Westchester Action Plan for Climate Change and Sustainable Development

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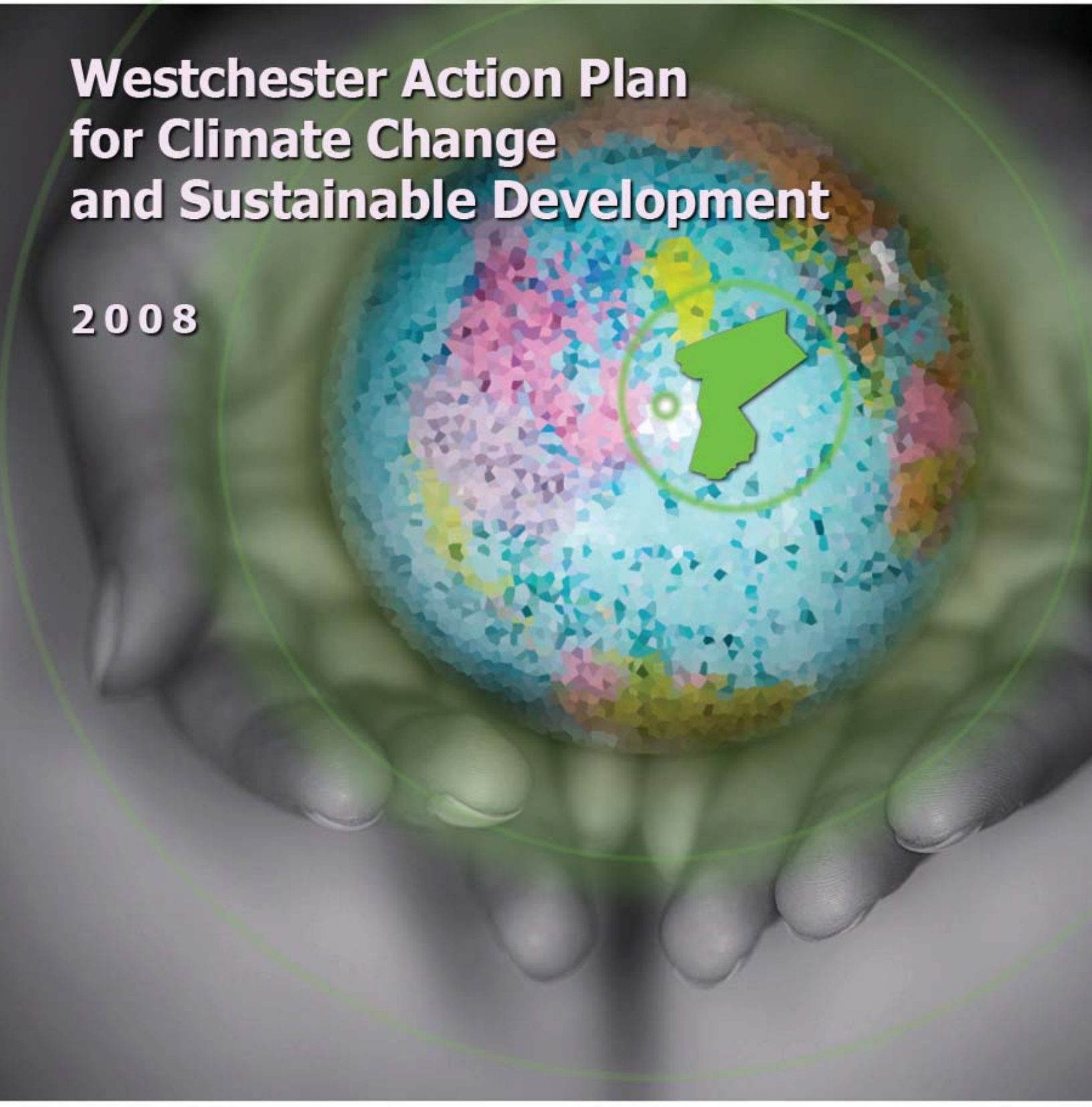

Prepared by the Westchester Global Warming Task Force

Westchestergov.com

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Westchester Action Plan for Climate Change and Sustainable Development

The Westchester Action Plan (Action Plan) lays out a comprehensive, integrated, community-wide plan to translate leadership and vision on climate change and sustainable development into workable strategies that can generate practical actions for all sectors; county and municipal governments, educational institutions, businesses, and households. These actions, when implemented, will ultimately lead to reductions in GHG emissions and secure Westchester's future as a livable and prosperous community, performance that is both measurable and meaningful.

Leadership

The threat that global warming presents to our Community of Westchester, our nation, and our world has been well documented. The scientific community tells us that climate change is occurring, is caused primarily by human activities, poses grave risks to public health and the natural world, and that as a nation and a community we are not doing enough to prevent its serious consequences. We dare not ignore this warning.

To find out more about the potential consequences of climate change on Westchester and the planet consult:

Attachment 1: Climate Change, Global Warming, and Westchester

As a community, we need to respond to the problems and rally others to do the same. We *can* show leadership. We *can* do our share to reduce the emission of "greenhouse gases" (GHGs) and inspire others to do the same. The challenge is urgent and daunting but it is not overwhelming. Meeting it will improve our lives and the lives of our children and grandchildren. Acting to prevent the most serious consequences of global warming by dramatically reducing GHG emissions and planning to adapt for its impacts will mean refocusing upon sustainable development: doing better what we have been doing for some time.

Recognizing this reality, County Executive Andy Spano is calling on all of us in Westchester to take up this critical challenge of our times. He is calling for county government, municipal governments, businesses, educational institutions, and households to all take on the mantle of leadership and work together to solve this problem.

"Collectively…we can make a difference." – Andy Spano.

Vision

So as to forge a shared, united vision across the Community of Westchester, the County Executive recognized that the whole community must be fully engaged in addressing this pressing issue. To start this process, he convened the Global Warming Task Force (Task Force). The Task Force was drawn from formidable talent of public officials, subject experts, educators, and business leaders in Westchester.

To find out more about the Global Warming Task Force and its operations see **Attachment 2: County Executive's Initiative**

To find out more about the County Inventory and reduction goal see **Attachment 3: GHG Inventory and Reduction Goal**

The County Executive charged the Task Force with creating an Action Plan for this key moment in county history, to catalyze change and help achieve sensible goals for GHG emission reductions and sustainable development and to help realize his vision of a community fully engaged in resolving these critical issues and together creating a sustainable future.

The Task Force considered the 2005 countywide GHG footprint of approximately 13,140,000 tons of carbon dioxide (CO_2)* and relying on the most recent climate science, set a goal to reduce GHGs by 20% below the 2005 base year by 2015. By 2050, the Task Force set a goal of an 80% reduction in total GHG emissions below the base year. With these reductions, the Community of Westchester can contribute its part so as to avoid the worst-case scenarios for climate change.

* Includes other GHGs converted into their global warming equivalent of CO_2.

Strategy

To achieve these goals, adapt to climate change, and promote sustainability, the Task Force identified countywide strategies for energy, transportation, land use, water resources, and waste and green purchasing.

Energy - To reduce GHGs generated through the use of energy, the Community of Westchester must undertake actions to:

1) **Use energy more efficiently to reduce the demand for fossil fuels.**
2) **Replace energy from fossil fuels.**
   a) **Install renewable energy equipment on site.**
   b) **Purchase renewable energy or renewable energy credits.**

Transportation - To reduce the GHGs generated through transportation, the Community of Westchester must find ways to:

1) **Reduce transportation demand.**
2) **Shift from single-occupant vehicles to reliance on mass transit and ride sharing and car pooling.**
3) **Use alternative modes of transportation, such as biking and walking.**
4) **Use hybrid vehicles or non fossil fuels in motor vehicles: include vehicles used for mass transit.**
5) **Reduce fuel consumption.**

To find out more about these strategies see:

Attachment 5: Energy

Attachment 6: Transportation

Attachment 7: Land Use

Attachment 8: Water Resources

Attachment 9: Waste Reduction, Recycling and Green Purchasing

Land Use - To reduce GHG impacts and adapt to climate change, the Community of Westchester must establish appropriate land use policies that:

1) **Preserve appropriate environmentally sensitive undeveloped land so as to reduce sprawl, capture carbon and protect natural ecosystems including wetlands and forests.**
2) **Encourage higher density mixed use development in centers and along major transportation corridors.**
3) **Improve existing land use planning processes.**

a) **Enhance current regional planning efforts.**

b) **Integrate climate change concerns and sustainable site development concepts into planning processes.**

Water Resources - To manage water resources, the Community of Westchester must find ways to:

1) **Mitigate flooding consequences associated with global warming.**
2) **Adapt to rising water levels.**
3) **Protect and preserve drinking water reservoirs and watersheds.**
4) **Conserve drinking water.**

Waste Reduction, Recycling and Green Procurement - To reduce the GHG emissions associated with consumption of goods and disposal of waste and to minimize the overall negative effects on the environment, the Community of Westchester must find ways to:

1) **Reduce waste.**
2) **Increase reuse.**
3) **Increase recycling.**
4) **Increase composting.**
5) **Increase use of green products.**

In addition to reducing GHG emissions, these strategies will lead to multiple life quality benefits for our community and the world. For example:

- Promoting use of mass transit and development around urban centers also curbs the use of energy.
- Preserving open space increases the quality of life for Westchester residents and also sequesters carbon from the atmosphere.
- Reducing GHG emissions generated from combustion reduces conventional air pollution and improve the quality of life for everyone in the county.
- Using energy efficiently not only protects the environment; it preserves resources and saves money.
- Walking and bicycling allow the enjoyment of nature and also contribute to improved health.
- Walking to school helps fight obesity-related illnesses through everyday exercise, and also helps connect children to the natural world.
- Using mass transit reduces traffic congestion and accidents.
- Reducing driving safeguards our air quality and contributes to better breathing for the community.

- Consuming and wasting less frees up resources.
- Conserving energy and improving efficiency saves money, enhances national security, and reduces our reliance on foreign fossil fuel.
- Promoting local agriculture boosts the regional economy, enhances biodiversity, and preserves open space.
- Promoting organic agriculture reduces the use of petroleum based fertilizers and pesticides and contributes to fossil fuel independence.

Action

Using the strategies as a guide, the Task Force, combining their internal skills and knowledge with that of outside experts, identified actions to take to address climate change and sustainable development. The actions were then evaluated by each sector to identify those that were appropriate and feasible for each sector.

The actions developed by the Task Force incorporates both:

- **Direct actions** that will reduce GHG emissions, mitigate climate change, foster adaptation to climate change, and result in sustainable development; and,
- **Capacity building actions** that will foster within the Community of Westchester the ability to achieve the direct actions.

The actions include those that can be completed in the short, medium and long term, and provide a path forward to comprehensively address climate change and sustainable development for the Community of Westchester.

Sector-specific Action Summaries for all sectors in the County can be reached by clicking on the hyperlinks that follow.

County Government

Municipal Government

Business

Education

Households

To find out how the actions of all sectors integrate with each other to achieve the countywide strategies and to find out more about each of the actions such as basic "how to" information for implementing the actions, sources and resources to help in achieving the actions, examples of success, and possible funding options see:

Attachment 4: Getting Started

Attachment 5: Energy

Attachment 6: Transportation

Attachment 7: Land Use

Attachment 8: Water Resources

Attachment 9: Waste Reduction, Recycling and Green Purchasing

Performance

The Community of Westchester will succeed in addressing climate change and reaching our reduction goals when all sectors take the actions proposed by the Task Force. For this reason, all sectors need to monitor their actions and report on their success yearly. The Task Force calls on the County Government to develop a monitoring and reporting program that will combine the results of the actions of all sectors and will be publicly communicated on an annual basis.

The Task Force has augmented this Action Plan with important information-laden Attachments that provide much of the detailed work and information they developed. Consult these Attachments for more information on:

- The effects of climate change on Westchester;
- The amount of GHG emissions in Westchester and where they come from;
- How the actions of all sectors work together so as to achieve the Task Force's climate protection strategies;
- Basic "how to's" for implementing the actions;
- Sources and resources to help in achieving the actions;
- Examples of success; and
- Possible funding sources.

Attachment 1: Climate Change, Global Warming, and Westchester
Attachment 2: County Executive's Initiative
Attachment 3: GHG Inventory and Reduction Goal
Attachment 4: Getting Started
Attachment 5: Energy
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Attachment 8: Water Resources
Attachment 9: Waste Reduction, Recycling and Green Purchasing
Attachment 10: Guidance for Using the Action Plan

County Government Action Summary

Provided below is a summary of actions for County Government recommended by the Task Force.

To understand more about these actions, click on the Action Icon. This link will open the detailed Attachment that explains the action further and provides other important information and resources.

The actions are generally organized by subject – energy, transportation, land use, water resources, and waste and green purchasing. Each action has a recommended time frame for completion:

- short term, 1 to 3 yrs;
- medium term, 3 to 8 yrs;
- long term, 8+years.

Set up a County-wide Reporting Process

Monitor progress countywide and adjust plan, if necessary. (short to long term)

Publicly report yearly the successes of the Community of Westchester in meeting the GHG reduction goals. (short to long term)

Define the County Government Greenhouse Gas Footprint

Develop a county government GHG inventory. (short term)

Set a reduction goal consistent with the countywide reduction goal. (short term)

Develop a plan from the actions below to meet the reduction goal. (short term)

Monitor progress yearly. (short to long term)

Energy

Direct Energy Actions

Make behavioral changes in energy use such as: (short term) 

- Use energy management software, power strips or other methods to ensure electrical equipment including computers, copiers and printers are not drawing standby power when not in use.
- Manage/program thermostats so that heating and cooling demand is reduced.
- Use reduced lighting when daylight is sufficient.
- Shift electrical use to non-peak periods.

Replace incandescent bulbs with compact fluorescents, LEDs, or solar powered lighting. (short term) 

Perform an energy audit on all county buildings: (short term) 

- Prioritize the recommended actions and set a timetable for implementation. (short term)
- Set up an ongoing maintenance program to ensure that the efficiencies are maintained (medium term)

Develop a green building program that incorporates LEED and other green building practices. (medium term) 

Install renewable energy such as solar and geothermal, where appropriate. (long term) 

Take advantage of existing financing opportunities. (medium term) 

Build Capacity for Energy Actions

Extend a sales tax exemption to geothermal installations as soon as state law allows such an exemption. (medium term) 

Encourage the state government to: (short term) 

- Require energy efficiency and green building practices in building code.
- Allow streamlining of safety and architectural review for onsite renewable energy installations in building code.
- Require energy audits and disclosure of energy costs at time of building sale.
- Allow commercial building with onsite renewable energy to return excess to grid for credit.
- Create residential sales and use tax exemption for geothermal heating and cooling systems.

- Require all utilities to make renewable energy directly available to the customer.
- Include energy efficiency in the criteria for state programs for low-income housing.
- Accelerate and allow the use of energy efficient alternatives and renewable energy by the county, municipalities and public education institutions.
- Provide NYPA subsidies for purchase of onsite renewables to governments and schools.

Encourage the federal government to: (short term) 

- Extend and expand tax credits to consumers for purchase of renewable energy.
- Reinstate tax credits to producers of renewable energy so as to maintain their competitive capabilities in the marketplace.
- Promote in grant programs, such as Community Development block grant programs, green building, energy efficiency, and renewable energy for new construction and rebuilding of low- and moderate-income communities.
- Include energy efficiency in the criteria for federal programs for low-income housing.

Provide information to the Community of Westchester about how to apply for existing energy efficiency and renewable energy funding. (short term) 

Work with businesses to identify green building funding opportunities. (short term) 

Identify funding mechanisms to support energy efficiency for low-income households. (short term) 

Investigate redirecting existing funding mechanisms to support energy efficiency. (short term) 

Identify and promote examples of local best practices for energy use. (short term) 

Develop with other sectors programs to encourage public commitments to clean, renewable energy. (short term) 

Promote participation in existing programs that encourage public commitments to renewable energy, green building, and energy efficiency. (short term) 

Encourage the building-related professional organizations and arts and architectural community to develop green building design competitions. (short term) 

Provide information and training to the public and professionals on energy efficiency and renewable energy. Publicize on the county website. Hold fairs and workshops. (short term) 

Transportation

Direct Transportation Actions

Use carpools and van-pools. (short term) 

Participate in ride sharing programs such as NuRide and GoLoco. (short term) 

Practice car sharing through joint ownership programs such as ZipCar. (short term) 

Use mass transit when possible for county government transportation. (short term) 

Use alternate modes of transportation such as walking or riding bicycles when possible for county government transportation. (short term) 

Implement fleet management practices: (medium term) 

- Replace county vehicles with hybrids, flex-fueled vehicles, alternative fueled vehicles and more fuel-efficient conventionally fueled vehicles.
- Retrofit buses with devices that limit idling.
- Retrofit older buses (prior to 2007) with tailpipe and crankcase filters.

Change to ultra low sulfur diesel fuel or biodiesel in diesel vehicles. (short term) 

Use ethanol in flex-fueled vehicles. (short term) 

Change county vehicle operating behavior; avoiding idling and aggressive driving, maintaining the vehicle and tire pressure, and consolidating trips. (short term) 

Substitute virtual technology such as video conferencing for travel. (short term) 

Build Capacity for Transportation Action

Negotiate a lower price for the purchase of some advanced technology vehicles by taking advantage of the federal government tax credit. (short term) 

Promote programs to allow employees to set aside pretax income to pay for mass transit. (short term) 

Take advantage of Federal Transportation Authority funding opportunities and other available funding opportunities. (short term) 

Establish web-based ride sharing, car sharing, and trip planning capabilities. (short term) 

Consider developing a flexible work program that allows commuting in non-rush hours and working from home. (short term) 

Evaluate potential strategies for improving bus transit. (short term) 

Evaluate roadways and existing infrastructure to ensure that infrastructure is adequate to support walking and biking as alternate modes of transportation. (short term) 

Evaluate the availability of infrastructure such as fueling stations necessary to support alternative fuels. (medium term) 

Encourage New York State to: (short term) 

- Increase funding for mass transit and for the development of bicycle and pedestrian facilities.
- Provide a state hybrid tax credit.
- Exempt new and used hybrid and high-efficiency vehicles from state sales and compensating use taxes.
- Provide EZ Pass discounts for hybrid vehicles.
- Prohibit all idling at public schools and universities.
- Tighten restrictions on idling of vehicles statewide.

Enforce “No Idling” County Law. (short term) 

Broaden preferential parking for hybrid vehicles. (short term) 

Explore implementing contractual requirements on suppliers to provide energy efficient delivery of goods and services, if possible. (medium term) 

Set up an adopt-a-sidewalk or bike path program to support pedestrian/bicycle transportation. (short term) 

“Buy back” parking spaces from county employees to encourage and help them fund ride sharing or transit use. (medium term) 

Hold events such as "Try Transit" and "Rideshare" weeks. Create events that encourage commuters to bike. (short term) 

Participate in Clean Air NY public awareness campaign. (short term) 

Create biking social events such as rodeos to encourage the use of bicycles for transportation. (short term) 

Develop a model program for bicycle sharing in communities. (short term) 

Develop and promote contests to reduce motor vehicle trips. (short term) 

Provide information and training to the public and professionals on transportation and transportation alternatives. Publicize on the county website. Hold fairs and workshops. (short term) 

Land Use

Direct Land Use Actions

Address Climate Change and Sustainability in Westchester 2025. Include: (short term) 

- Open space planning that identifies and inventories critical areas;
- Acquisition of land for purposes of carbon sequestration;
- Identification of forestry patterns and forest coverage to identify locations requiring management and planting.
- Encouragement of linked biodiversity corridors.
- Protection and enhancement of farmlands and agricultural areas.
- Promotion of transit-based development.
- Promotion of transit-based affordable housing.
- Promotion of cooperative regional planning pacts.
- Promotion of a collaborative, multidisciplinary and multi-stakeholder involvement process.
- Incorporation of nontraditional land use planning concepts that address GHG emissions.

Facilitate municipal access to model codes and zoning ordinances. (short term) 

Access funds through participation in regional planning programs. (short term) 

Allocate additional county budget to open space land acquisition. (medium term) 

Support local municipal efforts to address stormwater management through regional approaches. (medium term) 

Build Capacity for Land Use Action

Seek additional Federal and State funding for open space land acquisition. (short term) 

Provide information and training to the public and professionals on Land Use Planning. Publicize on the county website. Hold fairs and workshops. (short term) 

Water Resources

Direct Water Resources Actions

Develop best practices for improved stormwater management suitable for all sectors. (short term) 

Implement stormwater management best practices when developed. (medium term) 

Implement adaptation strategies in low lying and flood prone areas when making decisions for capital improvements, infrastructure investments, and granting project approvals. (short term)

Implement flow-monitoring program to identify sources of inflow and infiltration (I/I) in municipal wastewater collection systems. (medium term)

Develop water conservation measures applicable to all sectors. (short term)

Implement water saving measures. (medium term)

Building the Capacity for Water Resources Actions

Develop and make available on-line a catalogue of best practices on stormwater management and water conservation. (medium term)

Create a countywide campaign to save water. (short term)

Provide information and training to the public and professionals on water resources. Publicize on the county website. Hold fairs and workshops. (short term)

Waste Reduction, Recycling and Green Purchasing

Direct Actions

Perform a county government waste audit to identify opportunities for waste prevention and reduction, improved recycling, and conversion of waste streams to recycling. (short term)

Evaluate current county government purchasing and purchasing policy for opportunities to purchase: (short term)

- Durable, repairable, recycled content, low toxicity products that can be reused, recycled, or composted.
- Locally produced goods requiring no transportation.
- Organic foods.

Build Capacity for Action

Evaluate expanding the county recycling programs to include more types of material. (short term)

Evaluate expanding recycling access at the MRF to include additional entities (colleges, school districts, businesses, commercial buildings, etc.). (short term)

Evaluate developing recycling facility to handle deconstruction and construction materials (wood, metal, sheetrock, etc). (medium term) 

Evaluate developing a facility to accept food waste, yard waste and leaves from across the county with municipal curbside pick–up. (medium term) 

Evaluate establishing a permanent facility or satellite locations for household material recovery, which would accept residential generated chemicals. (medium term) 

Create, develop, and fund local and organic agriculture and Community Supported Agriculture (CSA), farmers markets, local food events, and Organic Community Gardens. (short term) 

Evaluate fee modifications such as pay-as-you-throw to encourage recycling and reduce solid waste. (short term) 

Encourage NY State to: (short term) 

- Establish a sales tax exemption for products made from 100% post-consumer recycled material.
- Establish tax credits that provide economic incentives to generate less waste.
- Ban the sale of hazardous material, where appropriate.
- Expand the NYS “Bottle Bill” deposit program to include non-carbonated beverages.

Identify opportunities to create tax and other incentives to promote deconstruction and recycling of construction & demolition debris. (medium term) 

Identify opportunities to develop incentives to business to improve recycling rates such as free recycling with paid waste removal. (short term) 

Evaluate providing funding for the purchase of bins, receptacles, signage and other tools that maximize recycling participation and compliance. (medium term) 

Evaluate prohibiting the distribution of eating utensils, food containers and bottles made of polystyrene (styrofoam), PVC or polycarbonate (lexan). (medium term) 

Evaluate prohibiting polycarbonate plastic water bottles in buildings. (medium term) 

Continue to promote pesticide reduction and organic pest management policy for landscaping and other uses. (medium term) 

Evaluate establishing goals for the amount of construction and demolition debris to be either deconstructed for reuse or recycled. (medium term) 

Evaluate prohibiting the use of leaf blowers during summer months. (medium term) 

Evaluate creating a model ordinance that excludes grass clippings from pick-up. (medium term) 

Consider using organic materials in place of artificial turf fields and monitor health department findings nationwide. (short term) 

Develop a green business website. (short term) 

Promote high profile locations as model recycling facilities. (short term) 

Set up and run recycling and waste reduction challenges. (short term) 

Provide information and training to the public and professionals on waste reduction, recycling and green purchasing. Publicize on the county website. Hold fairs and workshops. (short term) 

To find out how the actions of all sectors integrate with each other to achieve the countywide strategies and to find out more about each of the actions such as basic "how to" information for implementing the actions, sources and resources to help in achieving the actions, examples of success, and possible funding options see:

Attachment 4: Getting Started

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Attachment 9: Waste Reduction, Recycling and Green Purchasing

Municipal Government Action Summary

Provided below is a summary of actions for Municipal Governments recommended by the Task Force.

To understand more about these actions, click on the Action Icon. This link will open the detailed Attachment that explains the action further and provides other important information and resources.

The actions are generally organized by subject; energy, transportation, land use, water resources, and recycling. Each action has a recommended time frame for completion:

- short term, 1 to 3 yrs;
- medium term, 3 to 8 yrs;
- long term, 8+years.

Define and Report the Municipal Greenhouse Gas Footprint

Join ICLEI, Local Governments for Sustainability. (short term)

Develop a municipal GHG inventory. (short term)

Set a reduction goal consistent with the countywide reduction goal. (short term)

Develop a plan from the actions below to meet the reduction goal. (short term)

Monitor progress yearly, report progress publicly and to the County Government, and adjust plan, if necessary. (short to long term)

Energy

Take Direct Energy Actions

Make behavioral changes in energy use such as: (short term)

- Use energy management software, power strips or other methods to ensure electrical equipment including computers, copiers and printers are not drawing standby power when not in use.
- Manage/program thermostats so that heating and cooling demand is reduced.
- Use reduced lighting when daylight is sufficient.
- Shift electrical use to non-peak periods.

Replace incandescent bulbs with compact fluorescents, LEDs, or solar powered lighting. (short term)

Perform an energy audit on all municipal buildings: (short term)

- Prioritize the recommended actions and set a timetable for implementation. (short term)
- Set up an ongoing maintenance program to ensure that the efficiencies are maintained. (medium term)

Adopt green building practices for new buildings and infrastructure and major renovations such as:

- Adopt LEED certifiable practices for new or substantially modified municipal buildings. (short term)
- Adopt LEED certifiable practices for private construction using public funding or tax abatement. (medium term)
- Adopt LEED certifiable practices for all new construction within the municipality. (long term)

Install Renewable Energy such as solar and geothermal, where appropriate. (long term)

Take advantage of existing financing opportunities. (medium term)

Build Capacity for Energy Action

Extend the sales tax exemption to geothermal installations as soon as state law allows such an exemption. (medium term)

Encourage the state government to: (short term)

- Require energy efficiency and green building practices in building code.
- Allow streamlining of safety and architectural review for onsite renewable energy installations in building code.
- Require energy audits and disclosure of energy costs at time of building sale.
- Allow commercial building with onsite renewable energy to return excess to grid for credit.
- Create residential sales and use tax exemption for geothermal energy systems equipment.
- Require all utilities to make renewable energy directly available to the customer.
- Include energy efficiency in the criteria for state programs for low-income housing.
- Accelerate and allow the use of energy efficient alternatives and renewable energy by municipalities.

- Provide NYPA subsidies for purchase of onsite renewables to governments and schools.

Encourage the federal government to: (short term) 

- Extend and expand tax credits to consumers for purchase of renewable energy.
- Reinstate tax credits to producers of renewable energy so as to maintain their competitive capabilities in the marketplace.
- Promote in grant programs, such as Community Development block grant programs, green building, energy efficiency, and renewable energy in new construction and rebuilding of low- and moderate-income communities.
- Include energy efficiency in the criteria for federal programs for low-income housing.

Provide information to the community about how to apply for existing energy efficiency and renewable energy funding. (short term) 

Identify new sources for energy efficiency and renewable energy funding and promote them. (medium term) 

Explore providing incentives for green building. (short term) 

Investigate redirecting existing funding mechanisms to promote energy efficiency. (short term) 

Identify and promote examples of local best practices for energy use. (short term) 

Develop, with the county government, a program to encourage public commitments to clean, renewable energy. (medium term) 

Promote participation in existing programs that encourage public commitments to renewable energy, green building, and energy efficiency. (short term) 

Encourage the building-related professional organizations and arts and architectural community to develop green building design competitions. (short term) 

Provide information and training to the public and professionals on energy efficiency and renewable energy. Publicize on the municipal website. Hold fairs and workshops. (short term) 

Transportation

Take Direct Transportation Actions

Use carpools and van-pools. (short term) 

Participate in ride sharing programs such as NuRide and GoLoco. (short term) 

Practice car sharing through joint ownership programs such as ZipCar. (short term) 

Use mass transit when possible for municipal government transportation. (short term) 

Use alternate modes of transportation such as walking or riding bicycles when possible for municipal government transportation. (short term) 

Implement fleet management practices to replace municipal vehicles with hybrids, flex-fueled vehicles, alternative fueled vehicle and more fuel-efficient conventionally fueled vehicles. (medium term) 

Change to ultra low sulfur diesel fuel or biodiesel in diesel vehicles. (short term) 

Use ethanol in flex-fueled vehicles. (short term) 

Change municipal vehicle operating behavior by avoiding idling and aggressive driving, maintaining the vehicle and tire pressure, consolidating trips. (short term) 

Substitute use of virtual technology such as video conferencing for travel. (short term) 

Build Capacity for Transportation Action

Negotiate a lower price for the purchase of some advanced technology vehicles by taking advantage of the federal government tax credit. (medium term) 

Offer programs to allow employees to set aside pretax income to pay for mass transit. (short term) 

Take advantage of Federal Transportation Authority funding opportunities and other available funding. (short term) 

Establish web-based ride sharing, car sharing, and trip planning capabilities. (short term) 

Consider developing a flexible work program that allows commuting in non-rush hours and working from home. (short term) 

Evaluate municipal roadways and existing infrastructure to ensure that infrastructure is adequate to support walking and biking as alternate modes of transportation. (short term) 

Evaluate the availability of infrastructure such as fueling stations necessary to support alternative fuels. (medium term) 

Encourage New York State to: (short term) 

- Increase funding for mass transit and for the development of bicycle and pedestrian facilities.
- Provide a state hybrid tax credit.
- Exempt new and used hybrid and high-efficiency vehicles from state sales and compensating use taxes.
- Provide EZ Pass discounts for hybrid vehicles.
- Prohibit all idling at public schools and universities.
- Tighten restrictions on idling of vehicles statewide.

Enforce “No Idling” County Law or adopt and enforce more stringent local law. (short term) 

Provide preferential parking for hybrid vehicles. (short term) 

Explore implementing contractual requirements on suppliers for energy efficient delivery of goods and services, if possible. (medium term) 

Set up an adopt-a-sidewalk or bike path program to support pedestrian/bicycle transportation. (medium term) 

“Buy back” parking spaces from municipal employees to encourage and help fund ride sharing or transit use. (medium term) 

Hold events such as "Try Transit" and "Rideshare" weeks. Create events that encourage commuters to bike. (short term) 

Hold vehicle-free commerce days and set up vehicle-free zones within municipalities. (short term) 

Participate in Clean Air NY public awareness campaign. (short term) 

Create biking social events such as rodeos to encourage biking for transportation. (short term) 

Consider implementing a model program for bicycle sharing in the community. (medium term) 

Develop and promote contests to reduce motor vehicle trips. (short term) 

Provide information and training to the public and professionals on transportation and transportation alternatives. Publicize on the municipal website. Hold fairs and workshops. (short term) 

Land Use

Direct Land Use Actions

Update the Municipal Comprehensive Plan in line with Westchester 2025 to address Climate Change and Sustainability. Include**:** (short term) 

- Open space planning that identifies and inventories critical areas;
- Acquisition of land for purposes of carbon sequestration;
- Identification of forestry patterns and forest coverage to identify locations requiring management and planting.
- Encouragement of linked biodiversity corridors.
- Protection and enhancement of farmlands and agricultural areas.
- Promotion of transit-based development.
- Promotion of transit-based affordable housing.
- Promotion of cooperative regional planning pacts.
- Promotion of a collaborative, multidisciplinary and multi-stakeholder involvement process.
- Incorporation of nontraditional land use planning concepts that address GHG emissions.

Adopt model codes in line with Comprehensive Plan update. (medium term) 

Become a Greenway Compact Community. (short term) 

Create and participate in inter-municipal planning agreements. (short term) 

Encourage private donations of land and conservation easements as a method to preserve open space. (short term) 

Partner with land trusts, private citizens, and county and state governments to access funding for land preservation. (medium term) 

Access funds through participation in regional Planning programs. (short term) 

Allocate additional municipal budget to open space land acquisition. (short term) 

Participate in developing a regional stormwater management approach such as the creation of a stormwater district. (short term) 

Build Capacity for Land Use Action

Seek additional Federal and State funding for open space land acquisition. (short term) 

Provide information and training to the public and professionals on Land Use Planning. Publicize on the municipal website. Hold fairs and workshops. (short term) 

Water Resources

Direct Water Resources Actions

Implement stormwater management best practices when developed by County Government. (medium term) 

Implement adaptation strategies in low-lying and flood prone areas when making decisions for capital improvements, infrastructure investments and granting project approvals. (medium term) 

Address inflow and infiltration (I/I) concerns in municipal collection systems. (medium term) 

Implement water saving measures. (medium term) 

Build Capacity for Water Resource Action

Adopt a requirement that an engineering report on wastewater lateral integrity and illegal connections be part of property transfer. (medium term) 

Adopt a sliding fee for water usage so that fees per unit of consumption increase with the amount of water consumed. (medium term) 

Integrate water conservation strategies into existing codes and approvals. (medium term) 

Review and improve building stormwater retention requirements and vegetation requirements. (short term) 

Revise codes to encourage organic land management practices that naturally support drought resistant lawn and turf and conserve water. (medium term) 

Create a municipal campaign to save water. (short term) 

Provide information and training to the public and professionals on water resources. Publicize on websites. Hold fairs and workshops. (short term) 

Waste Reduction, Recycling and Green Purchasing

Direct Actions

Perform a municipal waste audit to identify opportunities for waste prevention and reduction, improved recycling, and conversion of waste streams to recycling. (short term) 

Evaluate current purchasing and purchasing policy for opportunities to purchase: (short term) 

- Durable, repairable, recycled content, low toxicity products that can be reused, recycled or composted.
- Locally produced goods requiring no transportation.
- Organic foods.

Build Capacity for Action

Create, support, fund, and develop local and organic agriculture and Community Supported Agriculture (CSA), farmers markets, local food events, and Organic Community Gardens. (short term) 

Evaluate fee modifications such as pay-as-you-throw to encourage recycling and reduce solid waste. (short term) 

Enforce the Source Separation Law. (short term) 

Encourage NY State to: (short term) 

- Establish a sales tax exemption for products made from 100% post-consumer recycled material.
- Consider tax credits that provide an economic incentive to generate less waste.
- Ban the sale of hazardous material, where appropriate.
- Expand the NYS “Bottle Bill” deposit program to include non-carbonated beverages.

Identify opportunities to create tax and other incentives to promote deconstruction and construction & demolition debris. (medium term) 

Identify opportunities to develop incentives to business to improve recycling rates such as free recycling with paid waste removal. (short term) 

Explore funding for the purchase of bins, receptacles, signage and other tools that maximize recycling participation and compliance. (medium term) 

Evaluate a prohibition on distribution of eating utensils, food containers and bottles made of polystyrene (styrofoam), PVC or polycarbonate (lexan). (medium term) 

Evaluate the prohibition of polycarbonate plastic water bottles in buildings. (medium term) 

Evaluate the adoption of an organic pest management policy for landscaping and other uses. (medium term) 

Evaluate the establishment of goals for the amount of construction and demolition debris to be either deconstructed for reuse or recycled. (medium term) 

Evaluate prohibiting the use of leaf blowers during summer months. (medium term) 

Evaluate adopting a model ordinance that excludes grass clipping pick-up. (medium term) 

Consider using organic material in place of artificial turf fields and monitor health department findings nationwide. (short term) 

Promote high profile locations as model recycling facilities. (short term) 

Set up and run recycling and waste reduction challenges. (short term) 

Provide information and training to the public and professionals on waste reduction, recycling and green purchasing. Publicize on the municipal websites. Hold fairs and workshops. (short term) 

To find out how the actions of all sectors integrate with each other to achieve the countywide strategies and to find out more about each of the actions such as basic "how to" information for implementing the actions, sources and resources to help in achieving the actions, examples of success, and possible funding options see:

Attachment 4: Getting Started

Attachment 5: Energy

Attachment 6: Transportation

Attachment 7: Land Use

Attachment 8: Water Resources

Attachment 9: Waste Reduction, Recycling and Green Purchasing

Business Action Summary

Provided below is a summary of actions for Businesses recommended by the Task Force.

To understand more about these actions, click on the Action Icon. This link will open the detailed Attachment that explains the action further and provides other important information and resources.

The actions are generally organized by subject; energy, transportation, land use, water resources, and recycling. Each action has a recommended time frame for completion:

- short term, 1 to 3 yrs;
- medium term, 3 to 8 yrs;
- long term, 8+years.

Define the Business Greenhouse Gas Footprint

Develop a GHG inventory. (short term)

Set a reduction goal consistent with the countywide reduction goal. (short term)

Develop a plan from the actions below to meet the reduction goal. (short term)

Monitor progress yearly, participate in county reporting, and adjust plan, if necessary. (short to long term)

Energy

Direct Energy Actions

Make behavioral changes in energy use such as: (short term)

- Use energy management software, power strips or other methods to ensure electrical equipment including computers, copiers and printers are not drawing standby power when not in use.
- Manage/program thermostats so that heating and cooling demand is reduced
- Use reduced lighting when daylight is sufficient.
- Shift electrical use to non-peak periods.

Replace incandescent bulbs with compact fluorescents, LEDs, or solar powered lighting. (short term)

Perform an energy audit on all buildings: (short term) 

- Prioritize the recommended actions and set a timetable for implementation. (short term)
- Set up an ongoing maintenance program to ensure the efficiencies are maintained. (medium term)

Adopt green building practices for new buildings and infrastructure and major renovations. (medium term) 

- Commit to build green buildings or renovate to green building standards; buildings can be built to be LEED certified or LEED certifiable.
- Engage a LEED certified professional at the beginning of the project planning process to explore green building features that can be included for businesses not prepared to make a LEED commitment.

Install renewable energy such as solar and geothermal, where appropriate. (long term) 

Purchase renewable energy or renewable energy credits (RECS). (short term) 

Take advantage of existing financing opportunities. (medium term) 

Capacity Building for Energy Action

Encourage the state government to: (short term) 

- Require energy efficiency and green building practices in building code.
- Allow streamlining of safety and architectural review for onsite renewable energy installations in building code.
- Require energy audits and disclosure of energy costs at time of building sale.
- Allow commercial building with onsite renewable energy to return excess to grid for credit.
- Create residential sales and use tax exemption for geothermal energy systems equipment.
- Require all utilities to make renewable energy directly available to the customer.
- Include energy efficiency in the criteria for state programs for low-income housing.
- Accelerate and allow the use of energy efficient alternatives and renewable energy by the county, municipalities and public education institutions.
- Provide NYPA subsidies for purchase of onsite renewables to governments and schools.

Encourage the federal government to: (short term) 

- Extend and expand tax credits to consumers for purchase of renewable energy.
- Reinstate tax credits to producers of renewable energy so as to maintain their competitive capabilities in the marketplace.

- Promote in grant programs, such as Community Development block grant programs, green building, energy efficiency, and renewable energy in new construction and rebuilding of low- and moderate-income communities.
- Include energy efficiency in the criteria for federal programs for low-income housing.

Perform outreach to community on how to apply for existing energy efficiency and renewable energy funding. (short term) 

Work with the county government to identify green building funding opportunities. (medium term) 

Offer financial incentives for employees who make energy saving improvements in their homes. (short term) 

Take the 10% challenge to reduce the company GHG footprint by 10% by 2010. (short term) 

Identify and promote examples of local best practices for energy use in the business sector. (short term) 

Develop with the county government, a program to encourage public commitments to clean, renewable energy. (medium term) 

Promote participation in existing programs that encourage public commitments to renewable energy, green building, and energy efficiency. (short term) 

Encourage the building-related professional organizations and arts and architectural community to develop a green building design competition. (short term) 

Provide information and training to the public, professionals and employees on energy efficiency and renewable energy. Participate in fairs and workshops. (short term) 

Transportation

Direct Transportation Actions

Use carpools and van-pools. (short term) 

Participate in ride sharing programs such as NuRide and GoLoco. (short term) 

Practice car sharing through joint ownership programs such as ZipCar. (short term) 

Set up a private transportation network. (medium term) 

Take advantage of flexible workweeks, use home offices and telecommute. (short term) 

Use mass transit when possible for business related transportation. (short term) 

Use alternate modes of transportation such as walking or riding bicycles when possible for business related transportation. (short term) 

Implement fleet management practices to replace company vehicles with hybrids, flex-fueled vehicles, alternative fueled vehicle and more fuel-efficient conventionally fueled vehicles. (medium term) 

Change to ultra low sulfur diesel fuel or biodiesel in diesel vehicles. (short term) 

Use ethanol in flex-fueled vehicles. (short term) 

Change employee vehicle operating behavior by avoiding idling and aggressive driving, maintaining the vehicle and tire pressure, and consolidating trips. (short term) 

Purchase carbon offsets. (medium term) 

Substitute use of virtual technology such as video conferencing for travel. (short term) 

Build Capacity for Transportation Action

Negotiate a lower price for the purchase of some advanced technology vehicles by taking advantage of the federal government tax credit. (medium term) 

Offer programs to allow employees to set aside pretax income to pay for mass transit. (short term) 

Establish web-based ride sharing, car sharing and trip planning capabilities. (short term) 

Consider developing a flexible work program that allows commuting in non-rush hours and working from home. (short term) 

Encourage New York State to: (short term) 

- Increase funding for mass transit and for the development of bicycle and pedestrian facilities.
- Provide a state hybrid tax credit.
- Exempt new and used hybrid and high-efficiency vehicles from state sales and compensating use taxes.
- Provide EZ Pass discounts for hybrid vehicles.
- Tighten restrictions on idling of vehicles statewide.

Set internal policy to enforce “No Idling” County Law. (short term) 

Provide preferential parking for hybrid vehicles. (short term) 

Develop contractual requirements for suppliers for energy efficient delivery of goods and services, if possible. (medium term) 

Participate in an adopt-a-sidewalk or bike path program to support pedestrian/bicycle transportation. (medium term) 

“Buy back” parking spaces from employees to encourage and help fund ride sharing or transit use. (medium term) 

Participate in events such as "Try Transit" and "Rideshare" weeks. Create events that encourage commuters to bike. (short term) 

Participate in Clean Air NY public awareness campaign. (short term) 

Participate in biking social events such as rodeos to encourage biking to be used for transportation services. (short term) 

Develop, promote and participate in contests to reduce motor vehicle trips. (short term) 

Provide information and training to employees on transportation and transportation alternatives. (short term) 

Land Use

Direct Land Use Actions

Develop property in a manner consistent with minimizing GHG emissions and the goals set forth in Westchester 2025. (medium term) 

Build Capacity for Land Use Action

Participate in providing information and training to the public and professionals on Land Use Planning. Participate in fairs and workshops. (short term) 

Water Resources

Direct Water Resources Actions

Implement stormwater management best practices when developed by County Government. (medium term) 

Implement adaptation strategies when making decisions for capital improvements, infrastructure investments and granting project approvals. (medium term) 

Implement water saving measures. (medium term) 

Build Capacity for Water Resources Action

Create an internal campaign to save water. Include process operations. (short term) 

Participate in providing information and training to the public and professionals on water resources. Participate in fairs and workshops. (short term) 

Waste Reduction, Recycling and Green Purchasing

Direct Actions

Perform a waste audit to identify opportunities for waste prevention and reduction, improved recycling, and conversion of waste streams to recycling. (short term) 

Evaluate current purchasing and purchasing policy for opportunities to purchase: (short term) 

- Durable, repairable, recycled content, low toxicity products that can be reused, recycled or composted.
- Locally produced goods requiring no transportation.
- Organic foods.

Build Capacity for Action

Create, support, fund, and develop local and organic agriculture and Community Supported Agriculture (CSA), farmers markets, local food events, and Organic Community Gardens. (short term) 

Comply with the County Source Separation Law. (short term) 

Promote high profile locations as model recycling facilities. (short term) 

Set up and run recycling and waste reduction challenges. (short term) 

Participate in provide information and training to the public and professionals on waste reduction, recycling and green purchasing. Participate in fairs and workshops. (short term) 

To find out how the actions of all sectors integrate with each other to achieve the countywide strategies and to find out more about each of the actions such as basic "how to" information for implementing the actions, sources and resources to help in achieving the actions, examples of success, and possible funding options see:

Attachment 4: Getting Started

Attachment 5: Energy

Attachment 6: Transportation

Attachment 7: Land Use

Attachment 8: Water Resources

Attachment 9: Waste Reduction, Recycling and Green Purchasing

Education Action Summary

Provided below is a summary of actions for Education recommended by the Task Force.

To understand more about these actions, click on the Action Icon. This link will open the detailed Attachment that explains the action further and provides other important information and resources.

The actions are generally organized by subject; energy, transportation, land use, water resources, and recycling. Each action has a recommended time frame for completion:

- short term, 1 to 3 yrs;
- medium term, 3 to 8 yrs;
- long term, 8+years.

Define the Education Greenhouse Gas Footprint

Develop a GHG inventory. (short term)

Set a reduction goal consistent with the countywide reduction goal. (short term)

Develop a plan from the actions below to meet the reduction goal. (short term)

Monitor progress yearly, participate in county reporting, and adjust plan, if necessary. (short to long term)

Energy

Take Direct Energy Actions

Make behavioral changes in energy use such as: (short term)

- Use energy management software, power strips or other methods to ensure electrical equipment including computers, copiers and printers are not drawing standby power when not in use.
- Manage/program thermostats so that heating and cooling demand is reduced
- Use reduced lighting when daylight is sufficient.
- Shift electrical use to non-peak periods.

Replace incandescent bulbs with compact fluorescents, LEDs, or solar powered lighting. (short term)

Perform an energy audit on all existing buildings: (short term) 

- Prioritize the recommended actions and set a timetable for implementation. (short term)
- Set up an ongoing maintenance program to ensure the efficiencies are maintained. (medium term)

Adopt green building practices for new buildings and infrastructure and major renovations: 

- Follow green building guidelines such as LEED rating system, SED high performance, ENERGY STAR criteria. Set a target of 60% reduction in energy use in the short term, with a long-term target of achieving carbon neutrality for major renovations and new construction.

Install renewable energy such as solar and geothermal. (long term) 

Purchase renewable energy or renewable energy credits (RECS). (short term) 

Take advantage of existing financing opportunities. (medium term) 

Build Capacity for Energy Action

Encourage the State Education Department (SED) to include GHG and sustainability considerations in SED building construction requirements. (short term) 

Encourage the state government to: (short term) 

- Require energy audits and disclosure of energy costs at time of building sale.
- Allow commercial and non-residential building with onsite renewable energy to return excess to grid for credit.
- Require all utilities to make renewable energy directly available to the customer.
- Accelerate and allow the use of energy efficient alternatives and renewable energy by the county, municipalities and schools.
- Provide NYPA subsidies for purchase of onsite renewables to the county, municipalities and schools.

Encourage the federal government to: (short term) 

- Reinstate tax credits to producers of renewable energy so as to maintain their competitive capabilities in the market.

Establish partnerships with utilities to offer rebates for eligible renewable energy installations for ENERGY STAR schools. (short term) 

Commit publicly to actions to address energy use, and track and publicly report on performance. (medium term) 

Identify and promote examples of local best practices for energy use in the education sector. (short term) 

Develop with the county government, a program to encourage public commitments to clean, renewable energy. (medium term) 

Promote participation in existing programs that encourage public commitments to renewable energy, green building, and energy efficiency. (short term) 

Encourage the building-related professional organizations and arts and architectural community to develop a green building design competition. (short term) 

Develop recognition programs or competitions involving staff, students and faculty to promote green power. (short term) 

Provide information and training to the public and professionals on energy efficiency and renewable energy. Publicize on education websites. Hold fairs and workshops. (short term) 

Transportation

Direct Transportation Actions

Use carpools and van-pools. (short term) 

Participate in ride sharing programs such as NuRide and GoLoco. (short term) 

Practice car sharing through joint ownership programs such as ZipCar. (short term) 

Consolidate transportation across school districts by establishing a countywide network of school district coordinators for clean transportation. (medium term) 

Use mass transit, when possible. (short term) 

Use alternate modes of transportation such as walking or riding bicycles, when possible. (short term) 

Implement fleet management practices: (medium term) 

- Replace county vehicles with hybrids, flex-fueled vehicles, alternative fueled vehicle and more fuel-efficient conventionally fueled vehicles.
- Retrofit buses with devices that limit idling.
- Retrofit older buses (prior to 2007) with tailpipe and crankcase filters.

Change to ultra low sulfur diesel fuel or biodiesel in diesel vehicles. (short term) 

Use ethanol in flex-fueled vehicles. (short term) 

Change staff and student vehicle operating behavior by avoiding idling and aggressive driving, maintaining the vehicle and tire pressure, consolidating trips. (short term)

Purchase carbon offsets, if possible. (short term)

Substitute use of virtual technology such as video conferencing for travel. (short term)

Building Capacity for Transportation Actions

Negotiate a lower price for the purchase of some advanced technology vehicles by taking advantage of the federal government tax credit. (medium term)

Offer programs to allow employees to set aside pretax income to pay for mass transit. (short term)

Take advantage of Federal Transportation Authority funding opportunities and other available funding opportunities. (short term)

Establish web-based ride sharing, car sharing and trip planning capabilities. (short term)

Consider developing a flexible work program that allows commuting in non-rush hours and working from home, if possible. (short term)

Participate in alternative fuel infrastructure planning with the County Government and municipalities. (medium term)

Encourage New York State to: (short term)

- Increase funding for mass transit and for the development of bicycle and pedestrian facilities.
- Provide a state hybrid tax credit.
- Exempt new and used hybrid and high-efficiency vehicles from state sales and compensating use taxes.
- Provide EZ Pass discounts for hybrid vehicles.
- Prohibit all idling at public schools and universities.
- Tighten restrictions on idling of vehicles statewide.

Enforce “No Idling” County Law. (short term)

Provide preferential parking for hybrid vehicles. (short term)

Develop contractual requirements for suppliers for energy efficient delivery of goods and services, if possible. (medium term)

“Buy back” parking spaces from staff to encourage and help fund ride sharing or transit use. (medium term)

Participate in the Clean Air NY public awareness campaign. (short term) 

Create biking social events such as rodeos to encourage biking to be used for transportation services. (short term) 

Implement a model program for bicycle sharing. (short term) 

Develop and promote contests to reduce motor vehicle trips. (short term) 

Provide information and training to the public and professionals on transportation and transportation alternatives. Publicize on education websites. Hold fairs and workshops. (short term) 

Land Use

Direct Land Use Actions

Develop property in a manner consistent with minimizing GHG emissions and the goals set forth in Westchester 2025. (medium term) 

Build Capacity for Land Use Action

Provide information and training to the public and professionals on Land Use Planning. Publicize on the county website. Hold fairs and workshops. (short term) 

Water Resources

Direct Water Resources Actions

Implement stormwater management best practices when developed by County Government. (medium term) 

Implement adaptation strategies when making decisions for capital improvements, infrastructure investments and granting project approvals. (medium term) 

Implement water saving measures. (medium term) 

Build Capacity for Water Resources Action

Create a school or campus-wide campaign to save water. (short term) 

Provide information and training to the public and professionals on water resources. Publicize on websites. Hold fairs and workshops. (short term) 

Waste Reduction, Recycling and Green Purchasing

Direct Actions

Perform a waste audit to identify opportunities for waste prevention and reduction, improved recycling, and conversion of waste streams to recycling. (short term) 

Evaluate current purchasing and purchasing policy for opportunities to purchase: (short term) 

- Durable, repairable, recycled content, low toxicity products that can be reused, recycled or composted.
- Locally produced goods requiring no transportation.
- Organic foods.

Set up composting for school lunch programs in K-12. (short term) 

Build Capacity for Action

At the higher education level, create composting internships. (short term) 

Implement organic food gardens and farm-to-table programs in schools to link children to their food sources. (medium term) 

Comply with the County Source Separation Law. (short term) 

Encourage NY State to: (short term) 

- Ban the sale of hazardous material, where appropriate.
- Expand the NYS “Bottle Bill” deposit program to include non-carbonated beverages.

Evaluate a prohibition on distribution of eating utensils, food containers and bottles made of polystyrene (styrofoam), PVC or polycarbonate (lexan). (medium term) 

Evaluate the prohibition of polycarbonate plastic water bottles in buildings. (medium term) 

Evaluate the adoption of an organic pest management policy for landscaping and other uses. (medium term) 

Evaluate the establishment of goals for the amount of construction and demolition debris to be either deconstructed for reuse or recycled. (medium term) 

Evaluate prohibiting the use of leaf blowers during summer months. (medium term) 

Consider using organic materials in place of artificial turf fields and monitor health department findings nationwide. (short term) 

Promote high profile locations as model recycling facilities. (short term) 

Set up and run recycling and waste reduction challenges. (short term) 

Run school events to as zero waste events and as models for using recycled and recyclable/compostable material. (short term) 

Provide information and training to the public and professionals on waste reduction, recycling and green purchasing. Publicize on websites. Hold fairs and workshops. (short term) 

To find out how the actions of all sectors integrate with each other to achieve the countywide strategies and to find out more about each of the actions such as basic "how to" information for implementing the actions, sources and resources to help in achieving the actions, examples of success, and possible funding options see:

Attachment 4: Getting Started

Attachment 5: Energy

Attachment 6: Transportation

Attachment 7: Land Use

Attachment 8: Water Resources

Attachment 9: Waste Reduction, Recycling and Green Purchasing

Households Action Summary

Provided below is a summary of actions for Households recommended by the Task Force.

To understand more about these actions, click on the Action Icon. This link will open the detailed Attachment that explains the action further and provides other important information and resources.

The actions are generally organized by subject; energy, transportation, land use, water resources, and recycling. Each action has a recommended time frame for completion:

- short term, 1 to 3 yrs;
- medium term, 3 to 8 yrs;
- long term, 8+years.

Define the Household Greenhouse Gas Footprint

Develop a GHG inventory. (short term)

Set a reduction goal consistent with the countywide reduction goal. (short term)

Develop a plan from the actions below to meet the reduction goal. (short term)

Monitor progress yearly, participate in county reporting, and adjust plan, if necessary. (short to long term)

Energy

Take Direct Energy Actions

Make behavioral changes in energy use such as: (short term)

- Use power strips or other methods to ensure electrical equipment including computers, televisions and gaming stations are not drawing standby power when not in use.
- Manage/program thermostats so that heating and cooling demand is reduced.
- Use reduced lighting when daylight is sufficient.
- Shift electrical use to non-peak periods.

Replace incandescent bulbs with compact fluorescents, LEDs, or solar powered lighting. (short term)

Perform a household energy audit: (short term) 

- Prioritize the recommended actions and set a timetable for implementation. (short term)
- Set up an ongoing maintenance program to ensure the efficiencies are maintained. (medium term)

Adopt green building practices for new residences and major renovations. (medium term) 

- Explore purchase of green/energy efficient residences for new residence purchases and explore using green building practices in renovations.

Install Renewable Energy such as solar and geothermal. (medium term) 

Purchase renewable energy or renewable energy credits (RECs). (short term) 

Take advantage of existing financing opportunities. (medium term) 

Build Capacity for Energy Action

Take the 10% challenge to reduce the household GHG footprint by 10% by 2010. (short term) 

Transportation

Direct Transportation Actions

Use carpools and van-pools. (short term) 

Participate in ride sharing programs such as NuRide and GoLoco. (short term) 

Practice car sharing through joint ownership programs such as ZipCar. (short term) 

Participate in a private transportation network. (medium term) 

Take advantage of flexible workweeks, use home offices and telecommute. (short term) 

Use mass transit, when possible. (short term) 

Use alternate modes of transportation such as walking or riding bicycles when possible for county government transportation. (short term) 

Change to ultra low sulfur diesel fuel or biodiesel in diesel vehicles. (short term) 

Use ethanol in flex-fueled vehicles. (short term) 

Change vehicle operating behavior by avoiding idling and aggressive driving, maintaining the vehicle and tire pressure, consolidating trips. (short term) 

Purchase carbon offsets. (short term) 

Substitute use of virtual technology such as video conferencing for travel. (short term) 

Take advantage of the federal government tax credit for the purchase of some advanced technology vehicles. (short term) 

Build Capacity for Transportation Action

Participate in Clean Air NY public awareness campaign. (short term) 

Land Use

Direct Land Use Actions

Minimize size and lot coverage of new homes. (short term) 

Water Resources

Direct Water Resources Actions

Implement stormwater management best practices when developed by County Government. (medium term) 

Implement water saving measures. (short term) 

Build Capacity for Water Resources Action

Create a household campaign to save water. (short term) 

Waste Reduction, Recycling and Green Purchasing

Direct Actions

Perform a household waste audit to identify opportunities for waste prevention and reduction, improved recycling, and conversion of waste streams to recycling. (short term) 

Set up a composting bin. (short term) 

Evaluate current purchasing for opportunities to purchase: (short term) 

- Durable, repairable, recycled content, low toxicity products that can be reused, recycled or composted.
- Locally produced goods requiring no transportation.
- Organic foods.

Build Capacity for Action

Comply with the County Source Separation Law. (short term) 

To find out how the actions of all sectors integrate with each other to achieve the countywide strategies and to find out more about each of the actions such as basic "how to" information for implementing the actions, sources and resources to help in achieving the actions, examples of success, and possible funding options see:

Attachment 4: Getting Started

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Attachment 9: Waste Reduction, Recycling and Green Purchasing

Climate Change, Global Warming, and Westchester

What Are Climate Change and Global Warming?

Global warming is the heating of the earth's surface due to increased concentrations of greenhouse gas emissions in the atmosphere. Greenhouse gases (GHGs) act to hold the heat of the sun rather than allow it to be reflected back into space, much as a greenhouse does. Climate change and disruptions associated with climate change occur as a result of this global warming.

GHGs, which cause global warming, include:

- Carbon dioxide (CO_2), which is emitted through the burning of fossil fuels;
- Methane (CH_4), which is the major component in natural gas; and
- Nitrous oxide (N_2O), halocarbons (HFCs, PFCs), and sulfur hexafluoride (SF_6), which are released by certain industrial processes.

Methane is produced when plant and animal waste breaks down without the presence of oxygen. Sources of methane include livestock, landfills, wetlands, coal beds and petroleum reservoirs.

At the 27th Session of the Intergovernmental Panel on Climate Change (IPCC) held November 12 – 17, 2007, the IPCC released ***A Summary for Policy Makers*** [i], which stated that

> warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.

They concluded that this is **"very likely"** (with a greater than 90 percent certainty) due to greenhouse gas concentrations coming from human activity.

The role of the IPCC is to assess—on a comprehensive, objective, open and transparent basis—available scientific, technical and socio-economic data to understand the scientific basis of the risk of human-induced climate change; the potential impacts; and options for adaptation and mitigation. For their work, they shared the 2007 Nobel Peace Prize jointly with former U.S. Vice President Al Gore.

The most recent assessment report was the work of over 2,500 scientific expert reviewers, 800 contributing authors, and 450 lead authors from over 130 countries. It was the result of four review cycles, and it addressed 49,610 review comments.

The IPCC reports the following findings:

- **Warming** of the climate system **is unequivocal**, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.
- Global GHG emissions **due to human activities** have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004.
- CO_2 is the most important GHG caused by human activity. Its **annual emissions have grown** by about 80 percent between 1970 and 2004.
- **Atmospheric concentrations** of CO_2 and methane in 2005 **exceed by far the natural range** over the last 650,000 years.
- Eleven of the last twelve years (1995 – 2006) rank among the 12 **warmest years of record**, with 2005 being the hottest year on record.
- Since 1961, the average **temperature of the ocean has increased** to depths of at least 3,000 meters; the ocean has been absorbing more than 80 percent of the heat added to the climate, causing seawater to expand, and contributing to sea level rise.
- **Mountain glaciers** and **snow cover** have **declined** in both hemispheres.
- Temperatures in the top layer of **permafrost** in the Arctic have generally increased since the 1980s, with the maximum area covered by seasonally frozen ground **decreasing** by about 7 percent in the Northern Hemisphere since 1900.
- The frequency of **heavy precipitation** events has **increased,** consistent with warming and observed increases in atmospheric water vapor.
- Widespread changes in **extreme temperatures** have been observed over the last 50 years; with cold days, cold nights and frost less frequent, and hot days, hot nights and heat waves increasingly frequent.

Increases in GHGs released to the atmosphere last from decades to centuries. Emissions from previous years have impacts on the climate at this time, while today's emissions will affect the climate well beyond the 21st century. As a result, the IPCC predicts that continued GHG emissions are expected to cause further warming and induce many changes in the global climate system during the 21st century that will very likely be larger than those observed during the 20th century. Specifically, they project the following consequences:

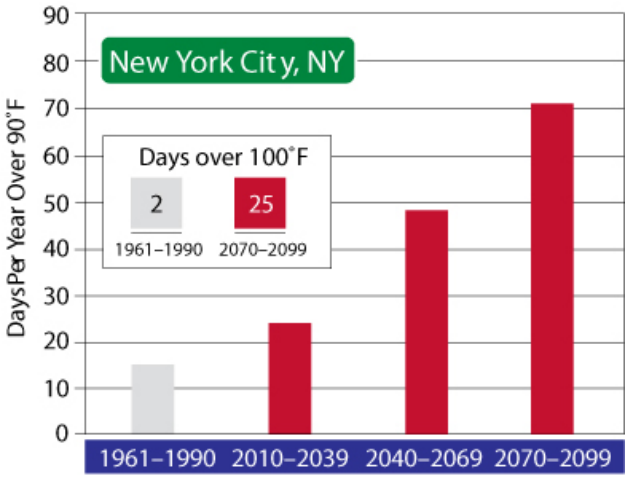
- Cities will be further challenged by an **increased** number, intensity and duration of **heat waves**.

- Contraction of the Greenland ice sheet will continue and contribute to **sea level rise**.
- **Coastal communities and habitats** will be **increasingly stressed** by climate change impacts interacting with development and pollution.
- When the global average temperature increase exceeds about 6.3°F, significant **species extinctions** will occur (40-70 percent of species assessed) around the globe.

Climate change has the potential to yield continued adverse impacts on ecological, economic, and social systems, which will be experienced at every level of society. Those in the weakest economic position are often the most vulnerable to climate change. There is increasing evidence of greater vulnerability of specific groups such as the poor and elderly in not only developing but also developed countries, and even in places like Westchester.

How Will Climate Change Affect Westchester County?

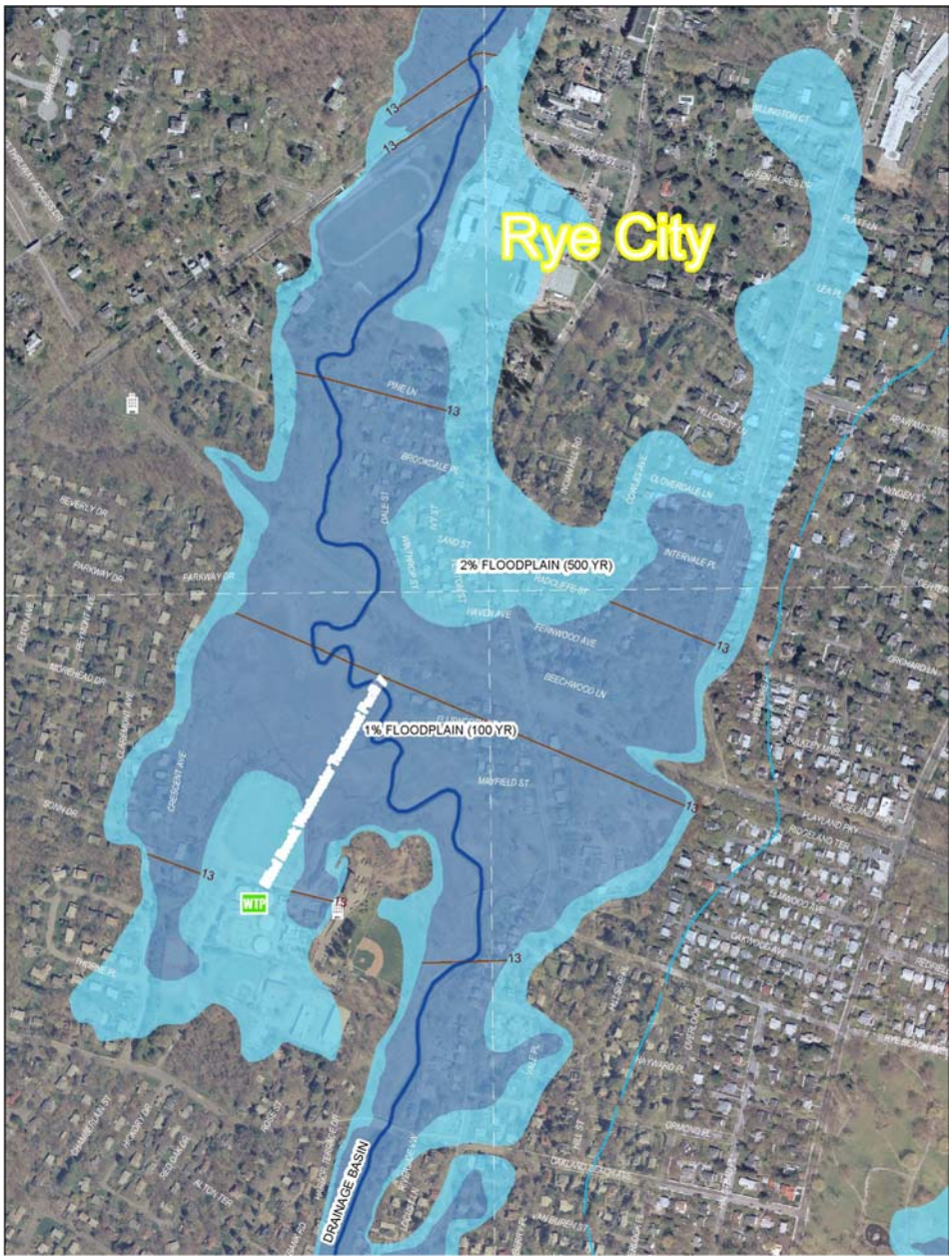
The Northeast Climate Impacts Assessment (NECIA), a collaboration between the Union of Concerned Scientists (UCS) and a team of more than fifty independent experts, has assessed climate change and the resulting impacts within the Northeast. According to the NECIA report, *Confronting Climate Change in the U.S. Northeast 2007* [ii] the local seasonal climate, characterized by snowy winters, verdant springs, humid summers, and brilliant autumns, with infrequent events such as nor'easters, ice storms, and heat waves, is in the process of changing. Using multiple climate change models and assuming that emissions are uncurbed, the NECIA study predicts that winters could warm by 8 to 12°F and that summers could warm by 6 to 12°F by late this century. Associated with this warming will be disruptive impacts on coastal areas, marine habitats, forests, agriculture, and human health. Associated with these impacts will also be substantial economic and social disturbance.



The number of days over 90°F in large Northeastern cities is projected to increase in the coming decades. The box shows the increase in days over 100°F.

Source: ***Confronting Climate Change in the U.S. Northeast 2007.***

As the temperature rises, sea levels will rise. For Westchester, without action, this will mean the **permanent inundation of low-lying areas** and wetlands along the Sound shore and Hudson River. Since many of Westchester's cities, towns and villages lie along the Hudson River or Long Island Sound, the projected regional water level rise, conservatively estimated at 10 inches to two feet, will put many Westchester communities at risk.



Current Flood Map for Harrison, Rye Brook, Port Chester area.
Dark blue areas represent areas inundated by the 100-year flood.
Light blue areas represent areas inundated by the 500-year flood.

A second related hazard for Westchester is severe weather, in the form of more **severe storms** including rainfall events, hurricanes, tropical storms, nor'easters, tornados, and other high wind hazards. The frequency of these events is also predicted to increase with global warming, causing more flooding throughout the region. By the end of this century, destructive **100-year floods** are predicted to occur on average **every 10 years** in the vicinity of Westchester County.

Heavy, damaging rainfall events have already increased measurably across the Northeast in recent decades. Intense spring rains in 2006 and 2007 caused widespread flooding. Most recently, the Nor'easter of April 2007 damaged scores of homes, automobiles and businesses, caused numerous power and gas outages, and resulted in extended road closures including major thoroughfares and parkways. By the time it was over, Westchester was declared a major disaster area by FEMA and was allocated $30 million in disaster relief.

Westchester's July 2006 tornado caused damage

The implications of both sea level rise and increased intensity of storm events for Westchester County are significant since high concentrations of population, property, infrastructure, economic activity, and recreation occur within the coastal areas of the County. Property damage and risk to life are potential concerns. Challenges to emergency response, hazard mitigation, land-use planning and property insurance can be anticipated.

Just as coastal impacts are anticipated, so are marine impacts. It is anticipated that commercially important fish and shellfish will shift northward as they will be unable to inhabit the warmer water. The **Lobster Fisheries** in Long Island Sound are anticipated to go into **decline** by mid-century. Similarly, cod are expected to decline.

Forests and the species that depend on them for habitat will also be impacted. In particular, **hemlocks and sugar maples** may **disappear**, and significant shifts in bird populations may occur as a result in the change in temperatures. Shifts in weather patterns are another result of climate change. Models indicate that **periods of drought** will occur in the Catskills where major drinking water reservoirs for New York City and the County are located, creating the potential for periodic disruptions to the water supply.

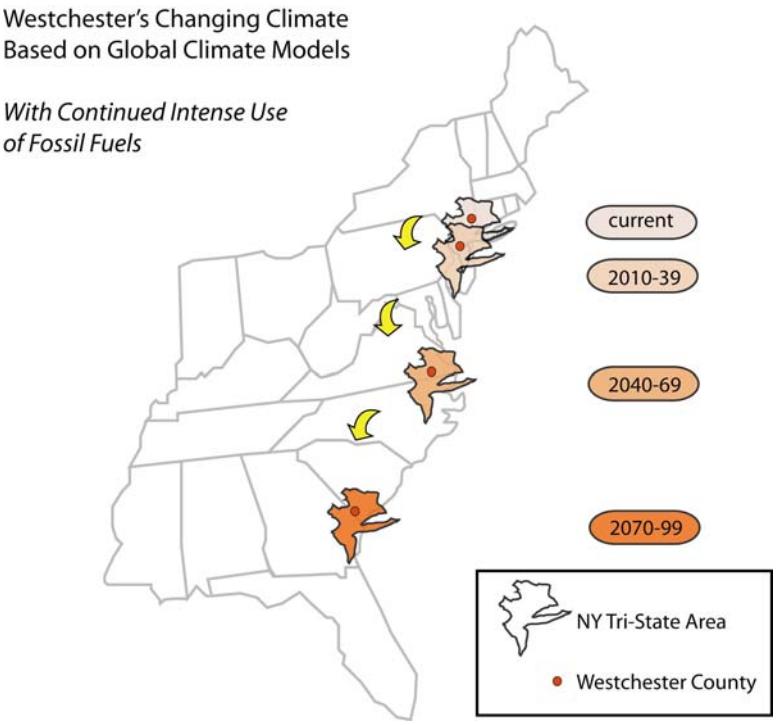
Climate change will affect agriculture. While some crops may benefit from a longer growing season, **crops** that require cold winters such as apples, blueberries and sugar

maples **will suffer**. Increased heat will also **increase insects and weeds**, potentially requiring use of more pesticides and herbicides.

Winter recreation opportunities will be **reduced** as snow gives over to rain and snow pack and winter ice on lakes and rivers is reduced. The models indicate that without change, only western Maine may be able to support skiing by the end of the century.

Human health is another area of concern. Severe and longer heat waves can threaten the health of the most vulnerable. Heat waves have already led to power outages, resulting in heat stroke and stress among the aging. Further, the EPA has classified Westchester as an air quality nonattainment area (meaning, not in compliance with air quality standards under the Clean Air Act) due to persistent ground level smog (ozone) and particulates. **Worsening air quality** from the combination of vehicular emissions, increased heat, and increased electrical usage are predicted to contribute to increased cardiovascular and respiratory diseases. With warmer and longer summers, the **pollen and mold** season will be extended, leading to allergies and triggering **increased asthma** attacks. **West Nile virus** carried by mosquitoes and **Lyme disease** carried by ticks are expected to become more prevalent, with warmer temperatures and increased flooding.

If these trends in GHG emissions continue unchecked, the NECIA report projects that the climate in Westchester will resemble the climate of southern Georgia by the end of the century.



Sources

[i] Intergovernmental Panel on Climate Change, Fourth Assessment Report, Climate Change 2007: Synthesis Report http://www.ipcc.ch/ipccreports/ar4-syr.htm

[ii] Confronting Climate Change in the U.S. Northeast 2007 http://www.northeastclimateimpacts.org/

County Executive's Initiative

Drawing on the Lessons and Successes of the Past to Secure the Future

The Community of Westchester has a long and established history of proactively protecting the character of its communities and its natural resources while accommodating change. A tradition of grassroots advocacy to protect water quality, historic land use, sound transportation alternatives and air quality has produced the following results:

- Responsible comprehensive planning and zoning;
- Open space and coastal protection, that includes the largest county park system in the nation and many privately protected farms and nature preserves;
- Advanced wastewater treatment facilities;
- Stormwater pollution and flood prevention programs;
- Wetland protection and restoration;
- A high level of recycling;
- Excellent mass transit facilities; and
- Programs to reduce air pollution.

Recognizing the need to build on what has worked in the past, the County Executive, Andy Spano, convened a community-wide task force, the Westchester Global Warming Task Force (Task Force). The Task Force drew on the formidable talent of public officials, subject experts, educators, and business leaders in Westchester. The County Executive charged the Task Force with creating an Action Plan for this key moment in county history, to catalyze change and help achieve sensible goals for GHG emission reductions and **sustainable development**.

> "**Sustainable development** is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."
>
> ***Our Common Future*** , *UN World Commission on Environment and Development*

The mission of the Task Force was to identify workable strategies and practical actions the Community of Westchester can implement to reduce global warming and foster sustainable development, and to present this information in an Action Plan appropriate for implementation by all sectors of the community: households, businesses, education and similar institutions, and local and county government.

Using the ICLEI Cities for Climate Protection Campaign Five Milestones[i] as a guide, the County Executive requested the following actions of the Task Force:

- Update the Community of Westchester's six-year-old greenhouse gas emissions inventory.
- Recommend an emissions reduction goal.
- Develop an Action Plan with actions for all sectors to achieve the goal.
- Recommend sustainable development actions.

Task Force

The Task Force included representatives from government, business, education, communities of faith, and environmental organizations. Among these experts were members from county business associations, international corporations with offices in the county, teachers and professors, college presidents, and representatives from local and national environmental groups. The Task Force had two co-chairs: one a Westchester town supervisor and one from county government.

Hon. Reese Berman, co-chair of the Task Force, with Andy Spano

In developing the Action Plan, the Task Force evaluated the following five technical subject areas:

- **Energy** including energy efficiency, renewable energy, and green building;
- **Transportation** including transportation and alternative fuels;
- **Land Use** including regional planning and code modifications;
- **Water Resources** including stormwater, water supply, and wastewater; and
- **Recycling** including waste reduction, recycling and green purchasing.

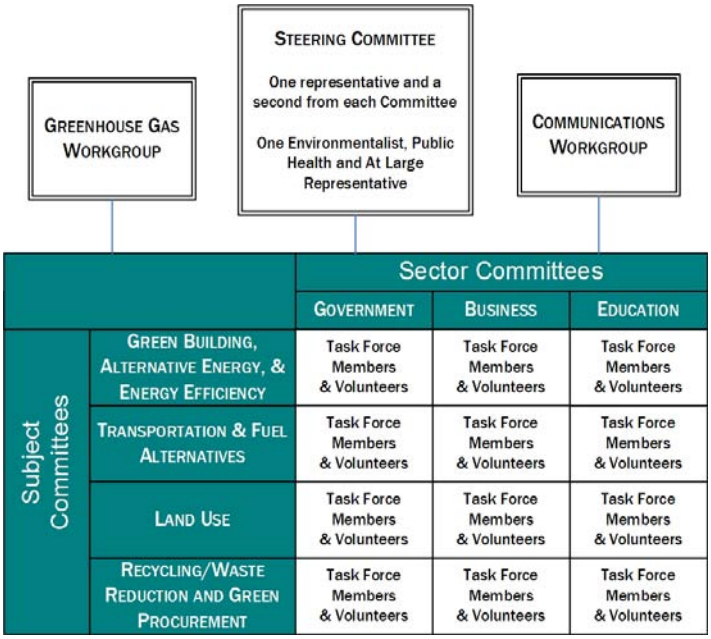
To perform the evaluations by sector and subject, sector and subject committees were set up. Task Force members served on one sector committee, and one or more subject committees. The committees were headed by a Chair and in some cases included a Secretary.

In addition to the appointed Task Force members, the committees included many more individuals from the Community of Westchester who volunteered their expertise. These included County government employees and members of the general public with interests and expertise in global climate change. The inclusion of these Associates on the various committees demonstrates the broad-based and multidisciplinary effort that contributed to drafting the initial recommendations.

Each of the subject committees also included a liaison from a Westchester County department (in addition to County employee participants) as indicated below:

Subject Committee	***Westchester County Department***
Energy Committee	Department of Public Works
Transportation Committee	Department of Transportation Department of Public Works
Land Use Committee	Planning Department
Recycling Committee	Department of Environmental Facilities

Global Warming Task Force Organizational Chart



The Task Force Steering Committee served as the executive committee of the Task Force and was comprised of:

- The two Task Force Co-chairs,
- The Chairs of the seven committees (four subject and three sector) and an additional representative from each of the three sector committees,
- One health expert, and
- Two at-large members.

Early in the process, the subject committees met, with their initial effort comprised of educational sessions, followed by the development of recommendations for review by the various sector committees. The education sector also developed detailed sector plans to integrate actions into the curriculum, campus and community. These are provided as an education attachment. The sector committees of government (municipal and county), education (K-12 and higher education), and business, then evaluated the subject committee recommendations and determined how the subject committee recommendations could be implemented within their sectors and by County residents.

Seven of the 28 municipalities in New York State that have signed on to the U.S. Conference of Mayors Climate Protection Agreement, which calls for meeting Kyoto Protocol GHG reductions, are in Westchester and account for nearly a half million residents. These include:

- Greenburgh
- Irvington
- Mount Vernon
- New Rochelle
- Tarrytown
- White Plains
- Yonkers

The Task Force operated independently of County government, but benefited from insight and participation of the staff of key departments within the County. This independence allowed the Task Force to offer recommendations from an impartial viewpoint, to accelerate initiatives already in progress at the County level, and to identify opportunities not yet explored.

The Task Force included many municipal officials who engaged in productive discussions with their County counterparts. Few Action Plans have been designed to be as inclusive as Westchester's, or have provided such focus on the various sectors served – including K-12 schools, higher education, multinational corporations, all businesses, local and County government, and local residents.

The Task Force also reaped the benefits of lessons learned by others, in particular, by the City of Cambridge, and their Climate Protection Plan[ii], the City of San Francisco's Voluntary Green Business Program[iii], and the City of New York's PlaNYC[iv].

Many initiatives are already in motion in Westchester businesses, schools, cities, towns and villages, and inside County government. One of the primary discoveries of the Task Force was the lack of a shared knowledge base about what was already working in Westchester and what were the logical next steps. Through innumerable Task Force meetings, many tips were exchanged and lessons shared. Resulting from the numerous committee meetings was this framework for the Community of Westchester to address climate change.

After the Task Force work was well underway, two of its members were tapped by New York State's Lieutenant Governor's Renewable Energy Task Force to identify and recommend ways of expanding the State's use of renewable energy and alternative fuels.

Acknowledgements

Co-Chairs

Hon. Reese Berman, SUPERVISOR, TOWN OF NORTH CASTLE

Robert Funicello, ENVIRONMENTAL PROJECT DIRECTOR, WESTCHESTER COUNTY

Task Force *

Adrienne Atwell, SWISS RE

Richard Berman, PRESIDENT, MANHATTANVILLE COLLEGE

Hon. Catherine Borgia, TRUSTEE, VILLAGE OF OSSINING

Hon. Nicola Coddington, ENERGY CONSERVATION COORDINATOR, TOWN OF GREENBURGH, TRUSTEE, VILLAGE OF IRVINGTON

Hon. Linda Cooper, FORMER SUPERVISOR, YORKTOWN; CURRENT VILLAGE MANAGER, VILLAGE OF OSSINING

Deborah Crosby, PRESIDENT, CHAPPAQUA CONGRESS OF TEACHERS

George Drapeau, CONSTRUCTION INDUSTRY COUNCIL WESTCHESTER AND HUDSON VALLEY, INC.

Eric Eller

Robert Fischman, PROJECT DIRECTOR, GINSBURG DEVELOPMENT COMPANIES, LLC

Herb Fox, FEDERATED CONSERVATIONISTS OF WESTCHESTER COUNTY

Steven Frantz, CONSULTANT TO SCARSDALE SCHOOL DISTRICT

Paul Gallay, WESTCHESTER LAND TRUST

Katie Ginsberg, EXECUTIVE DIRECTOR, CHILDREN'S ENVIRONMENTAL LITERACY FOUNDATION

Jane Harsha, PRESIDENT, WESTCHESTER EAST PUTNAM PTA COUNCIL

Anne Janiak, EXECUTIVE DIRECTOR, WESTCHESTER MUNICIPAL OFFICIALS ASSOCIATION

Hon. Marlene Kolbert, TRUSTEE, VILLAGE OF LARCHMONT

Michelle Land, DIRECTOR, ENVIRONMENTAL CONSORTIUM OF HUDSON VALLEY COLLEGES & UNIVERSITIES

Phillip Landrigan, PROFESSOR AND CHAIRMAN, DEPARTMENT OF COMMUNITY & PREVENTIVE MEDICINE PROFESSOR OF PEDIATRICS, MOUNT SINAI SCHOOL OF MEDICINE

Margaret Lanz

Luis Martinez, NATURAL RESOURCES DEFENSE COUNCIL

Alex Matthiessen, RIVERKEEPER

Andrew Millest, EXECUTIVE DIRECTOR, MORGAN STANLEY CORPORATE SERVICES GROUP

Emmett Pepper, CITIZENS CAMPAIGN FOR THE ENVIRONMENT

Paul Ramoino, TRANE, NY, ENERGY SERVICES GROUP

Hon. Thomas M. Roach, COUNCILMAN, CITY OF WHITE PLAINS

Hon. Martin Rogowsky, LEGISLATOR, COUNTY OF WESTCHESTER

Hon. Christine Selin, FORMER COUNCILWOMAN, CITY OF NEW ROCHELLE

Edna Sussman, ACTION FOR TOMORROW'S ENVIRONMENT

Jackie Taylor, DEPUTY SUPERINTENDENT, BYRAM HILLS SCHOOL DISTRICT

Frances Wills, SUPERINTENDENT, BRIARCLIFF SCHOOL DISTRICT

Fred Zalcman, EXECUTIVE DIRECTOR, PACE LAW SCHOOL ENERGY PROJECT

* Organizational affiliations used for identification purposes only.

Representing County Executive Andrew J. Spano

Susan Tolchin, CHIEF ADVISOR TO THE COUNTY EXECUTIVE

Susan Gerry, SENIOR ASSISTANT TO THE COUNTY EXECUTIVE

Report Drafting Committee

Steve Altieri
Hon. Nicola Coddington
Lea Cullen
Jerry Faiella
Robert Funicello
Katie Ginsberg
Dennis Power
Edna Sussman

County Support Staff

Tana Bigelow, DEPARTMENT OF PLANNING

Peter Costa, DEPARTMENT OF ENVIRONMENTAL FACILITIES

Lea Cullen, DEPARTMENT OF PARKS, RECREATION & CONSERVATION

Gina D'Agrosa, DEPARTMENT OF PLANNING

Scott Fernqvist, DEPARTMENT OF INFORMATION TECHNOLOGY

Ed Hoffmeister, DEPARTMENT OF PLANNING

Naomi Klein, DEPARTMENT OF TRANSPORTATION

Cindy Louie, DEPARTMENT OF INFORMATION TECHNOLOGY

Jeff Main, DEPARTMENT OF PARKS, RECREATION & CONSERVATION

Robert Morabito, DEPARTMENT OF ENVIRONMENTAL FACILITIES

Liam Murphy, DEPARTMENT OF ENVIRONMENTAL FACILITIES

Sean O'Rourke, DEPARTMENT OF ENVIRONMENTAL FACILITIES

Dennis Power, DEPARTMENT OF ENVIRONMENTAL FACILITIES

Sam Wear, DEPARTMENT OF INFORMATION

Subject Committees

Energy

Chair: Alex Matthiessen

Cimbrea Badenhausen
Hon Reese Berman
Catherine Borgia
Deann Cartwright
Elizabeth Ceppos
Hon. Nicola Coddington
Hon. Linda Cooper
Lea Cullen
Allegra Dengler
Daniel Doyle
Eric Eller
Herb Fox
Robert Funicello
Katie Ginsberg
Reva Greenburg
Chris Hall
Melanie Haniph
Adam Hinge
Hon. Marlene Kolbert
Michelle Land
Judy Martin
Luis Martinez
Naomi Matusow
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Hon. Thomas Roach
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Frances Willis
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Brooke Beebe
Hon. Reese Berman
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Robert Funicello
Anne Gold
Jane Harsha
Ed Hoffmeister
Anne Janiak
Adam Kaufman
Hon. Marlene Kolbert
Fred Koontz
Jeff Main
James Nordgren
Dennis Power
Hon. Lee V.A. Roberts
Nancy Seligson
Hon. Christine Selin

Transportation

Chair: Robert Funicello

Lea Cullen
Susan Ellis
Steven Frantz
Naomi Klein
Steven Levy
Liam Murphy
Joseph "Bud" Nicoletti
Hon. Martin Rogowsky

Recycling/Waste Reduction/Green Procurement

Chair: Emmett Pepper

Steve Altieri
Michael Altobelli
Cimbrea Badenhausen
Jason Black
Catherine Borgia
Susan Cember
Deborah Crosby
Neil Cutler
Gina D'Agrosa
Justin DeCarlo
Stephen Filler
Robert Funicello
Hon. Marlene Kolbert
Margaret Lanz
Loretta Miraglia
Robert Morabito
Sean O'Rourke
Dennis Power
Michael Priano
Lee Roberts
Susan Schwarz
Dan Seidel
Edna Sussman
Jacquelyn Taylor
Ellen Weininger

Sector Committees

Government Sector - County/Municipal

Chair: Hon. Christine Selin

Second: Hon. Thomas Roach

Hon. Reese Berman	Hon. Linda Cooper	Hon. Martin Rogowsky
Lea Cullen	Robert Funicello	Susan Schwarz
Catherine Borgia	Anne Janiak	
Hon. Nicola Coddington	Hon. Marlene Kolbert	

Business Sector

Co-Chair: George Drapeau

Co-Chair Edna Sussman

Second: Adrienne Atwell

Eric Eller	Margaret Lanz	Paul Ramoino
Robert Fischman	Andrew Millest	

Education Sector

Co-Chair: Katie Ginsberg

Co-Chair: Richard Berman

Deborah Crosby	Michelle Land	Frances Wills
Steven Frantz	Phillip Landrigan	Fred Zalcman
Jane Harsha	Jackie Taylor	

Authors of Household Action Guide

Susan Cember
Mary Ann Gallagher
Dani Glaser
Deann Cartwright
Edna Sussman

Authors of Resources For New York State Congregations

Valerie Brodsky
Hon. Nicola Coddington
Reva Greenberg

Authors of Business Action Guides

Adrienne Atwell
Jason Black
George Drapeau
Robert Fischman
Adiel Gavish
Dani Glaser
Edna Sussman

Authors of K-12 Action Plan

Katie Ginsberg
Ellen Weininger
Doug Wood
Deborah Crosby
Jane Harsha
Jacquelyn L. Taylor
Frances Wills
Steven Frantz
Mary Elizabeth Wilson
Michele Lewis
Jeff Main
Frank Hariton

Authors of Higher Education Action Plan

Anne Gold
Michelle Land
Donna Kowal
Michael Priano
Lindsay Randall

Associates

Steve Altieri
Michael Altobelli
Tom Andersen
Albert Annunziata
Cimbria Badenhausen
Brooke Beebe
Jason Black
Valerie Brodsky
Deann Cartwright
Scott Cartwright
Susan Cember
Elizabeth Ceppos
Jeff Coleman
Neil Cutler
Allegra Dengler
Anthony DiCaprio
Justin DiCarlo
Daniel Doyle
Jerry Faiella
Adele Falco
Stephen Filler
Steven Frantz
Maryann Gallagher
Marla Gardner
Adiel Gavish
Tony Gelber
Dani Glaser
Anne Gold
Reva Greenberg
Carole Griffiths
Chris Hall
Melanie Haniph
John Hannah
Frank Hariton
Brian Hayduk
Adam Hinge
Liz Hoskinson
Adam Kaufman
Gerard Kolbert
Fred Koontz
Riva Krut
William Lawyer
Melanie Lester
Steven Levy
Michele Lewis
Bruce Lozito
Daniel Martin
Judith Martin
Judith Z. Matson
Naomi Matusow
Susan McDonnell
Andrew Millest
Loretta Miraglia
June Monaghan
John Moore
Hon. Mary Beth Murphy
Joseph “Bud” Nicoletti
James Nordgren
Judy Powers
Michael Priano
Lisa Rainwater
Walter Recher
Hon. Lee V.A. Roberts
Jerry Robock
Barbara Sacks
Daniel Seidel
Laura Seldak
Hon. Nancy Seligson
Carolyn Stevens
Ellen Weininger
Mary Beth Wilson
Murray Wilson
Patricia Wood
Susan Weuste Ellis
Elisa Zazzera

The County retained a consultant to facilitate the work of the Task Force. The consultant, First Environment, Inc., supported the work of the sector and subject committees, provided technical review of the GHG emissions inventory reports, and functioned as facilitators and writers of the Action Plan.

James Trotta and Amy Q. Lin were student interns who assisted with the development of the greenhouse gas inventory.

Sources

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[i] Five Milestones http://www.iclei.org/index.php?id=810

[ii]City of Cambridge, Climate Protection Plan
http://www.ci.cambridge.ma.us/~CDD/et/climate/index.html

[iii]City of San Francisco, Voluntary Green Business Program
http://www2.sfenvironment.org/greenbiz/index.htm

[iv] City of New York, PlaNYC http://www.nyc.gov/html/planyc2030/html/downloads/download.shtml

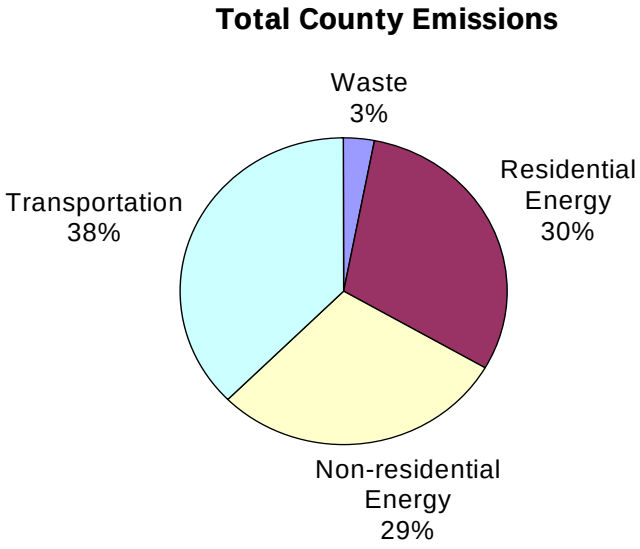
GHG Inventory and Reduction Goal

Westchester County Greenhouse Gas Emissions

In support of its Climate Action Plan, the Task Force has developed an inventory of its greenhouse gases for the year 2005. For this purpose, the Clean Air and Climate Protection Software provided by ICLEI—Local Governments for Sustainability[i] was used. Through ICLEI, there is an opportunity for each municipality in Westchester to do its own GHG inventory. It is therefore recommended that municipalities join ICLEI and conduct their own inventory to establish their GHG emissions baseline.

> **CO_2e** stands for CO_2 equivalents. Not all GHGs are CO_2 and they have different warming effects (known as warming potential) on the Earth. In order to standardize data, GHGs are converted into the equivalent amount of CO_2 that would have the same effect on the Earth.

The county-wide inventory includes both community and government emissions. Specifically, this inventory examines county-level emissions from residential energy, non-residential energy, transportation, and waste sources within the county. Total emissions for Westchester County for 2005 were 12,954,000 tons **CO_2e**. The following pie chart illustrates the breakdown of total county emissions.



The residential energy sector accounted for 3,907,000 tons; the non-residential energy sector, 3,803,000 tons; the transportation sector, 4,804,000 tons; and waste, 440,000 tons.

The top five emissions sources in the county (by percentage) were:

1. Gasoline usage (33 percent of total),
2. Non-residential electricity usage (12 percent),
3. Residential fuel oil usage (10 percent),
4. Residential natural gas usage (10 percent), and
5. Residential electricity usage (9 percent).

These top five emissions sources combined to equal approximately 74 percent of the county's total emissions. Other significant emissions sources included non-residential natural gas usage, non-residential fuel oil usage, and diesel for transportation.

Reduction Goal

Based on climate change science, Westchester County has set aggressive short-term and long-term goals. In the short term, Westchester will achieve a 20 percent reduction from its 2005 base year by 2015. By 2050, Westchester will achieve an 80 percent reduction in total GHG emissions. The long-term goal is based upon the recommendation of the scientific community, including the NECIA assessment, as that which is necessary to avoid the worst-case climate change in the Northeast.

About the Inventory Process

The first step in management of greenhouse gases (GHG) is an inventory that accounts for the various sources of GHGs. For the ICLEI program, the inventory includes community emissions. Specifically, this inventory examines county-level emissions from residential energy, non-residential energy, transportation, and waste sources within the county.

This inventory is based on data from Westchester County as well as other sources, such as the New York State Energy Research and Development Authority (NYSERDA) and the Energy Information Administration (EIA). To complete the inventory, the Clean Air and Climate Protection Software® developed by Torrie Smith Associates was used.

For the community analysis the following areas were included:

1. Residential energy sources including electricity, natural gas, fuel oil, coal, wood, and propane;
2. Non-residential energy sources (this category includes commercial, industrial, and government usage) including electricity, natural gas, coal, heavy fuel oil, light fuel oil, propane, and kerosene;
3. Transportation sources including diesel, gasoline, and MetroNorth usage; and
4. Waste sources including landfilled waste and a waste to energy facility.

All emissions reported by this software are converted to tons of carbon dioxide equivalents (CO_2e). While carbon dioxide (CO_2) is typically the largest percentage of any inventory, there are other greenhouse gases that should be included. These include methane, nitrous oxide, some refrigerants, and sulfur hexafluoride (a gas used in electricity transmission and distribution). These gases all have a substantially larger climate impact than CO_2, but for purposes of comparison, these gases are multiplied by a factor that determines their impact in terms of CO_2. For instance, the climate impact of methane (according to the IPCC's Second Assessment Report) is 21 times that of CO_2; thus one metric tonne of methane is equal to 21 metric tonnes of CO_2.

Sources of Westchester County Emissions

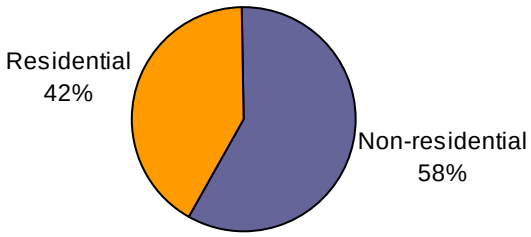
The residential energy sector accounted for 3,907,000 tons; the non-residential energy sector, 3,803,000 tons; the transportation sector, 4,804,000 tons; and waste, 440,000 tons. The following table shows these emissions broken down by sector.

Tons of CO_2e Produced in 2005		
Residential Energy		
Electricity		1,188,000
Natural Gas		1,271,000
Fuel Oil		1,362,000
Other		86,000
	Subtotal	3,907,000
Non-residential Energy		
Electricity		1,583,000
Natural Gas		853,000
Light Fuel Oil		889,000
Heavy Fuel Oil		219,000
Coal		211,000
Other		48,000
	Subtotal	3,803,000
Transportation		
Gasoline		4,375,000
Diesel		363,000
MetroNorth		
	Electricity	46,000
	Diesel	20,000
	Subtotal	4,804,000
Waste		
Landfill		294,000
Waste to Energy		146,000
	Subtotal	440,000
Total County Emissions		**12,954,000**

Electricity

Westchester County is served by two electric utilities. Consolidated Edison (ConEd) serves almost all of the county's residents and businesses, and New York State Electric and Gas (NYSEG) provides service to the northeastern part of the county. In 2005, electricity usage in the county (not including that used by MetroNorth) was approximately 5,820,000 MWh. This accounted for 2,806,000 tons of CO_2 equivalent, or about 21 percent of total emissions. The graph shows the breakdown of residential versus non-residential electricity usage.

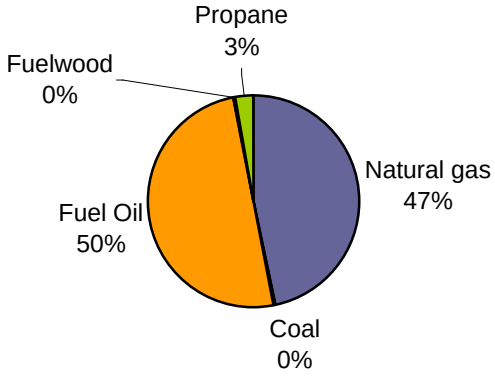
Electricity Usage in the County



Residential Heating

Westchester residents used approximately 206,000,000 therms of natural gas. Additionally, about 118,000,000 gallons of light fuel oil were consumed in the county. Natural gas and heating oil accounted for a substantial majority of usage with minor amounts of fuel wood, propane, and coal accounting for the remaining fuel usage. The graph shows the percentage of residential heating emissions from each fuel.

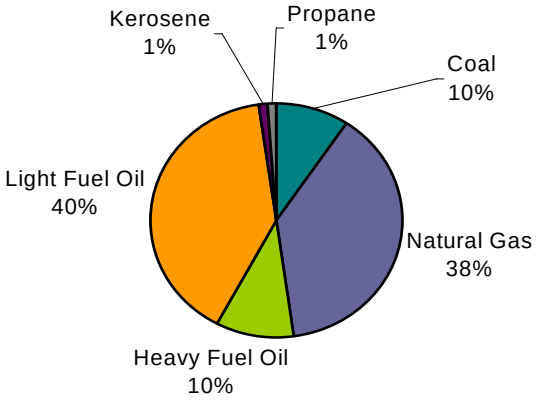
Emissions from Residential Fuels



Non-Residential Fuel Usage

Usage for this sector was taken directly from ConEd figures (for natural gas) and was estimated based on NYSERDA's calculations regarding statewide commercial and industrial fuel usage (for other fuels). The sector used approximately 138,000,000 therms of natural gas and 77,000,000 gallons of light fuel oil. While these were the main emissions sources, 16,000,000 barrels of heavy fuel oil and 2,000,000 gallons of kerosene were also used.

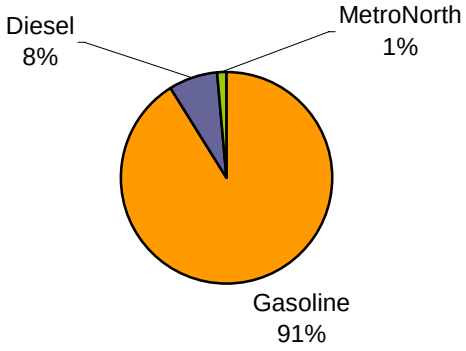
Emissions from Non-residential Fuels



Transportation

As noted in the first graph, transportation accounted for the largest part of the county's emissions at approximately 38 percent of the total. Approximately 407,000,000 gallons of gasoline were used, producing nearly 4.4 million tons of CO_2e. Gasoline usage alone is responsible for about 33 percent of all emissions in the county. Diesel fuel usage was 34,000,000 gallons.

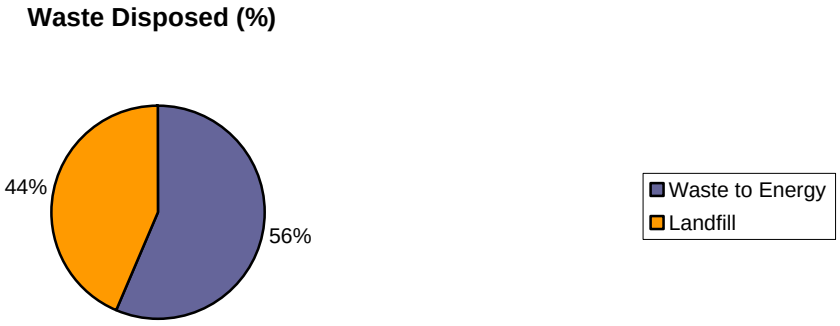
Emissions from Transportation Fuels



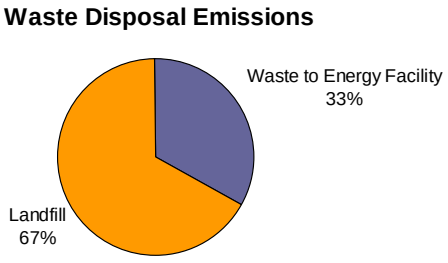
This category also includes emissions from MetroNorth operations. MetroNorth uses both electricity and diesel fuel in its operations. In 2005 the rail system used 96,000,000 kWh of electricity and 1,900,000 gallons of diesel fuel. The total GHG emissions from MetroNorth operations equaled approximately 66,000 tons of CO_2e.

Waste

Waste disposal was a limited source of countywide emissions. There are two reasons for this: a) the county's high recycling rate, and b) the waste to energy facility is using waste to create electricity instead of allowing it to decompose in a landfill.



In the county, non-recycled waste is disposed of in one of two ways: it is trucked to a landfill or incinerated in the county's waste to energy facility. Total emissions from both waste disposal methods were 440,000 tons. This equaled about 3 percent of all county emissions. As the graph below illustrates, greenhouse gas emissions from landfilled waste account for two-thirds of all waste emissions even though the waste to energy facility handled 150,000 more tons of waste in 2005. Due to the limitations of the inventory software, recycling is not included here directly although the indirect impact can be seen in the county's low waste emissions.



Data Limitations

The community inventory for Westchester County has in part been extrapolated from data that is not specific to Westchester County. All reasonable effort has been made to ensure that the sources used in the community emissions section represent the best available information.

However, much of the information contained in this inventory has been estimated because data is not available at the county level. In particular, any user of this information should be aware of the following:

1. The ConEd electricity and natural gas usage was taken directly from reported statistics for Westchester County.
2. Information for both residential and non-residential usage by NYSEG customers has been estimated based on ConEd usage information.
3. Residential consumption of heating fuels other than natural gas is based on NYSERDA's "Patterns and Trends: New York State Energy Profiles: 1991-2005" published in January 2007. In particular, residential consumption information is taken from Appendix E. For fuel oil, information from EIA indicates that average household usage is 743 gallons.
4. For non-residential usage of coal, distillate fuel, residual fuel, kerosene, and LPG, information from Tables 2-9b and 2-10b of the Patterns and Trends document was used to determine the percentage of total statewide usage that each fuel represents. Due to a lack of other information sources, it was necessary to extrapolate the estimated usage of these other fuels based on the actual non-residential usage of natural gas as provided by ConEd.
5. While vehicle registration information for the county is accurately accounted for, a statewide gasoline and diesel use per vehicle coefficient was used to determine total gasoline and diesel usage in the county.
6. Waste information is based on actual reported figures for both municipally collected and privately collected waste and recycling.

Sources

[i] ICLEI—Local Governments for Sustainability http://www.iclei.org/index.php?id=global-about-iclei

Getting Started

Step 1: Determine the Carbon Footprint

The first step in making reductions in GHG emissions is to identify the **carbon footprint** that must be addressed. A family, an individual, a business, a school, a government or organization can all develop a carbon footprint. This is done by developing a **GHG inventory**.

Individuals and **households** can develop a simple inventory to help them better understand how and when they produce GHGs. To assist with this, there are numerous tools on the web that can be used to perform the calculations. The Carbon Calculator tool[i] at Climate Crisis is considered an excellent example.

What is a carbon footprint? A carbon footprint refers to the amount of GHGs produced as a result of human activities. An individual, a product, an organization or a geographic area can all have a carbon footprint. Calculating the carbon footprint requires the development of a GHG emissions inventory.

What is a greenhouse gas inventory? An inventory is an accounting of the amount of GHGs

The Task Force recommends that **municipal governments** join ICLEI's CCP[ii]. Members can use the ICLEI Inventory Tool to develop their inventory. The county-wide inventory was developed using the Inventory Tool. Costs[iii] to join ICLEI depend on community size. For a community under 50,000 in population the cost is a reasonable $600. In addition to the County Government, Bedford, Greenburgh, Larchmont, Mamaroneck, North Castle, Yonkers, and Yorktown, are current members of ICLEI.

In Westchester, it is estimated that a typical household generates approximately 25 tons of CO_2 per year. As a comparison, it is estimated that the typical British household emits 10.5 tons per year.

ICLEI, in conjunction with the U.S. Green Building Council and the Center for American Progress (CAP), has developed a new tool for members that addresses sustainability: the Star Community Index[iv]. It provides a new, standardized framework for local governments to plan, track and claim their environmental and sustainability work.

Clean Air-Cool Climate has a tool kit to assist **colleges and universities** in making their campuses more climate friendly. The tool kit includes an inventory calculator[v] designed for use by colleges and universities.

Businesses and similar organizations may find that developing an inventory is more complex. There are many decisions that must be made regarding ownership of emissions and what emissions to include. For example, if a business ships merchandise using an independent transporter, the emissions could be considered to belong to the business or to the transporter.

To assist in the decisions, protocols exist that define proper accounting processes. Unfortunately, these protocols are not always consistent. In deciding on the appropriate protocol, organizations have to consider the purposes for their inventory. For example, some organizations may choose to become members of EPA's Climate Leaders[vi] and make a commitment to voluntary reductions. If so, they would need to consider Climate Leaders guidance[vii] in developing their inventory.

The **CCP campaign** is structured around five milestones that local governments commit to undertake. **Milestone 1.** Conduct a baseline emissions inventory and forecast. **Milestone 2.** Adopt an emissions reduction target for the forecast year. **Milestone 3.** Develop a Local Action Plan through a multi-stakeholder process. **Milestone 4.** Implement policies and measures contained in their Local Action Plan. **Milestone 5.** Monitor and verify results.

Westchester County Airport is developing a GHG inventory using the ISO 14064-1 Standard. The scope of the inventory includes emissions from:

- the landing and takeoff of aircraft;
- all stationary sources such as boilers, furnaces and generators;
- all ground based mobile equipment such as transport equipment operated by the airport, its tenants, or its contracted operators; and
- vehicle rentals where such rentals originate and terminate at a car rental facility located at the airport.

Not included are buses, limos or personal vehicles utilized by passengers.

Ceres Climate Risk Toolkit for Corporate Leaders[viii] can help companies assess and understand their risk and vulnerability to climate change. Developed by Ceres and the Investor Network on Climate Risk, the toolkit is targeted at corporate leaders and directors to assist them in addressing the strategic and financial challenges associated with global climate change.

Other organizations may want to make reduction and trade credits. In this case they may want to consider joining the Chicago Climate Exchange[ix](CCX). If so, they would rely on the CCX protocols.

The World Resources Institute and the World Business Council for Sustainable Development (WRI /WBCSD) have a widely recognized GHG Protocol[xi], which forms the basis for many other protocols. Based on the WRI/WBCSD GHG Protocol, *ISO 14064-1:2006 Greenhouse gases*[xii] *– Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals* has been accepted internationally and is widely recognized as a best practice for developing a GHG inventory.

> Bedford has set a community-wide GHG **reduction goal** of 20 percent by 2020. The town has developed a website[x] to help the community make reductions and has initiated a GHG reduction pledge in which citizens can participate.

Step 2: Set a Reduction Goal

Just as a **reduction goal** has been recommended for the entire Community of Westchester, members of all sectors need to evaluate their inventory and set a goal that will allow them to contribute to the overall needed reductions.

> In 2006-07 the Scarsdale Board of Education passed a resolution to **reduce** the District's carbon emissions in the year 2020 to 10 percent below the 1990 level of GHG emissions, this despite the significant amount of square footage added to the District's buildings since 1990.

Start with the 10 percent challenge. Businesses and households should take the 10 percent challenge to reduce their GHG footprint by 10 percent by 2010. Businesses are encouraged to initiate internal green teams to meet the challenge. The Challenge started in Burlington, Vermont, but participation is now open to all. For information on taking the 10 percent challenge and signing up for the challenge, go to **The 10 percent Challenge: Alliance for Climate Action**[xiii].

Step 3: Develop an Action Plan

Using the recommendations provided in this plan, members of all sectors can develop plans to achieve reductions and to support the development of capacity to achieve reductions. The plan should identify actions and set timeframes.

Step 4: Implement Actions

Members of all sectors can then implement their plans.

Step 5: Monitor Progress

Members of all sectors should also monitor their progress and make adjustments when necessary.

The Task Force recommends that the monitoring of progress be as transparent as possible and therefore suggests that the County Government take a leadership role in monitoring the overall progress in the county to ensure the success of the Community of Westchester in achieving the reduction goals. This could be done by setting up a reporting program.

> Consistent with this recommended approach, the Westchester County government will be developing a specific County Government Inventory that will form the basis for undertaking, monitoring and reporting the progress of the County Government's GHG emission reduction activities.

Sources

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[i] Climate Crisis Calculator Tool http://www.climatecrisis.net/takeaction/carboncalculator/

[ii] ICLEI CCP Program http://www.iclei.org/index.php?id=800

[iii] ICLEI Fee Structure http://www.iclei.org/index.php?id=966

[iv] Star Community Index http://www.iclei.org/index.php?id=7250

[v] Clean Air-Cool Climate Inventory Calculator http://www.cleanair-coolplanet.org/toolkit/content/view/146/132/

[vi] EPA's Climate Leaders http://www.epa.gov/climateleaders/

[vii] Climate Leaders guidance http://www.epa.gov/climateleaders/resources/index.html

[viii] Ceres Climate Risk Toolkit for Corporate Leaders http://www.ceres.org/NETCOMMUNITY/Page.aspx?pid=593&srcid=592

[ix] Chicago Climate Exchange http://www.chicagoclimatex.com/content.jsf?id=821

[x] Bedford website http://www.bedfordny.info/html/green.htm

[xi] WRI/WBCSD Protocol http://www.ghgprotocol.org/

[xii] ISO 14064-1:2006 Greenhouse gases http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38381

[xiii] The 10% Challenge: Alliance for Climate Action http://www.10percentchallenge.org/

Energy

Current Situation

Non-transportation energy use accounts for nearly 3/5 of Westchester County's greenhouse gas (GHG) emissions. Of this, residential and nonresidential energy-related GHG emissions are at similar levels.

Strategy for a Sustainable Future

To reduce the GHGs generated through the use of energy, the Community of Westchester must find ways to:

1) **Use energy more efficiently to reduce the demand for fossil fuels.**
2) **Replace energy from fossil fuels.**
   a) **Install renewable energy equipment on site.**
   b) **Purchase renewable energy or renewable energy credits.**

Coal, fuel oil, natural gas and propane are all **fossil fuel.** When these fuels are burned to generate electricity, for direct heating or cooling, or for operating appliances or machinery, they release CO_2 into the atmosphere. On the other hand, renewable sources of energy, such as wind, solar, or hydropower do not produce CO_2 or other GHGs.

All sectors – households, schools, businesses and municipal and county government – can undertake the actions which follow to improve their energy efficiency and reduce their demand for fossil fuel. They can also shift toward the use of renewable energy.

Behavioral Changes

One of the simplest ways to reduce energy is through changes in behavior. These actions also do not cost anything and actually save money.

- **Ensure electrical equipment,** including computers, copiers and printers, **is disconnected** when not in use. Use energy management software, power strips or other similar methods. This eliminates the **vampire power** this equipment can draw even when not in use.
- **Set back thermostats** at night and during periods of no occupancy.

> **Vampire power** or standby power is the electric power consumed by electronic appliances while in a standby mode when they are using energy without performing a useful function.

- **Adjust thermostats** lower in winter and higher in summer.
- **Reduce lighting** when daylight is sufficient. Put signs over light switches such as "Turn off when leaving."
- **Shift electrical usage** to non-peak times. This helps keep less efficient plants from coming on line and with some energy plans it can also save money. Utilities bring on line less efficient plants which results in higher GHG emissions when energy demand is high.

Replace Incandescent Bulbs

Replacing incandescent bulbs is an action that can be undertaken immediately and which also results in a large reduction in GHG emissions. A recent U.S. Department of Energy report estimated that lighting in the US consumed 13% of all electric energy. Alternatives include:

- CFLs (compact fluorescent bulbs) - CFLs use approximately 1/3 of the energy of traditional incandescent bulbs and have a lifespan of 6 to 15 times that of incandescent bulbs. CFL functionality compares favorably to incandescent lights. As with other fluorescent bulbs, CFLs contain a small amount of mercury and must be properly managed at end of life. Attachment 9 to the Action Plan, Recycling, includes actions to address this issue.
- LEDs (light emitting diodes) are far superior to traditional light sources as they use 4 times less energy and produce less heat than conventional bulbs. LEDs can last for more than 10 years. LEDs are most useful when aimed directly at what is to be lit and

work well in traffic signals, parking garages, street lights and other outdoor lighting applications. LEDs are also mercury free and don't require special disposal.

- Solar powered lighting can be used outside and in remote locations. This not only reduces consumption of electricity, but it eliminates the need to supply power.

Retrofitting and Renovation of Existing Structures

Perform an energy audit. The first step in retrofitting or renovating an existing structure to improve energy efficiency is to identify how and where energy is being lost and to identify methods to eliminate or reduce the loss. This can be determined through an energy audit.

Is an Energy Audit and a Greenhouse Gas Inventory the same thing?

Energy audit: An evaluation of a building in order to identify the best ways to save energy. The predicted energy savings per improvement, and estimated costs of each improvement, result from the audit to help decide which improvements to make and when.

Greenhouse Gas Inventory: An accounting of the amount of GHGs emitted to or removed from the atmosphere over a specific period of time, typically one year.

Prioritize the recommended actions and **set a timetable for implementation** once the audit is complete. In prioritizing actions, consider that some actions may depend on others to be effective. For example, replacing an HVAC system with a more efficient one may make better sense after windows are replaced, air leaks sealed, and insulation installed. This may then allow for the purchase of a smaller HVAC unit that will function equally well but cost less and consume less power.

Set up an ongoing **maintenance program** to ensure the efficiencies are maintained. A high efficiency boiler will not remain so if not routinely maintained.

For households, the ENERGY STAR website provides a simple tool[ii] that can provide a starting point for a self audit. A more advanced tool[iii] is provided at the Home Energy Saver Website, a project sponsored by the U.S. Department of Energy (DOE), as part of the national ENERGY STAR Program. These tools rely on generalized assumptions and may not address the specifics of the building being audited. Con Edison provides a good summary of actions to conserve energy[iv] that can be used to address findings from a self audit.

Historic structures can also be retrofitted and made more energy efficient. However, special care must be taken to preserve the historical integrity. It is best to always use a professional to perform the energy audit. The National Park Service provides guidance on energy efficiency in historic structures.[i]

NYSERDA (the New York State Energy Research and Development Authority) offers programs to assist in obtaining an energy audit performed by an approved provider. They have programs that apply to households and business, government and education facilities.

NYSERDA Program Name	Applies to	Description	Funding
Home Performance with ENERGY STAR Program[v]	1-4 family homes	A Building Performance Institute (BPI) accredited contractor will perform a home energy audit, make recommendations for energy improvements, and provide a cost estimate to do the improvements.	Available with income limits
New York Energy Smart[vi]	Existing multifamily	Members of a partner network, made up of engineers, energy consultants, and other industry professionals, provide a customized approach to address the specific energy and operational needs of existing buildings.	Performance incentives
Energy audit[vii] Program	Industrial and commercial facilities, state and local governments, not-for-profit and private institutions, colleges and universities, K-12 schools, and non-residential facilities with energy bills under $75,000/year	This program provides energy audits to small businesses and other facilities to help them make informed electrical energy decisions and implement energy-efficiency strategies.	New York Energy $mart[SM] Loans at reduced rates of interest

Organizations can also find support for performing an energy audit from ESCOs (Energy Service Companies). Their services are part of a unique project funding approach. More information on their services can be found under ***Funding these Actions*** in this Attachment of the Action Plan.

What kind of actions might be recommended as a result of an energy audit?

Replace windows – Windows can be 10 to 20 times less energy efficient than walls. They provide a real opportunity for improvement. Installing double pane glass can double their efficiency and triple pane can improve this even more.

Weatherize, seal air leaks, and install insulation – Closing holes through foundations or walls, adding weather stripping and installing additional insulation can improve energy efficiency and can be inexpensive first actions with high return in reduced energy costs.

Install automated controls – Timers and sensors can help reduce energy use by shutting off when no one is in the room or using the equipment. This can also control the use of energy by equipment that, while not in use or even turned off, draws power simply by being plugged in. Examples include computers, televisions and remote control equipment. This use of power is known as vampire power, as energy is being consumed even when the equipment appears to be off.

A "smart switch" is another type of device that can be installed to ensure energy is not being wasted. A smart switch is a single switch that can be used to turn off multiple circuits.

Add heating and cooling zones – Adding zones allows the adjustment of heating and cooling to just the areas being used.

Install light colored roofing – Light colored roofing reflects sunlight and as a result acts to somewhat mitigate global warming.

Upgrade boilers – Often, older boilers can be retrofitted with high efficiency components such as high efficiency burners.

Buy ENERGY STAR™ equipment – The federal government requires labeling of energy efficient appliances, heating and cooling equipment, and other devices.

Green IT Systems - Technological systems or computing products that incorporate green computing principles take into account economic viability, social responsibility, and environmental impact. Tech World[viii] can provide further information.

New Buildings and Infrastructure and Major Renovations

To achieve meaningful GHG reductions, new buildings, infrastructure and major renovations should be constructed to be energy efficient. New construction also presents an opportunity to incorporate the use of renewable energy and other green building concepts.

Evaluate all new projects or major renovations for green building opportunities. This first step should be incorporated into the early planning and design process for all sectors to minimize cost and maximize green opportunities. These standards can provide guidance and direction:

- The LEED Green Building Rating System™ [ix] for all building types including homes
- ENERGY STAR [x] for buildings[xi], appliances and equipment
- New York State Education Department (SED) for high performance schools guidelines. The SED can be contacted to otain the guidelines.

The **LEED** (Leadership in Energy and Environmental Design) Green Building Rating System™, established by the U.S. Green Building Council, is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. One important component of LEED is energy efficiency. In addition, it addresses other sustainable green building and development practices. LEED rating system exists for every building type and phase of a building lifecycle. Buildings built to meet this rating system can become certified to LEED. Certification demonstrates that a building is environmentally responsible, profitable and a healthy place to live and work. LEED has several levels of certification – certified, silver, gold, and platinum – which recognize increasing levels of green building performance.

Energy Star provides an energy efficiency rating system applicable to commercial buildings that compares facilities to their Peers. Building types include Banks/Financial Institutions, Courthouses, Hospitals, Hotels and Motels, K-12 Schools, Medical Offices, Offices, Residence Halls/Dormitories, Retail Stores, Supermarkets, Warehouses and Wastewater Treatment Plants.

Use a knowledgeable professional to assist in the planning process. Then use developers and builders who are experienced in green building and development. The LEED Member Directory[xii] provides a source for these individuals and organizations. In some cases, green developers build and market projects that are green. Organizations that are leasing can also seek out buildings that are high performance.

As with existing buildings, NYSERDA maintains a program that can assist multifamily building developers in achieving energy efficiency in new buildings.

Name	Applies to	Description	Funding
Multifamily Building Performance Program - New Construction[xiii]	New multifamily	New York Energy $mart[SM] Performance Partners work with the design teams to incorporate potential energy efficiency options into new building design to ensure ENERGY STAR guidelines are fulfilled.	Performance incentives and a green affordable housing component

Specifically, the Task Force recommends that the **County Government** develop a green building program that incorporates LEED and other green building practices. (The County Government is currently considering a regulation that would apply the LEED rating system to new county government building construction and include green building criteria such as energy efficiency for publicly-owned treatment works.)

The Task Force recommends that **municipalities** adopt the USGBC LEED rating system in a phased approach:

- Adopt LEED certifiable practices for new or substantially modified municipal buildings.
- Adopt LEED certifiable practices for private construction using public funding or tax abatement.
- Adopt LEED certifiable practices for all new construction.

The Task Force recommends that **businesses** commit to build green buildings or renovate to green building standards; buildings can be built to be LEED certified or LEED certifiable. Those businesses not prepared to make that commitment should engage a LEED certified professional at the beginning of the project planning process to explore green building features that can be included.

The Task Force recommends that the **education sector** follow green building guidelines such as SED State Education Department high performance, ENERGY STAR criteria, and LEED for Schools[xiv] rating system with a target of 60% reduction in energy use in the short term and with a long term target of achieving **carbon neutrality** for major renovations and new construction.

The Task Force recommends that **households** explore purchase of green/energy efficient residences for new purchases and explore using green building practices for major renovations.

Install Renewable Energy on Site

Review and evaluate renewable energy options. The first step in converting to renewable energy is to review available options and evaluate their suitability for the intended use. Once evaluated, the Task Force recommends that appropriate choices be made and installed.

Renewable energy is energy from resources that are not depleted or are naturally replenished when used at sustainable levels. Renewable energy can be used to produce electricity or it can be used as a fuel to replace fossil fuel for such purposes as heating. In some cases, depending on utility requirements, the electricity can be **connected** back **to the electricity grid.**

Connecting to the grid means that excess energy can be distributed through the grid just as the energy from a power plant is. Not only does this generate revenue for the owner, but it lessens the stress on the grid and energy loss associated with long transmission lines.

Renewable Options to consider for installation include:

- **Solar** – Solar energy can be used to generate electricity or for direct heating.
  - A **photovoltaic** (PV) cell converts sunlight directly into electricity. They may be stand-alone units or they may connect back to the grid. NYSERDA has a calculator[xv] that can be used to calculate the cost versus the savings of this technology.
  - Solar heating harnesses the power of the sun to provide solar thermal energy for solar hot water, solar space heating, and solar pool heaters. Passive solar heating and cooling can be accomplished through building designs that carefully balance their energy requirements with the building's site and window orientation. The term "passive" indicates that no additional mechanical equipment is used, other than the normal building elements. It is most suitable for installation as part of initial construction. In most cases existing structures, cannot be appropriately modified.

The Greenburgh Town Hall has a demonstration 5.6 kW **photovoltaic** system on its roof, generating about 6,840 kWh of electricity annually (the equivalent of an average to large house), reducing CO_2 emissions by about 7,460 lbs/year. The Town Hall also received an energy-efficiency retrofit, with new high-efficiency lighting and occupancy sensors. The audit and funding was provided through NYPA.

- **Geothermal** – Geothermal heat pumps can be used for heating and cooling. During warm weather, the heat from the building is absorbed by the earth and during cold weather the heat from the relatively warmer earth is released to the building. NYSERDA provides information on heat pumps and lists[xvi] of companies and professionals providing geothermal heat pump design and installation for residential and commercial applications in Westchester and surrounding areas at its website.

> Ossining's new $15.8 million 45,000 sf library has a **geothermal** cooling and heating system that is expected to pay for itself within three years in saved energy costs, and a curtain wall system that provides natural light for 70 percent of its lighting needs. Drought-resistant landscaping, local materials, and a very high recycling rate for demolition debris, also are features of the library.

- **Biomass** – Biomass can be used to generate electricity and also to provide heat.
  - Most electricity generated using biomass uses wood waste. This type of facility is generally suitable for either a commercial scale power generation facility or is associated with a manufacturing, agricultural or similar facility which generates this type of waste on an ongoing basis. **Methane** generated from biomass can also be used in this way. Landfills and wastewater treatment plants can have opportunities to convert waste to energy as can manufacturing operations that generate organic waste.
  - Biomass used for heating has a more general application. Typically these consist of a fuel appliance that burns small pellets made from compacted sawdust, wood chips, bark, agricultural crop waste, waste paper, and other organic materials. This technology is particularly suited for use in homes.

> The Yonkers wastewater treatment plant uses **methane** produced in wastewater treatment to provide heat to the process and to produce electricity.

- **Hydropower and ocean energy** – Hydropower and ocean energy have potential application within Westchester County given that it is surrounded by tidal waters. Newer experimental technologies take advantage of the flow and do not require interruption of the flow of the waterbody as a dam does. These types of technologies are generally suitable for commercial scale power generation.

- **Windpower** – Windpower can be suitable for commercial power generation and individual applications. The potential for wind power is generally not optimum in Westchester, where mean wind speeds are less than 6 meters per second (< 13.4 mph), as shown on New York's wind map[xvii]. Specific locations would require full evaluation for the applicability of this option.

NYSERDA provides information on renewable energy in New York State including incentives at its Power Naturally website[xviii]. Further information on all of these systems can also be found at the USDOE Renewable Energy website[xix].

Purchase Renewable Energy or Renewable Energy Credits (RECS)

In Westchester County, purchased electricity represented over 18% of all county GHG emissions in 2005. The Task Force recommends that after undertaking energy efficiency actions, the non-public sector purchase renewable power or **RECs** to address those uses of energy that cannot be further reduced. This has the added benefit of adding to the demand for renewable energy. Increased demand means that suppliers will be encouraged to increase production. Current state purchasing requirements do not allow the public sector this choice. Modifying this is discussed under Building the Capacity.

> **RECs** are created when a renewable energy facility generates electricity. A REC represents all of the environmental attributes or benefits of a specific quantity of renewable generation, namely the benefits that everyone receives when conventional fuels, such as coal, nuclear, oil, or gas, are displaced. When one buys RECs, one owns the benefit of displacing non-renewable sources from the electric grid. The income from the sale of the RECs can help to fund the project that generated it.

For individuals and organizations that are Con Edison customers, information about providers of sustainable energy can be found at the Con Edison website, PowerYourWay[xx]. Residential[xxi] and commercial[xxii] customers of NYSEG can sign up for wind energy supplied by Community Energy at the NYSEG website.

Deregulation in the power industry means that renewable energy can be purchased directly from an energy supply company (ESCO). Organizations and individuals who choose to directly purchase renewable power can purchase wind energy directly from Community Energy[xxiii]. Other independent energy supply companies may also provide renewable energy. Check for approved suppliers through your utility.

Another option is to purchase **RECs** (renewable energy credits) in the amount equal to the consumption of fossil fuel derived energy. This action transfers to the purchaser, the attributes of renewable energy. The US Department of Energy maintains information and sources for purchasing RECs at its Green Power Networks website[xxiv].

> In 2007, PesiCo, headquartered in Westchester County, announced the purchase of **RECs** in the amount of 1.1 billion kilowatt-hours to cover the electrical energy used ii its US operations. This purchase moved PepsiCo to the top of the EPA's list of top-25 green power purchasers.

Funding these Actions

All individuals and organizations have to deal with limited budgets. The benefit of energy efficiency or renewable energy projects is that many of them can self-fund through **reduced operating costs**.

However, the initial cost for the projects occurs before reduced operating costs are experienced. Businesses can use such tools as **net present value** or **pay back periods** to assist in prioritizing, as can a homeowner.

Non-profit institutions and government can consider these approaches, but they may not adequately address the environmental benefits associated with an energy project. These types of organizations may also evaluate projects by the **reductions in GHG emissions per dollar spent** and allocate budget based on this criterion.

EPC (Energy Performance Contracting) is another way to fund a project with high initial capital costs. An EPC project is an innovative financing technique that uses cost savings from reduced energy consumption to repay the cost of installing energy conservation measures. Normally offered by **ESCOs** (Energy Service Companies), this innovative financing technique allows the capture of benefits from energy savings without up-front capital expenses on the part of the building or facility owners, since the costs of the energy improvements are borne by the performance contractor and paid back out of the energy savings. The National Association of Energy Service Companies[xxv] can provide further information on providers and the innovative approaches developed by ESCOs.

Do green buildings always cost more?

Not necessarily. In a recent building construction, triple glazed high efficiency windows were used at an increased cost of $80,000. However this allowed the elimination of the perimeter heating system, a savings of $100,000, and downsizing of the HVAC, a savings of $40,000. Total construction savings: $60,000. Note: this does not include operating savings resulting from the reduced energy requirements.

Source: 7 group

An ESCO, or Energy Service Company, is a business that develops, installs, and finances projects designed to improve the energy efficiency and maintenance costs for facilities over a given time period. ESCOs generally act as project developers and assume the technical and performance risk associated with the project. Services are bundled into the project's cost, and are repaid through the dollar savings generated.

Power Purchase Agreements are a relatively new technique for financing renewable energy/clean power installations on host facility sites. The power seller, typically an Independent Power Producer, at its expense, installs a system such as a PV system, for

example, on the property of a host facility or buyer. The seller sells the energy to the buyer. The seller owns, operates, and maintains the system. The agreement ensures a long-term commitment for the purchase of renewable power, which removes some of the risk to the seller or developer.

NYSERDA is another source of funding through their extensive grant programs and incentives designed to foster energy improvements and encourage organizations and businesses that provide these services. Available grants can be found at NYSERDA -Funding Opportunities[xxvi]. They also offer incentives[xxvii] such as low interest loans for all sectors associated with their various programs including those outlined in the tables above provided in this Attachment.

NYPA[xxviii] (New York Power Authority) also provides low cost energy conservation financing and grants for its government and public education customers.

Tax relief is another source of funding for renewable energy. **State sales tax** exemptions are available for solar power and **federal income tax credits** are available to business and residences.

Energy efficiency mortgages are also available and should be promoted by the County Government and financial institutions in appropriate circumstances. These mortgages consider the cost savings associated with energy efficiency in determining mortgage qualifications.

Information on many of these and other funding sources can be found at the Database of State Incentives for Renewables and Efficiency[xxix](DSIRE). DSIRE is a comprehensive source of information on state, local, utility, and federal incentives that promote renewable energy and energy efficiency. It is an ongoing project of the North Carolina Solar Center and the Interstate Renewable Energy Council (IREC) funded by the U.S. Department of Energy.

Building the Capacity (Get Westchester Moving, Keep it Moving)

The actions described above will directly reduce GHG emissions in the community of Westchester. To make sure that these direct actions can be implemented, the Task Force has identified actions that will remove barriers and support and encourage the achievement of these reductions.

Promote Realignment of Regulation and Codes

County and Municipal Level

The Task Force welcomes the County government's recent action exempting solar installations from sales tax and recommends such action be extended to geothermal installations as soon as State law allows such an exemption.

In addition to these recommendations, the Task Force has made recommendations in the Land Use Section of this report that have important energy implications. The Land Use section should be consulted for more information.

State Level

State purchasing, building code and tax requirements can be barriers to change. Additionally the state and federal governments have opportunities to encourage energy efficiency and use of renewable energy. In recognition of this, the Task Force recommends that sectors work together to encourage New York State to:

- Amend the state-wide building code to:
  - Better address energy efficiency, sustainability, and green building.
  - Allow streamlining of safety and architectural review for on site renewable energy installations.

Both Maine[xxx] and Washington[xxxi] have adopted green building standards for state-funded **affordable housing** projects.

- Legislate requirements:
  - For energy audits of buildings and residences and disclosure of energy costs at time of sale.
  - To expand **net metering** to commercial and non-residential buildings.
  - To create residential sales and use tax exemption for geothermal energy systems equipment (as exists for solar energy systems equipment).
  - To require utilities to make renewable energy directly available to the customer.
  - To include energy efficiency and sustainability in the criteria for state programs for low-income and **affordable housing**.

Net Metering allows owners of on site small, renewable energy facilities, such as wind or solar power, to connect to the grid and deduct the excess energy they provide to the grid from any grid-sourced electricity they use on site. The energy outflows are deducted from the metered energy inflows.

- Accelerate use of energy efficient alternatives and renewable energy for state contracts lists to:
    - Allow purchase of renewable energy even when it is not lowest cost.
    - Expand New York State Office of General Service's (OGS) bidding and procurement processes to include energy efficient and renewable energy products such as solar panels, and programmable thermostats.
    - Support the simplification of the OGS process so as to make it easier to navigate and purchase energy efficient and renewable energy products.
    - Provide NYPA subsidies for purchase of onsite renewables to governments and schools.

Federal Level

The Task Force recommends all sectors work together to encourage the federal government to

- Extend and expand tax credits to consumers for purchase of renewable energy.
- Reinstate tax credits to producers of renewable energy so as to maintain their competitive capabilities in the market.
- Promote in grant programs, such as Community Development block grant programs, green building, energy efficiency, and renewable energy in new construction and rebuilding of low- and moderate-income communities.
- Include energy efficiency in the criteria for federal programs for low-income housing.

The State Education Department (SED) sets requirements for building construction for public schools and can require an energy focus. The Task Force recommends that the education sector, through the State Education Task Force, works to encourage the SED to include GHG considerations in SED building construction requirements.

Develop Additional Funding Resources

While sources of funding are available as discussed above, identifying, expanding and communicating funding mechanisms will be critical. The Task Force recommends the County Government, municipal governments, and business, together perform outreach to community on how to apply for funding and evaluate the following additional funding possibilities as follows:

Identify New Sources. The Task Force recognizes that sources for funding may exist that have not been identified. The Task Force recommends an ongoing effort to identify these potential sources.

Develop New Sources. Business should work with the County Government and county-based financial institutions to identify green building funding opportunities. Businesses should also explore the possibility of offering financial incentives for employees who make energy saving improvements in their homes. Employees should look to see if their employers offer such benefits.

Municipalities should explore providing incentives for green building such as expedited permitting, reduced permitting fees, reduced taxes, as well as recognition programs.

Schools should work to establish partnerships with utilities to offer rebates for eligible renewable energy installations for ENERGY STAR schools. These partnerships should be promoted.

Swiss Re incentivizes employees to go green with $3,300 cash subsidies for installing renewable energy, implementing energy efficiency measures in their home or buying a hybrid car

The County Government should identify and promote funding mechanisms to support energy efficiency retrofitting for low-income families.

Redirect Existing Sources. The County Government and larger municipal government should investigate using existing funding mechanisms to promote grants to support energy efficiency. (For example, community development block grant funds.)

Showcase Successes and Lead by Example

Demonstrating to others what has already been achieved can spur others to action.

Take the Energy Star challenge. The ENERGY STAR Challenge[xxxii] is a national call-to-action to improve the energy efficiency of America's commercial and industrial buildings by 10 percent or more. It is open to owners, operators, communities, individual employees and architects and engineers who design commercial and industrial buildings.

Track and publicly report energy use. The Task Force recommends that school districts, private schools and higher education institutions publicly commit to actions to address energy use, and track and publicly report on their performance.

Morgan Stanley upgraded infrastructure at its 750,000 square foot facility located in Westchester. Upgrades included a thermal storage system that is expected to save 900,000 kwh and 880,629 pounds of CO_2 annually and will pay for itself in 6.5 years. A variety of lighting improvements and software adjustments have paid for themselves in energy savings in less than one year and reduce electricity demand by more than 100,000 kwh and CO_2 emissions by additional 100,000 pounds annually.

Promote best practices. Government, business, and education should identify and promote examples of local best practice for energy use such as:

- Energy efficiency projects,
- Green buildings and development that demonstrate return on investment,
- Applications of renewable energy in buildings,
- Use of smart meters in demonstrated projects,
- Use of Energy audits to plan and implement energy savings, and
- Implementation of employee programs to encourage conservation in and out of the office.

These examples should be jointly promoted through public reporting of results, building tours, events, press releases, and cable television. The opportunity to use them as venues for citizens and professional associations meetings should be explored.

Encourage use of renewable energy. The Task Force recommends that the County Government consider developing with the municipalities, schools and businesses, a program to encourage public commitments to clean, renewable energy from all sectors. This should include an opportunity for communities to commit as a unit to the program, and for individuals and organizations to commit separately. The program should include a public pledge by participants, a recognition program for participants, and public reporting of results.

> Connecticut has established a **clean energy community program**[xxxiii] to encourage communities to commit to 20% clean power by 2010. The program promotes and provides tools and incentives to communities making the commitment.

Promote green buildings. All sectors should encourage the building-related professional organizations and arts and architectural community to develop a green building design competition. Organizations to potentially participate include Westchester Builders Institute, American Institute of Architects/Westchester section, professional organizations of landscape architects, and ASHRAE Bi-State Chapter. The County Government should also work with the Realty Board to encourage the listing of green features in real estate listings.

Develop recognition and competition programs in the education sector. Education should develop recognition programs or competitions involving staff, students and faculty to promote green power. Recognition programs and competitions could be intra– and inter-institutional.

Education and Information Sharing

All sectors should work to ensure that information and knowledge is shared widely, as this will be key to meeting the GHG reduction targets. Each sector should focus on their key stakeholders and provide workshops, fairs, meetings, training and professional development as appropriate for their stakeholders. Opportunities to partner with NYSERDA, NYPA, energy companies and ESCOs in information sharing should be pursued. Part of this effort should be websites maintained by participating sectors including the County Government, municipal governments, business and others, to provide access to information.

When engaging in public information sharing campaigns, it can be useful to employ social marketing techniques. In social marketing, traditional marketing techniques are employed for the purpose of achieving a greater societal good. Behavioral psychologists can be useful in helping organizations structure these campaigns so as to increase the potential impact in bringing about change. Organizations should consider recruiting these specialists and their expertise for such outreach efforts.

Examples of information to be included in this education and information sharing are as follows:

- Information about and availability of alternative heating energy;
- Information on funding resources;
- Information on funding green building and identification of green building lenders;
- Information on energy efficiency;
- Information on Energy Audits;
- Information on green builders, professional services, and trade services;
- Information on renewable energy retailers;
- Information of programs for energy improvements for low-income families;
- Training on green building including LEED, for building-related professionals and trade organizations in Westchester;
- Training on green building techniques and standards and emerging energy technologies, for municipal building inspectors, planning departments and zoning boards, financial institutions, real estate boards, real estate appraisers and brokers;
- Training on green building and energy incentives, for tax preparers; and
- Information on cost effective green building measures and resources suitable for Westchester and developed with the building trades.

Sources

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[i] Guidance on energy efficiency in historic structures
http://www.nps.gov/hps/tps/tax/rhb/energy01.htm

[ii] Energy Star tool
http://www.energystar.gov/index.cfm?fuseaction=home_energy_advisor.showGetInput

[iii] Home Energy Saver Advanced Tool http://hes.lbl.gov/

[iv]actions to conserve energy http://www.coned.com/go_green/100tips.asp

[v] Home Performance with ENERGY STAR Program
http://www.getenergysmart.org/SingleFamilyHomes/ExistingBuilding/HomeOwner/Participate.aspx

[vi] New York Energy $mart Multifamily Performance Program
http://www.getenergysmart.org/MultiFamilyHomes/ExistingBuilding/BuildingOwner.aspx

[vii] NYSERDA Energy Audit http://www.nyserda.org/Programs/energyaudit.asp

[viii] Techworld http://www.techworld.com/green-it

[ix] LEED Green Building Rating System www.usgbc.org/DisplayPage.aspx?CMSPageID=222

[x] Energy Star www.energystar.gov

[xi] Apply for the ENERGY STAR for Your Buildings
http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_intro

[xii] LEED Professionals www.usgbc.org/LEED/AP/ViewAll.aspx?CMSPageID=1585

[xiii] Multifamily Building Performance Program – New Construction
http://www.getenergysmart.org/MultiFamilyHomes/NewConstruction/BuildingOwner.aspx

[xiv] LEED for schools http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1586

[xv] NYSERDA solar calculator http://nyserdaweb.cleanpowerestimator.com/nyserdaweb.htm

[xvi] Residential Contacts http://www.nyserda.org/programs/geothermal

[xvii] Wind Map http://www.windexplorer.com/NewYork/NewYork.htm

[xviii] Power Naturally website http://www.powernaturally.org/

[xix] USDOE Renewable Energy website www.eere.energy.gov/consumer/renewable_energy/

[xx] PowerYourWay http://www.poweryourway.com/greenpower.asp

[xxi] NYSEG Residential Website http://www.nyseg.com/YourHome/newwindenergy/default.html

[xxii] NYSEG Commercial Website
http://www.nyseg.com/YourBusiness/newwindenergy/default.html?menu=81

[xxiii] Community Energy http://www.newwindenergy.com/

[xxiv] Green Power Networks website
http://www.eere.energy.gov/greenpower/markets/certificates.shtml?page=0

[xxv] National Association of Energy Service Companies www.naesco.org

[xxvi] NYSERDA funding opportunities http://www.nyserda.org/Funding/default.asp

[xxvii] NYSERDA incentive opportunities http://www.nyserda.org/incentives.asp

[xxviii] New York Power Authority: Services http://www.nypa.gov/services.htm

[xxix] Database of State Incentives for Renewables and Efficiency http://www.dsireusa.org/

[xxx] Maine http://www.mainehousing.org/HOUSINGDEVConstructionServices.aspx

[xxxi] Washington http://www.cted.wa.gov/site/1027/default.aspx

[xxxii]ENERGY STAR Challenge http://www.energystar.gov/index.cfm?c=challenge.learn_challenge

[xxxiii] Clean energy community program http://www.ctcleanenergy.com/about/about.php

Transportation

Current Situation

Transportation, including mass transit, and commercial, institutional and private vehicles, generates approximately 38% of the GHG emissions within the Community of Westchester. The county has an extensive network of mass transit that includes the Westchester County Bee-Line system, Metro North Railroad, and long distance commuter bus services to Connecticut, and Rockland, Orange, and Dutchess Counties and New York City. Limited bicycle routes are available, but a comprehensive network and the infrastructure to support it are not complete. A wide array of sidewalks is available for walking.

In recent years, the County Government has modernized its bus fleet, reconfigured bus routes to better connect to rail and to better serve the needs of senior citizens, and instituted programs to encourage shared riding for employees. To encourage responsible commuting, the county government allows hybrid vehicles to park for free at two county-owned commuter lots. The County Government has reduced air pollution emissions from its

bus fleet by using ultra-low-sulfur diesel fuel and retrofitting its buses with filters. The County Government recently bought hybrid vehicles. All future fleet purchases, including buses, will be hybrid.

Strategy for a Sustainable Future

To reduce the greenhouse gases generated through transportation, the Community of Westchester must find ways to:

1) **Reduce transportation demand.**
2) **Shift from single-occupant vehicles to reliance on mass transit and ride sharing/car pooling.**
3) **Use alternative modes of transportation, such as biking and walking.**
4) **Use hybrid vehicles or non fossil fuels in motor vehicles: include vehicles used for mass transit.**
5) **Reduce fuel consumption.**

Land use policy including transportation-oriented development is also critical to supporting these goals. For further information, see **Attachment 7.0 Land Use.**

> Gasoline and diesel are fossil fuels. When these fuels are burned for transportation, they release CO_2 to the atmosphere.
>
> Biofuels, such as biodiesel or ethanol, are produced from vegetation. While burning them does release CO_2, the CO_2 is taken up as carbon (or sequestered) by the plants in the next growing cycle. This creates a loop that balances CO_2 that is released in the fuel by the carbon that is sequestered.

All sectors of the Community of Westchester – households, schools, businesses and municipal and county government – can undertake actions to improve their transportation choices and reduce greenhouse gases.

Partner to Reduce or Eliminate Transportation Demand

Identify and act on opportunities to work with others to reduce demand. Organizations and individuals can often work with others to combine transportation needs more efficiently and as a result reduce GHG emissions. While there is no one answer for all situations possible, options to consider include:

- Use carpools and van-pools and share rides.
- Share transportation pools with other nearby establishments, when possible.
- Participate in ride sharing programs such as NuRide[i].
- Practice car sharing. Use a Zipcar[ii]. This saves money on owning and maintaining a car as well.

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- Set up a private transportation network and use it. Goloco[iii] provides a tool to help with this.
- Take advantage of flexible workweeks, use home offices and telecommute**.**
- Consolidate transportation across school districts by establishing a county-wide network of school district coordinators for clean transportation.

MetroPool[iv], supported by the Connecticut and New York Departments of Transportation, provides free commuter planning services to employers and commuters. Its staff can help identify alternate transportation options, assist in how to set up options, and provide information.

- Westchester County employees and corporations in Westchester can make use of NuRide, a ride share program, that allows employees to share driving while earning points that can be redeemed for gift cards.
- Zipcar is a for-profit, membership-based car sharing company that provides automobile rental to its members, by the hour or day.
- Goloco is a website that allows the people and communities to create their own personal public transportation network utilizing their cars and acquaintances. puts them all together for a seamless way to share travel and expenses.

Use Mass Transit

Substitute mass transit for other transportation options wherever possible. Westchester has an extensive network of bus and train services that can be used within Westchester and the region. Bus service to schools is also available in many communities. Information on the network of buses and train services can be found at Commuting and Mass Transit.[v] Information on school busing options can be obtained from the local school districts.

Use Alternate Modes of Transportation

Consider walking or riding a bike to destinations such as:

- Transit locations such as train stations, bus lines, and transit hubs
- School
- Work
- Shopping centers

Regional information on biking routes can be found at Transportation Alternatives[vi]. Information on paved off-road bicycle routes maintained by Westchester County Government can be found at Biking Hiking Trailways[vii].

Replace Vehicles

To reduce GHG emissions, take advantage of the opportunity when purchasing or leasing new vehicles to select greener vehicles. Examples of possible actions include:

- Purchase hybrid vehicles, flex-fueled vehicles (such as vehicles which can burn gasoline or ethanol) or alternative fueled vehicles, rather than conventionally fueled vehicles. Information on these technologies can be found at the US Department of Energy website[viii].
- Purchase or replace conventionally fueled vehicles with more fuel-efficient conventionally fueled vehicles. This results in lower GHG emission per mile driven.

> The Westchester County Airport has applied for federal funds to replace its fleet of gasoline and diesel fueled ground service equipment (such as baggage carts) with fast recharge battery powered electric equipment.

Implement Fleet Management Practices

Develop and implement comprehensive fleet management practices to minimize GHG emissions and air pollution. This should include:

- A comprehensive survey to determine fleet needs
- A green vehicle replacement and retrofitting strategy
- Matching of vehicle size to the required tasks to the extent possible
- Retrofit buses with devices that limit idling. This prevents unnecessary idling and unnecessary burning of fossil fuels.
- Retrofit older buses (prior to 2007) with tailpipe and crankcase filters. This reduces air pollution emissions.

Switch Fuels

Switching fuels provides another opportunity to reduce greenhouse gases.

- Change to ultra low sulfur diesel fuel in diesel vehicles including construction equipment, ferries and trains. This reduces air pollutants.
- Change to biodiesel as fuel in diesel fueled vehicles. This reduces GHG emissions, air pollutants and dependence on foreign oil.
- Use ethanol in flex-fueled vehicles. This reduces GHG emissions and dependence on foreign oil.

In changing to bio-derived fuels, it should be understood that they are only a partial solution. Some plant materials are better than others for producing fuel, as they require less energy to be turned into fuel. Other plant materials are also food crops, which raises sustainability issues. Finally, if land is cleared to plant crops to create fuel, the previous sequestering capability of the land is lost.

Alternative fuels include:

Ethanol – produced domestically from corn and other crops.

Biodiesel – derived from vegetable oils and animal fats.

Natural gas (CNG) – a fossil fuel that generates less air pollutants and greenhouse gases.

Propane, also called liquefied petroleum gas (LPG) – a fossil fuel that generates less harmful air pollutants and greenhouse gases than other fossil fuels.

Hydrogen – produced using electricity from fossil fuels, nuclear power, or renewable resources, it emits no greenhouse gas when burned.

Electric/hybrid electric – Electricity can be generated from fossil fuels, nuclear power, or renewable resources. A plug in electric vehicle has the environmental attributes of the electricity it runs on. Hybrid electrics capture energy from running on conventional fuels and store it as electrical energy that can be used to run the vehicle, improving the efficiency of conventional fuels.

Change Vehicle Operating Behavior

Driving with fuel efficiency in mind can reduce fuel use up to 30% and reduce GHG emissions and air pollution. This includes the following actions:

- Avoid **idling**.
- Avoid aggressive driving.
- Maintain the vehicle and check tire pressure.
- Have tires filled with nitrogen rather than compressed air when purchased. Nitrogen helps maintain tire pressure better than compressed air.
- Drive at a lower speed and reduce GHG emissions.
- Consolidate trips (trip chaining). This saves time and fuel.
- Additional tips on driving efficiently can be found at eartheasy[ix].
- Additional guidance[x] on reducing diesel idling in New York State is available from the New York Planning Federation.

Westchester County law prohibits the **idling** of diesel powered vehicles for more than 3 minutes unless engine operation is required to run loading, unloading or processing equipment or the temperature is below 25°F, NY State law limits idling to 5 minutes.

Purchase Carbon Offsets

Consider purchasing carbon offsets. The Task Force recommends that businesses, private educational institutions and households consider purchasing offsets for GHG emissions from transportation. Some transportation requirements such as air travel do not lend themselves to easy substitutes. In cases such as these, carbon offsets can be purchased to offset the emissions associated with travel. Some organizations even purchase offsets for meetings and conferences.

> Carbon offsets are avoided or mitigated emissions that can be purchased to offset actual emissions. For example, a tree farm can sequester carbon and sell the resulting reduction in CO_2 to offset the emissions associated with jet travel.

Numerous vendors of offsets, both non-profit and for-profit, can be identified on the internet. Since these programs are voluntary, reliability and quality of offsets may vary. At a minimum, only vendors with third party verification of offsets should be considered.

Substitute Virtual Technology

Consider substituting virtual technology for travel. When used properly, information and communication technology can eliminate the need for travel. For example, an investment in video conferencing equipment can allow an organization to hold virtual meetings whose quality approximates face-to-face meetings. GeSI[xi], the Global e-Sustainability Initiative within the Information and Communications Technology Sector, in cooperation with the United Nations, is developing, a methodology to calculate and track emissions reductions associated with the use of the technology produced by the sector.

Funding these Actions

Take advantage of the federal government tax credit for the purchase of some advanced technology vehicles. A list of qualifying vehicles and forms to claim the credit can be found at the IRS website[xii]. Even federally tax exempt organizations such as schools and government may be able to take advantage of this credit by negotiating a price reduction with the seller. The seller will then take the tax credit.

Take advantage of employer programs to allow employees to set aside pretax income to pay for mass transit. Such programs make use of the Qualified Transportation Fringe Benefit in the IRS Code.

Take advantage of other funding available through the Federal Transportation Administration[xiii] (FTA) and Federal Highway Administration (FHWA). Specifically, the FTA and FHWA offers many options for funding and grants through the Safe, Accountable,

Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA: LU). SAFETEA: LU guarantees funding for highways, highway safety and public transportation, totaling $244 billion. Potentially applicable programs under this Act include Congestion Mitigation Air Quality (CMAQ), Surface Transportation Program (STP), Transportation Enhancements, Safe Routes to School and Clean Fuel for Buses. These opportunities are generally restricted to public entities.

Building the Capacity (Get Westchester Moving, Keep it Moving)

The actions described above will directly reduce Westchester County's greenhouse gas emissions. To make sure that these direct actions can be implemented, the Task Force has identified actions that will remove barriers and support and encourage the achievement of these reductions.

Evaluate Improved Infrastructure and Support Programs

To ensure that individuals and organizations are able to effectively implement the proposed actions, supporting infrastructure will need to be in place to encourage the needed changes in the behavior of transportation users.

Develop or Support Programs for Partnering to Reduce or Eliminate Transportation Needs

Establish web-based ride sharing, car sharing and trip planning capabilities.

Consider developing a flexible work program that allows commuting in non-rush hours and working from home.

Evaluate Strategies for Improving Mass Transit

Evaluate potential strategies for improving bus transit with particular attention to diverting automobile commuters and attracting discretionary riders. The Task Force recommends including the following:

- Changes to bus routes;
- Traffic signal coordination and transit signal priority systems;
- Real time arrival messages at bus stops;
- Low floor buses to minimize step height and reduce boarding time;
- Bicycle racks on buses to encourage bicycle use and increase access to the bus system;
- Dedicated bus lanes;

- Proof of payment and off board fare collection systems to reduce boarding time; and
- Bus stop enhancements including seating, climate control, waste/recycling bins, security phones and bicycle racks.

Evaluate Measures to Support the Increased Use of Alternative Modes of Transportation

Evaluate roadways and existing infrastructure to ensure that it is adequate to support walking and biking as alternate modes of transportation. Consider:

- Bike paths, bike lanes, and sidewalks;
- Bicycle and pedestrian access to bus stops and train stations to reduce the demand for parking at stations and to limit increases in local traffic;
- Bike racks, bike lockers and showers at destinations;
- Traffic calming devices, where approprite, such as narrow roads and speed tables;
- Roundabouts to slow traffic; improved pedestrian and bicycle safety to encourage more biking and walking; and
- Bicycle and pedestrian amenities (sidewalks, bike paths and lanes) in plans for roadway reconstruction projects.

Consider administering surveys to identify barriers to walking and biking. Schools can administer these and communicate the infrastructure findings to the appropriate governments for potential action.

Evaluate Infrastructure to Support Alternative Fuels

Evaluate the infrastructure necessary to support alternative fuels and identify needs. For alternate fueled vehicles to become viable options, it will be necessary to ensure sufficient fueling locations and facilities available. Biodiesel, hydrogen, electricity, and other fuels must be available in sufficient mass to reassure potential users. In evaluating, consider the following:

- Fuel availability and price for electricity, ethanol/methanol, liquefied petroleum gas, natural gas, hydrogen and biodiesel
- Fueling and charging locations and characteristics
- Health and safety considerations

Establish a network of county, municipal, and school district officials to coordinate alternative fuels best practices and disseminate appropriate information to stakeholder groups.

Promote Realignment of Regulation

Regulations can impede change or can support change. In recognition of this, the Task Force recommends that the County Government, municipal governments, and business, should work together to encourage New York State to:

- Increase funding for mass transit and for the development of bicycle and pedestrian facilities.
- Provide a state Hybrid Tax Credit.
- Exempt new and used hybrid and high-efficiency vehicles from state sales and compensating use taxes.
- Provide EZ Pass discounts for hybrid vehicles.
- Prohibit all idling at all public schools and universities.
- Tighten restrictions on idling of vehicles statewide.

Set Internal Policies

Policy, just as regulations, can support or impede change. Organizations can:

- Develop and commit to enforce a "No Idling" policy which is at a minmum consistent with the County Law for all vehicles whether owned by the organization, providing goods and services to the organization or visiting the organization. The policy should include time limits and enforcement provisions.
- Provide preferential parking for hybrid vehicles.
- Develop contractual requirements for suppliers for energy efficient delivery of goods and services, if possible.

Develop Additional Funding Resources

While sources of funding are available as discussed above, following are potential additional funding opportunities that exist.

- Set up an adopt-a-sidewalk or bike path program to support pedestrian/bicycle transportation. Civic minded individuals and organizations could then offset some of the maintenance costs.
- "Buy back" parking spaces from employees to encourage and help fund ride sharing or transit use.

Showcase Successes and Lead by Example

Modeling desired behavior and giving individuals a chance to try out actions can spur change.

- Hold events such as "Try Transit" and **Rideshare**[xiv] weeks. Create events that encourage commuters to bike. This could be incorporated into events such as environmental fairs or Earth Day.
- Hold vehicle-free commerce days and set up vehicle-free zones within municipalities. Include local businesses in the development and implementation of the program.
- Participate in **Clean Air NY**[xv] public awareness campaign.
- Create biking social events such as rodeos to encourage biking to be used for transportation services.
- Develop a model program for bicycle sharing in communities.
- Develop a corporate wide model program for vanpooling and carpooling for businesses.
- Develop and promote contests to reduce motor vehicle trips.
- Establish **Safe routes to school**[xvi] programs and promote safe bike riding or walking for kids.
    - Train children to improve skills.
    - Promote health and environmental benefits.
- Establish a guaranteed ride home program. This allows individuals to take advantage of ride sharing and mass transit.
- Use the “coolness” of being green to convince teenagers not to drive.
- Publicize greenhouse gas emissions savings associated with responsible driving behavior using roadside signs.

Education and Information Sharing

All sectors should work to ensure that information and knowledge is shared widely, as this will be key to meeting the GHG reduction targets. Each sector should focus on their key stakeholders and provide workshops, fairs, meetings, training and professional development as appropriate for their stakeholders. Cross-sector opportunities and opportunities to partner with regional transportation providers such as Metro-North could be explored. Part of this effort should include websites maintained by participating sectors including the County Government, municipal governments, business and others, to provide access to information.

When engaging in public information sharing campaigns, it can be useful to employ social marketing techniques. In social marketing, traditional marketing techniques are employed

for the purpose of achieving a greater societal good. Behavioral psychologists can be useful in helping organizations structure these campaigns so as to increase the potential impact in bringing about change. Organizations should consider recruiting these specialists and their expertise for such outreach efforts.

Examples of information to be included in this education and information sharing are as follows:

- Information about the availability of alternative fuels, biodiesel, ethanol, B20 (20% biodiesel, 80% petroleum)
- Information on ride sharing and alternative transit to transportation centers
- Information about the Beeline, Metro-North Railroad, and the Smart Commute Program
- Information on the Airport Shuttle
- Information on guaranteed ride home program so as to improve use of mass transit and ride sharing
- Information on commuter pre tax benefit
- Information on shuttles between shopping centers
- Information on carpool directories
- Information on the health and environmental impacts of motor vehicle emissions
- Information on the social, economic, health and environmental benefits of walking
- Information on carpooling and van pooling
- Presentation of the WCDOT road show to address the negatives of driving to school
- Information on the use of flex cars and zip cars
- Information on flexible work programs
- Information on setting up car sharing agreements

Westchester County DOT has developed the Westchester's Smart Commute Program[xvii] which offers New Employee Commute Information Kits to distribute to newly hired staff. These kits contain detailed information about transportation services available to Westchester commuters as well as free "try transit" bus tickets that can be used on any route of the Bee-Line System.

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[iv] MetroPool http://www.metropool.com/aboutus/about_overview.html

[v] Commuting and Mass Transit www.westchestergov.com/gettingaround_commuting.htm

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Land Use

Current Situation

Westchester County includes a wide and diverse range of land uses. The older central/southern part of the county is mostly urban and suburban in nature. It contains four major cities, and is more densely populated. Northern Westchester contains the Croton/New York City watershed communities, and is mostly rural and low density with small mixed-use commercial centers. While loss of farms and forests to tract development may be of greater concern in northern Westchester, pressure to build on steep slopes and other less buildable sites is greater in the south, where undeveloped property is less available. About 26% of the county's total land area is protected open space.

The Westchester County Planning Board is updating its long-range land use policies to be known as ***Westchester 2025***. This new plan for the county is a means to assist the Westchester County Government and the county's 45 cities, towns and villages, as well as business developers and private non-profit organizations, to work in partnership to define and realize preferred future land use patterns. This plan has identified climate change as one of the major issues that need to be addressed. ***Westchester 2025*** will identify strategies in the areas of land use and development, transportation, environmental planning, affordable housing and related areas for the County and its municipalities to consider in dealing with climate change and related issues.

Westchester 2025 has been issued in draft. The draft includes a compilation of the context for planning, a statement of County Planning Board policies, an overview of land

use patterns and a presentation of ways to apply the policies at the county and local levels. The plan is proposed to replace ***Patterns for Westchester: the Land and the People***, adopted by the County Planning Board in December 1995. After an extensive public review process, the Board aims to adopt the new policies in spring 2008.

Strategy for a Sustainable Future

To reduce greenhouse gas (GHG) impacts, adapt to climate change, and ensure sustainable development, the Community of Westchester must find ways to:

1) **Preserve appropriate environmentally sensitive undeveloped land so as to reduce sprawl, capture carbon and protect natural ecosystems including wetlands and forests.**
2) **Encourage higher density mixed use development in centers and along major transportation corridors.**
3) **Improve existing land use planning processes.**
   a) **Enhance current regional planning efforts.**
   b) **Integrate climate change concerns and sustainable site development concepts into planning processes.**

Carbon capture through sequestration is the removal of carbon dioxide from the atmosphere into a biological unit. For example, CO_2 is absorbed by plants and used for growth. In New York State, forests hold an average of over 200,000 lbs. of carbon per acre.

Address Climate Change through Comprehensive Planning

The Task Force recommends that climate change and sustainable development concepts be addressed within and integrated into the existing planning processes. Specifically Comprehensive Planning should incorporate and address the following issues:

- Open space planning that identifies, inventories and prioritizes critical areas to be preserved;
- Acquisition of land for purposes of sequestration;
- Identification of forestry patterns and forest coverage, including street trees, to identify locations requiring management and planting;
- Encouragement of linked biodiversity corridors;
- Protection and enhancement of farmlands and agricultural areas;
- Promotion of transit-based development;
- Promotion of affordable housing near workplaces and mass transit;

- Promotion of cooperative regional planning pacts among the municipalities in Westchester and with surrounding counties;
- Promotion of a collaborative, multidisciplinary and multi-stakeholder involvement process to encourage sustainable development; and
- Incorporation of nontraditional land use planning concepts that address GHG emissions such as:
    - Requirements and incentives for GHG inventories and tracking;
    - Promotion of solar, geothermal and other renewable energy sources for new development or substantial rehabilitation; and
    - **Mitigation** and **adaptation** strategies to address climate change.

Mitigation means reducing the emission of GHGs or removing them from the atmosphere. For example, trees and plants remove CO_2 and store it in the soil biomass.

Adaptation means to make adjustments so as to be able to exist with or accommodate the changes caused by global warming. For example, floodgates are currently being installed in numerous location globally to address flooding resulting from rising sea levels.

County Government Planning

The Task Force recommends that Westchester 2025 incorporate and address the climate change issues as outlined above.

Planning by Municipalities

The Task Force recommends that municipalities update their comprehensive plans to address climate change and sustainability in a manner consistent with Westchester 2025 and the Action Plan.

Address Climate Change through Zoning, Planning and Land Use Code Modifications

Update Codes. The Task Force recommends that municipalities update their zoning, planning and land use codes so as to conform to their updated comprehensive plans and to address climate change and sustainable development. Municipalities should particularly revise any codes that restrict use of renewable energy. To assist with this, the Task Force has provided a summary of the model codes developed by Westchester municipalities that address climate change and sustainable development.

The Task Force recommends that the county government facilitate access to model codes and zoning ordinances to address climate change and support Westchester 2025.

Model Code Examples

Clustering: Reconfigures the number of homes under conventional subdivision regulations to a denser layout to preserve open space. *Source: Town of North Salem*

Conservation/Biodiversity Overlay Zones: Example: Adds limits on build outs and clearing to underlying zoning requirements. *Sources: Towns of New Castle, North Salem, Lewisboro, Pound Ridge[i] and Bedford.*

Incentive Zoning: Allows greater density for preferred outcomes. *Sources: Towns of Lewisboro, Bedford and LaGrange.*

Mixed-use, Higher Density Infill Development: Directs mixed use development to existing centers to decrease transportation needs. Code modifications are currently under consideration in the Cities of Yonkers and New Rochelle.

Affordable Housing in High Density Locations: Promotes housing near working locations. *Sources: Village of Mamaroneck, Town of Greenburgh.*

Transit-oriented development (TOD): Directs growth to within walking distance of mass transit. Metro North is currently working with local governments and developers on TOD projects near train stations in Harrison, Ossining, and Sleepy Hollow.

Transfer of Development Rights (TDR's): Allows landowners to surrender development rights on one parcel and transfer them to another. *Source: Town of North Castle, Village of Ossining, Falmouth, MA. See box below for example.*

Parking Reductions : Establishes the maximum number of parking spaces allowed for new and/or existing development.

Floor Area Ratio: Establishes maximum lot coverage ratios and limits building size in relation to lot size using Floor Area Ratio guidelines. *Source: The Towns of North Castle and New Castle.*

Site Plan Regulations: May include criteria from environmental ordinances. *Source: Town of Somers.*

Individual Site Plan Review: Expands planning board review to individual lots. *Source: The Towns of Pound Ridge and North Castle.*

Erosion & Sediment Control: Site management to prevent soil erosion and runoff. *Source: Town of Yorktown.*

Steep Slope Protection: Erosion, pollution and flooding results from building on slopes >15%. *Source: The Town of Cortlandt.*

Wetland Buffer Protection: Wetland buffers beyond the standard 100-foot buffer provide greater protection, with 300-foot buffers around critical water bodies. *Source: Towns of Pound Ridge and Lewisboro.*

Environmental Subtractions: Example slopes and wetlands are subtracted to calculate buildable area. *Source: Towns of Lewisboro, North Castle and Cortlandt.*

Model Code Examples (continued)

Tree Preservation Ordinance: Restrictions on cutting trees. *Sources: The Towns of Bedford, Mt. Kisco, North Salem and New Castle.*

Ridgeline Protection Ordinance: Prevention of building on ridgelines to reduce erosion. *Sources: Towns of Lewisboro, North Castle, Cortlandt.*

Impervious Surface Guidelines: Restrictions on lot coverage. *Source: The Town of Bedford.*

Pesticide Sunset Legislation – Phase out of pesticides. *Sources: Westchester County and the Town of Greenburgh.*

Building Orientation and Vegetation Requirements – Building restrictions to reduce energy usage.

The 107-acre Windsor Farms project in the Town of Somers is a good example of the use of Transfer of Development Rights. For the Windsor Farms development, the Town Board agreed to transfer development rights from state-regulated wetlands, woodlands, and steep terrain within the watershed of New York City's reservoirs to land outside the watershed. As a result the 34-house subdivision protects 80 acres of land, which is set aside for recreation and watershed protection. This innovative preservation-development package was made possible by the cooperation of the Somers Town Board and Planning Board, the New York City Department of Environmental Protection, the developer/landowner, and Westchester Land Trust[ii].

Many of the model codes referenced above can be found at the E-Code Library for NY[iii]. The Municipalities may also be contacted for information.

Address Climate Change through a Regional Approach

Regional planning across municipal, county and state boundaries enhances the ability to prevent sprawl, protect open space, promote mass transit and protect natural resources, all critical to addressing climate change and sustainable development. Natural resources frequently do not conform to municipal, county or state boundaries. A regional approach helps to ensure constituency in approaches.

Establish a regional planning process within Westchester County. The Task Force recommends that the **County Government** and **municipalities** establish and actively participate in a regional planning process to support its climate change and sustainable

development goals. In establishing regional planning processes, the following actions are recommended:

- Establish inter-municipal regional planning agreements.
- Include participation by developers, planning officials, citizens and scientists.
- Consider a greater review authority for the County in municipal land use decisions.
- Identify opportunities for ensuring developers share in the responsibility for addressing the GHG and other sustainability issues associated with development.
- Incorporate consideration of climate change impacts and adaptation and mitigation strategies into SEQRA review.

Create intermunicipal agreements. The Task Force recommends that municipalities in watershed and other environmentally sensitive areas create **intermunicipal agreements** to preserve critical environmental resources similar to the Long Island Sound Watershed Intermunicipal Council (LISWIC).

Pound Ridge, Lewisboro, and North Salem through an **intermunicipal agreement** and in conjunction with Metropolitan Conservation Alliance[iv] have established the Eastern Westchester Biotic Corridor, which encompasses 22,000 acres in the three towns The corridor is unusual in metropolitan New York because it supports a diversity of species that require high quality habitats to survive. Efforts are under way to protect land in the corridor via purchase, donation of conservation easements, and land use planning reforms.

LISWIC[v] is a group of 12 municipalities located in the Long Island Sound Watershed in Westchester County, New York. These municipalities have entered into an agreement that identifies these goals:

- A cleaner Long Island Sound;
- Prevention and remediation of pollution and preservation of open space and natural resources;
- Appropriate development and restoration of the business and industrial districts to promote economic vitality;
- Improvement of the quality of life including the quality of water and air, the control of traffic and noise;
- The provision of open space and recreational opportunities; and
- Preservation and restoration of wetlands, watercourses and associated habitat areas.

LISWIC objectives include:

- Sharing information on development projects;
- Resolution of disputes regarding projects that impact sensitive areas;
- Developing compatible comprehensive plans, zoning and land use regulations;
- Monitoring regulatory compliance;
- Developing programs for education;
- Securing and sharing funding;
- Coordinating efforts with federal, state and county agencies to ensure compatibility; and
- Reducing impacts of flooding.

The Task Force also recommends that this regional approach be extended to work with utilities to maintain as many trees as possible within utility corridors, without jeopardizing safety and electrical service.

Participate in existing regional planning processes. The Greenway Compact Plan and the Long Island Sound Watershed Intermunicipal Council (LISWIC) are two examples of existing regional planning efforts in Westchester.

Become a Greenway Compact Community. The Task Force recommends **municipalities** join the Greenway Compact Plan[vi]. The Compact is a voluntary regional cooperation among 242 communities within 13 counties bordering the Hudson River, which was created to facilitate the development of a voluntary regional strategy for preserving scenic, natural, historic, cultural and recreational resources. It encourages development in existing centers that have infrastructure and public transportation, encourages a range of housing types, and preserves open space and natural resources. Any municipality in Westchester County can become a Greenway Compact Community by adopting a resolution indicating support of the five Greenway criteria.

In becoming a member, communities commit to amending zoning consistent with the Westchester County Greenway Compact Plan known as **The Greenprint for a Sustainable Future**. Currently, 22 municipalities in Westchester are Greenway Compact Communities.

Addressing Climate Change through a Voluntary Approach

The Task Force recognized that voluntary action to develop land consistent with climate change and sustainable development should also be undertaken. **Businesses** including developers and **educational institutions** can develop property in a manner consistent with the goals set forth in Westchester 2025 and minimizing GHG emissions. **Households** building a new home or embarking on a major renovation can reduce building size and lot coverage. Average house sizes have doubled in the U.S. since 1950. Individuals should consider how much space they really need in light of the additional environmental burden created by larger homes.

Funding these Actions

Potential sources of funding to support the recommended land use actions include:

- Municipalities should encourage private donations of land and conservation easements as a method to preserve open space. Conservation easements allow land to be preserved while still being held privately. Federal income tax benefits may accrue to the owner.

- Municipalities should **partner** with land trusts, private citizens, and county and state governments to access funding for land preservation.
- Regional planning efforts can also often find sources of funding and technical assistance. Possibilities include Quality Communities Program[viii] and the Hudson River Estuary Grant Program[ix].

The Hudson Valley Community Preservation Act[x] allows municipalities, through a local referendum, to impose a real estate transfer tax that can only be used for the acquisition of open space and historical preservation.

The Angle Fly Preserve (formerly Eagle River), in the Town of Somers, was acquired by a **partnership** among New York City, Westchester County, New York State, the Town of Somers, and Westchester Land Trust[vii]. The preserve encompasses 654 acres and protects a key section of New York City's Croton watershed, 140 acres of federal, state and local wetlands, and a vast wildlife habitat of countywide significance. It provides miles of new hiking trails.

Greenway Compact Communities[xi] can also receive benefits, including technical and funding assistance from the Greenway, and potential scoring preference over non-compact communities in the evaluation of applications for other State Grants.

Enterprise Community Partners is a national nonprofit organization that provides capital for affordable housing and community development. Enterprise has a program called Green Communities[xii] to fund green affordable communities. They offer grants, loans, tax-credit equity, training and technical assistance to developers and builders for affordable green housing developments. Public housing authorities and non-profit community-based organizations are eligible to join.

Building the Capacity (Get Westchester Moving, Keep it Moving)

The actions described above will ensure land use policy actions that will help to reduce and stabilize Westchester County's GHG emissions. To make sure that these actions can be implemented, the Task Force has identified actions that will remove barriers and support and encourage the achievement of GHG reductions.

Develop Additional Funding Resources

- Leverage additional county budget to maximize open space land acquisition.
- Allocate additional municipal budget to open space land acquisition.
- Support the creation of a stormwater district (e.g., LISWIC) that would be funded by use of a per parcel fee.

- Seek additional Federal and State funding for open space land acquisition through sources such as the Long Island Sound Stewardship Act and the New York State Environmental Protection Fund.

Education and Information Sharing

All sectors should work to ensure that information and knowledge is promoted and shared widely as this will be key to meeting the GHG reduction targets. Each sector should also focus on their key stakeholders and provide workshops, fairs, meetings, training and professional development as appropriate for their stakeholders. Part of this effort will be websites maintained by participating sectors including the county government, the municipal governments, businesses and others, to provide access to information. Examples of information to be included in this education and information sharing are as follows:

- Information about and availability of low impact land development and zoning strategies;
- Information on training and other technical assistance in organic land management practices for local officials;
- Information on funding sources;
- Information on natural resource inventories;
- Training on land use planning for municipal planning departments and planning and zoning boards, financial institutions, real estate boards, real estate appraisers and brokers;
- Technical assistance and training of local officials in sound land use practices; and
- Information on financial and other incentives, for property owners to protect and preserve open space.

Sources

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Water Resources

Current Situation

Westchester County shorelines touch the Hudson River and Long Island Sound, making the county vulnerable to the predicted rises in sea level associated with global warming and climate change. Both bodies of water are important recreational and economic resources and play critical roles in the ecosystems of the region.

Stormwater: As a result of increased amounts of impervious surfaces, decreased areas to store flood waters, and increased intensity of storm events, flooding has become a more frequent problem within the county in the last several years. As a result, the county has made a commitment to spend $50 million for flood mitigation projects. A newly appointed Flood Action Task Force, a group of local officials and professionals with expertise in land management and flooding, will be providing recommendations on the best use of the funds for flood damage reduction. The Flood Action Task Force and various communities in Croton and Long Island Sound watersheds are also exploring regional approaches to stormwater management and flood control.

Wastewater: Wastewater treatment, which is under the direction of the County Government, is critical to preserving water resources and the ecosystems that can help to mitigate climate change. The collection, treatment and discharge of wastewater require consumption of large amounts of energy and as a result contribute to the emission of greenhouse gases (GHGs). The treatment of sewage sludge also produces methane, which can be either flared to reduce it to a less harmful GHG, CO_2, or used to provide some of the energy required by the wastewater treatment process.

Currently, the wastewater treatment facilities in Westchester experience significant increases in flow during wet weather events, indicating that a significant quantity of stormwater is entering the system, even though the County Government has completed an exhaustive program that upgraded county-owned sewer lines and eliminated stormwater inflow and infiltration (I/I) into county lines. Since the I/I issue still exists, the likely sources of I/I are the municipal lines that feed into the county lines.

Water Supply: Westchester is fortunate to have abundant sources of fresh water. Croton and Kensico Reservoirs and their associated watersheds are located within the county. These reservoirs and those upstate provide potable water to New York City and communities within Westchester. More than 85% of Westchester's residents obtain their drinking water from New York City sources, much of it brought by gravity from upstate New York. However, the distribution and delivery of that water to the users require significant energy, but far less than the delivery of bottled water.

Strategy for a Sustainable Future

To better manage water resources and impacts of global warming, the Community of Westchester must find ways to:

1) **Mitigate flooding consequences associated with global warming.**
2) **Adapt to rising water levels.**
3) **Protect and preserve drinking water reservoirs and watersheds.**
4) **Conserve drinking water.**

Mitigation – taking actions aimed at reducing or minimizing.

Adaptation – taking actions to lessen civilization's vulnerabilities to negative effects.

All sectors – households, schools, businesses and municipal and county governments – can undertake actions to support these goals.

Stormwater Management and Watershed Protection

Improve stormwater management regionally. Stormwater management will increasingly become a challenge as storm events become more intense as a result of climate change. This will be exacerbated if inappropriate development in Westchester increases runoff. Because stormwater runoff generated in one community can result in flooding and water quality impacts in another community and because the drinking water reservoirs cross communities, the Task Force recommends a regional approach be developed in partnership with **Westchester County Government** and the **municipalities**.

The Task Force recommends that this effort include the development of **best practices** for improved **stormwater management** suitable for all sectors. These should apply to the upgrading of existing facilities and new construction. Approaches to stormwater management and flood control should also anticipate more intense storms and higher flood levels, which are predicted to be associated with global warming and climate change. The Task Force also recommends that all sectors implement these best management practices.

Green roofs are an innovative **best practice** for **stormwater management**. Green roofs, which are roofs built with a waterproof membrane and covered with soil or a growing medium that are then covered with vegetation, reduce and filter stormwater runoff.

The Task Force also recommends that **Westchester County Government** continue to work with experts such as the Center for Watershed Protection[i] and the GAIA Institute[ii] on this issue. Information on watershed protection can also be found at the River Network[iii]. More on a regional approach to planning can be found in ***Attachment 7, Land Use***.

Recommended Actions to Reduce Stormwater Runoff

Improve onsite stormwater storage capacity. Increase the volume that must be detained onsite. Provide greater capacity through the use of:

- Detention ponds and constructed wetlands,
- Greater retention of stormwater runoff to hold water onsite,
- Infiltration devices to minimize impacts to the natural water balance (no net increase in stormwater runoff), and
- Use of appropriate vegetation (preferably native) to encourage plant uptake.

Decrease impervious surfaces such as roofs, parking lots and roads. This will decrease runoff and downstream flooding. Use such methods as:

- Green roofs and rain gardens,
- Permeable pavement and pavers as much as possible,
- Reduced building footprints, and
- Reduced parking area size and shared parking.

Preserve, protect and improve wetlands and floodplains. Wetlands and floodplains help to slow and store stormwater, thus decreasing downstream flooding. Methods include:

- Prohibit development within all wetlands, regardless of size;
- Require pre-treatment of runoff directed to wetlands to minimize wetland impacts;
- Restrict development within floodplains and ensure that there is no loss of flood storage capacity;
- Maintain buffer areas along streams, wetlands and floodplains to reduce potential impacts; and
- Restore degraded wetlands, floodplains, and stream channels to improve flood storage capacity and maintain or improve stream hydraulics.

Protection of Infrastructure

Develop adaptation strategies for low-lying areas. With increasing water levels and higher storm surges, low-lying areas in Westchester will be more vulnerable to flooding. Adaptation strategies need to be developed and considered by **all sectors** when making decisions for capital improvements, infrastructure investments, and granting project approvals.

Wastewater Treatment

To reduce the amount of stormwater being unnecessarily treated by the wastewater treatment plants during storm events, the Task Force recommends that:

- Municipalities address I/I concerns and sanitary system overflows in their collection systems and institute programs to detect and eliminate similar defects in "household connections" that connect private property sanitary sewer system users to the municipal collection system.

Water Conservation

To reduce the energy requirements associated with potable water distribution and to prepare for future predicted periodic drought conditions in the Catskills, the Task Force recommends the following actions to reduce potable water demand:

- Evaluate and promote water conservation measures. The **Westchester County Government** should continue to evaluate and make available to the Community of Westchester, **water conservation** measures, including evaluation of delivery systems and opportunities to replace **potable water,** such as **gray water** re-use opportunities.
- Implement water saving measures. **All sectors** should implement measures that include:
    - Installing low flow fixtures.
    - Choosing water saving appliances.
    - Modifying water use behaviors such as running only full loads in appliances.
    - Reducing outdoor water use.

New York City has a **water use conservation** plan that includes a rebate system for low water use equipment and appliances, water audits, early leak detection and repair, and use of gray water. **Gray water** is non-industrial wastewater generated from domestic processes such as washing dishes, laundry and bathing. Gray water comprises 50-80% of residential wastewater.

Yonkers Wastewater Treatment Plant has substituted treated effluent for the **potable water** previously used to wash down operations.

- Installing rain sensors on irrigation systems.
- Using xeriscaping and rain barrels and eliminating landscape sprinkler systems.

- **Businesses** should research how water usage can be reduced and/or reused for operations that require extensive water use.

> Many car wash facilities install equipment that allows them to recycle and reuse wash water.

The River Network, which supports fresh water protection groups, has information on water conservation[iv] for **all sectors**. EPA through its WaterSense program[v] provides information on water saving products and information on using water more efficiently.

The Natural Resources Defense Council (NRDC) has developed a water management strategy paper[vi] for **government** that addresses water resource planning. Further information for the water conservation community and the drinking water industry can be found at the American Water Works WaterWiser website[vii].

H_2ouse[viii] provides tools to help **households** identify water saving opportunities. Progressive Gardening provides information on water conservation[ix] for lawns and gardens. In addition, it has links to earth friendly water-wise garden supply organizations in Westchester County.

Building the Capacity (Get Westchester Moving, Keep it Moving)

The actions described above will directly reduce the Community of Westchester's GHG emissions and help the community mitigate the impacts of climate change. To make sure that these direct actions can be implemented, the Task Force has identified actions that will remove barriers and support and encourage the achievement of these reductions.

Promote Realignment of Municipal Codes and Regulations

The Task Force recommends that **municipalities** make the following changes to align requirements with desired climate change and water resource sustainability outcomes:

- Adopt a requirement that an engineering report on wastewater lateral integrity and illegal connections be part of property transfer. This would help to identify illegal connections and deteriorated lines.
- Adopt a sliding fee for water usage so that fees per unit of consumption increase with the amount of water consumed. This would encourage conservation.
- Integrate water conservation strategies into existing codes and approvals (for example, require rain sensors on any irrigation system installation.)

- Review building stormwater retention requirements and vegetation requirements.
- Revise codes to encourage organic land management practices that naturally support drought resistant lawn and water conserving turf.

Additional recommended code changes with water resource implications are listed in ***Section 7, Land Use.***

Showcase Successes and Lead by Example

Demonstrating what has already been achieved can spur others to action. Government, business, and education will identify examples of local best practices for stormwater management and water conservation such as:

- Develop and make available on-line a catalogue of best practices on stormwater management and water conservation.
- Create campaigns to save water. All organizations and households could implement this.

Education and Information Sharing

All sectors should work to ensure that information and knowledge is shared widely, as this will be key to meeting the GHG reduction targets. Each sector should focus on their key stakeholders and provide workshops, fairs, meetings, training and professional development as appropriate for their stakeholders. Part of this effort should be websites maintained by participating sectors including the County Government, municipal governments, businesses and others, to provide access to information.

When engaging in public information sharing campaigns, it can be useful to employ social marketing techniques. In social marketing, traditional marketing techniques are employed for the purpose of achieving a greater societal good. Behavioral psychologists can be useful in helping organizations structure these campaigns so as to increase the potential impact in bringing about change. Organizations should consider recruiting these specialists and their expertise for such outreach efforts.

Examples of information to be included in this education and information sharing are as follows:

- Information and training on using rainwater collection systems and sources for necessary equipment.
- Information and training to industry and commercial users on conserving water.
- Training for building-related professional and trade organizations in skills including landscaping with native plantings, permeable surfaces to reduce stormwater runoff, septic management and use of organic landscape maintenance.

- Education in water re-use, use of drought resistant grasses and native plantings, rainwater collection systems, re-use of water in commercial buildings, and green roofs.
- Information on using rain gardens and artificial aquifers as an educational tool, involving stakeholders.

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Waste Reduction, Recycling and Green Purchasing

Current Situation

Waste accounted for 3% of the generation of GHG emissions in Westchester County in 2005. The County recycling facility, the MRF (Material Recovery Facility), processed approximately 41% of the total county waste in 2005. Of the remaining waste, 33% was sent to the County waste-to-energy plant, Wheelabrator/RESCO (Charles Point Resource Recovery Facility) with the residue ash from the process going to landfill. The remaining 26% of the total county waste was sent directly to landfill.

Thirty-six (36) of 45 municipalities in Westchester County belong to the Westchester County Solid Waste District. The Westchester County Government currently offers to the municipalities that are part of the solid waste district, the ability to dispose of recyclables at the MRF. The non-recyclables go to the Wheelabrator/RESCO for conversion to energy. The six municipal jurisdictions that are not part of the district contract with licensed private hauler firms to dispose of their solid waste and recycling.

The County Government has enacted the Source Separation Law[i] (recycling law), which has been in effect since 1992. The law applies to the entire county, all 45 municipal jurisdictions. The law requires that municipal solid waste (MSW) must be separated from co-mingled recyclables at the point or source where the waste is generated.

In August 2007 County Executive Andrew Spano established the Recycling Enforcement Task Force (RETF) whose mission is to improve enforcement of the existing Source Separation Law. The objective is to extract more co-mingled recyclables from the MSW stream to further the health, safety and welfare of all Westchester County residents. In addition, reducing the solid waste sent to RESCO (by extracting recyclables) actually reduces the cost to the municipality. Recycling on the other hand is free to the municipality and actually generates revenue to the County. Thus, increasing recycling protects the environment and saves individual municipalities and Westchester County taxpayers money.

Waste generates GHGs primarily in three ways. First, all products that are manufactured and transported have **embedded GHG emissions**. Any part of a product including packaging, which ends up as waste, also includes embedded GHG emissions.

Second, **organic waste** that is landfilled can release methane, a GHG with approximately 21 times the global warming potential of carbon dioxide (CO_2). As an alternative, composting of organic wastes avoids the production of methane and when used, the compost provides benefits of reduced use of petroleum-based chemicals and increased **carbon sequestration** in the soils. The incineration of waste in waste-to-energy plants produces CO_2as a by-product. The amount of CO_2 is significantly less than the methane that would have been produced if the waste were landfilled. Additionally, the energy produced in the process can replace energy generated from fossil fuels. Finally, although counted in Transportation, the transportation of waste to disposal sites produces GHG emissions from the fuel burned in the vehicles.

Embedded or indirect GHG emissions are emissions associated with the extraction of raw materials from the earth and the production and transportation of a product. They do not include the emissions associated with the use of the product, which are called direct emissions.

Organic waste is waste containing carbon. It is derived from animal and plant materials. Organic waste includes food waste, paper and wood waste, plant fiber, etc.

Carbon sequestration is the removal of CO_2 from the atmosphere. Trees and plants, and soil biomass, for example, absorb CO_2, release the oxygen and store the carbon.

Reducing waste whether through less consumption, more reuse, or more recycling has tremendous impact on sustainability and is cost effective, and in fact is a money-producing practice that also reduces GHGs.

Use of **green products** also contributes to reducing GHGs. For example, products with recycled content do not generate GHGs from resource extraction, and can often be produced using less energy than products produced from virgin material. Some of these types of products can also reduce the waste that goes to landfills or is incinerated. Local products that do not have to be transported great distances are another example of how use of green products can contribute to reducing GHGs.

Green or environmentally preferable products are goods or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services. Impacts that may be reduced include toxins released into air and water, hazards to human health, impacts on wildlife and habitat, nondegradation of waste, and depletion resources, among others. These reductions may occur during manufacturing, use, or disposal.

Strategy for a Sustainable Future

To reduce the GHGs associated with consumption of goods and disposal of waste and to minimize the overall negative effects on the environment, the Community of Westchester must find ways to:

1) **Reduce waste**
2) **Increase reuse**
3) **Increase recycling**
4) **Increase composting**
5) **Increase use of green products**

In addressing these strategies, it is helpful to rely on the **principle of zero waste** in making decisions. All sectors – households, schools, businesses, and municipal and County Government – can undertake actions to reduce waste and increase reuse, recycling, composting, and use of green products.

The principle of **Zero Waste** states that everything we buy should be made from materials that can be repaired, reused or recycled, and in those cases where they cannot, the products should be redesigned to fit the system. Zero Waste is also about reducing the amount of material we use in the first place.

Improve Waste Reduction, Reuse and Recycling

Perform a waste audit to determine the content of the current waste stream. The first step in reducing waste is identifying what wastes are being produced, where they are being produced, and in what amounts. EPA can provide a starting point for performing a waste audit[ii]. Schools could involve students in this and enrich their curriculum.

Evaluate the data to ensure compliance with the Westchester County Source Separation Law[iii]. For organizations and households that use a private carter for waste removal, verify that the carter is registered to do business in Westchester County. The list can be found at the Solid Waste Commission[iv] website.

Analyze the data from the waste audit and determine the recycling rate (the % of all waste that is recycled by weight). Identify opportunities for:

- Waste prevention and reduction,
- Increased recycling and reuse rates, and
- Converting existing waste streams to recycling.

Develop a waste reduction/recycling/reuse plan with targets.

Implement the plan and monitor performance. Repeat the audit and improve the process on a yearly or bi-yearly basis. For additional information for residents and businesses[v], and schools[vi], on recycling in Westchester, go to the Westchester County government website.

Specific waste reduction and recycling recommendations are provided at the end of this Attachment.

Implement Composting

Set up a composting bin. While the Task Force recommends that the development of facilities for larger scale composting be investigated in ***Building Capacity***, in the interim, households can implement household composting.

The Task Force also recommends that schools from K-12 implement composting programs that are linked to the school lunch program and involve students.

Improve Purchasing

Perform an evaluation of current purchasing and purchasing policy.

Modify existing policy where feasible to allow or require purchasing of goods that:

- Are durable;
- Can be reused, repaired, recycled or composted;
- Are made with recycled, low toxicity, and renewable resource content; and/or
- Are produced locally;

and services that utilize environmentally preferable products. Develop associated bid specifications for procurement of environmentally preferable products (including packaging) and services.

> Swiss Re, located in Armonk, New York, is committed to corporate sustainability and combating climate change. As part of its green procurement efforts, the company has completely eliminated toxic cleaning products and uses only organic lawn and yard care products.

Prioritize implementation to address the most commonly used materials.

Repeat this process yearly or bi-yearly.

Purchasing decisions can often eliminate or reduce waste. Additionally, purchasing goods with recycled content helps to create a market for recyclables, thereby making recycling more cost effective. Similarly, purchasing local products supports the development of local production and reduces GHG emissions from the transport of materials.

> Westchester County Government has an environmentally preferable products policy covering its purchases, and a recent Executive Order requires County facilities to use non-toxic green cleaning products where possible.

For more information on what to consider when developing a purchasing policy see EPA's Final Guidance on Environmentally Preferable Purchasing[vii]. The guidance developed for the use of the Federal government provides detailed information on what to consider in developing a policy and links to other tools to assist with green purchasing.

To assist in making green choices, many organizations provide labels and certifications that address various aspects of green products. To assist in understanding what they mean, Consumer Reports maintains a Greener Choices website that in addition to providing its ratings on green products, allows the user to search by label[viii].

Grassroots Environmental Education, as part of its ChildSafe school program, maintains a list of cleaning products[ix] warranted by the manufacturer to comply with ChildSafe Guidelines. Schools can use this to guide purchasing.

Specific green purchasing recommendations of the Task Force are provided at the end of this Attachment.

Building the Capacity (Get it Moving, Keep it Moving)

The actions described above will directly reduce Westchester County's GHG emissions. To make sure that these direct actions can be implemented, the Task Force has identified actions that will remove barriers and support and encourage the achievement of these reductions and promote sustainable development.

Join the Westchester County Solid Waste District

The Task Force recommends that all municipalities that do not currently belong to the solid waste district become members. Membership allows municipalities to have access to free recycling at the MRF and ensures waste that cannot be recycled is converted to energy rather than placed in landfills, thus preserving land and reducing GHGs.

Evaluate Additional Infrastructure to Support Improved Waste Performance

To improve performance, the Task Force recommends the evaluation of the establishment and/or expansion of facilities and programs that will:

- Expand the county recycling programs to include more material such as more types of plastics, scrap metal, compostable organic waste, batteries, grey cardboard, food-grade wax coated cardboard, wood, electronics, cloth fibers and use of vegetable oil and/or trap grease for municipal fleets.
- Expand the access to the MRF to include additional entities (colleges, school districts, businesses, houses of worship, commercial buildings, etc.)
- Develop facilities to accept food waste, yard waste and leaves from across the county that includes a curbside pick–up program.
- Establish a permanent facility or satellite locations for household material recovery, which would accept materials generated in the home such as paints, cleaners, flammables, lawn and garden chemicals, automotive fluids, CRTs, pool chemicals, compact fluorescent bulbs, and other common toxic household products.

The New York State Department of Environmental Conservation[x] provides State assistance for projects that enhance municipal recycling infrastructure through the purchasing of equipment or construction of facilities. The funding can be used to construct materials recycling or composting facilities, or to purchase recycling containers and new recycling vehicles.

Develop Programs to Support Local and Organic Agriculture and Land Management

The Task Force recommends the establishment and expansion of the following programs.

- Create, support, fund, and develop local and organic agriculture and Community Supported Agriculture (CSA), farmers markets, local food events, and Organic Community Gardens.
- At the higher education level, create composting internships for credit, transcript notation, or paid position to research an area of interest (e.g., vermiculture, biodiesel, etc.).
- Implement organic food gardens and farm-to-table programs in schools to link children to their food sources.

Enforce and Comply with Recycling Regulations

Municipalities, businesses, and educational institutions should enforce the existing source separation law for all waste producers. This includes non-solid waste district municipalities. All sectors including businesses and multi-family dwellings not currently serviced by district members should comply with the law.

Promote Realignment of Government Regulation, Codes, Taxes and Fees

Government regulation, code, tax and fee requirements can be barriers to change. Restructuring these can encourage desired behavior and penalize undesired behavior. In recognition of this, the Task Force recommends that the County Government and municipal governments work together to implement the following initiatives:

- Evaluate modification of current fees structures for funding solid waste management to encourage recycling and reduce solid waste in both the public and private sectors. Consider **pay-as-you-throw** fee schedules.
- Identify opportunities to create tax and other incentives to promote deconstruction and recycling of construction and demolition debris.
    - Provide a permit fee incentive for performing and documenting a materials recovery program for a construction or demolition project.
    - Provide financial incentives such as low or no-cost land for siting facilities.
    - Provide other incentives such as fast tracking of development where recycled materials are used.

In **pay as you throw,** households and organizations are charged for the collection of municipal solid waste based on the amount they throw away. This ensures that those who produce waste pay for its disposal and has the desirable outcome of increasing recycling rates.

- Identify opportunities to develop incentives to business to improve recycling rates such as free recycling with paid waste removal.
- Provide funding for the purchase of bins, receptacles, signage and other tools that maximize recycling participation and compliance.
- Encourage NY State to:
    - Establish a sales tax exemption for products made from 100% **post-consumer recycled material**. This will not only encourage the purchase of these products, but will also act as an inducement to manufacturers to produce goods made with recycled content.
    - Establish tax credits that provide an economic incentive to generate less waste.

> **Post-consumer recycled material** is an end product that has completed its life cycle as a consumer item and would otherwise have been disposed as solid waste. Post-consumer materials that can be recycled include office paper, cardboard, aluminum cans, plastics and metals.

Regulate Use

The Task Force recommends that the Westchester County Government urge New York State to:

- Evaluate a ban on the sale of hazardous materials where appropriate.
- Expand NYS "Bottle Bill" deposit program to include non-carbonated beverage bottles.

The Task Force recommends that the Westchester County Government evaluate and consider:

- Prohibition of distribution of eating utensils, food containers and bottles made of polystyrene (styrofoam), PVC or polycarbonate (lexan);
- Prohibition of polycarbonate plastic water bottles;
- Adoption of an organic pest management policy for landscaping private property;
- Creation of goals to promote construction and demolition debris to be either deconstructed for reuse or recycling;
- Prohibition of the use of leaf blowers during summer months when removal of leaves is not necessary; and
- Creation of a model municipal ordinance to prohibit grass clipping pick-up and encourage leaving them on lawns.

The Task Force also recommends that the County and municipal governments and educational institutions consider using organic materials in place of synthetic artificial turf on fields. The Task Force also recommends that these sectors monitor health department findings nationwide about artificial turf.

Develop County Green Business Website

The Task Force recommends that the County Government develop a green business website and model business assistance program that provides support and recognition to businesses that go beyond environmental compliance and take a proactive stance toward preventing pollution, conserving nonrenewable resources, reducing waste and recycling.

Westchester County GIS entered into a partnership with the Green Map System. The Westchester County Green Map[xi] is a locally created map that charts the natural and cultural environment and highlights "green" living resources.

Showcase Successes and Lead by Example

Demonstrating what has already been achieved can spur others to action. The Task Force recommends that:

- Government, business, and education use high profile locations such as colleges, private and public schools, hospitals, businesses, and malls to promote model recycling facilities.
- Government, business, and education set up and run recycling and waste reduction challenges. These can be internal or involve other organizations.
- Schools run as zero waste school events to model and promote the use of recycled, recyclable, and compostable material. Schools can identify existing school composting programs and use success stories as templates for others to follow.

Westchester County Government reports on compliance with the recycling law and recognizes those municipalities with the highest recycling rates[xii].

The Westchester County Parks Department runs a very successful in-house **recycling competition**. Awards range from whimsical, hand-made crowns to signify "kings" or "queens" of recycling, to a free lunch of deli wedges and soft drinks, as well as traditional wall plaques. Since the inception of the competition in 2004, recycling tonnage in the department has increased tenfold, and more than 7,500 tons of material has been recycled.

Recyclemania[xiii] is a competition among college and university recycling programs in the United States.

Education and Information Sharing

All sectors should work to ensure that information and knowledge is publicized and shared widely. Each sector should focus on their key stakeholders and provide workshops, fairs, meetings, training and professional development as appropriate. Part of this effort should be websites maintained by participating sectors including the County Government, the municipal governments, schools, business and others, to provide access to information.

When engaging in public information sharing campaigns, it can be useful to employ social marketing techniques. In social marketing, traditional marketing techniques are employed for the purpose of achieving a greater societal good. Behavioral psychologists can be useful in helping organizations structure these campaigns so as to increase the potential impact in bringing about change. Organizations should consider recruiting these specialists and their expertise for such outreach efforts.

Examples of information to be included in this education and information sharing are as follows:

Waste Reduction, Recycling, Reuse

- Public education for homeowners, businesses and landlords on the recycling requirements of the Westchester County Source Separation Law.
- Information and education for custodians and homeowners on the importance of recycling, source separation, purity of stream, "take back" organizations/facilities, and proper handling techniques.
- Information on partnership with Hudson Valley Materials Exchange[xiv] and other groups that support reuse.
- Information on the tax deductions available to donors of materials to non-profit organizations.
- Expansion of the existing "Giveaway Guide[xv]" to include items that are not currently on the list such as toner cartridges, VCRs and printers.
- Information on the costs and benefits of construction and demolition debris recycling and deconstruction.
- Deconstruction skills training at tech schools, BOCES, union training programs, and career development programs in the non-profit sector. Promote with construction industry associations.
- Education on the benefits of recovered and recyclable building materials and how to include them in specifications for buildings.
- Information on organizations and companies who accept recovered building materials (Copy to be provided with permit application.)

- Education for households and lawn care professionals on the benefits of leaving grass clippings on the lawn.
- Information on recycling and waste management programs available for households and businesses that are moving.

Green Purchasing

- Information and education on the benefits of green purchasing.
- Information on local agriculture and farmers markets at public events such as environmental fairs and Earth Day celebrations.
- Information on using purchasing power to educate and influence vendors.

Grassroots Environmental Education[xvi] is an information source for educators on green purchasing, local agriculture and toxic products and viable alternatives.

Composting

- Education on composting techniques.
- Education aimed at landlords of high-rise and commercial buildings on composting on their properties for all tenants.

Waste Reduction Opportunities

Business:

- Redesign packaging to eliminate excess material.
- Work with customers to design and implement a packaging return program.
- Switch to reusable transport containers.
- Avoid over-purchasing with inventory controls such as 'first in, first out' policy that prevents unnecessary waste generation.

Education:

- Develop bid specifications that require manufacturers to take back products and packaging.
- Avoid over-purchasing with inventory controls such as 'first in, first out' policy that prevents unnecessary waste generation.

Households:

- Use reusable bags for shopping.
- Use reusable containers such as containers, cups and mugs for tap water and beverages.
- Sign up to reduce junk mail and unwanted catalogues.

All Sectors:

- Offer clean reliable water stations.
- Purchase products used in large quantities in single bulk containers to avoid excess packaging.
- Use both sides of paper.
- Substitute electronic documents and files for paper, where possible.
- Use rechargeable batteries.
- Use either washable, recyclable or compostable plates cups and silverware. Avoid use of products that cannot be reused, recycled or composted (e.g. Styrofoam).
- Bring your own mug where disposable cups are used.
- Replace single use aerosol cans with refillable pump cans.
- Eliminate the use of polystyrene / Styrofoam (recycling code #6) beverage and food containers and polycarbonate (recycling code #7) plastic.

Recycling/Reuse Improvement Opportunities

Municipal Government:

- Develop free bulky item reuse and recycling drop off and/or collection program.
- Create partnerships with existing non-profit reuse facilities, used furniture and electronics dealers, wood and metal scrap dealers, and other reuse and recycling facilities.
- Locate solar powered trash containers in public areas. The solar energy powers a compactor to increase the capacity of the container.
- Ensure proper maintenance of bins.

Business:

- Implement take-back policy for packaging and products.
- Implement a policy to accept used products with hazardous constituents such as compact fluorescent bulbs. See IKEA[xvii] for example of 'Free Take Back' program for spent CFLs.
- Develop products and packaging with post consumer recycled content.
- Implement a recycling program.
- Implement a plastic bag recycling program at large retail stores.

Education:

- Collaborate with other schools on marketing of recyclables.
- Write salvage and reuse requirements into construction requirements.
- Work to obtain better contracts with solid waste haulers for small school districts and entities using the power and example of large school districts.

All Sectors:

- Provide marked content-specific recycling and waste bins (e.g. round container hole for bottles and cans, slot for paper) at all appropriate public locations[xviii] (e.g., on sidewalks, in parks, in public buildings).
- Use the county Treasure Hunt[xix], Craigslist[xx] or Freecycle[xxi] to donate or sell unneeded items.
- Donate to United Way Donation Gifts-in-Kind Program[xxii].
- Donate usable items to local charities.
- Donate computers[xxiii] and cell phones for reuse.
- Donate used building materials to Habitat for Humanity[xxiv].
- Set up an internal donation program.
- Reuse or recycle materials generated from remodel, construction, deconstruction or demolition projects.
- Compost organic wastes and use it.

Green Purchasing Opportunities

Government:

- Continue to develop guidelines and associated bid specifications for procurement of environmentally preferable products and services, including maintenance of buildings and grounds, cleaning products, building materials, furnishings, flooring, wood products, machinery, paints and stains, food, food containers and utensils, paper, playing surfaces and equipment, utility poles, and plastic alternatives.
- Develop a free bulky item reuse and recycling drop off and/or collection program. Create partnerships with existing non-profit reuse facilities.
- Encourage farmers markets.

Business:

- Reduce the manufacture, purchase and use of hazardous materials and products.
- Develop and offer green products and services.

All Sectors:

- Buy third party certified green products and services. Check the credibility of seals and certifications against the Consumer Reports Greener Choices website[xxv].
- Buy sustainable wood products certified by organizations such as the **Forest Stewardship Council**[xxvi] or **Sustainable Forest Initiative**[xxvii], or engineered wood made from recycled newsprint, straw, wood chips or bamboo.
- Buy sustainable building products and furnishings.
- Buy nontoxic paints and finishes.
- Buy bio-based nontoxic cleaning products.
- Reduce the purchase and use of PVC plastics and encourage purchase and use of safe alternatives.
- Buy formaldehyde-free building materials and paints, stains, adhesives, fabrics, wall coverings, carpeting and other materials with low or no volatile organic compounds.
- Buy energy efficient appliances. See Energy for additional information.
- Buy energy efficient electronic equipment including computer equipment[xxviii] and information technology. See Energy for additional information.
- Buy products with recycled content such as paper or toner.
- Use integrated pest management policy with a preference for organic pest management[xxix] for structural and landscaping applications.
- Buy local organic food and locally manufactured products.
- Replace bottled water with tap water.

Sources

[i] Source Separation Law http://www.westchestergov.com/environment_recyclingenforcement.htm

[ii] Waste audit http://www.epa.gov/epaoswer/osw/conserve/onthego/program/assess.htm

[iii] Source Separation Law http://www.westchestergov.com/environment_recyclingenforcement.htm

[iv] Solid Waste Commission http://www/westchestergov.com/solidwastecommission

[v] recycling information for residents and businesses
http://www.westchestergov.com/environment_recycling.htm

[vi] recycling information for schools http://www.westchestergov.com/environment_RecyclingatSchool.htm

[vii] EPA's Final Guidance on Environmentally Preferable Purchasing
http://www.epa.gov/epp/pubs/guidance/finalguidance.htm

[viii] search by label http://www.greenerchoices.org/eco-labels/eco-home.cfm

[ix] cleaning products http://www.grassrootsinfo.org/cslist07-08.html

[x] New York State Department of Environmental Conservation
http://www.dec.state.ny.us/website/dshm/redrecy/sap.htm

[xi] Green Map http://greenmap.westchestergov.com/Home.htm

[xii] Municipalities with the highest recycling rates http://www.westchestergov.com/envfacil/PR06Recyc.htm

[xiii] Recyclemania http://www.recyclemaniacs.org/overview.htm

[xiv] Hudson Valley Materials Exchange http://www.hvmaterialsexchange.com

[xv] Westchester County Quick Recycling Guide (Give Away Guide
http://www.westchestegov.com/environment_recycling.htm

[xvi] Grassroots Environmental Information http://www.grassrootsinfo.org/

[xvii] IKEA http://www.ikea.com/ms/en_US/about_ikea/social_environmental/environment.html

[xviii] public locations http://www.epa.gov/rcc/onthego/venues/index.htm

[xix] Treasure hunt http://www.westchestergov.com/citizenparticipation_treasurehunt.htm

[xx] Craigslist http://newyork.craigslist.org/wch/http://newyork.craigslist.org/wch/

[xxi] Freecycle http://groups.yahoo.com/group/WestchesterNYFreecycle/

[xxii] United Way Donation Gifts in-Kind Program http://www.unitedwaynyc.org/?id=17&pg=gik

[xxiii] computers http://www.westchestergov.com/pdfs/ENVFACIL_BusinessRecyclingBrochure.pdf

[xxiv] Habitat for Humanity http://www.habitat.org/

[xxv] Consumer Reports Greener Choices website http://www.greenerchoices.org/

[xxvi] Forest Stewardship Council
http://www.rainforest-alliance.org/programs/forestry/smartwood/index.html

[xxvii] Sustainable Forest Initiative http://www.sfiprogram.org/label.cfm

[xxviii] computer equipment http://www.climatesaverscomputing.org/

[xxix] organic pest management http://www.grassrootsinfo.org/pesticides.html

Guidance for Using the Action Plan

Westchester Action Plan

The Westchester Action Plan and its ten Attachments provide the Task Force's recommendations as to how to move forward to address climate change and sustainable development in Westchester County.

The Action Plan provides the road map to translate the County Executive's vision into climate change and sustainability performance in the Community of Westchester. Summaries of actions for each sector – County government, municipal government, education, business, and households – are also provided. Within the summaries, timeframes are proposed for the actions.

Attachments

The Attachments provide the detailed information that supports the Action Plan. Included in the Attachments to the Action Plan are specific attachments that address Energy (including green buildings), Transportation, Land Use, Water Resources, and Waste Reduction, Recycling and Green Purchasing. Each of these Attachments starts with a brief review of the current situation in Westchester County. This is followed by an overview of the proposed strategy to move to a more sustainable future in the Community of Westchester. Next, recommended actions that can be taken to directly reduce GHG emissions, adapt to climate change and support sustainable development are provided. Finally, actions are recommended that will support the Community of Westchester in developing the capacity to implement the recommended direct actions. This may include adding resources, leading by example, educating, and information sharing. Boxed text within the Attachments offers information on the meaning of climate change terms, examples that demonstrate what others have done and detailed recommendations. Information in the Attachments may apply to some or all sectors. The information has been coded to indicate the sector(s) to which they apply, as follows:

All Sectors:
Households
Education
Business
Municipal Government
County Government

Households

Education

Business

Municipal Government

County Government

Navigating the Action Plan

Within the Action Plan, two methods may be used to navigate between it and its Attachments. The Attachments' names are boxed in multiple locations within the Action Plan. Clicking on the name of the Attachments in the box will take the reader to the beginning of that Attachment. Second, within the Summary of Actions by Sector, the Action Icon  when clicked, takes the reader to the specific location where that action is discussed within the relevant Attachment. To return to the Action Plan, the reader only has to click the Back Arrow  at the top of each page to return to the Action Plan.

Within the Attachments, the reader will find numerous Internet links (hyperlinks) that take the reader directly to information on the web that will help the reader take action. At the end of each section, sources are provided for the hyperlinks in the text.