12	Electrify truck stops and transfer points throughout the region	24	15
Action 5.5	Support redevelopment of brownfield sites and vacant properties (REDC)	23	19
Action 11.1	Develop a Southern Tier priority open space conservation and agricultural protection plan	22	13
Action 13.9	Develop incentives to encourage property owners to protect streams and buffers	22	14
Action 13.5	Prioritize high risk floodplains for conservation through acquisition and easement	22	16
Action 13.1	Update local floodplain maps to improve accuracy of flood hazard information	21	10
Action 8.4	Coordinate and market educational and green tourism	20	19
Action 17.2	Develop regional coordinated planning and policy guidance documents	20	11
Action 11.6	Create a regional trails network plan and develop and connect priority segments	19	12
Action 6.1	Assess affordable housing needs and identify target areas for rehabilitation programs	18	15
Action 10.3	Support lumber mills to obtain sustainable forestry certification	17	12
Action 12.8	Incorporate anticipated climate projections, impacts and proposed mitigation strategies into Hazard Mitigation Plan updates	17	14
Action 15.5	Support regular updates to County-based water quality strategy plans	17	15
Action 3.19	Expand ‘Way2Go’ and other carsharing programs	16	18
Action 10.6	Develop a regional biomass consortium	15	3
Action 12.10	Assess the viability of current and potential future crops	15	14
Action 9.2	Develop regional programs for branding and marketing local food products	14	14
Action 3.16	Provide Education and support to implement complete street design standards	14	20
Action 15.4	Develop program and guidelines to improve stormwater drainage design and maintenance for rural roadways	14	16
Action 7.9	Implement the Health Care Workforce Development Initiative (REDC)	7	10

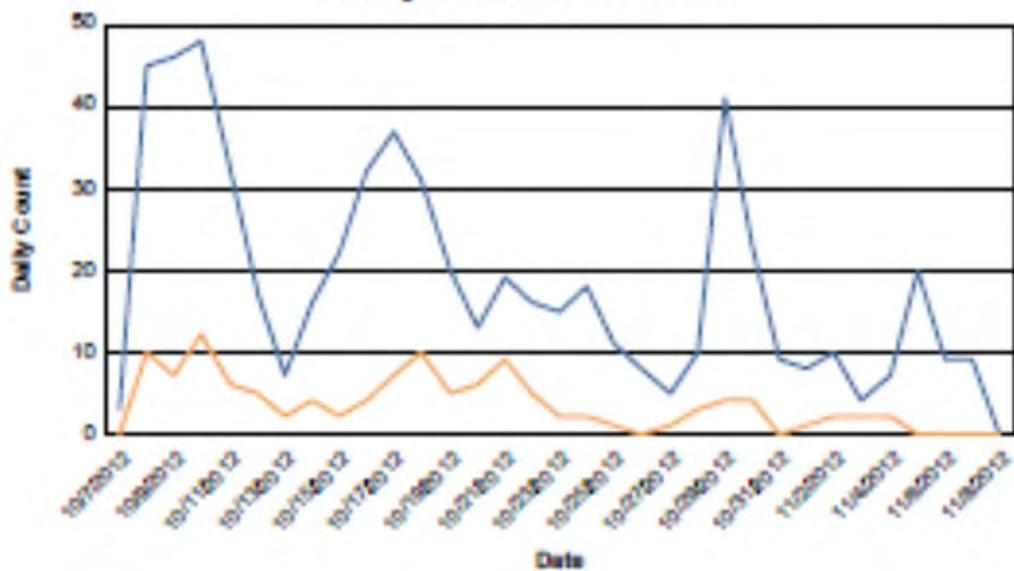
Website Visitors Report

The charts on the following two pages show how many website visitors there were each day, over the month from 10/07/12 to 11/07/12 (during the time the Implementation Plan and Action Strategy were online for review). There were a total of 611 ‘hits’; 118 of these visitors either ‘voted’ in the prioritization exercise, or left a comment.

Daily Visits By URL



Daily Visits and Data



<u>Date</u>	<u>URL</u>	<u>Visits</u>	<u>WithData</u>	<u>Percent</u>
October 07, 2012	cleanergreenersouthernier.org	3	0	0
October 08, 2012	cleanergreenersouthernier.org	45	10	22
October 09, 2012	cleanergreenersouthernier.org	46	7	15
October 10, 2012	cleanergreenersouthernier.org	47	11	23
	cgssouthernier.org	1	1	100
October 11, 2012	cleanergreenersouthernier.org	31	6	19
	cgssouthernier.org	1	0	0
October 12, 2012	cleanergreenersouthernier.org	17	5	29
October 13, 2012	cleanergreenersouthernier.org	7	2	29
October 14, 2012	cleanergreenersouthernier.org	16	4	25
October 15, 2012	cleanergreenersouthernier.org	22	2	9
October 16, 2012	cleanergreenersouthernier.org	32	4	13
October 17, 2012	cleanergreenersouthernier.org	37	7	19
October 18, 2012	cleanergreenersouthernier.org	31	10	32
October 19, 2012	cleanergreenersouthernier.org	20	5	25
October 20, 2012	cleanergreenersouthernier.org	13	6	46
October 21, 2012	cleanergreenersouthernier.org	19	9	47
October 22, 2012	cleanergreenersouthernier.org	16	5	31
October 23, 2012	cleanergreenersouthernier.org	12	2	17
	cgssouthernier.org	3	0	0
October 24, 2012	cleanergreenersouthernier.org	14	1	7
	cgssouthernier.org	4	1	25

Page 1 of 2

<u>Date</u>	<u>URL</u>	<u>Visits</u>	<u>WithData</u>	<u>Percent</u>
October 25, 2012	cleanergreenersouthernier.org	8	0	0
	cgssouthernier.org	3	1	33
October 26, 2012	cleanergreenersouthernier.org	6	0	0
	cgssouthernier.org	2	0	0
October 27, 2012	cleanergreenersouthernier.org	2	0	0
	cgssouthernier.org	3	1	33
October 28, 2012	cleanergreenersouthernier.org	1	1	100
	cgssouthernier.org	9	2	22
October 29, 2012	cleanergreenersouthernier.org	7	0	0
	cgssouthernier.org	34	4	12
October 30, 2012	cleanergreenersouthernier.org	23	4	17
October 31, 2012	cleanergreenersouthernier.org	9	0	0
November 01, 2012	cleanergreenersouthernier.org	8	1	13
November 02, 2012	cleanergreenersouthernier.org	8	2	25
	cgssouthernier.org	2	0	0
November 03, 2012	cleanergreenersouthernier.org	2	1	50
	cgssouthernier.org	2	1	50
November 04, 2012	cleanergreenersouthernier.org	1	1	100
	cgssouthernier.org	6	1	17
November 05, 2012	cleanergreenersouthernier.org	5	0	0
	cgssouthernier.org	15	0	0
November 06, 2012	cleanergreenersouthernier.org	7	0	0
	cgssouthernier.org	2	0	0
November 07, 2012	cleanergreenersouthernier.org	7	0	0
	cgssouthernier.org	2	0	0
November 08, 2012	—	0	0	0
TOTALS:		811	118	18

APPENDIX B: APRIL 2012 KICK-OFF WORKSHOP MEETINGS

Cleaner Greener Southern Tier Plan Public Kick-off Meetings Summary April 23 – 26, 2012

Public Kick-off Meeting Summary

Four public meetings were held throughout the Southern Tier region in late April 2012 to introduce the Cleaner Greener Southern Tier project and gather input on the region's priorities, strengths, and opportunities. Meetings were held in Corning (Steuben County), Ithaca (Tompkins County), Delhi (Delaware County), and the Town of Chenango (Broome County). Meetings were coordinated by the Cleaner Greener Southern Tier Planning Team (the Southern Tier East Regional Planning Development Board, the Southern Tier Central Planning and Development Board, Tompkins County, and the ICF International team of consultants (ICF).

Meeting Format

The meeting structure included a significant amount of brainstorming, idea sharing, and facilitated discussion. Depending on the number of attendees, some workshops conducted discussions in a small group format.

Welcome and Introductions: A representative from one of the three regional agencies leading this project – Southern Tier East Regional Planning Development Board, Southern Tier Central Planning and Development Board, and Tompkins County – welcomed participants to the evening's workshop. Participants introduced themselves to the group. ICF facilitator Harrison Rue then provided a brief introduction to establish a common understanding of the meeting and project purpose, a definition of sustainability, and the project timeline.

Project Background: The ICF team presented a regional background of the Southern Tier and highlighted regional assets, issues, and opportunities, followed by a brief overview of the greenhouse gas inventory and data collection efforts occurring in parallel with the public meetings.

Topic Areas: The team then reviewed the 9 initial topic areas of the Cleaner Greener Southern Tier Plan (noting that these topic areas might be re-organized after the public input and research phase:

- Energy & GHG Emissions
- Transportation
- Land Use & Livable Communities
- Working Lands & Open Space
- Waste Management
- Water Management
- Economic Development
- Climate Adaptation
- Governance

Vision Elements: Participants were asked to describe their ideal community 20 to 50 years from now. Each participant wrote down five words or phrases on sticky notes and placed them on the wall (near other participants' similar comments). After further sorting, a summary of some of the common topics was reported back to participants later in the meeting, based on a quick assessment of the notes done by ICF staff. The full list of statements is provided under each public meeting's section in bulleted form.

Topic Area Discussions: To allow discussions to flow more smoothly in the public meetings, the topic areas were sorted into three larger groups:

- Natural Resources: Water Management, Climate Adaptation, Working Lands and Open Space
- Sustainable Energy and The Green Economy: Energy & GHG Emissions, Waste Management, Economic Development
- The Built Environment: Land Use and Livable Communities, Transportation, Governance

While there were minor adjustments in how each workshop was conducted, based on the number of participants, each workshop allow participants to provide input on strengths, weaknesses, best practices, and opportunities for each topic area, or for the three main subject groupings. Then, the participants were asked for their input on the priority issues, based on the previous discussion. The following sections provide a summary of each public meeting, outline the draft vision elements, and summarize the discussions and priority identifications that took place.

Meeting Synthesis

Draft Vision Statement for the Southern Tier Region

Based on the phrases provided by individual participants, an initial draft vision statement for the Southern Tier Region was developed:

The Southern Tier is a resilient, vibrant region that uses its natural and human resources to sustainably meet its needs by:

- *focusing community revitalization and economic development in existing urban and rural centers;*
- *increasing transportation and housing choice while decreasing household costs;*
- *fostering workforce education, business investments, and partnerships to increase local economic opportunities in smart energy, green technology and agriculture;*
- *making best use of fields, forests, farmland, and open space while protecting natural resources, water and air quality; and*
- *considering lifecycle engineering for all products and processes.*

Regional Priorities

Based on the priorities identified in each meeting, a set of draft regional priorities was developed. These priorities will be considered alongside priorities and goals currently being identified from existing local and regional planning documents to develop the goals for this planning process.

- Renewable energy production that uses local resources (biomass, solar, wind, hydro) and supports local economic development; should also explore more efficient and shared methods of energy and heat production (such as co-generation).
- Energy efficient retrofits and new construction as an energy conservation strategy and an opportunity to create local jobs and support local businesses.
- Focus development in existing communities to revitalize downtowns and villages while protecting rural landscapes. This will make more efficient use of existing infrastructure (buildings, pipes, and roads) and encourage the mitigation of environmental hazards on brownfield sites. These efforts should be linked to flood mitigation efforts. Focused development in existing centers supports greater walkability and transit use.
- Multimodal transportation system that is safe for all users and offers increased transportation choices in urban and rural settings.
- Preserve and protect water quality while addressing flood mitigation and storm protection.
- A local economy with unique, local businesses supported by the people and institutions located here; local production and secure jobs.
- Protect working lands and the scenic beauty of the region; bring agriculture into urban areas.
- Develop and support a common vision that sees this region as an innovative place with a high quality of life that people want to stay in, and that embraces a responsible attitude towards resource use.
- More regional collaboration and better enforcement of codes and standards.

Cleaner Greener Southern Tier Plan
Public Kick-off Vision Statement and Phrases
April 23 – 26, 2012

Public Kick-off Vision Statement and Phrases

During the public kickoff meetings in April, attendees of the four public meetings in Corning, Ithaca, Delaware, and Chenango were asked to describe their ideal community in 20 to 50 years on five sticky notes. Based on the phrases provided in these public meetings, a vision statement for the Southern Tier Region was developed.

Vision statement for the Southern Tier Region:

The Southern Tier embodies a culture of resilience and locality across all industries by fostering education and workforce improvements and partnerships to support economic opportunities in energy and agriculture; utilizing fertile agriculture lands and greenspace while balancing natural land, water, and air preservation; and considering lifecycle engineering for all products and processes. This is done by building up the community spirit to revitalize economic and housing development and to place a stronger emphasis on alternative transportation modes to reduce the reliance to foreign oil.

Public Meeting: Corning

- Open to new ideas
- People without freedom
- Abolishment of code enforcement
- Cooperatives
- Affordable housing
- Good education for children
- Total loss of television
- Total control by government
- Stable population
- Strong community
- A community that is proud of what it's done for the environment
- Biodiverse
- Lots of natural beauty and survival of other species – a healthy probability
- Resilient
- Permaculture
- Urban tree canopy
- Scenic
- The kind of place people want to vacation in
- Respect for all forms of life
- Clean water and air
- Clean water, clean air
- Water cleaned by John Todd process

- Clean storm water control
- Clean water resource
- Usable/accessible water bodies
- Good jobs
- Retrofitting existing structures
- Durable goods fully recycled at end of use
- Older buildings retrofitted for max energy efficiency; newer buildings built to LEED Platinum standards
- Active farmlands
- Local food production
- Victory gardens
- Localized economy
- Fully integrated urban agriculture
- Community gardens
- Controlled farms
- Transportation for hydrogen fuel cells
- Pedestrian and bike-friendly
- Connected by train
- Bicycle oriented
- Small-scale businesses
- Transition to local economy
- Good jobs
- Jobs for everyone
- Connected to the rest of the world
- Small-scale businesses
- Renewable green energy sources
- No use of fossil fuels
- Clean coal operated plants
- Distributed energy based on non carbon hydrogen fuel cells
- Internal GPS for autos

Public Meeting: Ithaca

- Basic needs nearby – walkable
- Fewer cars than we see now – more walkable, bicycle friendly, public transit
- Innovative transit
- Bicycle friendly
- Clean, green mass transit
- Networked mass transit throughout region
- Complete, livable streets
- Plan streets for people and not cars
- Accessible transport
- Walkable, bikeable, having the ability to live without a car
- Railroads resurgent as passenger transportation
- Greenways for pedestrian and bike transportation

- Walkable communities
- Walkable/bikeable (mixed used) communities
- Walkable community
- Vibrant main streets
- Thriving downtowns
- Resilient
- Access to sufficient resources
- Self-contained and self-supportive
- Local investing supported by banks, residents, businesses
- Sustainable family living
- Implement urban growth boundary
- Core density with outlying natural areas
- Encourage development where already urbanized areas exist
- Unimpacted natural beauty
- Protected parks, lakes, common areas
- Compact
- Multi-generational housing unites
- Expanded co-housing
- Integrated communities
- Land use planning on a regional basis but meets needs of local
- Human scale density, 2-6 stories, allowing natural and farm lands to be preserved
- Dense eco-housing with mixed use services/light industry nearby
- Clustered development with work, live, play areas centrally located
- Employment, services recreation all within walking distances
- Water is used and processed efficiently
- Citizen/community control of water resources in perpetuity
- Clean water in all places
- Recycle waste water
- Plants/landscapes are seen as key as bio/nano technology opporutnities
- Youth are connected to outdoors in all educational levels
- Civic spaces are more connected to nature (not just planters for flowers)
- Know your neighbors
- An example of what happens when people work together
- Connected
- Shared services
- Jobs
- Equitable access to employment
- Economically viable and creating jobs
- Re-integration of formerly incarcerated people into the workforce
- High quality education – all levels
- Improved graduation rates (K-12) for low income, disabled, Latino, and African American students
- Localized economies
- Thriving, locally based skill sets

- Network of small enterprises
- Reduced poverty
- Entrepreneurial, skill-building education system
- Active and comprehensive capacity inventory
- At least 3 benefits for each action/element
- Thinking in long-range terms
- Let's be more like Europe
- Aristotelian idea of virtue – balance of goals across public interests
- Sustainable materials management (without solid waste)
- Design for reuse
- Producer responsibility legislation
- Less focused on consumption (than today)
- End of consumerism as economic based (decommodification of economy)
- Local food production, processing and distribution
- Food self-sufficiency
- Thriving local agriculture and food production
- Strong, robust, just local food system
- Locally produced food
- Locally produced goods (wealth)
- Local greenhouse gardens
- Local food production meets needs of community
- Small farming investment
- Working landscapes
- Sustainable (not corporate) agriculture
- Productive farmland
- Retrofit buildings
- Energy conserving housing
- Low energy inputs for heating, cooling, transportation
- Efficient
- Vigorous energy efficiency investment
- Much more efficient building energy use
- Reduced energy consumption
- Extreme energy efficiency in development and buildings
- Not fossil fuel dependent
- No fossil fuels for transport or heating
- No gas fracking
- Decentralized energy sourcing and producing – not fracking
- Hydrofracking never happened in NY
- Climate change mitigation to the extent possible
- Renewable energy produced within region
- Regional energy self-sufficiency
- Renewable energy self-sufficiency
- Renewable energy
- Renewable energy supplies most energy

- Free renewable energy and internet access
- Renewable diesel
- Clean energy via: solar, wind, biomass, geothermal, combined heat and power district energy
- Micro hydro power
- Growing our fuel
- Local power
- Community energy systems
- Jobs in energy segments
- Localized green energy production

Public Meeting: Delaware

- Strong small business in downtowns
- Main St. revitalized
- Economic equality for a diverse population rather than bi-polar economics of the bell curve extremes
- Agricultural community thriving
- More organic farms
- Agriculture is still an important part of the county economy
- Vibrant and resilient community capable and willing to life's challenges
- Shared resources for public services – water quality, tourism, recycle/reuse
- Local jobs
- The community is self-reliant for energy, food, housing
- Local sustainable jobs, competitive
- Stronger tourism base
- Efficient government
- Cities and villages – community wide not-for-profit heating, cooling, and electricity
- Child care and elder care
- Sense of community
- The community returns it's friendliness, traditions, and heritage
- Friendly people
- Community that has accommodate a cross section of people from different economic circumstances
- More housing choices
- Mixed use/mixed income communities
- Smart code supporting smart growth
- Link transportation and land use
- More transportation choices
- Quality clean fuel and rail service for both passengers and freight
- Community, public transportation, bike trails, walk trails, trolley
- Natural resource appreciation
- Abundant resources available
- Maintain fresh water and fresh air

- Natural resources (i.e., water, gas, etc) are valued and recognized by end users as supplied by the watershed region – equal partners in watershed management

Public Meeting: Chenango

- Passenger rail connects cities and towns to each other and NYC
- Transportation, high speed rail throughout the country, especially the Southern Tier
- Auto use in urban areas is de-emphasized (i.e., plan for pedestrians, bicycles, trollies, etc.
- Local transportation options – bike paths, rideshare, passenger train to NYC.
- Walkable
- Social equity
- Lift as we climb all people enjoy the fruits of their labor – none are excluded, abundance for all
- Quality of life and well-being of all residents, current and future
- Vibrant downtowns
- Schools are located in community centers
- Each community has a working, organized plan for residential and commercial development
- Governing our own commons
- Local food
- Local farming dominates in the food markets
- Many small farms
- Health care, easy access affordable
- Healthy
- Healthy food
- Address urban and rural food deserts
- Recycling
- Reduce, re-use, recycle
- Zero waste
- As close to zero waste as possible
- Environmentally friendly
- Cohabitat of green gardens with buildings using more natural light, recycling, reuse
- Clean water
- Clean air and water
- Clean air, water
- Unpolluted waters
- Beautiful landscape
- Open spaces and unspoiled forests
- Domestic energy
- Energy mostly from renewables
- Collective bargaining
- Products made in the USA
- Less dependence on globalization
- Thriving co-operative movement
- Self-reliant, localized economics/ production for local use

- Thriving community employment – sustainable jobs, service-oriented jobs, call center, technology, renewable/manufacture
- Fulfilling jobs
- Economically friendly
- University research with local start-up
- Educated
- Schools, industry, community share resources talent-training; cross pollinate for work force development

Public Meeting 1 Notes – Corning, NY

Location:

Corning Community College
1 Academic Drive
Corning, NY 14830

Date / Time: Monday, April 23, 2012 – 7:00pm to 9:00 pm

Facilitation Description:

During this workshop, the participants were asked to provide the region's strengths, weaknesses, best practices, and opportunities for each subject grouping. Then, the participants were divided into two groups, and asked to identify the priorities within the small groups. The two groups then presented their priorities to the full group.

Vision Phrases:

- **Community Outlook**
 - Open to new ideas
 - A community that is proud of what it's done for the environment
 - People without freedom
 - Abolishment of code enforcement
 - Total loss of television
 - Total control by government
- **Population and Housing**
 - Cooperatives
 - Affordable housing
 - Good education for children
 - Stable population
 - Strong community
- **Natural Resources**
 - Biodiverse
 - Lots of natural beauty and survival of other species – a healthy probability
 - Resilient
 - Permaculture
 - Urban tree canopy
 - Scenic
 - The kind of place people want to vacation in
 - Respect for all forms of life
 - Clean water and air
 - Clean water, clean air
 - Water cleaned by John Todd process
 - Clean storm water control
 - Clean water resource
 - Usable/accessible water bodies

- **Recycle and Retrofit**
 - Retrofitting existing structures
 - Durable goods fully recycled at end of use
 - Older buildings retrofitted for max energy efficiency; newer buildings built to LEED Platinum standards
- **Agriculture**
 - Active farmlands
 - Local food production
 - Victory gardens
 - Localized economy
 - Fully integrated urban agriculture
 - Community gardens
 - Controlled farms
- **Transportation**
 - Transportation for hydrogen fuel cells
 - Pedestrian and bike-friendly
 - Connected by train
 - Bicycle oriented
 - Internal GPS for autos
- **Economy**
 - Small-scale businesses (2)
 - Transition to local economy
 - Good jobs (2)
 - Jobs for everyone
 - Connected to the rest of the world
- **Energy Sources**
 - Renewable green energy sources
 - No use of fossil fuels
 - Clean coal operated plans
 - Distributed energy based on non carbon hydrogen fuel cells

Priority Issues:

Group A

- Retrofit and reuse existing buildings – fully utilize existing infrastructure
- Protect the beauty and relative quiet – embrace the different pace of life
- Preserve and protect water quality by removing agricultural water exemptions
- Build complete streets that are safe for all users, both in urban and rural settings
- Localize the economy and incentivize (such as through zoning) to meet local needs
- Allow urban agriculture and provide guidelines that communities could adopt
- Take a leadership role on changes (start with the individual)
 - Overcome the quantity (consume) not quality (save/wealth) attitude
 - Be responsible about resource use

Group 1

- Revitalize downtowns and conserve rural landscapes
 - Reuse buildings

- Employ new technology and techniques
- Employ energy efficient home construction and retrofits
- Offer job training for audits and retrofits, including internships and apprenticeships
 - Link business needs to training opportunities
- Increase transportation alternatives to car
 - Bike, walk, transit, train
 - Multimodal transit
 - Bike parking on buses

Discussion Notes:

Natural Resources

- Freedom of space
- Transportation options
- Use what we have in towns/cities before building out
- Local ownership of properties (especially in downtowns)
- Friends of Chemung river are doing programs to showcase and market Chemung River's beauty
- Children not exposed to open space
- Proximity to natural beauty
- Appropriate development that preserves natural beauty and prevents sprawl
 - Have guidelines to help guide development
- Elmira is walkable, and can accommodate more residents without sprawl
- Revitalize downtown Elmira
 - Need more owner-occupied housing
- Need more bikeways and rail to trails, like Albany 40 years ago

Sustainable Energy and The Green Economy

- Improved recycling program/curbside pick up
 - Some residents have to take their recyclables to grocery stores
- Eliminate plastic shopping bags by charging for plastic or providing incentives for bringing own bag
- Loyalty card – accumulate points
- Green services are possible in this region, where other places can send their single-stream recycling to us and we can sort it
 - Use rail for transport
- Cogeneration – burn natural gas to produce electricity and use byproduct of heat
- Natural gas – finite resources. Conservation first!
- Promote resiliency by relocalizing
- Integration of municipal composting – reduce waste going to landfill
 - City and Town of Elmira has a collection site, where people get a permit to drop off their compostable waste and pick up it up a year later
 - Need more awareness of this program
- Cooperatives (community ownership), incorporate apprenticeships
- 'Local-vesting' (invest in local community – keep money local)
 - Train residents to meet local business needs, like an apprenticeship

- At a recent job fair, there were not enough qualified people to fill the available positions
- Get businesses to start owning the services typically provided by the government
- Address energy efficiency first by conducting audits and retrofitting older building.
 - Opportunity for apprenticeships and worker-owned businesses
 - Contractors should learn about audits and retrofits
 - Need worker-owned businesses - learn skills for retrofitting houses
 - Tompkins County, Schuyler, and Steuben are all doing energy audits and retrofits
- Biogas from sewage, food waste, dairy farms including smaller scale.

The Built Environment

- Need form-based zoning, which allows flexibility in the building's use, so long as it fits in the community look-and-feel – liberates the developer
 - Chains do not have to be cookie cutter – can fit the local context (e.g., Walgreens in Corning, tractor supply)
 - Allows for mixture of local and national businesses in same shopping center that have compatible scale and design
- Need to show economic benefits
 - University of New Hampshire gets much of its fuel from biomass and has been successful in showing economic benefits
- Discourage new buildings
 - In Elmira, buildings that appear to be usable are torn down and new ones are built
 - There are GHG emissions benefits in using old buildings
 - In Maryland, they changed the way they looked at building codes and made them more flexible
- Toll roads would provide nice roads
- Incentivize permeable pavements
 - May depend on the amount of paving required by zoning laws
 - Cornell has permeable blacktops
- Increase bikeability
 - There is lots of room on the roads for bike lanes
 - For more bike-friendly roads, turn the storm drains so they are not tire traps
 - Increase safety for biking
- Car sharing to reduce car ownership and car use
- Encourage permaculture and reinforce natural landscapes in landscaping (such as in medians)
- Encourage edible landscaping/urban agriculture (to have chickens, bees)
- Opportunities for green building
 - Corning Community College has a new dorm development, Hospital Redevelopment
- Encourage adaptive reuse in Elmira
 - Building reuse is the best GHG reduction strategy

Public Meeting 2 Notes – Ithaca, Tompkins County

Location:

Town of Ithaca – Town Hall
215 N. Tioga St
Ithaca, NY 14850

Date / Time: Tuesday, April 24, 2012 – 6:30pm to 8:30 pm

Facilitation Description:

During this workshop, the attendees were divided into five groups based on where they sat at the start of the evening. After the welcome and introduction and the visioning exercise, the participants were asked to work in their small groups to identify the region's strengths, weaknesses, best practices, and opportunities for each subject grouping. Then groups were asked to identify their priorities and each group presented those to the full group.

NOTE: The notes for this meeting are transcribed from what each group wrote down during their discussions. In some cases we were unable to fully interpret what was written.

Vision Phrases:

- **Transportation**
 - Basic needs nearby – walkable
 - Fewer cars than we see now – more walkable, bicycle friendly, public transit
 - Innovative transit
 - Bicycle friendly
 - Clean, green mass transit
 - Networked mass transit throughout region
 - Complete, livable streets
 - Plan streets for people and not cars
 - Accessible transport
 - Walkable, bikeable, having the ability to live without a car
 - Railroads resurgent as passenger transportation
 - Greenways for pedestrian and bike transportation
 - Walkable communities
 - Walkable/bikeable (mixed used) communities
 - Walkable community
- **Self-Support/Resiliency**
 - Resilient
 - Access to sufficient resources
 - Self-contained and self-supportive
 - Local investing supported by banks, residents, businesses
 - Sustainable family living
- **Development Patterns**
 - Vibrant main streets
 - Thriving downtowns

- Implement urban growth boundary
- Core density with outlying natural areas
- Encourage development where already urbanized areas exist
- Unimpacted natural beauty
- Protected parks, lakes, common areas
- Compact
- Multi-generational housing unites
- Expanded co-housing
- Integrated communities
- Land use planning on a regional basis but meets needs of local
- Human scale density, 2-6 stories, allowing natural and farm lands to be preserved
- Dense eco-housing with mixed use services/light industry nearby
- Clustered development with work, live, play areas centrally located
- Employment, services recreation all within walking distances
- **Water**
 - Water is used and processed efficiently
 - Citizen/community control of water resources in perpetuity
 - Clean water in all places
 - Recycle waste water
- **Integrated Nature**
 - Plants/landscapes are seen as key as bio/nano technology opporutnities
 - Youth are connected to outdoors in all educational levels
 - Civic spaces are more connected to nature (not just planters for flowers)
- **Community**
 - Know your neighbors
 - An example of what happens when people work together
 - Connected
 - Shared services
- **Economic Development and Education**
 - Jobs
 - Equitable access to employment
 - Economically viable and creating jobs
 - Re-integration of formerly incarcerated people into the workforce
 - High quality education – all levels
 - Improved graduation rates (K-12) for low income, disabled, Latino, and African American students
 - Localized economies
 - Thriving, locally based skill sets
 - Network of small enterprises
 - Reduced poverty
 - Entrepreneurial, skill-building education system
- **Mindset Changes**
 - Active and comprehensive capacity inventory
 - At least 3 benefits for each action/element
 - Thinking in long-range terms
 - Let's be more like Europe

- Aristotelian idea of virtue – balance of goals across public interests
- **Lifecycle Processes**
 - Sustainable materials management (without solid waste)
 - Design for reuse
 - Producer responsibility legislation
 - Less focused on consumption (than today)
 - End of consumerism as economic based (decommodification of economy)
- **Local Food**
 - Local food production, processing and distribution
 - Food self-sufficiency
 - Thriving local agriculture and food production
 - Strong, robust, just local food system
 - Locally produced food
 - Locally produced goods (wealth)
 - Local greenhouse gardens
 - Local food production meets needs of community
 - Small farming investment
 - Working landscapes
 - Sustainable (not corporate) agriculture
 - Productive farmland
- **Energy Efficiency**
 - Retrofit buildings
 - Energy conserving housing
 - Low energy inputs for heating, cooling, transportation
 - Efficient
 - Vigorous energy efficiency investment
 - Much more efficient building energy use
 - Reduced energy consumption
 - Extreme energy efficiency in development and buildings
- **Energy Production**
 - Not fossil fuel dependent
 - No fossil fuels for transport or heating
 - No gas fracking
 - Decentralized energy sourcing and producing – not fracking
 - Hydrofracking never happened in NY
 - Climate change mitigation to the extent possible
 - Renewable energy produced within region
 - Regional energy self-sufficiency
 - Renewable energy self-sufficiency
 - Renewable energy
 - Renewable energy supplies most energy
 - Free renewable energy and internet access
 - Renewable diesel
 - Clean energy via: solar, wind, biomass, geothermal, combined heat and power district energy
 - Micro hydro power

- Growing our fuel
- Local power
- Community energy systems
- Jobs in energy segments
- Localized green energy production

Priority Issues:

Group 1

- Energy efficiency upgrades & retrofits for existing buildings
- Feasibility for micro-hydro as a pilot or small residential/neighborhood scale
- Stream buffer systems for water quality & storm protection
 - Look at Cooperstown for best practice
- Strong local financial institutions supporting small business development
- Repurpose Emerson for mixed use residential/commercial applications
- Community aggregation for purchasing renewable energy (i.e., solar/wind)
 - Could provide local jobs

Group 2

- Dependence/addiction to fossil fuels
- Inadequate codes and standards/enforcement
- Cayuga compost/finger lakes reuse (rock!)
- Tompkins County Council of Governments (TCCOG)
- Finger Lakes Land Trust (FLLT)
- Training for green building
- Local first booklet
- Ithaca CarShare
- Fragile electric grid – not prepared (oil, gas, water)

Group 3

- Biomass
 - Growing switchgrasses and other fuels
 - Co-firing at AES coal plant
- Eliminate minimum parking requirements to promote density, walkability, and transit
- Support more sustainable forms of transportation – bike, walking, bus, carshare, train
- Preserve water quality in face of hydrofracking
- Reviving hydro-power

Group 4

- Energy:
 - No AES Corporation
 - District energy/combined heat and power (CHP) (West Hill, South Hill, Downtown)
 - Renewables
 - Energy Efficiency (residential, commercial, institutional)
- Living/Learning Lab

- CarShare
- Talent, intellectual capital
- Community branding – sustainable businesses, organizations, governments
- Water, wastewater treatment
- Strong, just food systems
- Sustainability Center (downtown)
- Challenges:
 - Shared services/inter-municipal collaboration
 - Local/regional tensions, mismatch of authority and planning
 - Funding
- Transportation
 - TRAMPE (bike lifts) [this is a system from Trondheim, Norway that helps cyclists up hills, a bit like a rope tow for your foot – see <http://www.trampe.no/english/>]
 - Connect downtown to regional trails along waterways
 - Route 13 Boulevard between Purity & Stewart Park

Group 5

- Employment centers as node for all activities
 - Infill residence and communal support
 - Less need for transport/parking
 - Rely on combined heat and power/District Energy
 - Optimize water and waste mgmt
- Energy and Energy Efficiency – leader for gathering resources and building infrastructure, driver of increased density
- Switching focus of infrastructure - rather than cars (parking and road maintenance) focus on people

Discussion Notes:

Group 1

(NOTE: check marks seen below were in group notes, they are included here for completeness)

Energy & GHG Emissions

- Microhydro as an energy source → waterfalls currently not in use → best practice in Cooperstown with firm from Boston
- Geothermal
- Solar energy aggregator (Solarize projects)
 - Group in Danby & potentially Dryden
- Feasibility of hydropower in pilot of Forest Homer
- Commercial & residential energy efficiency to upgrades and retrofits to existing building
- Adding energy efficiency curriculum to existing programs → renewables, natural gas
- EcoVillage → best practice
- Pocket neighborhoods – potential best practice

Land Use & Livable Communities

- Mixed-use properties or repurposing existing building for residential/retail

- How do we encourage change in resistant areas
- Therm & Emerson mixed use
 - Strengths: Ithaca Neighborhood Housing Services (INHS) & infrastructure is available
 - Better housing
- Need inexpensive wind & solar components, but may not be efficient at building level.
 - Need better/affordable technology for small scale
- Need for affordable housing to prevent commuter increase - how do we define affordable housing?

Working Lands & Open Space

- Utilize old farm land for different uses like organic farming/biomass development (switchgrass)
 - Rural land available for renewable energy
- Retooling of farms & farmers
 - Organic beef/crops
 - Perennial crops that can be grown with minimal land disturbance
 - Look at alternative crops
- University is excellent resource
- New farmers training is strength
- Natural gas → system approach to energy transition

Waste Management

- Existing waste management director (Barb) as a resource/consultant
- Cayuga compost as best practice
- Education at Cornell Cooperative Extension (CCE) around composting
- Agricultural waste management & methane digesters. May be opportunity ???s around efficiency
- Recycling education & outreach

Water Management

- Testing domestic well water in rural areas
- Water conservation
- Community science institute ✓
- Health department monitoring of multiple household systems ✓
- Need education & monitoring of residential water use to set benchmarking
- Protecting watershed
- Streambed preservation
 - Where they flow through farmlands. Livestock, fertilization
 - Need buffer system (with educational value) → Cooperstown best practice
- Floating classroom for all ages (best practice)
- CCE statewide focus on reducing pesticides, alternative elimination of pests

Economic Development

- Developing a qualified workforce

- Have two development finance institutions (DFIs) financial institutions in Alternatives Federal Credit Union (AFCU) & Ithaca Neighborhood Housing Services (INHS)
- Opportunities for entrepreneurship
- Providing capital & training
- AFCU & slow money for agricultural entrepreneurs
- Cayuga ION for economic development
- Ecotourism
- Strong locally focused financial institutions (strength)

→ is this across the region?

Climate Adaptation

- Hazard mitigation around flooding → encourage people to think about alternative ways to recover, i.e. not rebuilding
- Education of growing crops that are better adapted to warmer climates
- Cornell Agricultural research & development ✓ → climate change
- Increased number of pests
- Potential to lose staple industries due to climate change
- Increase in certain crops & growing seasons and loss of others (cherries)
- Opportunities for municipalities in terms of snow plows & maintenance and adding to new capital projects
- Invasion of non-native species that threaten our watershed/supply

Group 2

	Energy & GHG Emissions	Transportation	Land Use & Livable Communities	Working Lands & Open Space	Waste Management
Strengths	<ul style="list-style-type: none"> - Central distributed heating - Climate Action Plans - Density (Industrial Development Agency [IDA]) policy - Lots of committed/trained professionals – “intellectual capital” - On-bill financing 	<ul style="list-style-type: none"> - Tompkins Consolidated Area Transit (TCAT)/Metropolitan planning organization (MPO) leadership 	<ul style="list-style-type: none"> - Tompkins County Comprehensive plan - Anti-fracking networks - Good zoning - Parks – state land and Finger Lakes Land Trust (FLLT) 	<ul style="list-style-type: none"> Plenty of open space, forest etc. 	<ul style="list-style-type: none"> - Tompkins County Solid Waste Management Plan - Master composting county-wide - Recycling - Single stream systems
Challenges	<ul style="list-style-type: none"> - Dependency/addiction to fossil fuels - Transportation infrastructure - Misperception about return on investment of renewable - Old buildings 	<ul style="list-style-type: none"> - More routes - Bikeability/walkability - Lack of rail 	<ul style="list-style-type: none"> - Affordable housing - Lack of access to water/lakes - Open space/ agricultural policies - Building codes and lack of enforcement 	<ul style="list-style-type: none"> Transfer of Development Rights Codes – preserving agricultural lands and fertility 	<ul style="list-style-type: none"> - Consumer preferences for options - “Filling” needs with goods - Trucking wastes long distances
Best Practices	<ul style="list-style-type: none"> - County-wide goals: 80% reduction by 2050 - Finger lakes Climate Fund 	<ul style="list-style-type: none"> - Ithaca CarShare - Cayuga Waterfront trail regional trail network 	<ul style="list-style-type: none"> - Incentives for greener building investment - Ecovillage - FLLT 	<ul style="list-style-type: none"> - Meet more local food needs - Set regional goals 	<ul style="list-style-type: none"> - Cayuga compost - Finger Lakes Reuse Model
Opportunities	<ul style="list-style-type: none"> - Falling water (hydro power) run of river 	<ul style="list-style-type: none"> - Alternative fuel vehicles 	<ul style="list-style-type: none"> - Increasing density policies 	<ul style="list-style-type: none"> Community support agriculture (CSA) 	<ul style="list-style-type: none"> - Curbside composting

	- Old buildings can be retrofitted	- Ithaca biodiesel - Lithium battery technology	- NYSERDA - U.S. Green Building Council	growing protected agricultural district zoning	- Ban bottled water - Ban plastic bags
Pilot sites	Black oak wind farm geothermal	Innovative vanpool-type options	Aurora Dwelling Circle	New York State Forest Land = FLLT	Bio-digestion

	Water Management	Economic Development & Revitalization	Climate Change Adaptation	Governance
Strengths	Lots of clean water and access to lots of clean water	- Southern tier regional economic development council - Job creation in energy efficiency - <i>Some</i> financing for innovation	- Biomass resource - Energy efficiency infrastructure	Tompkins County Council of Governments (TCCOG)
Challenges	No regional authority Regarding hydrofracking and agricultural runoff – including vineyards Gas drilling wastewater and perception of abundance Few standards/building codes regarding grey water Hardscape surfaces/lawns	Overconsumption Transportation infrastructure – no mass transit	- Too car dependent - Not sufficiently prepared for climate disasters (floods/drought?) - Money! - Recognizing the problem - Fragile grid - Building community: share resources - Local energy self-sufficiency - Storage issues (energy) - Citizens uneducated regarding emergency management plan	- Zoning encourages sprawl - Non-taxable properties
Best Practices	- Cayuga lake watershed - Water conservation:	- Training for green building		TCCOG

	Cornell and Ithaca College	- “Local first” booklets		
Opportunities	Networks of collaboration exist	Job creation: sustainable materials management		- Protect agricultural land - More local food policies - Smart growth
Pilot sites		- Cradle to cradle – EPA – resource management - Corning developing solar		

Group 3

Energy & GHG Emissions

- Revive hydropower
- Cogeneration
 - Biomass
 - Micro-turbine
- Solarized – Madison Co.
- Property Assessed Clean Energy (PACE) financing
- Reduction through human energy
- Renewable diesel – agriculture
- Co-firing coal plant with biomass
- Emphasis of integrated land use/transit target
- Mandate building efficiency/New York City

Transportation

- Eliminate minimum parking requirements
- Develop around transit
- Improve walkability/bikability
 - CarShare
 - Bus

Land Use & Livable Communities

- Public spaces: recreation/garden/park
 - Enhance pedestrian walk/slow traffic
 - Bike ways
- Encourage housing, offices, retail and light manufacturing in existing neighborhoods
- Promotion of local foods/agriculture with incentives/subsidies
 - TDR - transfer development rights
- Supporting/expansion of systems such as
 - CarShare
 - Bus
 - Bikes

Working Lands & Open Space

- Abandoned farm land
 - Switchgrass – pellets
 - Oil seed – press oil
- Protecting open areas/natural lands
 - Agriculture

Waste Management

- Agriculture and municipal methane digester
- Localized waste management

Water Management

- Grey water usage
- Rain water containers
- Develop in urban areas/existing
- Fracking water
- Storm water management
- Municipal water sharing

Economic Development

- Eliminate minimum parking requirements
- Mixing of land uses

Climate Adaptation

- Flood zoning
- Storm water management
- Localized energy production/distribution

Governance

- Encourage inter-municipal cooperation

Group 4

Energy & GHG Emissions

- Downtown district energy paired with energy efficiency upgrades of downtown buildings
- Emerson combined heat and power (CHP)/district energy (for South Hill area including South Hill Business Campus, Ithaca College)
- West Hill district energy/CHP to include Cayuga Medical Center, Paleontological Research Institution/MoE, Holochuck, Massage School
- Energy retrofits of residential, commercial, and institutional buildings
- Wind and solar

Transportation

- Bike lift/TRAMPE
- Route 13 Steward Park – Purity as a boulevard
- Replicate CarShare
- Better connection points

Land Use & Livable Communities

- Major downtown improvements
- Make Tompkins County a living learning laboratory
- Turn Trebloc building into greenway – entry point to Six Mile/Creek
- Urban gardens – large scale
- Commercial kitchen } to address food security, health access

Working Lands & Open Space

- Lack of regional structures of authority (despite existing county/regional planning agencies)

- Tension between economic development funding at the municipal level and long term land use needs/lack of regional planning

Waste Management

- Single stream recycling and very high diversion rate
- Ambitious goals (75-80% diversion rate goal)
- Support repair businesses, alternative to throwaway society

Water Management

- Existing analyses, plans, and goals
- Aquifer studies have identified resources (cooperation among agencies and municipalities)
- General intellectual capital locally
- Challenging to collaborate with municipal officials throughout the watershed (Cayuga Lake); seen as an Ithaca concern
- MSA – challenges with implementation, unfunded mandates
- Recent experience in designing a water treatment facility; and the energy efficiency upgrades to the waste water treatment facility (Ithaca Area Waste Water Treatment Facility (IAWWTF))
- Water and sewer infrastructure – we’ve tried to constrain it within densely populated areas, practice smart growth

Economic Development

- Importance of branding our community as a place where sustainable businesses/activity thrives
 - “This is our competitive advantage”
- Tighten up our models and disseminate so others can replicate (“tech transfer”)
 - Leverage higher education as an advantage to attract \$ and support
- Next generation of manufacturing
- Agricultural base to strengthen our local economy
- Ithaca Falls Hydropower!

Climate Adaptation

- Tompkins County planning process underway
- Interest/awareness among stakeholders, public

Group 5

Energy & GHG Emissions

- Biodiesel efforts being upgraded
- Combined Heat and Power - optimize size of districts – West Hill, Commons, Emerson (___)
- Policy challenge – no feed-in tariff to allow solar access to grid
- Off peak battery storage
- All electric vehicles – energy efficiency of utility generation
- Vertically integrate energy systems

- Efficiency of residential and commercial buildings
 - Job creation
 - More effective investments
 - light industrial energy retrofits
- Challenge – landlords, renters
- Opportunity – many local folks working on energy efficiency – Get Your Green Back, Cornell Cooperative Extension
- More empowerment to homeowners and landlords to do work themselves – not just reliance on qualified contractors

Transportation

- Too much infrastructure – car parking and movement

Land Use & Livable Communities

- Disconnect between working, living, and recreating environments
- Individual access to everything needed are short distance
- Look at core amenities – locate in a node
 - Behavioral biases – how to be independent without sprawl
- Affordable housing near work and shopping
- How to reurbanize our communities – reserve outlying areas for higher value uses than housing

Waste Management

- Curbside organics collection – diversion of waste
 - Reuse or recycle – digester
 - Upcycling of other waste – yogurt cups
- Challenges – aerobic compost – release of greenhouse gases

Water Management

- Already have many active local interest groups (CLIMO , C_WN, Cornell University Water Resources Institute (CU WRI), Water Resources Council (WRC)) – take advantage of our head start
- Coordination of waste water management practice – similar standards and criteria
 - Risk mitigation
 - Optimize performance
- Increase green canopy and vegetative cover
 - Ground, roofs, impervious surfaces
 - Aids in addressing extreme weather events
 - Greenspaces – improve mental health
- Greater opportunities for water storage
- Avoid brining of water from fracking waste water disposal and leakage
- Localized management plans – less than municipal size – aggregation of landowners
- Find septage regulations that will enable the recycling of human nutrients
- Highest value of land – food production, biomass, open space
- Challenges

- Multijurisdictional cooperation and across often competing interest groups
- Skill building – need resources to coordinate

Public Meeting 3 Notes – Delaware County, NY

Location:

SUNY Delhi
2 Main Street
Delhi, NY 13753

Date /Time: Wednesday, April 25, 2012 – 7:30 pm to 9:30 pm

Facilitation Description:

During this workshop, the participants were asked to provide the region's strengths, weaknesses, best practices, and opportunities for each subject grouping. Then, the participants were asked to identify the priorities.

Vision Phrases:

- **Economic Development**
 - Strong small business in downtowns
 - Main St. revitalized
 - Economic equality for a diverse population rather than bi-polar economics of the bell curve extremes
 - Local jobs
 - Local sustainable jobs, competitive
 - Stronger tourism base
- **Agriculture**
 - Agricultural community thriving
 - More organic farms
 - Agriculture is still an important part of the county economy
- **Community Support and Services**
 - Vibrant and resilient community capable and willing to life's challenges
 - Shared resources for public services – water quality, tourism, recycle/reuse
 - The community is self-reliant for energy, food, housing
 - Efficient government
 - Cities and villages – community wide not-for-profit heating, cooling, and electricity
 - Child care and elder care
- **Community Values**
 - Sense of community
 - The community returns it's friendliness, traditions, and heritage
 - Friendly people
 - Community that has accommodate a cross section of people from different economic circumstances
- **Development Patterns**
 - More housing choices
 - Mixed use/mixed income communities

- Smart code supporting smart growth
- Link transportation and land use
- **Transportation**
 - More transportation choices
 - Quality clean fuel and rail service for both passengers and freight
 - Community, public transportation, bike trails, walk trails, trolley
- **Natural Resources**
 - Natural resource appreciation
 - Abundant resources available
 - Maintain fresh water and fresh air
 - Natural resources (i.e., water, gas, etc) are valued and recognized by end users as supplied by the watershed region – equal partners in watershed management

Priority Issues:

- County Energy Plan underway
- Need to learn from what was done wrong – New York City Watershed funds a lot of agriculture Best Management Practices (BMPs). Watershed Management Plan prepared in 1997. \$10m spent since. Continue this.
- Flood mitigation relocation planning
- Hamlet Strategy Plan and grey field development – Main Street revitalization
 - Linked to floodplain relocation
- Biomass under investigation
 - A lot of wood energy production – individuals, 3 pellet manufacturers (1 from grass, 1 from trees, 1 from pallets) and stove manufacturer. Expand on this cluster
- Wind energy

Discussion Notes:

Strengths

- National natural resources – water, forest, streams, beauty
 - Opportunities to harness open space, maybe for hydro power?
 - At one point, all towns had a mill
- Blue stone commodities and mining by Hancock
- Self-reliant citizens – high volunteer spirit – fire department and most local government positions are volunteer
- Have a board of supervisors, but no legislature
- Hydro / Micro hydro
- County Energy Plan underway
 - Proactive planning
- Need to learn from what was done wrong – New York City Watershed funds a lot of agriculture BMPs. Watershed Management Plan prepared in 1997. \$10m spent since.
 - Community septic system: to provide the system on the cheek instead of putting in a full-blown system. It achieved same goal of ground water improvement.
 - 4 developed. Up to 50 houses each (plus or minus a few houses).
- Community stormwater program, bridges and roads, highway management program
 - Stream corridor

- Flood mitigation relocation planning
 - Relocating buildings out of flood areas, but not out of the town
 - Asking city to partner in the move
 - Impact on affordability – takes away the need for flood insurance
 - FEMA (Federal Emergency Management Agency)
 - Most people left when they were bought out in 2006 because they could not afford to come back
- Emergency response is excellent because there is a flood every 2 years.
 - Have full-scale emergency operation
 - When there was a regional flood problem, saw others fail in their response
 - Department of Emergency Services has an extensive flood emergency plan/procedure
- County is doing a heritage railroad plan
 - Would like to do an inventory with all of the Southern Tier and get an inventory of tourism opportunities

Sustainable Energy and the Green Economy

- An economic impact analysis was done on the effects of the NYC Department of Environmental Protection (DEP) regulations
- The region has strong energy cluster for capacitors, transistors, and circuit boards
- SUNY Delhi has nationally recognized photovoltaic (PV) program
- Delaware County Rural Electric Co-op. is looking into wind farms
- SUNY Delhi's green initiatives include PV array and geothermal for institutional buildings
- Geothermal also used at Sidney Federal Credit Union
- Delaware County is a pioneer in the solar hot water (solar hydro) arena
 - Silicon Solar from Sidney does vacuum tube solar hydro (they've changed their name and are now located in Ithaca)
- SUNY Delhi has an 8-year program for on-site wastewater treatment training
 - The demonstration site at Skaneateles Lake has 14 different configurations that Delhi was showcasing through DEP
- Had a proposed plan from 1991, with \$150,000 funded through ARC [?] and dedicated to effluent irrigation at golf course without increasing the footprint and expanding the plant
 - Still need some money
- The region is an innovator in manufacturing
 - Many patents are from this region but not well advertised
- Biomass under investigation
 - A lot of wood energy production – individuals, 3 pellet manufacturers (1 from grass, 1 from trees, 1 from pallets) and stove manufacturer
 - The manufacturers are Deposit, Davenport, and Franklin Environ
- Constitution Pipeline (carrying natural gas) follows I-86 to avoid the watershed in Delaware County
 - Potential that Delaware County could access the gas and bring natural gas to the community
- Wind energy challenged by second home owners

- Regional economic development has funding to support economic development
 - County board supervisors have initiative to target more agricultural economy and provide more small business loans

The Built Environment

- More coordination of travel services underway
 - Office of Aging could coordinate for transit
 - No money to institute transit service
- Grey Field Development
- Infill in villages or hamlets
- Rail Heritage Study - active

Public Meeting 4 Notes – Chenango-Binghamton, NY

Location:

Town of Chenango
1529 New York 12
Binghamton, NY 13901

Date /Time: Thursday, April 26, 2012 – 7:00pm to 9:00pm

Facilitation Description:

During this workshop, the participants were asked to provide the region's strengths, weaknesses, best practices, and opportunities for each subject grouping. Then, the participants were asked to identify the priorities.

Vision Phrases:

- **Transportation**
 - Passenger rail connects cities and towns to each other and NYC
 - Transportation, high speed rail throughout the country, especially the Southern Tier
 - Auto use in urban areas is de-emphasized (i.e., plan for pedestrians, bicycles, trollies, etc.
 - Local transportation options – bike paths, rideshare, passenger train to NYC.
 - Walkable
- **Equitable Development**
 - Social equity
 - Lift as we climb all people enjoy the fruits of their labor – none are excluded, abundance for all
 - Quality of life and well-being of all residents, current and future
- **Community Vitality**
 - Vibrant downtowns
 - Schools are located in community centers
 - Each community has a working, organized plan for residential and commercial development
 - Governing our own commons
- **Local Food**
 - Local food
 - Local farming dominates in the food markets
 - Many small farms
- **Health**
 - Health care, easy access affordable
 - Healthy
 - Healthy food
 - Address urban and rural food deserts

- **Resource Conservation**
 - Recycling
 - Reduce, re-use, recycle
 - Zero waste
 - As close to zero waste as possible
 - Environmentally friendly
 - Cohabitat of green gardens with buildings using more natural light, recycling, reuse
- **Natural Resources**
 - Clean water
 - Clean air and water
 - Clean air, water
 - Unpolluted waters
 - Beautiful landscape
 - Open spaces and unspoiled forests
- **Energy Production**
 - Domestic energy
 - Energy mostly from renewables
- **Economy**
 - Collective bargaining
 - Products made in the USA
 - Less dependence on globalization
 - Thriving co-operative movement
 - Self-reliant, localized economics/ production for local use
 - Thriving community employment – sustainable jobs, service-oriented jobs, call center, technology, renewable/manufacture
 - Fulfilling jobs
 - Economically friendly
- **Education-Industry Connection**
 - University research with local start-up
 - Educated
 - Schools, industry, community share resources talent-training; cross pollinate for work force development

Priority Issues:

- Localization, unique business. Not national chains.
- Too much focus on import/export
 - Need focus on local production for local needs
- Need cultural change
 - Culture does not invite people to stay
- Conservation – Biggest bang for the buck
- Get government out of the way of energy efficiency and green jobs programs
 - Frequent changes to government programs
- No top-down economic development
- Secure jobs with benefits for youth → to allow for housing & homeownership. How can green economy create these jobs?

- Excess capacity/housing in Binghamton Region. State role – pay to clear land, incentivize green technology. Give land, tax deferred for 10 years. Repopulate city, excess capacity.
- Incentivize development, tax increment financing
- Brownfield opportunity area (BOA). Mitigate environmental hazards.
- Home Rule
- Need elected officials to share vision for livable, healthy communities.
- Invest 1% of pension funds in the communities where workers reside
- Resource Recovery park → Local production
- Passenger rail

Discussion Notes:

Strengths

- Sustainable Planning at city!
- Network—Public Interest—Human Capital—Collaboration
- Local Waterfront Revitalization Program (LWRP) completed in county
- City of Binghamton Climate Action Plan
- Gas Drilling as a distraction
- Real economic development → Manufacturing traditional industries. Retraining.
- Take advantage of skills and experience
- How to create vibrant economy in age of decline
- Corning technology could transfer to small business
- Localization, unique business. Not national chains.
- Educational resources → Technology transfer, training, new business
- Innovation, creativity. Hot Bed.
- Health care industry
- Cultural tourism & arts
- No recognition that we are in a crisis on part of leadership
- How to change the future

Weaknesses

- Lots of disbelief, re: green economy
- Resistance to wind power, other opportunities
 - Need education, outreach
- Distrust of “economic development”
- Too much focus on import/export
 - Need focus on local production for local needs
- Youth see no reason to stay here
 - Lack of livable jobs
- Need cultural change
 - Culture does not invite people to stay
- Aging, declining population
 - Need to create conditions that will allow the future to flourish

Sustainable Energy and The Green Economy

- Conservation – Biggest bang for the buck

- Need education and funding for conversation (especially energy efficiency projects and programs)
 - Green jobs – Green N.Y. is a NYSERDA program but it is struggling
- Get government out of the way of energy efficiency and green jobs programs
 - Frequent changes to government programs
- Lots going on in the state, but very inefficient
 - Duplication, overlap, waste
 - Make all state department regions consistent – New York State Department of Transportation (NYSDOT), New York State Department of Environmental Conservation (NYSDEC), Regional Economic Development Center (REDC), etc.
 - Rural county networks not coordinated and they stop at county borders
- Look at technology, information exchange
- This region gets torn apart depending on State program
- The plan must address how a green economy will help people get jobs, with more foreclosures happening and more young people with educational debts
- Need to bring manufacturing back here
 - Solar energy: inverter technology; perhaps someone from a university could do a small start-up leveraging the technology
 - It is sad that Germany is developing a lot of solar technologies that were created here
- With great schools and intellect, need to incubate a tie between industry and university to have pilot projects related to reverse manufacturing or solar powers
- Entrepreneurship, not top-down economic development
 - Collaborate at local level, not top-down
 - As an example, there is a proposal in to the Regional Economic Development – there is a fish farmer in Cortland who would like to expand but can't go to bank or private investor. Community Wealth will invest and he can pay back when he starts making money

The Built Environment

- Incentivize development, tax increment financing
- Brownfield opportunity area (BOA). Mitigate environmental hazards.
- Home Rule – Communities
 - Competing for development
 - Elected officials do not have nerve to ask developers for high quality projects
- Redevelop cities & villages, redo main street
- Binghamton Regional Sustainability Coalition – great start, then some institutional resistance
- Need elected officials to share vision for livable, healthy communities
 - Could do charrettes and need Council of governments
- Invest 1% of pension funds in the communities where workers reside
- Livable community alliance—Co-op happens but not at elected official level
 - Need coherent strategy especially around all comprehensive plans
- Best practices need to be in scale to this region
- Need educational process to show how to get this done and need policy

- Resource Recovery park → Local production
- Need high speed passenger rail, where Binghamton is the center. It could go to Syracuse and also to the east and west
- Southern Tier as NYC Food Shed
- Virtual workforce/Telecommute
- Artistic wind turbines
- Excess capacity/housing in Binghamton Region. State role – pay to clear land, incentivize green technology. Give land, tax deferred for 10 years. Repopulate city, excess capacity.

Cleaner Greener Southern Tier Plan
Stakeholder Group Kick-off
April 23 – 26, 2012

Stakeholder Group Meeting Overview

Twelve stakeholder Stakeholder Groups were held in late April 2012 to gather input on the Cleaner Greener Southern Tier region's strengths, opportunities, and current best practices. Stakeholders were identified and invited by the Cleaner Greener Southern Tier Planning Team (the Southern Tier Central Planning and Development Board, the Southern Tier East Regional Planning Development Board, and Tompkins County. Four or five Stakeholder Groups were held in each Planning Team member's region.

In addition to the Stakeholder Groups, an initial meeting was held with the Cleaner Greener Southern Tier Regional Consortium to introduce the project and gather input on the region's strengths, opportunities, and current initiatives. Brief summaries of the meetings are provided below, followed by full meeting summaries with lists of attendees.

Consortium Meeting

The Cleaner Greener Southern Tier Regional Consortium is an invited public interest group that will have a higher level of engagement with the project and will provide input at critical junctures. The first meeting of this group was held in conjunction with the public kick-off meetings in late April 2012. 26 member representatives attended this meeting. The meeting introduced the project in some detail, outlined schedule and deliverables, and discussed the region's strengths and opportunities. The group highlighted various existing initiatives and opportunities addressing economic development, transportation, energy efficiency, waste management, and agriculture. The group discussed the important of collaboration and coordination among all the municipalities and educational institutions, especially in sharing information and best practices.

Stakeholder Groups

Southern Tier Central

- Stakeholder Group 1: Attended by representatives from Corning Hospital and Cornell Cooperative Extension of Schuyler County. They discussed housing and employment, regional planning, some issues around redevelopment, and transportation. The challenges and opportunities of the mostly rural communities in this region was a common theme.
- Stakeholder Group 2: Attended by a representative from the Town of Prattsburgh, who discussed energy efficiency opportunities for a rural town – such as leveraging wind energy projects and supporting the natural gas economy through various strategies – and opportunities to reuse two abandoned manufacturing plants and the potential brownfield concerns. Other discussions addressed existing issues in Prattsburgh, such as the state of the agriculture industry, sewer and waste management issues, a water system improvement initiative, and current governance efforts.
- Stakeholder Group 3: Attended by representatives from the Elmira/Corning Regional Airport, Steuben County Industrial Development Agency, and the Cornell Cooperative

Extension of Schuyler County. They discussed the region's agricultural assets for economic development, the impacts of the gas industry and the potential for wind energy, and planning and growth issues related to business siting, redevelopment, and telecommunications.

- Stakeholder Group 4: Attended by representatives from the City of Elmira, the Town of Corning, USDA Cooperative Extension, and an involved citizen. They discussed the energy opportunities in the Corning region, such as some low-hanging fruit to address energy efficiency ideas and existing best practice projects. The attendees also noted the impact of the energy-related economic opportunities on the housing economy.

Tompkins County

- Stakeholder Group 1 – Elected Officials: Attended by Legislators from Tompkins County and Supervisors from the towns of Dryden, Ithaca, and Ulysses. This Stakeholder Group mainly discussed ideas for energy production in the region and greater energy efficiency. The group also discussed agriculture and local food, and growth and development in Tompkins County.
- Stakeholder Group 2 – Land Use, Transportation, and Development: Attended by representatives from Cornell University, ITCTC, Tompkins County Area Development, Tompkins County Sustainability Center, Local First Ithaca, Town of Ithaca, and Alternatives Federal Credit Union. The attendees touted the economic development collaboration group as a good practice to help the municipalities and local stakeholders forge cross-agency relationships and a reason for successes in different plans and projects. However, they state more coordination among the different municipalities was needed. The attendees identified opportunities for partnerships between the educational institutions and private industries and for the need to focus the educational research to benefit the region. The attendees identified some areas ripe for community development initiatives.
- Stakeholder Group 3 – Rural, Agriculture, and Conservation: Attended by representatives from the New York Farm Bureau, the Cornell Cooperative Extension of Tompkins County, the Finger Lakes Land Trust, Black Oak Wind, and the Danby Land Bank. The attendees focused heavily on the issues of local food, small farms, protecting working farms and open space, and potential links to energy production and small town development. Locally supported wind power generation and the market hurdles to such an approach was also discussed.
- Stakeholder Group 4 – Energy, Environment, and Livable Communities: Attended by representatives from Tompkins County Office for the Aging, EcoVillage, Tompkins County Environmental Management Council, Cornell University, Tompkins County Climate Protection Initiative, Tompkins County Planning Department, and Tompkins Community Action. The attendees mentioned many implemented projects that addressed energy efficiency, alternative energies, transportation improvements, walkability and bike-ability, agricultural studies, and economic development. The attendees agreed that the area's accomplishments needed to be better promoted and that better partnerships could result in more successes.

Southern Tier East

- Stakeholder Group 0 – Delaware County Government and NYC Department of Environmental Protection: Attended by representatives from Delaware County planning and Delaware County Solid Waste Management Center & Compost Facility. This group discussed the challenges to development in Delaware County due to added regulations from the NYC Department of Environmental Protection. The conversation also highlighted many of the region's natural resource assets that can support its growth. The attendees highlighted the County's leadership in solid waste.
- Stakeholder Group 1 – Employers/Private Sector: None of the invitees to this meeting came to this session. Representatives from Lands Hospital invited to this session did attend a portion of Stakeholder Group 4 later in the day.
- Stakeholder Group 2 – Energy Production/Efficiency: Attended by representatives from Binghamton Sustainability, Tompkins-Cortland Community College, Broome Biomass, SPC (a NYSERDA consultant), the Cornell Cooperative Extension of Broome County, Binghamton University, and the Cornell Cooperative Extension of Tompkins County. This group highlighted the region's burgeoning sustainability movement in the community and schools, particularly in the area of energy efficiency, which also provides job development opportunities. Local food and agriculture were also addressed. The discussion developed ideas around energy production from agricultural waste or other products. Transportation was highlighted as an overlooked area of energy savings, and as part of the basis for a strategy to revitalize village centers as hubs for their communities.
- Stakeholder Group 3 – Forestry/Conservation: Attended by representatives from Southern Tier East, Chenango County Farm Bureau, and Cornell Cooperative Extension of Chemung County. The discussion focused around agricultural issues and opportunities in the area to promote economic growth, such as finding ways to ensure the Greek-yogurt producer, Chobani, to continue producing from the area. The attendees discussed support needed to pursue biodiesel interests. The support would include educational research support for farmers to grow oil seed crops and opportunities to install a biodiesel production plant.
- Stakeholder Group 4 – Governance/Planning: Attended by representatives from Tioga County, Chenango County, Broome County (Planning and Solid Waste), Delaware County, the City of Binghamton, the Binghamton-County Joint Sewage Board; Binghamton Metropolitan Transportation Study; Wendel Energy; and Lands Hospital. This group highlighted the need for regional coordination and regional approaches to addressing many of their issues, but also noted the challenges to achieving cooperation. Community revitalization was a key idea, looking at infill development, recovery from the floods, trying to move development out of the floodplain over time, and the need for funding. Energy issues were discussed with relation to energy efficiency and NYSERDA funding; the potential for strategies like cogeneration, combined heat and power, and biomass; and natural gas.

Consortium Kick-Off Meeting Notes

Location:

Three Rivers Development Foundation
114 Pine St., Suite 201
Corning, NY 14830

Date / Time: Monday, April 23, 2012 – 1:00 pm to 3:00 pm

Attendees:

Jim Arey	Elmira-Chemung Transportation Council (ECTC)	Rocky Kambo	Schuyler County
Jack Benjamin	Three Rivers Development Corporation	Jill Koski	Southern Tier Economic Growth
Marian Brown	Ithaca College	Amelia LoDolce	City of Binghamton
Jim Cummings	Shumaker Consulting Engineering	Ed Marx	Tompkins County
Fernando DeAragon	Ithaca-Tompkins County Transportation Council (ITCTC)	Erik Miller	Southern Tier East
Sandy DeJohn	Binghamton University	Jen Miller	City of Elmira
Amy Dlugos	Steuben County	Tim O’Hearn	Schuyler County Administrator
Kathleen Douglas	Corning Community College (CCC)	Steven Palmetier	Natural Gas consultant to Chenango County
Todd Dreyer	City of Norwich	Caroline Quidort	City of Binghamton
Beth Egitto	Broome County	Dan Roth	Cornell University
Tom Giles	Farm Bureau	Ken Schlather	Tompkins County
Danielle Hautaniemi	Schuyler County	Jim Turner	Tompkins-Cortland Community College
Elaine Jardine	Tioga County	Marcia Weber	Southern Tier Central

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, Stephanie Trainor, and Eva Hsu.

Concerns

- Has a determination been made on the greenhouse gas (GHG) emissions from natural gas and if they were comparable to oil (i.e., whether a vehicle running on natural gas uses less energy than one running on oil)?
 - It would depend on many factors, including the vehicle use, technologies being employed, and life cycle emissions.
 - The sustainability plan should state how the region plans to move away from fossil fuel use.
 - To reach the goal of reducing GHG emissions, the plan must first set a goal to use renewable energy sources.
 - While NYSERDA has set the GHG emissions reduction goal for the state, this effort will set the goal for this particular region.
- From the transportation standpoint, the region is employing alternative transportation routes.

- Hydrofracking could provide smaller communities a natural gas alternative energy option.
- School districts could save a lot of money using natural gas.
- CCC is spread across five locations. There is a need to implement a shuttle to help students transport to each location, so they do not drive between each location. However, the fund to bring these shuttles into reality is missing.
- The region needs to look at a different model for public transit that is more successful and financially feasible to serve the community as a whole.
- Many transportation programs have been implemented, but the challenge is marketing the programs. Public outreach is crucial.
- How will this plan provide the quantifiable results that NYSERDA likes, particularly in the transportation realm?
 - This plan will identify which results to track.
 - This plan will make an effort to look beyond the energy and GHG analysis, to job opportunities and other benefits available from the other sectors.
- Intraregional transportation considerations are important, but interregional is important as well. In Binghamton, the transportation issues spread in all directions, so transportation needs to be looked at from this lens.
- This is a heavily forested region. The plan must consider this region's carbon sink potential as well as its ability manufacture forest products and offer recreational activities.
 - A study found that forest owners are owning smaller acreages than in the past.
 - There's an opportunity to get forest mills credited as sustainable.
- A study on using wood biomass as an electricity generator found it would not be cost effective.
- How will the GHG analysis for the effects of local food be conducted?
 - The baseline GHG inventory will not go into that level of detail.
 - An adhoc analysis can be conducted when addressing the performance measures.

Best Practices and Initiatives

- In Binghamton, energy efficiency is most cost effective way to reduce energy and save money. Binghamton has been replicating an energy savings program by using the public policy education fund to educate homeowners about the program and get them into the process and guide them through the process to make homes more energy efficient.
 - Concerned that NYSERDA wants to fund *new* projects and how existing projects can be supported.
 - Harrison provided an idea of how to leverage the existing project: A program that consists of program implementers who go around the neighborhood and show examples of other people in the neighborhood who are saving money utilizing energy efficiency strategies – a form of “keeping up with the Joneses” mentality.
- An on-going Southern Region study on better strategies to help folks travel between counties – and address the SOV travel. The study has identified that 25,000 people commute in and out of Tompkins County could have the most benefit from a coordinated program. The study is looking at medical trips, shopping trips, and commute trips and trying to come up with better options for people who move intercounty.
- Rural health network is working on a mobility health program.

- Broome and Tioga have a GreenRide program.
- Chemung is working with 511NY a pilot on ridesharing.
 - The question is the program will be marketed and sustained, if the county does not have the resources to manage it.
- The public shows interest in rail, but the region is told rail is not feasible. The Binghamton region seems to be left out of the discussion for an east-west passenger rail corridor.
 - A small group of council people started looking at rail, but has since converged on the point to point bus service as more feasible and efficient.
 - Cornell has great success is moving people from this region to New York City (NYC).
 - CATO institute did study on moving people from SOV to bus.
- The commercial building energy efficiency sector offers good rebates.
 - Tompkins County's studies found more than 80% of commercial builders are interested in energy efficiency and saving energy costs. There is a real opportunity for growth for businesses doing energy efficiency work.
- The Binghamton/Johnson City joint sewage treatment plan put out an RFP to do infiltration study to locate the sewage system breakdowns and where water is infiltrating the system.
 - The problem is, Binghamton and Johnson City own the treatment plant but five other municipalities are paying a large chunk for treatment. Need a credit trading for inside/outside users.
- City of Binghamton found that their sewage treatment plant is single largest source of emissions - they spend \$3M per year. They are interested in adopting alternative energy generation systems from microhydro turbines, but it's hard to invest in them.
 - How to meet TMDL
- Schenectady has a theater that installed a combined heat/power system including sidewalk heating to prevent ice accumulation.
- As a result of a competition by Binghamton students, FAA funded a study to install a geothermal heat pump system at the regional airport to eliminate deplowing aprons (airport ramps), which cuts down on the amount of salt and calcium chloride needed.
- Starting 2 years ago with USDA, Cornell is conducting research on how to manage forests to maintain and maximize biodiversity while maintaining carbon sequestration.
- Finger Lakes Climate Fund
- Municipal Electric and Gas Alliance (MEGA) bids for renewable energy credits
- Schuyler County looked at what wineries could do with their waste products.
 - Problem was the wineries produce small volumes of waste and are spread out across a large region, so transportation becomes an immediate barrier. The Auburn area has a program, but is tied to manufacturing.
- Need someone to make long-term commitment (not dependent on economic ups and downs) to take farm waste for biofuel.

CGST Southern Tier Central Stakeholder Group 1

Location:

Three Rivers Development Foundation
114 Pine St., Suite 201
Corning, NY 14830

Date / Time: Monday, April 23, 2012 – 3:30 pm to 5:30 pm

Attendees:

Shirley Magana	Corning Hospital/Guthrie Health System, President
Bruce Graves	Corning Hospital/Guthrie Health System, Facilities
Danielle Hautaniemi	Cornell Cooperative Extension of Schuyler County, Executive Director

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Stephanie Trainor.

Background on the Guthrie Health System: The system is around the PA northern tier/ NY southern tier region. Half of their employees and about half of the patient volume are from New York. In total they have over 600 employees, which are about 450 FTEs. The main campus is in Sayre, PA; the main NY hospital in the system is Corning Hospital. They also have 21 satellite campuses/clinics in PA and NY.

Corning Hospital is currently building a new campus. They are right now located in downtown Corning on a 6 acre site. They are moving to a new campus 4.5 miles from current site on 71 acres in the Town (not City) of Corning; the hospital will occupy 32 of those acres. The current plan is to have the new hospital (still in design phase) be LEED Silver certified.

Once they move, the old hospital will be torn down. They are working with City and a consultant on redevelopment of the site and hope to have a plan by Dec of this year. One of the issues is that their 6 acres are not all contiguous currently. [opportunity site]

Background on CCE of Schuyler County: Each county has its own cooperative extension, so there are some differences in what each county is doing.

Discussion by topic area:

Energy Efficiency and Energy Issues

- From an overall system perspective, there is no discussion of energy or sustainability issues.
- The new hospital is the new model for Guthrie for more efficient and more green, more user friendly buildings. The recommendation is for the new building to be LEED Silver certified; at one time there were discussions of rainwater storage and green roof for the building.
- Guthrie's main facilities in Sayre, PA has looked into renewable energy systems
- CCE has program to help people behind on utility bills and residential energy efficiency. The Chamber of Commerce is very interested in promoting energy efficiency, but they are finding it is much harder to get manufacturers on board.
- There is some work on home energy audits in the area. There is a very small pot of NYSERDA funding for Schuyler and Chemung that came through Cornell, with

AmeriCorps senior corps. They only have about 4 trained volunteers now. The program was very successful in Tompkins and Binghamton, but it relied on student volunteers there and this area of the region cannot do that. Instead, they are looking at retiree volunteers.

- Renewable energy is under development - Watkins Glen has 2 brine salt plants (Cargill Salt and US Salt). The Cargill Salt plant generates their own energy and also sells it to the municipal power authority. US Salt has a new biomass facility (woodchip gasification). The facility has not been up and running consistently due to some problems. US Salt has 2 controversial energy-related plans:
 - One is working with Inergy to store LPG in the salt caverns they pull the salt out of. They are trying to get approval for 4 caverns, but there is a lot of regional concern around this (what if there were catastrophic failure?, what about the truck traffic to move the LPG in?). They have run into a lot of the regional opposition to the hydrofracking issue, on the idea that if we were not hydrofracking they wouldn't need storage
 - The other project would be using the caverns for storing compressed air to power wind power projects. This will probably also be controversial, but still early in permitting phases.

Waste

- The hospital/system has done a fair amount of the last 2 years to deal with managing medical waste. For example, they solidify all the liquid waste that comes out of the operating room. The hospital does a basic level of recycling.

Transportation

- In terms of ridesharing, the hospital does not currently work with a rideshare provider, but they do know it is an opportunity. There are some folks that carpool, but nothing centralized. They would be willing to participate in a program if they had employees that wanted to participate.
 - As they move to their new campus, they want buses or shuttles that go into the transit center that is under development in downtown Corning.
 - The Dayspring Assisted Living facility is across the street from the current hospital and houses about 300 residents on the whole campus (different levels of care). They want to work with the bus system to potentially help transport them.
- Schuyler County no longer has bus system connecting to Ithaca (stopped running about 3 years ago). It previously was used by a mix of professional and service industry folks and it was a big loss when it stopped running.

Housing

- There is a real need for reasonable cost housing. On the one hand there are low-income housing issues. Anecdotally the region is already seeing the spillover from PA fracking and are worried about low income residents if drilling comes to NY. Across the border in Bradford County, PA, housing values/costs doubled or even tripled when the gas industry hit hard. The hospital could have interest in providing support for affordable housing depending what happens with fracking. Most of their lower income workers already live further west.

- It is also hard to find appropriate housing for the physicians they are recruiting. For example, the hospital recruited a manager for Corning and he is living in Ithaca. In Sayre, PA, when nice houses come on the market, local employees bring it to the attention of the CFO and 9 times out of 10 the hospital purchases the house to rent to visiting physicians. In this area, townhomes downtown might do very well for a certain type of resident who is looking for “nice” areas, and it could really help with physician and professional recruiting.

Healthy Living

- For their own staff and patients, the hospital wants to have walk and bike paths around the new campus.
- The hospital is working with obesity programs and is very involved with community leaders through Steuben County Dept of Public Health and the Rural Health Network. The group meets on a monthly basis to discuss childhood obesity
 - They are launching their 5,2,1,0 Initiative – 5 fruits and veggies, less than 2 hours of screen time, 1 hour of activity, 0 sweets and drinks

Workforce

- The region has issues getting good applicants for the entry level positions. There was recently a meeting with the Chamber and other groups to discuss this and they found out, for example, that hotels are having trouble finding good applicants.
 - Who to ask for more information on that: Jack Benjamin (STC) and Denise Ackley (Chamber president)

Agriculture and Natural Resources

- CCE tries to help landowners understand that they can realize a profit on their land when they manage it well, so they don’t just sell it off. One area of work is with forests - they have a forester on staff and there is a lot of interest in silvopasturing (using forest landscapes to raise livestock).
- In the plan, we need to make sure working landscapes and open space is not an afterthought and something around the edges. The only way you are going to have a successful rural landscape is if it has value, so it is not better to sprawl.
- Agricultural research is being done on biomass and other things that could impact energy. The need is for translating research into startups that create jobs. The Town of Danby is looking at potential cooperative for small biomass production.

Local Planning

- The Cooperative Extension is contracted by the county to do community and land use planning. This is a unique arrangement in the region (and state?). Schuyler County has 12 municipalities, 4 villages, and 18,000 people; they are losing people.
 - The extension is working with 4 municipalities right now on comprehensive plans and trying to engage them in thinking about energy in their comprehensive plans and the opportunities around that. This is a hard topic for them. They are interested in energy use and issues of national security, but GHGs are a nonstarter. There is a strong tea party movement in this area

Regional Development

- The focus is along I-86 and the sense is that developers will only turn to downtown reuse after they use up the farms near the interchanges. It is a mindset issue: people want their suburban neighborhoods up on the hills, business/industry along the interstate.
- The region has a problem of talking about development and assuming that it means greenfield development. There is not much interest in redevelopment.
- New York State used to have a very good program for brownfields (Restore NY), but that money isn't necessarily there anymore. Schuylar County was able to use on 3 separate sites: turning an old school into market rate apartments with daycare downstairs, turning a historic hotel property into market rate apartments with commercial downstairs, and converting an industrial property to (missed what it became).
- There is a venture fund from Regional Economic Development and Energy Corporation – STC+STE seeded the fund – but it is lacking the matching funds.

What does this region need across all sectors to help with sustainability?

- Jobs
- Housing
- Workforce
- Infrastructure support for development, particularly transportation. There is the potential growth of travel on roadways and while ridesharing can do something, the region needs something with more investment, more systemic.
- Housing, workforce, and transportation issues are really tied together for this region: workers end up driving until they can find affordable housing, but the transit system is no longer there to help them get around.
- Linking agriculture to energy.

CGST Southern Tier Central Stakeholder Group 2

Location:

Southern Tier Central Regional Planning and Development Board
8 Denison Parkway East, Suite 310
Corning, NY 14830

Date / Time: Tuesday, April 24, 2012 – 8:00 am to 10:00 am

Attendees:

Leonard McConnell	Town of Prattsburgh
-------------------	---------------------

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Eva Hsu

The attendee is the Town Supervisor for Prattsburgh and worked for NYSEG for many years. Prattsburgh is a combined town and small village. Small schools are disappearing for the bigger colleges and universities, so it's hard to keep students in the area. The school has an agriculture program and a shop program. Expanding those technical programs could entice students to the area.

Energy and GHG Emissions

Energy is most urgent issue - wind, natural gas, and solar issues. Federal and state government are invested. Coal plants have shut down, so the question is what will take the place of coal.

Wind

- Ecogen has been trying for a wind farm project in Prattsburgh for 10 years on the 125,000 acres it owns – originally 100 windmills, now is 16.
 - EIS completed and approved by state. Approval was being held up by the argument that Ecogen hasn't been vested (bought property but hasn't put a shale in the ground).
- Fab 25 is an anti-wind group
 - Mostly from Syracuse, Rochester, etc (outside of Prattsburgh)
- People living in Prattsburgh see windmills as part of the working landscape, same as silos.
- According to NY State law, the town can approve wind farm project. Town has spent close to 150 hours in litigation. Len wants to stop the litigation and just move on. Article X (requires new wind farm projects reviewed by a panel of state and local officials under DEC guidelines), to Len, seems to state that the plan needs to identify the site of each windmill.
- People from Naples are against wind farm project, but it's interesting to note that Naples has a wind farm and you drive down Main Street in Naples and see the wind mills.
- BEST PRACTICE: Michigan windfarm project – 50/60 windmills on a farm. Town owns 2 of them (town put them up and own them), so they get all the benefits off them and gives town taxes.
 - Supposedly, New York doesn't allow town ownership of windmills.
- INITIATIVE: Putting windmills on rooftops in NYC.
- STUDY: Jeff Checket studies wind vs shale gas energy inputs, to see which is more energy efficient.) and wife lived through Wisconsin drilling boom-bust era.

- Could use local people to put in windfarms, after training.

Solar

- May be better and more promising than wind.
- There were a couple startup companies but they faded away. Just need more development.
- Would be great to move solar production into one of empty, old manufacturing buildings.

Natural Gas

- Could be better regulated and done in a more environmental friendly manner, unlike in Pennsylvania.
- Set up a treatment plant for the water used for hydrofracking.
- Could use compressed air instead of water.
- Should be training and using local people.
- Set up the municipalities and fleets that will support the conversion to natural gas.
- Drilling affects the housing issue. Drilling opportunities bring people into the area, which leads to more housing needs, increased rental costs, and pressures on low income populations.

Transportation

- County roads are bad, which are a deterrent to businesses who want to come in

Land Use and Livable Communities

- Prattsburgh is 5th in the county in number of land parcels because small dairy farms were bought by developers and broken apart.
- Homes are run-down, especially ones with high turnover in owners. Problem is, each time someone spruces up a home, they are taxed, so no one wants to do home improvements.
- Some homes are eyesores and are torn down, then you have a vacant lot, which could be filled.

Working Lands and Open Space

- At one time, had 14 or 15 small farms (with 80-100 cows) but now only have 2 farms. No resurgence.
- Have some potato farming and muck farming (swamp farming to grow onions and other crops).

Waste Management

- Waste management is done by private haulers.
- Have county recycling and are now set up for electronics dumping and steel dumping. Private contractors take care of it (Swardow).
- There is no sewer systems in Prattsburgh – it's all septic systems.
 - To bring in industrial manufacturers, would need hundreds of thousands of dollars to put sewage system in, but it could be doable.
- INITIATIVE: Corning Community College put in rotating biological collector (RBC) sewer system in 2000 and its works well.
 - Could install these in manufacturing plants too.

Water

- Doing a \$1.8M water project on my water system to fix leakages and cut down on energy for pumping water to village. Last section that is being replaced is 100+ years old, which means the oldest section was installed in 1972.
- Kraft pumped 120 yards away from our wellheads for their own water treatment plant, which would impact our well water. Even though Steuben Foods plant has been shut down, Kraft has had developers in to look at wells because DC (Washington DC/legislation?) said “use it or lose it.”

Economic Development

- Two manufacturing plants have closed down because the industry is moving out of New York:
 - McKyle Manufacturing (farming machines)
 - An 86,000 sq. ft. building sitting within village lines, unused. The building is being given to the town, but it could be a brownfield site (waiting on paperwork to show it is ok). However, building is still in good shape and is all steel.
 - Steuben Foods (Kraft milk production)
 - Plant that closed down 19 years and is structurally decrepit – must be torn down.
 - Is no longer within village lines, but it used to be before the village lines were moved
 - Also is probably a brownfield because of the cleaning chemicals the plant probably used.
- Family-owned local landline telephone system, Empire, is probably top in the state
- Schooling
 - There is gas and computer industries in this area – people have to be trained to do the work.
 - Corning is a technical industry
 - Even telephone company knows cellphones are coming and are preparing for it by putting in fiber optic for county and universities
 - Lots of kids come out of school and there are jobs they aren’t qualified to do – there needs to be schooling and training to prepare students for technical jobs.

Governance

- Len chairs the zoning commission and a previous comprehensive plan committee.
- In the zoning commission, the group came up with an adult use law.
 - Prattsburgh has a land use law and a wind law.
- Is setting up first planning board.
- Steuben County is large, but supervisors do not have any formal organization and do not really meet. Any meetings that are had are not well attended.
- More talk among Steuben County supervisors is needed because wind and solar issues are going to come up.
 - STC’s annual meeting has representation from the entire STC region. This could be a good place to get Steuben County supervisors to start talking.

Strengths of Prattsburgh/Steuben County:

- Schools

- Water
- Beauty
- Wineries

Guides to action idea:

A strategy that people can use to talk to or educate anti-(anything) people, if they are unwilling to attend education seminars or meetings.

- When anti-wind people are encountered could suggest they attend educational conferences or offer educational pamphlets on wind energy benefits.

CGST Southern Tier Central Stakeholder Group 3

Location:

Southern Tier Central Regional Planning and Development Board
8 Denison Parkway East, Suite 310
Corning, NY 14830

Date / Time: Tuesday, April 24, 2012 – 8 am to 10 am

Attendees:

Ann Cook	Elmira/Corning Regional Airport, Airport Manager
Jamie Johnson	Steuben County Industrial Development Agency
Rocky Kambo	Cornell Cooperative Extension of Schuyler County

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Stephanie Trainor.

Background on the agencies

Steuben County IDA is the County's designated economic development agency. The agency's typical focus is on creation of wealth-generating business – less the focus of the old days of smokestacks, but do still look to attract industry. The agency is involved in incentives for economic development, and some involvement with both natural gas and wind.

- Check that we have the Steuben County Economic Development Plan

Elmira/Corning Regional Airport serves a broad area. The airport gets involved in land use to a very limited extent, mostly to ensure flight patterns are not affected by local development (e.g. with wind farms)

Cornell Cooperative Extension of Schuyler County provides planning services to the County (contracted out). CCE works with all 12 municipalities in the county:

- Most concentrated populations: Watkins Glen (couple thousand) and Montour Falls
- Largest population: Town of Hector – due to its proximity to Ithaca and Tompkins and relative affordability. This is something of a growth area.

Community Strengths

- This is a diverse community.
- The region's infrastructure assets (transportation and municipal services) and our proximity to the gas boom in Pennsylvania is driving growth. Transportation assets in particular have supported growth:
 - Over 2 million square feet of construction in this region can be attributed to the gas industry. Every empty building is filling up.
 - Schlumberger is a major business supporting the gas industry worldwide
 - There is now a CVS distribution facility in Chemung County.
 - Sikorsky is building Blackhawks at the airport.
- There is land here – all the corn fields along the interstate interchanges are very desirable to developers.
- Tourism is a big growth industry, with both a national and international draw. The challenge associated with this is preserving the scenic beauty (the tourism draw) while

also making the economic development possible (the CVS facility along the highway is not that attractive).

- The airport is drawing on the Interstate designation of I-86 and the new I-99 (north/south) and the natural gas industry. The airport for years has been focused on serving Corning, Inc. and that is still the big anchor. However, she is seeing the natural gas industry a lot more. Her rough measure is that 20% of the cars in their parking lots are gas related, and in the last two years the top destinations have shifted to be Dallas, Houston, and Oklahoma City.
 - Interesting tidbit: Delta has said Corning Inc. is their #1 business customer. They have 6,000 local employees doing administrative work, R&D, and some manufacturing. With the development in Gorilla Glass taking off, they are traveling a lot.
- On the technical side, there are a number of amazing academic institutions and the region needs to get their research and technologies out. The region can build this strength by giving the researchers incentives to bring the new energies to the communities.
- The region is primarily rural and has a number of different resources (farms, forests, water) that can be used to produce sustainable energy here. There is no need to be trucking in energy.
- Similar to energy, there is no need to be trucking in food – more CSAs starting up; need food systems planning to support this.

Agricultural Production

The resources available in this region are: world-class cheese (artisanal), Greek yogurt (80% of US Greek yogurt production in the region), fruit, potatoes (Steuben)

The region is trying to build the agritourism through such things as the cheese trail coming online around Seneca Lake and the wine trail/wine country. Chemung, Steuben, Schuyler, and Yates are marketing as the Finger Lakes region – for example, they just kicked off a restaurant week that is 100% local. It would be great to see more in Schuyler. Integrated planning would help to bridge the gap between tourism and economic development groups.

Buying local is possible at the farmers markets in Corning and Elmira. Schuyler County has a lot of mom and pop stores that are able to buy local, but the big places (except Wegmann's) don't buy local which is a more systemic issue. The more well-educated populations (with more wealth) are driving this; they ask for local and will pay more. Poorer communities, however, are more purely cost driven in the food choices.

Preparation in this region for natural gas drilling in New York State

“When it hits in NYS, we won't be able to keep up.” The area is already building new hotels, new market rate housing. At the moment, Market Street in Corning cannot renovate their upper floor apartments fast enough. That is not driven just by natural gas, but that is influencing some of the trends.

The airport is building things like parking lots and new bathrooms. Their passenger travel in the past 5 years has about doubled. Historically, the airports in Ithaca, Binghamton, Elmira have historically all about the same size, but now this airport is growing, while Binghamton has been

losing. The concern is that drilling in New York State will be east of here, so Binghamton might benefit more. The airport, like much of the region, has hopes of the economic boom, but they are not sure it's going to come. They are trying to make the investments but it is also hard to justify given the uncertainty.

Part of the uncertainty comes from the fact that drilling is driven by commodity prices. With natural gas prices at an all-time low, even if New York opens up, he doesn't expect to see much drilling right now. But if it's a cold winter next year and the glut of gas goes away, the drilling will start. The airport is dealing with this in their investment choices; the region more generally is investing in rail and industrial spaces proactively so they can seize the boom if and/or when it comes.

Education. The community colleges are doing very well at providing local technical training for this industry. They have 100% placement for their gas industry program. The issue with the education system is the speed to market: it takes 2 years to get your program approved by SUNY. Businesses want to turn programs around within 2 months. There is a mindset issue between the businesses and the educational system. The educational system measures their success in graduation rates and degrees granted, while what the businesses need is quick training, not necessarily degrees.

Wind Energy

There are several wind projects in the works. At least 4 projects in the County – in the towns of Prattsburgh, Jasper/Woodhull/Canisteo, Hartsville, and Howard – and a 2 MW project further along (location not noted). Steuben County has another 4-8 MW of capacity coming. The wind is largely in the middle and to the west. It is not clear what is driving it, but there has been a lot of increased interest in last 4 months in wind energy.

The acceptability of wind power is mixed. The tourism community is very concerned about unsightliness of turbines. But it depends where you are in the community – south of I-86 it is much more acceptable, largely because the area is more economically depressed; north of I-86 is wealthier, more educated, and they like seeing the lakes. Case in point: Prattsburgh's project has been in litigation for 10 years.

- Individual property owners many not want the wind farms, but the communities do because the tax revenue is as good as a new warehouse.

Planning for wind power is a challenge. We talk about funding, but no one is doing the planning to prepare for these projects. The planning process gets everyone on the same page, helps people to understand what they can do. Steuben County has 4 comprehensive plans in action right now and other towns want to revisit their plans to prepare for wind, so there is some desire to prepare. Steuben County comprehensive planning is more reactionary, not visionary. Residents are often trying to limit or stop a project, not look at their opportunities and assets.

- It would be great to have money provided to do the planning – to make these connections.

Planning and Design

The planning here is not very advanced (one view) and there is not a integrated approach to planning, nor much focus on brownfields and redevelopment. Chemung County did an I-86 development plan to identify the best greenfield sites. Businesses come in and want their facilities designed for their use and ready quickly – they are not interested in retrofits.

From an economic development perspective, it is nice to talk about these live/work/shop communities, but when you're competing with other communities for these businesses, you're not going to put the design guidelines in place and potentially drive these folks away – they'll just go elsewhere. However, there are places trying to implement some basic design guidelines because they do want to make sure new development is a good neighbor in their communities. As a community you have to be able to say no, otherwise you won't be able to get what you asked for.

- Watkins Glen worked with Dunkin Donuts to get a design they wanted

But there are obvious limits to design guidelines for more traditional commercial/industrial development. There is an office/industrial park in Big Flats near the Airport. One of the biggest complaints of the tenants is that there are no services. But the REDC put deed restrictions on it when they built it to prevent such things from going in. So now people are talking about broader zoning plans for the greenfield sites to allow for more multifunctional campuses with daycare, banks, convenience store, etc.

There is a challenge in planning for this area because it is a primarily rural community where people want the space. The planning community needs support in balancing this with the desire to promote Smart Growth, etc.

Redevelopment and Infill

With regard to the reuse of older sites, the market is dealing with some of those. Economic development here focuses on wealth-generation; they do not work to bring in Walmart because they know bringing in jobs that create wealth will drive the demand for those types of businesses on its own.

The impediment to redevelopment is largely the market in at least one perspective. It does not make financial sense to redevelop if the market is not yet dictating a return on investment. Corning is right on that bubble right now – they have created a market that will drive the demand. Corning has also taken to heart the flexibility in the New York State building code that makes redevelopment more feasible. Elmira has not done this – the code enforcer is also the fire chief, so he takes a hard-line approach. You can see the difference. (The bigger issue is not code, it is the market.)

- Infill development is limited because you cannot make it enticing with funds. The benefit is that you do not have to extend the pipes and roads to them.
- Grayfields – reuse parking lots, build up your strip mall parking lots

Green buildings - NYS contracted with Newport Ventures to talk to communities about the new green building code, but that code is only for new buildings. But there is limited new building currently – retrofits of existing buildings are far more essential here.

- One issue: need to simplify access to NYSERDA programs

- Idea: a ‘cash for clunkers’ for older homes – can’t we provide grants to homeowners? Upfront cost is the issue. The programs may exist though, since it’s hard to know everything NYSERDA and other agencies have.

Telecommunications and Commuting

Telecommunication system: Southern Tier East has a \$12.2 million broadband project for rural areas. One of the intentions of that is to get the smaller high tech industries in rural areas, where they could do infill in the small towns, cut commuter energy costs. Currently cable is being built out to the safety towers, STE is hoping private providers will do the last mile.

Commuter energy costs is almost more of an education issue. All the big companies are eager to support to the transit, TDM programs; but they fail miserably because employees don’t take advantage of it. People do not want to give up the freedom of their cars. It might also be a demographic issue – folks at the blue collar level will give up a night out for dinner to have the cash for gas.

Attracting Young People

Attracting young people to come back: in Chemung County they found out that the outmigration of young people is no different than other communities. Where they fail is at attracting in-migration.

- Corning and Ithaca, however, are doing well on developing their attractiveness to young people.
- The tax structure is a big issue for getting people in – it’s pretty expensive to live here for the depressed economy.
- The weather might also make it more difficult, depending where people grew up
- On the plus side, young people want the access to the natural areas, but without the job opportunities, it will not matter

Closing Thoughts

- Integrated planning is something we’ve talked about all morning: when industrial growth and natural gas came, the small towns got caught off-guard. They are well-intentioned, but they weren’t ready to really come to the table. What this region needs is visionary planning – when the development you can’t imagine right now is at your door, this is how you deal with it.
 - Possible project for this: conversations about interchanges, towns, and small villages – inject smart growth
- Green infrastructure – can we inject more technology into our region? Bring projects from the academic institutions out to the community
 - Ecological design master plan in Schuyler County – use technology to be more efficient
 - Part of the broadband project included partnering with Corning, Inc. Similarly, Corning Inc. is doing a lot of work in this area – can also build off those synergies.
 - The CVS distribution facility in Big Flats is LEED certified. The project got a lot of NYSERDA funding to do that, but people don’t realize how green the building

is because it doesn't look it. They are using rainwater for irrigation, talking about wind power.

CGST Southern Tier Central Stakeholder Group 4

Location:

Southern Tier Central Regional Planning and Development Board
8 Denison Parkway East, Suite 310
Corning, NY 14830

Date / Time: Tuesday, April 24, 2012 – 12:30 pm to 2:00 pm

Attendees:

Elijah Baity	Town of Corning Planning Board	Mark LaDouce	City of Elmira Water Board
Brian Beasley	City of Elmira	Kim Middaugh	City of Elmira
Dee Gamble	Cooperative Extension – Tompkins County	Ruth Young	PHE, Inc.

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Eva Hsu.

Strengths and Opportunities:

- The new interstate has changed transportation patterns ; this change could be leveraged.
- Water management improvement opportunity.
- In Steuben County, there is an opportunity to use renewables (like solar), because of things like Corning’s partnership.
- Need to focus energy reduction efforts on large energy users (Corning Inc., hospitals, etc.).
- NYSERDA has small energy, not for profit, free energy audits. Mid-sized companies may benefit most from audits because can also purchase upgrades and qualify for grants. It’s harder for smaller companies because they cannot afford the upgrades.
- Need more outreach on what energy efficiency programs are available.
- The gas industry’s economy and growth in the area means there’s a need for more housing, which provides an opportunity to promote green efficiency energy.
 - A hospital just moved in and did things with water conservation and being more green.
 - Corning Community College residence halls, especially new ones, can be more green.
- Rentals are starting to become an issue because more people are coming into the region. This is good because the rentals are filling up, but it’s bad for lower income people who are having a more difficult time finding rentals as landlords raise prices in response to demand.
- Have seen sales revenues increase lately because of the influx of people.
- Would be helpful to have funds to support improvements and developments of older buildings, such as energy efficiency projects using gas.
- Need a change in how funding entities (i.e., NYSRDA) look at private and public applicants. Public applicants should have a larger incentive because they are using taxpayer money, while private applicants are making a private investment. There are two different arenas to compete in. NYSERDA should change private vs. public comparison because private and public entities get things done differently.

- Example: SBC (systems benefit charge (http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY07R&re=1&ee=1)). Public agencies pay thousands of SBC charges while private industry only pays one. One project made streetlamps more energy efficient, which benefits the community at large; when a private company makes their streetlamp more energy efficient, it is for their private compound.
- Have sewage treatment plant on top of Seneca Lake. John Todd water filtration system could be a strategy for some small villages that are running on septic.
- Need guidelines for private entities to know what energy efficiency strategies are available.
 - The conversation for energy efficiency policy changes is happening but the cost of implementing plans is a barrier.
- Should have more “Come see” projects (aka demonstration projects) because these may attract more funding and offer tangential benefits. However, requires careful prioritization and sacrifices. The up-front costs for these projects are usually insurmountable, even though benefits are great on the other side. But, if these “Come see” projects are local, it would attract New Yorkers to this region instead of other states.
- Cornell has promised that all new buildings will be LEED certified.
- Consider how to leverage development “Insertion points” (the places where all developers must pass - i.e., all development or construction projects require obtaining a permit at the department) to market or provide education on energy efficiency strategies to the whole audience.
- Need to get financial institutions ready to invest. Educate the banks. Private investments need to start happening.

Best Practices

- Changed 430 streetlights over to LEDs, chamberlain was impressed with money back because conversion brought operations costs down.
 - Trying to keep renovations downtown because we think growth will be downtown. For example, we want to add LED lights in downtown parking deck.
 - A large obstacle was the energy company (NYSEG) because their job is selling the power that we’re reducing.
 - Street lights are owned by Elmira city (different from other cities, where they are contracted to the power company). The City took back ownership to make sure maintenance and updates are being done. They have numbers to show the cost efficiency.
- Omega conference center was a LEED platinum building. Also has a John Todd-designed water filtration system.
 - Have leveraged water filtration system to attract interested visitors.
- Lake Benton windmills in Minnesota.

Research:

Look in the Economic Development Plan for projects that weren’t funded, but that are good ideas to include in the CGST Sustainability Plan.

CGST Tompkins County Stakeholder Group 1– Elected Officials

Location:

Town of Ithaca Town Hall
215 N. Tioga St.
Ithaca, NY 14850

Date / Time: Tuesday, April 24, 2012 – 3:30 pm to 5 pm

Attendees:

Martha Robertson	Tompkins County Legislator (Chair)	Roxanne Marino	Town of Ulysses Supervisor
Pam Mackesey	Tompkins County Legislator	Mary Ann Sumner	Town of Dryden Supervisor
Dooley Kiefer	Tompkins County Legislator	Herb Engman	Town of Ithaca Supervisor

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Stephanie Trainor

Plans:

- Ithaca has a comprehensive plan in progress
- Ithaca has looked at the town government’s carbon footprint
- Cornell University, Ithaca College plans – need to look at bigger institutions
 - A lot of firepower to implement things at Cornell

Strengths

- Intellectual capital
- A deep desire to do something, not just talk, but make things happen, at all levels
- The labor force – employment, unemployment, jobs in energy conservation – high level awareness and interest
- Unpolluted natural resources
 - Hydrofracking has raised a lot of awareness about the region’s natural resources. People have a deep love for living in the environment they work in; quality of life and quality of the environment are linked – the fracking has raised concerns in a wide range of people who aren’t just leftover hippies or the academics – all types are concerned. Play on that and find ways to find other solutions. A lot of opportunities
- In most of TC, there is a willingness to try new things and a local culture of inter-municipal cooperation – the Tompkins County COG is the biggest part of that, but a lot of the municipalities do contracting with other municipalities.
 - For example, the wastewater treatment plant is owned by 3 municipalities, the water treatment plant is owned by 5 municipalities.
 - Tompkins County does not see as much competition between municipalities as in other places
- A built-in asset is countywide assessment – Tompkins County is the only one in the state with this. Towns cannot artificially lower their property tax rates to attract businesses, in essence leveling that part of the playing field
 - Countywide assessment saves \$300,000 annually in costs to local government
 - Sales tax is shared outside the city

- Farmer's market

Agriculture and Local Food

Ithaca is hoping to create an agri-business part of town:

- Ithaca Beer (local biz) going to expand, triple their capacity – town is looking into giving them a break on their sewage because rates are based on water usage, but a lot of their water goes into the beer. In return, Ithaca beer will truck the leftover hops waste to the sewage treatment plant where it can be injected at key points to boost methane production.
 - Methane used to heat the plant, not really consistent enough for energy production right now
- Challenge Industries, who runs the treatment plant, wanted to put a greenhouse next to the sewage treatment plant but not consistent enough heat. There's a farmer's market next to the plant, so perfect placement
- Ithaca Beer is moving out of its current facility - biodiesel moving in next door to use whatever is moving in to the facility
- This used to be a major hop growing region, with more local breweries opening, might be able to bring that back for local use. [Phil mentioned that the beer industry is looking to diversify the hops source]

The farmer's market is a huge county asset. Other counties want to have as developed of farmer's markets as Tompkins.

- Steuben County has the most agricultural land in the region, but Tompkins gets more cash value out of its agriculture

There is a very strong movement supporting CSAs and organic gardening. When these activities reach a certain level of adoption, they become more reputable and gain economic legitimacy

- A strategy for rural communities? Combines economic development and food access
- Getting local food products into the schools, universities, and grocery stores – you can get enough volume purchasing to make farms more viable

The Town of Dryden has a very strong student (probably at high school) sustainability association that has developed a pretty good recycling and composting program. The group was able to persuade the district to let them use the compost for fruit trees on school property.

Linking agriculture and energy: could you pool inputs so that methane digesters would produce enough to help with energy generation and keeping agriculture in business. Dairies are spreading the manure, which is a waste of energy and bad for the environment.

- Question of whether the region has many large animal operations?

Alternatives for helping agriculture: building niches

- USDA regulations and incentives do not make sense, favor certain uses. In the longer term, it would be nice to see more regional self-sufficiency.
- There is an example in Wisconsin of trying to get all the milk products all in one place to support the industry (? Track down, possibly follow up)

- Another nice market would be ethnic markets in NYC. A lot of people around the area have found that finding a niche in an herb or product can allow them to make a living in agriculture.

Water

There was a recent presentation from agencies involved in water quality who are all working together. This included folks working at Cornell water production, (?) testing people, and Tompkins County Soil and Water showing a project on a Groton farm involving runoff from a silage pad.

In Tompkins County, water bills are now showing how much water the average house in your neighborhood is using – peer pressure to reduce usage.

Energy Production

Biofuel

- Cayuga Medical Center seriously studying a biofuel plant. Found they need about 400 acres to provide enough biomass. Ithaca and a neighboring community have that much agricultural land in their area that could switch. The medical center also said they could expand to do district heating for the nearby properties.
 - This is an interesting opportunity because it could also support local farmers
 - There are still open questions on this though: when the district heat goes across the street to another facility who would be responsible for maintaining lines? Would it be the City? It would make sense for the district heat group to hire a manager, but there is not enough for a manager to do without multiple plants to manage.
- Production sites
 - There have been serious suggestions of a biofuel facility that could supply downtown Ithaca to be housed in the old Emerson facility.
 - The Town of Danby already has a proposal to develop products for biofuel.
 - Studies have shown that there is a lot of land that can support biomass and nearby small towns that can use it. [Roxanne's husband did this]. There is a need to study the system and figure out where the blockages area - Cornell has done some of this.
 - Places with semi-marginal land for agriculture could potentially provide land for growing biofuel products, if the tradeoff between food and other products works out. Could there be a regional consortium transporting the fuel to the cities for their biofuel?
- One issue is how to ensure enough supplies for those facilities. There have been some suggestions that the facilities themselves might own the farms that supply them

Repurposing or repowering the coal-fired power plant (Milliken Station)

- An asset/opportunity within the community.
- The low cost of natural gas is causing the coal-fired plants to go bankrupt, resulting in idled infrastructure here and around the state. AES Eastern Energy currently owns the plant. The plant manager is open to experimentation and is ready to burn anything; he

has looked into a lot of alternatives, but run into one obstacle or another every time. This plant could be a test bed and a model for plants around the state.

- The plant did look into burning waste – could take waste from New York City if it worked. However, the DEC was perceived as a barrier to the plan.
- The Stakeholder Group disagreed on the desirability of waste to energy. Those opposed felt that we should be reducing waste, not burning it.
- Alternatively, could look at repurposing the power plant. It has rail and barge access, but does not use those modes anymore. Could make it an attractive site for some uses, though there were no uses suggested.

Renewable sources

The pieces are all here to make a shift to renewable energy. Cohoctan has had negative experiences with windmills, but in this rural area and with the area's needs, it makes sense

The cost of power is influencing regional development. Corning Enterprises said that part of the reason they did not expand here is the cost of power.

Energy Efficiency and Conservation

Retrofits

- Of the county's total carbon footprint, buildings are the largest source of GHG emissions.
- The group's rough guess is that 5-10% of homes have already been retrofitted.
- There are economic co-benefits of energy retrofits: creates jobs to do it, puts money in people's pockets, and helps with housing costs.
- Need to get people to use the programs that are out there, but people need help with applications. Paying people to help with applications costs money, but staff support is essential. There could be a person who comes to your town once a week (for example) to help with applications.
 - Dryden did some of this already through education grants. Dryden has also done a great job combining Office of Aging funding for repairs that also become evident during the retrofit review process.
 - The cooperative extension in Ithaca and Binghamton used students in the summer – very effective (get numbers on this). The hand-holding and follow-up were essential. These programs do not seem to work as well in the rural areas, however.
 - The cooperative extension is the common element between all the counties. NYSERDA could fund outreach and support through them and address the rural gap.
 - County used to have a position called the "circuit rider" – want to see that come back.
- The other big need is in the area of commercial and industrial efficiency.

Energy Performance Contracting

- This is another private-public interface that has potential for elsewhere
- Potential application: water and sewage plants. When originally built, the water and sewage plants were federal and/or state funded, but now the municipalities need to pay for upgrades. With energy performance contracting, a bond is taken out to pay for

improvements and over the life of the bond, the contractor guarantees energy savings or pays the public agency if not.

- A lack of awareness is seen as the reason this is not used more widely by local governments, industry, and commercial.

Growth and Development

In this community there is a strong culture of Smart Growth. The IDA has been very successful in facilitating denser development in designated areas of the Town of Ithaca and the Town of Lansing. By using the power of the IDA for more than just industry, it has been possible to realize the vision of a strong downtown largely through private involvement.

Tompkins County is different than the rest of the region in that it is growing steadily, not shrinking like a lot of other communities. The county can therefore focus on managing growth, rather than trying to attract growth like the rural communities are.

One problem throughout the region is that the towns often do not have zoning nor planning staff. This makes it hard to translate anything done in Tompkins out to the rest of the region because the level of planning and the perspective about government is very different.

Transportation

- TCAT is a model system for a town this size.
 - It has 4 million rides per year, though about 70% of the ridership is from Cornell (the university gives students free passes).
 - Trying to deal with suburban sprawl through a plan with criteria for where they will extend service and by educating town planning boards about those criteria. At an earlier stage, TCAT is identifying major transportation routes first, rather than following development. This way transportation leads the development (Harrison noted that this is transit ready development).
- Passenger rail between Ithaca and NYC is probably not happening, but what about intercity BRT? Currently 3 buses run from Ithaca to NYC (\$175 roundtrip) or to the other cities in the region.
- Broadband access for rural communities is another way to address transportation issues.

Regional approaches

We do not have anyone here right now looking at the broader region. We may see more efficiencies and opportunities at the regional level. For example, Constellation Energy has a contract with the Department of Defense to green up the military's operations as a security matter. They take every base and figure out how to generate power they need on-site. This involves a completely comprehensive look at solutions. Constellation wanted to do the same thing in Tompkins County, but it was a bit too big a task for Tompkins to take on. Could this whole plan kind of do that?

- Constellation Energy wanted the option possibly of doing some of the actual projects, but would also help figure out financing. Could almost do a hybrid performance contract.

Manufacturing is basically gone except in Corning and people are looking for something. Regular people are talking about green jobs and it points to a real understanding that things need to change. This is something the plan can build on and support.

CGST Tompkins County Stakeholder Group 2– Land Use, Transportation, Development

Location:

Tompkins County Public Library
 101 East Green Street
 Ithaca, NY 14850

Date / Time: Wednesday, April 24, 2012 – 8:00 am to 9:30 am

Attendees:

Mina Amundsen	Cornell University Planning	Jackie Mouillesseaux-Grube	Tompkins County Sustainability Center
Martha Armstrong	Tompkins County Area Development (TCAD)	Jan Rhodes Norma	Local First Ithaca
Mary Beth Bunge	Alternatives Federal Credit Union (AFCU)	Sue Ritter	Town of Ithaca Planning
Fernando DeAragon	Ithaca-Tompkins County Transportation Council (ITCTC)		

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Eva Hsu.

Strengths and Opportunities:

- There is an economic development collaboration group, which includes representatives from Cornell, AFCU, planners from the planning organizations, Chamber of Commerce, politicians, a banker, and others. The group meets quarterly to identify which projects to take on.
 - The benefit is forging relationships with people in other agencies, learning what those agencies do, and learning who to contact.
 - The collaboration has led to: housing strategies plan and countywide water and sewer study
 - Countywide water and sewer study: Provides bigger picture to show where water and sewer infrastructure is across the county and was important because none of the water people get together and had this big picture.
 - Worked with local consultant on study
 - Showed that the infrastructure for development needs in Tompkins County is already in place as long as the housing is built where the infrastructure exists.
 - The results were used in the comprehensive plan for the county and ITCTC will use in the long range transportation plan (LRTP). This represents continuity in planning processes across sectors.
- Need to build more cross-agency discussion.
- Having higher education efforts and resources in this area are a plus.
 - Cornell is doing more to help non-profits and municipalities know what’s going on.
- Clean water resources are important and will be even more in the future.
- Agriculture has been done well.

- Lots of community supported agriculture (CSA) and local food production.
- CSAs have thrived here because the farmers market provided a real driver as the first easy venue for producers to bring their products to consumers, and then the farmers market developed into a distribution network for these producers.
- GreenStar Community Projects, Inc. (<http://www.greenstarcommunityprojects.org>) has been part of the distribution network since the beginning.
- Cornell Cooperative Extension (CCE) was also very important in helping small farmers.
- GreenStar and CCE are trying to incubate new businesses
 - An example is a community kitchen facility, which, when implemented, will provide jobs and job training for people who need it.
- CCE has been trying to get restaurant and Ithaca College to develop commitment targets on food sourcing. Cornell, CCE, and GreenStar have targets and commitments documented.
- CSAs combine meat, bread, fruit, cheese, etc across several producers for a one-stop CSA.
- There's an intelligent engineering community in the area (BorgWarner has 1500 employees; Lockheed Martin in Tioga has many employees too). These engineering companies are working on energy efficiency efforts in the traditional industries.
 - There is a small flow of technical transfer of ideas that stays in this region and the resources to hold on to these ideas are getting better. And it may get better with new Cornell campus in NYC.
- Have opportunities to program and partner between universities and private industries.
- Could flesh out stronger transportation connections between the three main cities of Ithaca, Elmira, and Binghamton.
 - CCE has begun trying to connect people to one another, using strategies like rideshare.
- The Sustainability Plan must consider the needs of the rural population.

Downtown Development

- AFCU has a large grant application that would allow AFCU to take their business on the road to rural areas, possibly by using a bankmobile or partnering with the Food Pantry.
- The collaborative model in Tompkins County has been very effective because it has eliminated the bureaucracy that comes with implementing a formal structure.
 - Zimride was started by people just getting together for the project and has required little effort on the part of the municipality. ITCTC hired an intern to do grant application and the schools are doing the marketing.
- Need to have coordination among the different municipalities. Municipalities need to look beyond their own borders.
 - For example, there's the city of Ithaca, the Town of Ithaca, and Village of Lansing – and they are all connected.
 - Cornell looked at the town and city's comprehensive plans when doing their own comprehensive plan to see where to coordinate. This type of effort needs to happen more purposefully.
- Need a comprehensive plan that's beyond just transportation or land use.

- Being aligned with the Southern Tier region and not the Finger Lakes region is a disconnect because Ithaca markets the Finger Lakes for tourism.
- Need to work with cross-regionally as well, beyond the Southern Tier.
- Airports are also shared across regions – this understanding needs to be considered.
- Broome County sponsored a sustainability conference – this was a surprise but also showed promise that other areas are open to the topic of sustainability.
- Cornell’s housing plan is focused regionally.
 - The plan tied in with sustainability goals and looked at 1) affordability and 2) people driving in. Cornell has a partnership with the city and county to look at areas for compact development and also identified locations where Cornell owns land with potential for infill development or development nodes.
 - Cornell will develop in the current footprint and not develop into greenspace.
 - The East Hill Plaza vision is a mixed use neighborhood commercial center with offices and housing.
 - There was a very open public engagement plan with the surrounding neighborhood and Town of Ithaca.
 - The Town of Ithaca was looking to change the zoning codes.
 - The University does not consider itself as a developer that can build without outside input.
 - A study by consulting company Danter & Company looked at housing in Ithaca and found that the vacancy rates and demand levels indicate a demand for housing in the city.
 - TCAT is very interested in participating in development plans before things get built. The University recognizes that any development must ensure it considers existing transit routes and infrastructure, instead of building a development and imposing a transit route to the new development.
 - **HARRISON: SEND TRANSIT-ORIENTED DEVELOPMENT INFO TO GROUP.**
- The settlement patterns and attractive urban forms are an asset to reinforce and leverage.
- Cornell is conducting a study on bicycle accessibility on campus.
- Ithaca is a bicycle friendly city.
- Route 13 area could use these strategies
- There is an opportunity to leverage the young generation’s interest in biking to make sure neighborhoods are bike friendly.
 - The LRTP identified bicycling as a missing mode.
 - Two bike lanes have been built in the city.
 - The city’s bike plan was written 15 years ago.
 - Last year, the ITCTC hired an intern to do a bike boulevard plan.
- The West End waterfront is ripe for change.
- Need to focus on community development in the rural areas. Many times, the community center in a rural area is the food pantry, where people meet once a week.
 - How can communities be given a temporary (on a weekly/monthly/etc basis) community center?
 - Need transportation to get people to the community center.

- Need to consider what types of alternative transportation options would help visitors navigate the city.
 - Ideas include bikeshares and improved roadways for biking and walking.
- Houses built after 1980 were relatively more energy efficient than their early counterparts. Many counties here have less than 18% of their houses build after 1980, which means there is an opportunity for energy efficiency projects.
 - These projects could also provide employment and job training opportunities.
- The plan must consider the railroad and airport as regional connectors – and how to utilize these connections.

CGST Tompkins County Stakeholder Group 3– Rural, Agriculture, Conservation

Location:

Tompkins County Public Library
101 East Green St.
Ithaca, NY 14850

Date / Time: Wednesday, April 25, 2012 – 9:45 am to 10:15 am

Attendees:

Skip Jensen	New York Farm Bureau, Field Advisor	Monika Roth	Cornell Cooperative Extension of Tompkins County
Andy Zepp	Finger Lakes Land Trust	Marguerite Wells	Black Oak Wind
Elizabeth Keokosky	Danby Land Bank		

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Stephanie Trainor

Background

The New York Farm Bureau is an advocacy organization that lobbies at the state and federal level for agricultural issues. The group is all member supported. Field advisors work closely with local officials as well.

Cornell Cooperative Extension of Tompkins County works on issues such as agricultural business development and marketing and on local food. CCE works with Southern Tier East a lot, including on a food plan done several years ago. They would like to do more with agricultural energy production.

The Finger Lakes Land Trust works in 12 counties, 5 of which are in the Southern Tier region. FGLT work in a variety of ways to protect agricultural land:

- Acquired 370 acres at the head of Ithaca’s water source, next to state park – building a boardwalk for recreation and education (?)
- Schuyler County – buying a conservation easement on an orchard
- Tioga County – Trout Unlimited donated funds to cover the donation of development rights along Cayuga Creek

Last year the group did 16 real estate transactions. FGLT also supports eco-tourism.

Black Oak Wind is building a wind farm in Enfield using a new community financing model that has not been used in the East yet.

Danby Land Bank is trying to develop a biomass pilot project (described below). The Land Bank recently completed a feasibility study and is now looking to get financial backing for it.

Regional Strengths

- Agriculture – and there is a good mix of agriculture and urban throughout the region
- Academic institutions
- The region has a surprisingly strong food processing sector including dairy, and food products (the latter not in Tompkins County)

- Quality of life
- Proximity to the East Coast

Regional Issues:

- Entrenched rural poverty
- High cost of doing business in New York State
- Rural sprawl and parcelization of the landscape

Wind

The Black Oak Windfarm project: Enfield Energy started this based on a community finance model they saw in South Dakota. In that project, there were 100 turbines done by the local power company and the community did 7 locally owned ones in addition. Here, the community project is a standalone farm.

- Project benefits:
 - The revenues stay local because the investors are local; with an outside investor, only the farmer who gets the turbine gets money and the rest just have to live with it.
 - As power prices have fallen, large developers have had the option of moving their projects to other states. Over 200 MW have been removed from the Interconnector Queue. This project is rooted in this community and will not move elsewhere as power prices change.
 - Big investors tend to push for bigger farms, rather than the smaller installations that cause fewer visual issues.

Agricultural opportunities

- CCE is looking to identify funding resources for a community catering processing facility, or a 'food hub' (USDA term). The facility would work with larger scale specialty farmers (?) and bring their products together. Cayuga Organics wants to develop a new mill.
- Agriculture in this region is characterized by smaller farmers who have questions about methane but are not trying to figure out what to do with manure like the large farmers elsewhere are.
 - More small dairy, grass fed beef, a lot of forestry.
- Biochemical to replace petrochemicals
- Marginal lands are going back into production as organic farms because they can get immediate certification (fallow for at least the requisite number of years for not using chemicals)

Local food

- The local food movement is strong here in TC because of who is here and how local food has been promoted and established.
 - When you get closer to larger urban areas, these things work better than in more rural counties.
 - Doing a year-long community food assessment, report out at the end of May
- Scale:
 - About 400 farms that market directly to consumers

- 20 years ago, 5% of fruits and vegetable consumption was local (grown within 30 miles). Today, 20% of fruits and vegetables consumed at home in Tompkins County is local
 - Beef is only 1.8% though, so there a lot of opportunity there
- Economic impact at of total food sales: of \$200M in county, \$20M is local (10%).
- Local livestock consumption suffers from a lack of processing facilities and a consumer problem – people don't buy half cows and don't know what to do with all the cuts
 - There was huge demand for the offering of a small livestock processing class
 - There are plans to experiment with a freezer locker program. You would buy your meat, cut and packed, then rent a freezer space at a community facility so you would not have to put all the meat in your (likely small) freezer.
 - This project is going in for grants now.
- A local food fair in Corning drew 500 people, reflecting an unmet need for local foods. By comparison, fairs only get about 200 people in Ithaca, since that need is being met more through CSAs.
 - A CSA farmer in Aurora is going aggressively into other counties (as far as Syracuse and Cortland as well) and doing well.
 - For Tompkins County the CSA customers are all mapped and food deserts have been identified.
 - So this is replicable in other counties to some extent
- Who and where is this active?
 - Catskill Grown in Delaware Co – part of the aquifer, feeding into NYC
 - Chenango has a lot going on – Evans Creamery is expanding and shipping all over
 - Binghamton and south feeds more into NYC market, north of there is more local
 - Finger Lake Culinary Bounty – work throughout the region.
 - Trumansburg market has really expanded

Agriculture energy

Danby Land Bank is developing a biomass pilot project to aggregate parcels of rural land owners (not farmers) to provide a feedstock for thermal combustion to replace fuel oil in rural areas. In return the landowners would get agricultural land assessments. They are now trying to also get the Town of Caroline (as well as the Town of Danby) involved.

- The idea is to develop a business that works with a cooperative and can attract public attention to agricultural biomass.
- The group is trying to figure out what and how they'll produce – pellets, briquettes to replace fuel oil in rural areas
- Currently the group is using agricultural residue – goldenrod – that farmers want cleared from their fields
- Challenges
 - Wood pellets are currently a cheaper fuel than agricultural biomass and natural gas is really cheap. There is a limited market for mulche and weeds.
 - New York State policy focuses the renewable portfolio standard on energy production and Federal policy focuses biofuels work on ethanol, but neither of these handle fuel oil or propane.

- In the current market, there is no incentive for farmers to switch over to energy crops, so the group is looking instead at rural landowners who aren't growing crops and just want their land cleared.
- This market has an idealism for renewable energy – using this to make it work here first
- Biomass can be seen as a transitional fuel – need to use it to help get over the hump to break the dependence on fossil fuels.
- A group from Syracuse is looking to plant marginal lands with switchgrass to be ready when energy markets open up.

A bit of agricultural history:

State lands in Southern Tier are in many cases the result of Depression-era farm buyouts. Hay (in large part to serve New York City) was a key cash crop for marginal lands in this region. When the automobile came, the market collapsed and the land was abandoned. At one time, 100% of New York State was in agricultural production.

Urban open space

Smaller urban areas here (Elmira, e.g.) have many of the typical urban ills. Solutions could involve community gardens, linear park systems, etc.

Looked at a retractable flood wall to improve the connection to the river – see in Elmira only a concrete wall, not the water

Planning and development

- Permitting hurdles in downtown are much higher than in rural areas – makes it so much easier to do greenfield development
- Walkable small towns are marketable here, but small villages are not that walkable right now (limited sidewalks)
 - Economically the hamlets around the region outside of Ithaca and Corning are not giving a return on investment if you have to do a subdivision with infrastructure. Objections from the neighbors who do not want to see the land developed are on top of that.
- The region is limited by town-by-town perspectives and the standards for land use planning are pretty low.
- Buying development rights is the only way to make sure the localities will say “no” to development
 - FGLT is looking for ways to generate an income stream that will give the agricultural land more value. They have looked at California carbon credits from sequestration (not viable currently) or possibly mitigation fees from Maryland for Chesapeake water quality
 -
- Large subdivisions are not the problem, it is people building homes on spec on frontage lots. You can't make money doing development in most parts of the area.
 - The bulk of FGLT's 14,000 acres is productive agricultural or forest lands. Their goal is to avoid parcelization.
 - The colonial road network ensures you are never more than an hour from a urban center. There is a high demand for a rural living and as a result, see narrow bands of residential along the roads that are really a strips of suburbia.

- Land prices are being driven up by wealthy people moving into the rural areas and by large farmers moving in from Cayuga and elsewhere. Small farmers are being priced out, and it is driving up the cost of easements.
 - There is an increase in farmers renting land in Lansing and Ulysses (see Lansing Agriculture Plan). It is not farmers selling their land, it is rural landowners.
- Wind:
 - A county in Washington state set aside land for windfarms and said if you build it here, you are guaranteed a permit (the local one at least).
 - Issue: have to do an EIS before you know if you can build and that is a huge investment.
 - If there were something in comp plans that said if you did xyz, you know you can build – takes out the uncertainty.
- The Lansing Agriculture Plan found that there is an increase in farmers renting land.
 - Agriculture is doing very well there, but the town is trying to push to the edges, won't recognize the agricultural land as valuable.

Water

Upper Susquehanna Watershed study identifies priority focus areas for water, wetlands, and conservation. The plan will be ready in 2-3 weeks. (Given some pages during the meeting).

Forestry

- The region has high quality hardwoods that are harvested and used
 - Top dollar value is to grow hardwoods for furniture for export – send anywhere.
 - Land that was let go in 1940s and 50s is approaching new levels of value
- A lot of biofuel potential, but the dollar value potential is hardwood
- Softwoods do not compete well – New York State owns a lot (planted to hold land in the 40s), but does not much interest when it puts the wood on the market.
- A permaculture attitude is making inroads – use your forests to grow mushrooms.
 - There is a need to turn some agricultural engineering attention to this and figure out how to do it better.

Future markets

- Large commercial farms (dairy) are looking more to wider markets; smaller famers are more local markets
- The region's biggest asset is its proximity to the market – we can market whatever we want, but the issue is making it profitable
- The best land preservation and agricultural preservation strategy is making it profitable to farm. Doing this involves looking at taxes, energy costs, tolls on roads to bring food to market, and policy/community issues for farmers: traveling on roads with farm equipment, new labor law that prohibits children under 16 working on farms (including their family farms).
 - Go look at farm bureau policy work
- New York has a unique opportunity because it can serve a diverse market for agricultural products. In Iowa you only see corn and soybeans, not like that here.
- Do not ignore the market in Rochester – Steuben has good access via 390.

What would give us the most ‘bang for the buck’ to support local agriculture + energy reduction?

- Biomass energy in the whole Southern Tier, but need enough centralization to achieve be efficient
- Tourism is a big (potential) driver that contributes to quality of life and the attractiveness of the region
- Doing a better job of funding farm opportunities, which are often overlooked by traditional economic development. For example, building a new mill (Tor Oschner). The farmers are committed to the region but overlooked.
- Pick an asset in your community and build on it. For example, the cheese trail in the Finger Lakes region – doubled their business as a result, found a NYC distributor to put the cheeses in the cheese shops. It’s expanded wine tourism capacity.

CGST Tompkins County Stakeholder Group 2– Energy, Environment & Livable Communities

Location:

Tompkins County Public Library
 101 East Green Street
 Ithaca, NY 14850

Date / Time: Wednesday, April 24, 2012 – 11:30 am to 1:00 pm

Attendees:

Peter Bardaglio	Tompkins County Climate Protection Initiative(TCCPI)	Jeanne Leccese	Human Services Coalition
Katie Borgella	Tompkins County Planning Department	Daniel Roth	Cornell
Lee Dillion	Tompkins Community Action	Dave Stoyell	Tompkins County Office for the Aging
Brian Eden	Tompkins County Environmental Management Council	Liz Walker	EcoVillage of Ithaca
Al George	Cornell	Ed Wilson	Cornell
David Kay	Cornell		

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Eva Hsu.

Strengths and Opportunities:

- Tompkins Community Action (<http://www.tactionweb.org/cms/>) programs include weatherization for homes, solar hot water, building efficiency housing for the homeless population, development of an energy code for Ithaca, incentives through the Landlord Association for landlords to do energy work.
- Lots of groundwork has been done at county and municipal level.
- Ecovillage at Ithaca is a mini holistic model of a sustainable community.
 - The third village (Tree) is a pilot project that will utilize passive energy.
- Opportunity to tap into student engagement, which can be cheaper and foster interest.
 - The County received a quote from consultant for \$25,000 to do energy roadmap. This roadmap was actually completed with interns and Cornell students (across all studies, including mechanical engineer majors) and was a completed with less money.
- Planning in the county and city is a strength.
- Cornell, Ithaca College, Tompkins Cortland Community College all have their own climate plans.
- Cornell put a \$46M investment in energy conservation in existing buildings (<http://www.news.cornell.edu/stories/March11/ASPenergy.html>).
- Twenty percent of all Cornell’s food procurement is within 100 miles.
- TCCPI brings the conversation across sectors and tries to develop a culture of collaboration.
 - Meet once a month to develop project ideas to pursue (e.g., EPA Climate Showcase Community grant, Cayuga Medical Center CHP Plant development).

- *The Southern Tier ?Energy Efficiency and? Renewable Energy (EERE) Initiative* is a program to use clean energy for economic development at college and university campuses, K-12 schools, hospitals, airports, local government buildings, large-scale commercial buildings, etc. The Southern Tier was the only region in the State that did anything with clean energy for economic development.
 - Working with Blue Hill Partners (an investment company) in Ithaca, Elmira-Corning, and Binghamton to bring this initiative to life.
 - Hope to bring in \$50-100M to the region.
- The city and county could be more aggressive on seeking funding.
- Need more collaboration or outside support.
 - For example, Sustainability Strategies DC has been used to help apply for EPA's Brownfield Program for South Hill to become a clean energy production site.
 - USDOE got involved through clean energy application center and will provide technical assistance and expertise for legal regulatory policy. NYSEG will be helping with outreach.
- Make a documentary about what is happening in this county
 - The *Empower* documentary for Tompkins County shows people in the community who have done alternative energy work.
- Need to figure out how to institutionalize the area as an educational sustainability center. The area has barely tapped into the potential for focusing university resources on this area in the energy and sustainability sectors.
 - Currently working with students in the Town of Caroline and leveraging students' interest in working on local issues with real people.
- Need to look at development patterns to understand where and how densification should happen.
- There is potential for small water and wind turbines projects.
 - Recently installed second largest ?PB? system in the county, which was completely funded by investors in the community.
 - Cornell is researching whether small projects make sense, in terms of efficiency and effectiveness.
- Need to invest in improving project management skills as well as the technologies.
- Need focus on active transportation and encourage more people to bike and walk.
 - Can employ strategies like reducing parking availability, narrowing roads, and encouraging and enabling shorter trips.
- Need to be aware of what the Governor and the Obama administration are looking at for funding support, which is probably public-private partnerships
- Need stipend job training programs for people who need job or job training, could be around energy

Interesting Projects

- Cornell's New York State Agricultural Experiment Station (NYSAES) in Geneva is studying the energy benefits of growing willow and biomass burners that can burn willow
- Cornell University Renewable Bioenergy Initiative (CURBI) is conducting a feasibility study for bio-oil, using gaseous from biomass to develop soil additives and tie into central heating system.
- There is potential to use deep geothermal to provide carbon free heating system for Cornell's campus.

- Town of Danby has an energy committee that conducted a tour of homes that installed energy efficiency devices.
 - There is an opportunity to expand this sustainable tourism concept to more people and invite other areas to visit or read about projects in this area.
- Worked with natural resources and horticulture classroom.
- The Danby Land Bank Cooperative provide support to rural property owners.
- HELCO is an energy company that is doing a lot of geothermal.
- The Way2Go education program on alternative transportation is doing a lot of presentations for seniors.
- StreetsALive Ithaca is planned; it is an event where streets will be shut down to cars.
- The City's transportation department is working on bike boulevards.
- The Tompkins County's home ownership program uses NYSERDA weatherization funds to do energy upgrades.
- Tompkins County Community Action received a Sustainable Energy Resources for Consumer grant (http://www1.eere.energy.gov/wip/serc_projects.html) for solar thermal projects. They went back to the homes they had weatherized and installed solar thermal.
- Need a jobs training program through block training funds provided young people hands-on training in energy services

CGST Southern Tier East Stakeholder Group 0 – Delaware County and NYC Dept. of Environmental Protection

Location:

SUNY Delhi
2 Main Street
Delhi, NY 13901

Date / Time: Wednesday, April 25, 2012 – 6 pm to 7 pm

Attendees:

Nicole Franzese	Delaware County Planning
Susan McIntyre	Solid Waste Management Center & Compost Facility, Director
Erik Miller	Southern Tier East
Jen Gregory	Southern Tier East

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Stephanie Trainor

Delaware County and NYC: a background

Delaware County is different from the rest of the region because of the additional level of regulation - NYS Dept. of Environmental Conservation (DEC) *and* NYC Dept. of Environmental Protection (DEP) both have jurisdiction; and because of the presence of wastewater treatment plants with more cleaning (microfiltration).

- **Wastewater treatment:** New York City owns some of the treatment plants, towns own some of them. Where the City does not own the facility, the O&M costs are split between residents and the City.
- DEP (old Bureau of Water Supply) uses stormwater regulations to control development. The County would like to do flood mitigation and relocate businesses and homes in the floodplain – but they cannot do that in the watershed without DEP’s approval. (The other portion of the county can though)
 - If you want to develop in the watershed, your stormwater plan will cost \$22,000 instead of \$7,000 elsewhere
- DEP is not interested in supporting County development and is does not trust the County’s ability to protect the watershed. Several years ago the County and DEP negotiated a parcel-by-parcel multi-year development plan. Following that, DEP bought up easements around all their major businesses to prevent further expansion
 - DEP regulations were adopted in 1997; but the region was doing land use planning and solid waste in a very advanced way that local planners feel has earned the county the right to control its future more
- The County did an economic impact analysis of the watershed a few years back.

Strengths:

- Natural resources
- Our people – recover from natural disasters themselves
- Very innovative for a poor, small region
 - County has a contractual relationship with the towns and villages – the county has circuit rider professional planners who staff all the towns.
 - Sophisticated, educated planning boards because they have a training program

- 19 towns, 9 villages

Energy

- The county is preparing an energy plan
 - A few years ago, the local energy cooperative wanted to do wind, citizens revolted
 - They wanted to develop hydro energy from the reservoirs – local residents wanted to do it, but DEP put in a competing request and got it approved before the local request. DEP's request lowered the wattage and so now it will basically have no community benefit.
- Energy efficiency retrofits – Opportunities Delaware does for low income, but there is a gap for middle income folks.
 - The loan rates from NYSERDA are higher than a home equity loan.
 - If you do a full (gut) renovation of a home, you're not eligible for NYSERDA funding – but that's really the right way to go about it. It already takes a lot to bring an old home up to code – between the lead paint, asbestos, lack of right angles and headers over the doors – and energy efficiency is often a lot to do on top of that. (Rick noted Ithaca has a “deep renovation” program to help address this gap).

Transportation and regional services

- Limited transportation options
 - The Office for the Aging has buses
 - Sidney is served by Otsego buses.
- The county recently did a transportation plan (separate from their coordinated human services plan)
- Go to the stores outside the region – there's a dividing line for which larger community outside the county you go to.

Housing and growth

- The housing market is very distorted – the housing stock is poor and prices are artificially inflated for the median income here (2nd and 3rd homes for New Yorkers, locally the professors at SUNY create competition in Delhi)
- They did a growth model several years back – in the long term they see decline, but also any growth depends on the City allowing it to happen.
 - It seems like the State's vision is a park where the people are gone.
 - The local planner has asked environmental groups to stop buying up land in one of the towns because the town cannot sustain a school or a fire department; the groups said they didn't care.
 - The County is fighting for its life.

Solid Waste

This is an area where the region is very advanced and ahead of most communities. They centralized solid waste service (genesis in 1970s) to provide regional, county-wide recycling and composting services, and a county-owned landfill. There is a municipally-owned biowaste

composting facility. The County owns and operates a construction and demolition debris recycling facility.

- The County is moving from solid waste burial to aggressive resource recovery.
- The facility has a 50-60 year plan.
- The landfill
 - Created in 1974 (check) after county did its first comprehensive plan; acquired more land in the earlier 90s, unlikely to expand beyond that.
 - Double lined, collect leachate and send to wastewater plant (because the plant can handle cleaning that)
 - Methane capture is used to generate electricity and send over grid. But don't actually generate much energy, in part because they have been aggressively removing the biowaste.
 - Methane capture – the design standard is to capture 90%; models say 40% and the models are clearly off.
- Largest waste source currently: soiled film plastics (i.e. plastic bags) because they capture so much of the rest of the waste stream.
 - JBI in Niagara is doing synoil generation, something the facility would be interested in longer term.
 - Plastics cannot be burned in a waste burner because it is too good of a fuel – the waste burning facilities are designed to work with the poor energy content of most trash, but the plastic film is petroleum and there is not much other waste to add in.
- They have a DEC grant to enlarge their recycling facility – expand capacity and add on ability to better capture the construction and demolition debris (some to compost, some to commodity market, some to landfill).
- The County takes solid waste at no cost – if you bring it to the facility or one of 7 town transfer facilities
 - Solid waste is a service the county provides and it is an incentive to bring development in because they don't charge for nearly all solid waste, even to commercial operations.

CGST Southern Tier East Stakeholder Group 1 – Employers/Private Sector

None of the invitees to this meeting came to this session. Representatives from Lands Hospital invited to this session did attend a portion of Stakeholder Group 4 later in the day.

CGST Southern Tier East Stakeholder Group 2 – Energy Production/Efficiency

Location:

Town of Chenango
 1529 State Route 12
 Binghamton, NY 13901

Date / Time: Thursday, April 26, 2012 – 10:30 am to 12 pm

Attendees:

Louis Roma	SPC (NYSERDA contractor)	In Shik Lee	Tompkins Cortland Community College (TC3), SUNY Green Energy coordinator
Kay Tefler	Cornell Cooperative Extension of Broome County	Dee Gamble	Cornell Cooperative Extension of Tompkins County
Chris Burger	Binghamton Sustainability (BRSC), chair	Adam Flint	CCE Broome, PPEF-Southern Tier, BRSC
Doreen Barker	Broome Biomass/ABIG	Sandy DeJohn	Binghamton University

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Stephanie Trainor

Regional Strengths

- The people themselves
 - Example – state was proposing a waste incinerator – people were opposed, but didn’t just oppose, they put in place a very aggressive recycling program to address the issue
- Innovation is part of this culture – a bootstrap history and hold records for patents
- People in this region feel empowered to think about sustainability issues. The burgeoning sustainability movement in the region in the last half decade has not met its potential largely because of a lack of money.
- The diversity of people - a lot of grassroots, hands-on development
- The academic institutions – the universities and colleges can do a lot to advance innovation in technology and in social systems
 - Northeast Campus Consortium on Sustainability

Energy Education

- When looking at things like energy, there is a tendency to look at the big capital projects, but there are many smaller local projects making an impact
 - City of Binghamton VINES (Volunteers Improving Neighborhood Environments) project for vacant lots is a neighborhood-based approach to making the city more sustainable
 - Blue Hill project put together by Peter Bargelio was recently funded
 - Focus more money on the behavioral, educational, and outreach elements.
- TC3 has a renewable workforce development program to train the trainers; the college also wants to train their 3,000 (?) students in the same way.

- There is a need education at the K-12 level as well as the post-secondary level. Given that the region already has the latter, could the post-secondary students support the K-12 learning?
- TC CCE developed an energy leadership program to reach out via social networks to inspire people. The program does non-professional audits for leaders in the community (natural leaders and those by job) because they can open doors. Train students to be able to then enter the home performance industry.
 - Adam said he could send something

Energy Efficiency

- More progress is being made in residential energy efficiency, less for small businesses
 - Small businesses are actually more work than homeowners.
 - There is an administrative burden with either homeowners or small businesses, but there are more competing demands potentially for the small business owner
 - There is a program that is supposed to work with them, but needs more people to be effective.
- The energy stewards program – bring in seniors with some knowledge of energy to reach out to other seniors
- Issue: existing funding streams for outreach are not guaranteed
- There are a lot (30!) programs from NYSERDA, making it confusing.

Waste

- When you look at a personal level, there are 2 big areas that you can impact sustainability: energy and waste. At a community level, this approach works well with the biomass concept
- The region needs to stop thinking of waste as waste but as a resource. The area is still very dependent on its landfill, but need to stop sending all that biomass there.
 - Combine the excellent recycling programs they have in Binghamton with the biomass they are doing in Delaware. For example, Binghamton's recycling program could help with organic waste on the bags.
 - This community did look at a Construction and Demolition waste program (missed the outcome)

Biomass

- In this region, there is a huge opportunity for biomass for power production thanks to the agricultural land, farmers, water, and rail system. You can transport waste in, generate the power, and do cogeneration in many of the counties with the infrastructure in place
- Binghamton University has a site on campus to burn a variety of materials, but the problem is gathering the materials in an efficient way.
 - The University is talking with Mesa Energy, which has a demonstration facility in Auburn with processing equipment to take farm waste and press them into compact cubes that are easily usable in her type of facility
- IDEA: establish a mobile facility on rail that can do the compression on-site and then just transport the compressed materials, which would be much more efficient.
 - If went with a centralized facility, could coordinate monthly pickups. Centralized facility avoids the problems of neighbors objecting to the compression equipment.

- Biomass is most viable in Tioga, Chemung, and Broome counties. Tompkins and Chenango counties are heavily agricultural districts; Broome has a lot of wood but it mostly goes to Wagner for sale or to Delaware.
 - TC3 was having a biomass conference the next day – follow up?
- Make both the biomass and the means to burn it here, like the pellets and pellet stoves.
 - Maryland just allocated \$50M to pay to transition low income families to pellet stoves instead of continuing to subsidize fuel oil.

Regional sharing

There is a need to share more of the good practices going on around the region, so new ideas can develop and spread. Regional working groups could help to do this.

Transportation

- The core is well laid out, but significant rural area with transportation issues
- The Rural Health Network is facilitating initial discussions in the Whitney Point area on issues of access and health through their “Healthy Community” initiative (?)
- There are many small and medium sized vehicles transporting people that could be better coordinated.
- In the urban core there is a lack of planning for other modes. When NYSDOT rebuilt bridges in the region they did not deal with bikes in a good way
- Binghamton University created a “zip ride” program on campus – if you carpool in, you can use the car on campus; but the program is not really helping with carpooling, it is mostly popular with freshman who live on campus without their car

Rural ‘mini-hubs’

- It does it no good to centralize everything that everyone has to drive to do anything. There could be a mini-revival of some of the rural towns by providing core resources there so people do not have to drive for everything (basic services, etc.)
- The movement to re-localize is an opportunity to market more locally and to revitalize small towns.
 - Example: Whitney Point has a little farmer’s market and a local auction at the fairgrounds. Almost every weekend there is something going on at the fairgrounds.
- A challenge for this is the lack of employment options in those towns.

Food and Land Use

- Local farmers can plant a crop to provide vegetable oil for local businesses and biodiesel
- Need more support for young farmers, and to do that, need to be able to create diversity.
 - Commodity prices drive profitability and the prices can be so volatile.
 - This area is still lagging way behind for CSAs, which helps to create an alternative. However, there is growth in farmer’s markets and CSAs. Need a boost to get to where Tompkins County is.
- Community kitchens were included in the capital improvement plan (for Broome County?) and though the plan changed with economic downturn, it is still something the community would like to see.

Agriculture and Energy

- Energy use on farms: fuel for tractors, chemical fertilizers.
 - Can the local universities support changes in this area?
- Organic farming
 - Use more manual labor, but requires more technical knowledge
 - Bludnick's Farm – uses manual labor – not certified organic because of the cost
 - You can produce a lot with organic, but you need to know how.
- Farming techniques that don't require as much cultivation – no till/minimum till
- Concern that more than 50% of our corn is going into ethanol

Green Building

- There need to be more construction managers in training, especially for green building, for when the building comes back
 - Net zero communities are something people are asking about. SUNY Syracuse environmental science and forestry is working on that topic
 - Gateway Building (?)
- Young people coming through Binghamton University right now who are really interested in green construction and they want to stay. They do AmeriCorps and VISTAs, but the region needs to have real jobs for them if they are going to be able to stay
- All the colleges have signed on to the agreement to build green
 - All new Binghamton University buildings are to be at least LEED Silver

Concluding thoughts

A lot of what this group talked about has to do with *human behavior* and *how to* (home efficiency, organic farming), which goes back to the need for education and training as one of the primary projects this plan should be looking at. Education and training are the biggest challenge because technology can't solve everything and the human piece is still needed. This is already happening to an extent – NYSEG did this, passed over the region.

- Look back to the roots of 4H development: using children to change farmers' behavior – the kids try new things and then took over the farm later. This is a proven strategy.

CGST Southern Tier East Stakeholder Group 3 – Forestry/Conservation

Location:

Town of Chenango Town Hall
 1529 State Route 12
 Binghamton, NY 13901

Date / Time: Thursday, April 26, 2012 – 1:00 pm to 2:30 pm

Attendees:

Bradd Vickers	Chenango County Farm Bureau	Rainy Collins Vickers	Chenango County Farm Bureau
Jabe Warren	Cornel Cooperative Extension (CCE)-Chemung	Jen Gregory	Southern Tier East
Eric Miller	Southern Tier East		

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Eva Hsu.

Strengths and Opportunities:

- Farming and agriculture is major
 - Farming is number one industry in Chenango County
- Chobani, produced in Chenango County, is the number one Greek yogurt producer in the nation just after 5 years
 - The Chenango plant is shipping Greek yogurt all over US
 - Chobani’s president is finding it difficult to continue operations in NY because of various regulations
 - Chobani’s president is sourcing milk from outside of NY, because there is not enough milk available in the state.
- Need to make sure viability is maintained for farmers – that there is a balance of corn for livestock feed and ethanol; ethanol can be made from anything based from sugar, even zucchini
- The farmers who are getting out of dairy because the market isn’t good anymore are a good audience, but they don’t have the infrastructure and capability to turn seed to oil – need infrastructure or financial support
- Many examples of farm energy generation and efficiency around NYS
 - Pelleting is being need
- Need support for Farmer’s markets
 - Sellers outside the region are willing to come to the farmer’s markets because there is a market here for their stuff
- Lots of money coming into Women, Infants, and Children (WIC) program for supplement foods, which can be used at farmers’ markets. But people aren’t familiar with the program - need markets and farmstands to accept WIC stamps.
 - Need special EBT machine; perhaps need to be able to use smartphones to take WIC
 - Technology may not be the barrier; it could be people are not used to going to markets with WIC stamps

- County Bounty program was a coupon that was either sold at a regular or reduced rate, depending on the person's income, so it removed the social stigma of using a payment plan other than cash.
- HARRISON IDEA: Empire Green card (like debit card) that can be used at markets or wherever
- There is not a good program (operational or financial) to support young farmers.
 - Farmnet is doing it a bit
 - Vermont is doing it
- BEST PRACTICE: Farmer Veteran's Program in California and Midwest provides combat veterans training to be farmers
- An idea was suggested that, if property owners do not want drilling to happen on their lands, they can do a lease agreement with farmer not to drill
- Chemung County's government's view is that agriculture land is good until there's another use for it (i.e., they do not have much pride in ag land)

Huge interest in biodiesel because of several initiatives or programs:

- House of Representatives approved the "25 by '25" resolution (By 2025, 25% of nation's energy by will come from renewable, domestically produced sources, which includes biodiesel.)
 - But need to maintain food production
 - Belief is that there is the ability to meet the 25 by '25 goal and not impact crop production
 - BEST PRACTICE: contact Heather Darby, Vermont's Cooperative Extension
 - Vermont gave farmers \$25,000 incentive to start producing these crops
- NYC mandated that all fuel will contain at least 2% biodiesel
 - Opportunity to implement a biodiesel plant in Chenango County to help meet this mandate.
 - Bronx waste collection facility has goal of collecting 5 million gallons of vegetable waste per day. Currently, they are collecting waste and shipping it out of state on tractor trailers
 - OPPORTUNITY: Using rail to ship out of state
 - OPPORTUNITY: Ship waste to a biodiesel plant in Chenango County. Need to figure out how to encourage farmers to produce biodiesel crops (oil seed crops – soybeans, sunflower seeds; canola seed does not grow well in this region and is not a viable crop). There is talk of setting up a small plant to process seed for biodiesel production and process waste vegetable.
 - Regarding the transport infrastructure, Chenango County has land available for sites, or even empty buildings.
- Fields for Feed, Fuel, Fire, and Fries program
 (<http://www.fb.org/index.php?action=newsroom.news&year=2010&file=nr0110e.html>;
<http://ruralcommunitybuilding.fb.org/2010/07/07/fb-biofuels-booth-at-community-earth-fest-event/>)
 - Encourages and educates on benefits of oil seed crops (uses entire plant: seed = oil; flower = feedstock; stem = pallets; etc)

- The U.S. airlines industry is going to start using biodiesel because they get taxed on emissions in Europe and biodiesel is clean
- No strong branding (regional or state) for biodiesel. Demand for biodiesel production is there, but the industry hasn't started trying to meet the demand.
- Renewable identification number (RIN) credits can allow oil to be bought at a higher price.
- Now, only large processing facility for oil is North Biodiesel; but doesn't press seed
- Seed presses: some problems with a company that was trying to produce high quality feed product – but neighbors didn't like the smell. Could build plant for cheaper.
 - Trying to determine how much to build a plant for biodiesel production for 500M gallons per day
- There is interest by farmers to grow biodiesel crops, if the support is there. For example, when there was a grant for a portable press, several farmers had signed on and agreed to grow the seed. Unfortunately, the grant fell through.
- CCE does have the technical capacity to help farmers produce any given crop; CCE's focus would be to make sure the farmers are able to sustain their operations.
- Should use several small presses to produce biodiesel, instead of a single large press. Smaller presses are beneficial for use in Chenango County because you can continually manufacture biodiesel in several small batches. Using a single large press means, when it's being cleaned or fixed, the production must stop.
- There is interest in biodiesel from the community.
 - BEST PRACTICE: Sixth graders from Endicott participated in the Disney Planet Challenge (http://www.pressconnects.com/article/20120419/NEWS01/204190405/Students-champion-effort-recycle-cooking-oil?odyssey=mod_sectionstories). The objective was for the class to come up with projects that are environmentally sound and advantageous to the community. The Endicott class explored the effects of dumping vegetable oil waste down residential drains. At the conclusion of their project, they showed the results to the Binghamton City Council and introduced a resolution for the city to collect and use the oil for biodiesel, which was passed. Their demonstration showed how much waste was introduced to the city's sewage system if each resident poured 1 teaspoon of vegetable oil waste down the drain every month (total XX gallons) and that \$240,000 in maintenance costs would be saved if the resolution was passed.
 - Sustainable Chenango (grassroots operative for Chenango County) was antiwind but supports biodiesel.
- Did feasibility study for anaerobic digester
 - Chobani will be building a community digester – feasibility study helped them.
 - The study was originally done for Kraft, but the payback for using a digester would be 10 years, and Kraft was concerned the foreign company investing in them would not want to make the investment.
- It seems difficult to get the education process to do research on growing biodiesel crops for this region.
 - Could use NYSERDA funds so that CCE can provide grant funding for educational institutions to help encourage studies growing these crops

- To conduct these studies, CCE would conduct experiments on farm test plots, but CCE would need to give farmer incentives so CCE can use their farmlands for the experiments
- BEST PRACTICE: Vermont did it
- Marketing for farmers is less focused on
- Need branding
 - E.g., “Empire products from the Empire State”

Issues Related to other Topic Areas

- In 2002, a survey was sent throughout the county to collect interest in supporting open space and greenspace. The results showed there was support for open space and greenspace and people were willing to provide financial support.
- There are policies in place for making sure development is walkable.
 - Zoning is dirty word in our area.
- There’s support for expanding broadband into rural areas.
 - Frontier has complete wireless after negotiating with the city.

CGST Southern Tier East Stakeholder Group 4 – Governance/Planning

Location:

Town of Chenango
1529 State Route 12
Binghamton, NY 13901

Date / Time: Thursday, April 26, 2012 – 3 pm to 4:30 pm

Attendees:

Amelia LoDolce	City of Binghamton – Climate Smart Communities	Caroline Quidort	City of Binghamton
Will Meredith	City of Binghamton	Luke Day	City of Binghamton
Donna Jones	Chenango County Planner	Omar Sanders	BLDC financial analyst
Frank Evangelisti	Broome County Planning	Beth Egitto	Broome County Planning
Debra Smith	Broome County DSWM	Edward Crumb	Binghamton-Johnson City Joint Sewage Board
Marley Urdanick	Cornell Cooperative Extension of Broome County	Dean Frazier	Delaware County Dept. of Watershed Affairs
Ken Edwards	Lands Hospital facilities director	Juliet Berling	Lands Hospital director of sustainability, city planning commission
Cyndi Paddick	BMTS	John Sterbentz	BMTS
Lorraine Keckeisen	Wendel Energy	Elaine Jardine	Tioga County EDP
Dick Harrington	Tioga County REAP/Richford		

*Project Staff in attendance: Harrison Rue, Rick Manning, Philip Groth, and Stephanie Trainor

Strengths

- Great partnerships – the City is working with the county and BMTS
 - Livable Communities Alliance in Broome/Tioga County
 - Broome-Tioga Stormwater Coalition for implementation of phase II stormwater regulations
- GreenRide program at BMTS
- Fairly compact geography
 - A weakness – a lot of that compactness is in the floodplain
- Transportation hub – highways and rail, no shortage of water
- Natural resources
- Intellectual capital and the mindset to adopt sustainability
- Energy innovation center will be big asset
- Some good industry – Lockheed, BAE, IBM

Key Challenges to Sustainability

- Attitude
- Lack of resources – not a lot of funding
- Personnel lacking
- Municipal home rule
- Proximity to Pennsylvania creates perception that the region has to be hyper competitive and cannot impose limitations for fear of losing out to Pennsylvania.

- Power costs are low right now, so the return on investment is not good for alternative energy sources
- Marcellus Shale – good or bad – needs to be contended with
 - Western Tioga seeing a lot of displacement from Northern PA – this is the first time they have had hotel/motel companies looking at their area in the last 20 years
- Students are also driving up housing costs, but they are an asset to Broome as the basis of the local economy

Planning Issues

- Downtown development
 - There are 800 student beds coming to downtown in the coming months or years
 - Lofts are being built
- There is less investment in empty nesters, though there is a demand. It has not been addressed much since it is easier to build for students – they only need a room while households need nice apartments
 - The only comprehensive senior development is several miles out of downtown
 - The developers are deciding where to build where they have land, ignoring the transportation challenge that creates
- This is not a well developed area with design guidelines that would be followed
- BMTS has a regional 2035 plan that focuses on bringing people back to the urban core so that transportation is more sustainable – senior housing in the urban core; also calls for pockets around the region with core services, like the Town of Chenango, so people do not have to drive long distances for everything.
 - Latest plan looked at urban core + pockets around the region with core services – Town of Chenango has its shopping, don't have to drive to Vestal
 - Problem is it is only a plan, and though approved by all the municipal leaders, there is not guarantee they will follow it.

Water and Sewage

- Binghamton's sewage plant serves 4% of the county's land area and 38% of the population. The system has the infrastructure to support 97,000 people, but there are only 45,000 currently. Water plants are also operating at half capacity. The costs are higher per gallon than if they were operating at capacity.
 - Use this infrastructure – create density where the infrastructure is already present in the city and the villages.
 - Rural areas also have excess capacity because of industry they have lost.
 - The anaerobic digesters for the Binghamton system are currently offline. The Joint Sewerage Board would like assistance with a comprehensive, integrated energy plan that would go through the entire 11 acre facility and figure out what they can do and how.
 - DEC recently approved Binghamton's flow management plan that modified the sewer connection process for those adding 25-100 gallons/day to require a 1:1 offset for added usage. The board is now working on implementing that.
 - Only now will there be disincentives for expanding new lines. Municipalities set the rates for expansion because they handle the

collection – treatment cost is based on a formula that goes back to the 1960s. The new system changes that.

- The Joint Sewage Board does not have the same powers as they would if they were an authority, e.g. they cannot bond.
- Cooperation and consolidation has proven difficult, even within agencies. People talk about cooperating but do not actually do so in practice. Part of it is getting people to buy into the idea that operating efficiently is better for everyone, part of it is political and wanting local benefits
 - Tioga did a sewer collaboration plan that was finished right before the flood in 2011.
 - The 3 Owego wastewater treatment plants have too many issues to be combined – 2 of the 3 were very damaged by the flood in 2011
- Flooding: last big floods in 2011, 2006; incidents in 2005, 2004, 1998
 - The 2011 flood resulted in \$25 million in damages for the sewage system. But, this is an opportunity to ensure you meet the codes and standards for electricity
- Hazard Mitigation
 - The only thing done thus far is buyouts.
 - The hazard mitigation plan update will start to generate some ideas about green infrastructure projects, but there is nothing on the table at this point.
 - The focus of the plan is more on infrastructure than land use, though do want to link the land use side to the comprehensive plan.
 - There is starting to be talk about what to do with the buyout properties.
- Delaware County efforts
 - Watershed plan
 - NYC DEP has an interest in how timber is managed because management improves water quality. They want the forest products industry to help with that.

Housing

- Binghamton
 - There is new housing on the east side of the hill
 - The City got 3 Restore NY grants to remove blight and provide homeownership opportunities and rehab as well. They will work with community housing and development organizations. The City also just got an Affordable Housing Corporation grant to double leverage CDBG funding to do rehabs in the city
 - The area has a HUD Challenge Grant, which gets you preferred status for other HUD funding, and in the future may get you preferred status in other departments.
- Delaware County: There are no higher population centers in Delaware and the population of 46,000 is the same as it was during the Civil War.
 - Half the county is under NYC DEP regulations, which have very high costs to comply. Individual septic systems run \$45,000 compared to (\$22,000?) normally
 - For flood recovery, the county is trying to focus on the hamlets because they have the infrastructure and are therefore more affordable.
- Chenango County
 - Chobani yogurt in Town of New Burlman has workers driving 50 miles
 - The plant went from 40 to 800 workers in 5 years or so – housing crisis

- They are trying to address this by supporting mixed use for the downtown, but there is a lack of funding to redo the apartments above the downtown properties.
 - Funding, not codes, are the biggest issue
 - They had to tear down one of the downtown buildings after it was condemned and the landlord walked away. It took 2 years to tear down because they didn't have the money to do it.
 - New York Main Street has a good program for this, but very competitive. Have gotten some funding, but not enough.
- Have a weatherization program.
- Energy Efficiency upgrades
 - NYSERDA funding is hard to combine with other funding because of all the guidelines and stipulations (NYSERDA is fine with leveraging). Examples:
 - The Main Street program would prefer to see the energy efficiency combined with mixed use because the applications are more competitive.
 - Combining energy efficiency with housing rehab would be nice, but currently too hard
 - The City of Binghamton is having these problems, with a full planning staff to work on it. The challenge is even greater for rural areas.
 - Another challenge: when homes need code and health and safety upgrades, the cost of efficiency is often too much on top of that
 - People who looked at the flood rebates program from NYSERDA found that the cost of the appliances were so high that they often did not use the program.

Energy

- Efficiency, continued
 - REDC set aside \$1 million for commercial retrofits
 - More private firms are getting involved.
- Chenango County is having to address the natural gas issues because there is likely going to be a pipeline running down their county.
- Delaware County is developing an energy plan and looking for funds to do pilot projects from that.
- Renewables
 - Private investors are interested in investing in solar and wind in this area because renewable energy is starting to be seen as a safe investment
- The Blue Hills Partners project is different from a typical performance services contract
- Cogeneration, combined heat and power (CHP), biomass
 - Binghamton's municipal utility looked at 5-6 years ago
 - The City could have bought a cogeneration plant on Clinton St. city for \$11M (cost \$50M to build), but the industry that used the steam left and now there's no where to put the steam.
 - The site is now a Brownfield Opportunity Area (BOA) – Charles St. Business Park (30 acres) – this could be a CHP for nearby development
 - Tioga County Rural Economic Area Partnership (REAP) is looking at bioenergy

- Lockheed Martin and O_____ Hospital already each have a woodchip boiler, with the same provider serving both. But the technology is still new and having some problems
- The goal is to connect landowners and the businesses out there, so they are looking more at heat than cogeneration/CHP

Food

- A section of the City's Climate Action Plan focused on local food as an important contributor to both quality of life and energy
- This area is behind Tompkins County, but it is growing and there are new CSA popping up, even one that comes out from Ithaca.
- New farms and new businesses in this industry are starting up with younger operators interested in diversified production, including one this winter for frozen products
- This is an area for entrepreneurs and farmers that can reinforce the connections between rural and urban
- Supporting local food
 - Building a permanent farmers market structure in _____ Park
 - Urban gardens, urban farm has been adding capacity every year (VINES)
 - City is updating its urban agriculture zoning to address the code obstacles
 - VINES got a grant to identify all vacant lots that could be used for agriculture, and the City will also be looking at as part of the comprehensive plan and BOAs
- FoodandHealthNetwork.org coordinated by Rural Health Network recently released a plan with baseline data to show where we are now in terms of acreage, jobs, production
 - In the future able to take another snapshot to see how we're doing in reducing food insecurity and increasing local food
- All of the rural towns with comp plans support agriculture

Transportation

- The City has a complete streets policy, but the bike lanes and such can't compete with the basic improvements needed (giant potholes, etc.)
 - Have been able to do some intersection improvements through public health funds
 - Progress is being made though – a bike trail just opened; Binghamton Greenway plan has actually done very well, largely through the City's efforts
- NYSDOT's priorities are bridges and system preservation; has really scaled back on bicycle lanes
- Bicycle Boulevards have been suggested, but the Department of Public Works raised concerns about plowing
 - The mindset is an issue – if the public were behind the idea, Public Works would be more likely to make it work (e.g. temporary blockages could be removed in the winter)
- The City is trying to get a handle on all their assets – they have an asset manager and a GIS person, but there is a lot to keep track of. They are right now trying to work through getting reimbursement from people that hit stop signs and city lights.
- There is a new 7-county regional transportation plan starting up with Tioga, Cortland, Schuyler, and Tompkins counties in the lead.
 - Broome County was not included for some reason.

**APPENDIX K:
LIST OF PLANS REVIEWED**

LIST OF PLANS REVIEWED

The list below includes the plans reviewed by the project team to develop the goals, best practice and case study research, and the Implementation Strategy for the Cleaner, Greener Southern Tier Plan.

ENERGY/GHG

- 2020 Energy Strategy (Tompkins Co, 2010)
- Airport Sustainable Master Plan (Tompkins Co, 2010)
- CoGovernment GHG Emissions Report 98-08 (Tompkins Co, 2010)
- Community GHG Emissions Report 98-08 (Tompkins Co, 2010)
- Energy & GHG Comprehensive Plan Amendment (Tompkins Co, 2008)
- Local Action Plan to Reduce GHG (Tompkins Co, 2003)
- City of Binghamton Climate Action Plan (City of Binghamton, 2011)
- Cornell Climate Action Plan (Cornell University, 2009)
- Ithaca College Climate Action Plan (Ithaca College, 2009)

TRANSPORTATION

- 2030 LRP (Ithaca-Tompkins County Transportation Council, 2009)
- 2030 LRTP (Elmira-Chemung Transportation Council, 2009)
- BC Transit and Off-Campus College Transport Consolidation Planning Study (Binghamton Metropolitan Transportation Study, 2010)
- Bus Survey Report (Binghamton Metropolitan Transportation Study, 2010)
- Chemung Co Coordinated Public Transit-Human Services Transportation Plan (Elmira-Chemung Transportation Council, 2012)
- Consideration for Protection of Town Highways (ST-East, 2001)
- Coordinated Public Transit-Human Services Transportation Plan (Binghamton Metropolitan Transportation Study, 2007)
- Transport Elmira-Chemung 2030 LRP (ST-Central, 2009)
- Freight Transportation Study (Ithaca-Tompkins County Transportation Council, 2002)
- Front Street Gateway Plan (Binghamton Metropolitan Transportation Study, 2008)
- Local Road Inventory Guide (ST-East, 2010)
- LRTP 2035 (Binghamton Metropolitan Transportation Study, 2010)
- Northeast Subarea Transit Planning Project (Ithaca-Tompkins County Transportation Council, 2003)

- Northeast Subarea Transportation Study (Ithaca-Tompkins County Transportation Council, 1999)
- Northside Waterfront Access & Circulation Study (Tompkins Co, 2008)
- Park and Ride Feasibility Study Cumulative (Ithaca-Tompkins County Transportation Council, 2006)
- Pedestrian Bicycle Plan (Binghamton Metropolitan Transportation Study, 1996)
- Transport Public Participation Plan (Binghamton Metropolitan Transportation Study, 2007)
- Regional Freight Study Report (Binghamton Metropolitan Transportation Study, 2008)
- Regional Interchange Study (ST-East, 2011)
- Route 13-366 Corridor Management Plan (Tompkins Co, 2008)
- Route 96 Corridor Management Study (Tompkins Co, 2010)
- Transport TIP 2011-2015 (Ithaca-Tompkins County Transportation Council, 2010)
- TIP 2011-2015 (Binghamton Metropolitan Transportation Study, 2010)
- Transit Needs Assessment (Schuyler Co, 2007)
- Unified Planning Work Program [UPWP] 2012-2013 (Elmira-Chemung Transportation Council, 2011)
- Unified Planning Work Program [UPWP] 2012-2013 (Ithaca-Tompkins County Transportation Council, 2012)
- Regional Transportation Study (Ithaca-Tompkins County Transportation Council, Website)

LIVABLE COMMUNITIES

- Town of Corning Master Plan Update (Town of Corning, ST-Central, 1999)
- Town of Hornby Comprehensive Plan (Town of Hornby, ST-Central, 2002)
- Town of Lindley Comprehensive Plan (Town of Lindley, ST-Central, 2002)
- Town of Lisle Comp Plan (Broome Co, 2001)
- Triangle Comprehensive Plan (Broome Co, 2004)
- Village of Addison-Adopted Comprehensive Plan (Village of Addison, ST-Central, 2009)
- Village of Painted Post Master Plan (Village of Painted Post, ST-Central, 2009)
- Maine Comprehensive Plan (Broome Co, 2008)
- Masonville Comprehensive Plan (Delaware Co, 2007)
- County Comprehensive Plan (Tompkins Co, 2004)
- Fenton Comp Plan (Broome Co, 2007)

- Binghamton Comprehensive Plan Draft (Broome Co, 2009)
- Bovina Comprehensive Plan (Broome Co, 2002)
- City of Binghamton Comprehensive Plan (City of Binghamton, Broome Co, 2003)
- Building Vibrant Communities (Tompkins Co, 2011)
- Downtown 2020 Strategic Plan (Ithaca-Tompkins County Transportation Council, 2010)
- Walkability Assessment (Tompkins Co, 2007)
- Affordable Housing Needs Assessment (Tompkins Co, 2006)
- Binghamton Sustainable Development & Smart Growth Report (City of Binghamton, Broome Co)
- Greenway Study (Binghamton Metropolitan Transportation Study, 1999)
- Greenway Study Implementation Plan (Binghamton Metropolitan Transportation Study, 2000)
- Housing Strategy (Tompkins Co, 2007)
- Intermunicipal Waterfront Public Assess Plan (Broome Co, 2011)
- Ithaca Neighborhood Greenways Study and Proposed Plan (Ithaca-Tompkins County Transportation Council, 2011)
- Low Impact Development Sampler (ST-Central, 2007)
- Pedestrian Facilities Inventory Data Report (Ithaca-Tompkins County Transportation Council, 2002)
- Regional Telecom Action Plan (ST-East, 2009)
- Schuyler Agricultural Protection Plan Update (Schuyler, 2008)
- Trail-Corridor Study (Ithaca-Tompkins County Transportation Council, 1996)
- Trumansburg Zoning Ordinance (Tompkins Co, 2009)
- Unique Natural Area QA (Tompkins Co, 2005)
- Vital Communities Toolbox (Tompkins Co, online)

ECONOMIC DEVELOPMENT

- Community Development Block Grants [CDBG] History (Tompkins Co, 2010)
- Comprehensive Economic Development Strategy [CEDS] Annual Report (ST-East, 2011)
- Comprehensive Economic Development Strategy (ST-Central, 2012)
- Econ & Demographic Assessment (Broome Co, 2002)
- Economic Development Plan 2011-2013 (Steuben Co, 2011)
- I-86 Economic Development Benefits Study (ST-Central, 2000)
- I-86/I-99 Corridor Economic Development Blueprint (ST-Central, 2009)

- Implementation Plan (Broome Co, 2002)
- Insights into the Economy (ST-East, 2011)
- Regional Economic Development Council Strategic Plan 2011-2016 (ST Regional Economic Development Council, 2011)
- Town of Campbell Economic Development Strategy (Town of Campbell, ST-Central, 2010)
- Agricultural Economic Development Plan (Broome Co)

WORKING LANDS AND OPEN SPACE

- Agricultural and Farmland Protection Plan pt1 (Delaware Co, 2000)
- Agricultural and Farmland Protection Plan pt2 (Delaware Co, 2000)
- Agricultural Development Plan (Delaware Co, 2010)
- Natural Resources Inventory (Tompkins Co, 2001)
- Forest Management Plan (Tompkins Co, 2007)
- Agricultural Expansion and Development Plan (Steuben Co, 2002)
- Agriculture and Farmland Protection Plan (Chemung Co, 2011)
- Tompkins Co Conservation Plan Pt 1 (Tompkins Co, 2007)
- Tompkins Co Conservation Plan Pt 2 (Tompkins Co, 2010)
- Scenic Resources Protection (Tompkins Co, 2010)
- Scenic Resources Inventory (Tompkins Co, 2007)
- All-Hazard Mitigation Plan (Chenango Co, online)
- Delaware County Multi-Jurisdictional Hazard Mitigation Plan (Delaware Co, 2000)
- Erwin HazardPlan (Steuben Co, 2004)
- Multi-Jurisdictional Hazard Mitigation Plan (Broome Co)

CLIMATE ADAPTATION

- Flood Hazards (Susquehanna-Chemung, ST-Central, 2012)
- Flood Mitigation Needs Assessment (Six Mile Creek/Salmon Creek/Fall Creek/Cayuga inlet, Tompkins Co, 2005)
- Flood Strategy/Mitigation Economic Adjustment Strategy (ST-Central, 1998)
- Local Government & Climate Change (Tompkins Co, 2004)
- Ludlowville Stormwater Control Alternatives Analysis (Tompkins Co, 2010)
- Watershed Needs Assessment Taughannock (Tompkins Co, 2011)
- Finger Lakes Climate Fund (Sustainable Tompkins, Online)

WATER

- Cayuga Lake Watershed Restoration & Protection Plan (Cayuga Lake Watershed Intermunicipal Organization)
- Enhancing Water Resources (Tompkins Co, 2006)
- Water Quality Annual Report (Steuben Co, 2010)
- Seneca Lake Watershed Management Plan (ST-Central, 2012)
- Water Quality Strategy (Steuben Co, 2009)
- Stormwater Green Infrastructure (ST-Central, 2011)
- Stormwater Management Design Manual (ST-Central, 2010)
- Stream Processes (ST-East, 2006)
- Tioga Infrastructure Master Plan (Tioga Co, 2004)
- Wastewater Report (Broome Co, 2002)
- Watershed Management Plan (ST-Central, 2012)

WASTE

- Broome Solid Waste Management Plan (Broome Co, 2010)
- Chemung County Solid Waste Management Plan (Chemung Co, online)
- Tioga Intermunicipal Sewer Study (Tioga Co, 2011)
- Tompkins Solid Waste Management Plan (Tompkins Co)
- Update to Integrated Solid Waste Plan (Chemung Co, 2009)
- Water & Sewage Disposal Systems (ST-East, 2010)

GOVERNANCE

- 5Yr Process Report on Comprehensive Plan (Tompkins, 2009)
- Annual Report (Tompkins Co, 2010)
- Annual Report (ST-Central, 2010)
- Annual Report (ST-East, 2010)
- Comprehensive Emergency Management Plan (Broome Co, 2004)
- Governance Model Ordinance Incentive Zoning (Tompkins Co, 2009)
- Model Ordinance Inclusionary Zoning (Tompkins Co, 2009)
- Governance Susquehanna Heritage Area Management Plan E-summary (Tioga Co, 2009)
- Susquehanna Heritage Area Management Plan Final (Tioga Co, 2009)
- CPD Review Framework (Tompkins Co, 2006)
- Tioga Co Multi Hazard Mitigation Plan (Tioga Co, 2007)
- Tioga Co Strategic Plan (Tioga Co, 2010)
- Work Program (Tompkins Co, 2012)

- Binghamton NY-PA Metropolitan Planning Area Map (Binghamton Metropolitan Transportation Study)