# Town of Hammonton Municipal and Community Greenhouse Gas Inventory And Suggested Policy Options

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#### **Summary**

This greenhouse gas emission survey was conducted for Hammonton, New Jersey for residential, commercial, industrial, and municipal operations. Data was collected for the 2008 calendar year or was altered to represent it accordingly. Known state-wide growth rates of key emissions trends were used to project future emissions. Data on residential, commercial, and industrial energy use, transportation, solid waste, sewage, and municipal operations was used to calculate the amount of greenhouse gases emitted from Hammonton and to project ways in which they can be reduced.

In the Town of Hammonton the overall energy use and greenhouse gas emissions from 2008 are as follows:

Source	Energy Use (MMBtu)	Emisisons (tons eCO <sub>2</sub> )
Residential Energy	704,085	70,766
Commercial Energy	423,855	50,868
Industrial Energy	42,025	6,456
Transportation	907,010	77,243
Waste and Sewage		8,517
Total	2,076,975	213,850

These totals are comparable to state-wide data, as can be seen by these graphs:



The above charts indicate that the biggest source of greenhouse gas emissions in both Hammonton and New Jersey as a whole is the transportation sector. The residential sector is the second largest source of greenhouse gas emissions in Hammonton and the commercial sector is the third largest source. However, state-wide emission totals have the commercial sector as the second largest source and the residential sector as the third largest source.

Greenhouse gas emissions that resulted from municipal facilities and operations are as follows:

Source	Energy Use (MMBtu)	Tons of eCO <sub>2</sub>
<b>Energy Consumption</b>	3,184	211
Vehicle Fleet	7,884	679
Totals	10,759	890

A twenty percent increase for community emissions and a twenty-five percent increase in transportation related emissions are projected for the year 2020. To prevent these increases from taking place in Hammonton and to help the state of New Jersey achieve its goal of a twenty percent reduction in greenhouse gas emissions, creative and proactive policy changes need to be made throughout the town.

For the community overall, it is clear that the transportation sector is the biggest contributor to greenhouse gas emissions in Hammonton. To address the emissions that are associated with transportation, policies should be created to promote a sustainable community that is more pedestrian friendly, promotes carpooling and public transportation, and the use of more fuel efficient vehicles. Emissions resulting from both the residential and commercial sectors can be reduced by creating policies that promote the use of energy efficient products, energy conservation, and the use of clean energy.

#### Introduction

Coal, oil, and natural gas are fossil fuels that are commonly burned to produce energy. Our country relies on these fuels to currently provide two-thirds of our electricity and virtually all of our transportation fuels. When these fuels are burned, they give off climate change producing green house gases.

Climate change, as defined by the US Environmental Protection Agency (EPA), is a significant change in climate (such as temperature, precipitation, or wind) lasting for decades or longer. This increasing climate change is due in part to human activities such as the burning of fossil fuels for energy, deforestation, and urbanization. Oil, which is mostly imported, is the United States' largest source of green house gases (GHG). This fossil fuel alone supplies more than 40% of our total energy demands and more than 99% of the fuel we use in our cars and trucks. With the cost of energy rising, as can be seen at the gas pump, it is urgent for the U.S. to work towards energy independence and affordable energy.

According to The Nature Conservancy, effects that human caused climate change will have on New Jersey include: a loss of habitat and property from sea-level rise, loss of drinking water supplies, shifting forest habitats and more forest fires, destruction of 20 to 70 percent of shorebird habitat, drastically increased public expenditures to protect life and coastal property, and lost tourism.

The Town of Hammonton, a farm town that prides itself as, may experience longer growing seasons as a result of warmer temperatures, which could also make our crops more susceptible to pests and weeds. Along with an increase in temperatures come associated changes in the water cycle that "The Blueberry Capitol of the World" will directly affect ecosystems, water supply and agriculture, including the town's blueberry yields. More intense rain events are likely, and although there will be more precipitation overall, the likelihood of summer droughts will increase.

The United States of America has accepted these affects that climate change will bring to the future of our country however; bold climate change policies to address the issue have yet been passed. With the national government slacking to create policies that could effectively address climate change and reduce GHG Emissions, many States and Local governments have stepped up to create such polices.

New Jersey has done so by passing the Global Warming Response Act and the New Jersey Energy Master Plan. The Global Warming Response Act aims to reduce the state's GHG emissions 20% below 1990 levels by 2020, and 80% below 2006 levels by 2050. The Energy Master Plan aims to reduce the state's energy consumption 20% below 1990 levels by 2020 and to achieve 30% of the state's electricity needs from renewable sources by 2020.

These reductions cannot be completed without help from New Jersey's local governments. Prior to the completion of this carbon inventory, a Green Committee was created by Mayor John DiDonato in 2008 to help the town reduce its impact on the environment. This carbon inventory, which was completed with the help of the committee, is the first step for Hammonton to help New Jersey in becoming an environmental leader by aiming to effectively reduce our energy consumption and green house gas emissions. Projects and actions that can result from this inventory include a climate action plan, renewable energy and energy efficiency programs, and access to grants that can help us to complete such environmental projects.

## **Inventory Methods**

This inventory provides an account of the climate change causing green house gases (GHG) that were emitted by the Town of Hammonton, expressed in a common unit as carbon dioxide equivalent(eCO<sub>2</sub>). The results are intended to help the town: (1) set out to identify the greatest sources of GHG emissions in the town; (2) create an emission baseline year to monitor progress; and (3) to create strategies and policies to measurably reduce the town's contribution to climate change. The report is separated into two areas of focus:

- (1) Community Inventory Evaluates the commercial, residential, and industrial sectors. Emission reports for these sectors are conducted by looking at the electrical and gas usage, waste tonnage, and transportation associated with each.
- (2) Municipal Inventory Evaluates fuel use, electricity use, and waste production caused by municipal buildings and operations

This separation is done so to provide clarity and to encourage town officials to more effectively alter some town operations to improve energy efficiency and reduce the town's green house gas emissions. The set up of this report is organized in hopes that changes in ordinances, enforcement practices, and polices that can reduce the contribution to climate change can easily be facilitated. The separation also gives the municipal government the opportunity to set an example of responsible energy use and sustainability while creating policies that can encourage the same from local businesses and residents.

The baseline year chosen for this Inventory is 2008. This year will serve as a reference point in which the town can measure its increase and/or decrease in green house gases throughout the years. Data required to conduct an inventory before this baseline year are not available. However, projections for future emissions are utilized using known state-wide growth rates.

Data for this report was gathered from various providers. Atlantic City Electric provided electrical usage and South Jersey Gas Industries provided the gas usage. The waste was evaluated by collecting waste tonnage amounts from various waste providers and surveying the contents of trash cans on trash day. Emissions from transportation were studied by observing data provided by the NJ Department of Transportation (NJDOT), studying the map of Hammonton, and conducting roadside vehicle surveys. The Town of Hammonton cooperatively provided the information for the municipal section. Data was analyzed by a Stockton College student under the supervision and guidance of Professor Patrick Hossay and with the help of the Hammonton Green Committee.

## **Inventory Results**

#### **Residential Emissions**

Greenhouse gas emissions from residential homes in Hammonton are primarily a result from the use of electricity, natural gas, heating oil, propane, and fuel wood. The use of these energy sources from residential customers in 2008 resulted in the emission of 70,766 tons of eCO2.

#### Electricity

Electricity usage was provided by Atlantic City Electric, the sole provider of electric power in Hammonton. They report that 59,755,169 Kilo-Watt Hours (kWh) of electricity was used by residential customers in 2008. With a Census predicted population for the town of 13,424, the resulting residential electricity use per capita is 4,451 kWh. The 2000 Census reports a statewide mean of 2,997 kWh per capita. This number may be projected to 2008 using a growth rate of 1.4 percent annually to produce a statewide mean of 3,304 kWh per capita. Taking this into account, the residential electricity use in Hammonton is considerably above the state average.

Residential solar photovoltaic electricity generation is not widely utilized in Hammonton. Approximately 31,010 kWh of electricity was provided by rooftop solar arrays in 2008, a very low number when compared to state norms and other New Jersey towns. The graph below compares Hammonton's solar generation to that of Montgomery Township and Galloway Township:



According to New Jersey's Clean Energy Program, 39 households in Hammonton purchased their electricity through the Clean Power Choice Program. The purchase of energy through this program ensures the electricity to be derived from a renewable source of energy. Presuming that the electricity use from these households align with that of the mean from the town, this represents a relatively meager 504,536 kWh of green electricity purchased.

#### Natural Gas, Propane and Heating Oil

Natural gas usage information was provided by South Jersey Gas, the sole provider of natural gas in Hammonton. They report that 2,490,171 therms of natural gas were consumed by residential customers in 2008. As a result, the average use of natural gas per household is an estimated 514 therms.

Gathering information on fuel oil usage is not as straightforward as natural gas due to the multiple fuel oil providers in the region. However, a reasonable estimate was determined with the use of a worksheet provided by Sustainable Jersey. The worksheet calculates an average by using the determined annual natural gas usage, a ratio of homes heating with natural gas and oil obtained from the 2000 Census, and the natural gas usage during summer months. The resulting estimated fuel oil usage from Hammonton residents in 2008 is 2,408,920 therms.

The use of propane is also difficult to measure and was estimated using the same process as fuel oil. To calculate the use of propane, a ratio of homes heated with natural gas and propane was obtained from the 2000 Census instead of a natural gas and fuel oil ratio. The resulting estimated propane usage form Hammonton residents in 2008 is 99,263 therms.

Fuel wood usage was also determined by using the worksheet provided by Sustainable Jersey. To calculate the use of fuel wood, a ratio of homes heated with natural gas and fuel wood was obtained from the 2000 Census instead of a natural gas and fuel oil ratio. The resulting estimated fuel wood usage from Hammonton residents in 2008 is 3,070 therms. The data and estimates listed above indicate a total residential energy use of 704, 085 million British thermal units (MMBtu). As a result, 70,766 tons of eCO2 were emitted into the atmosphere. Surveys were not taken in the town to determine emissions resulting from residential landscaping, which is usually another significant source of greenhouse gas emissions.

In addition, the following amounts of criteria air pollutants were emitted as a result of the energy usage from Hammonton residents:

Pollutant	Emissions (lbs)
NOx	200,080
SOx	326,349
СО	66,197
VOC	9,347
PM10	34,904

These emissions can effectively be reduced with an increase in energy conservation and the use of energy efficient products.

# **Commercial Emissions**

According to the Hammonton Greater Chamber of Commerce, there are 164 commercial businesses in Hammonton. The total electricity usage from these commercial businesses throughout 2008 is estimated to be 66,593,613 kWh. Natural gas usage from these commercial customers is estimated to be 1,965,726 therms. There were two commercial sites that utilized solar arrays in 2008 which produced 15,768 kWh of electricity. Propane and heating oil could not be determined for the commercial sector, but are assumed to be small and were calculated as zero. The resulting estimated energy consumption is 423,855 million British thermal units (MMBtu) which accounts for 50,868 eCO2 tons of greenhouse gas emissions. In addition, the following amounts of criteria air pollutants were emitted as a result of the energy usage from Hammonton's commercial sector:

Pollutant	Emissions (lbs)		
NOx	134,605		
SOx	323,573		
СО	52,868		
VOC	6,672		
PM <sub>10</sub>	29,606		

# **Industrial Emissions**

Data to determine an estimated energy usage from the Industrial sector of Hammonton was obtained from Atlantic City Electric and South Jersey Gas. The total electricity usage for industrial customers in Hammonton was 10,413,021 kWh. Natural gas use for industrial customers was 63,579 therms. No clean energy was produced by industrial customers and propane and heating oil could not be determined, but are assumed to be small and were calculated as zero. The resulting estimated energy consumption is 41,897 million British thermal units (MMBtu) which accounts for 6,448 eCO2 tons of greenhouse gas emissions. In addition, the following amounts of criteria air pollutants were emitted as a result of the energy usage from Hammonton's industrial sector:

Pollutant	Emissions (lbs)		
NOx	17,753		
SOx	51,286		
СО	7,464		
VOC	853		
PM <sub>10</sub>	4,538		

## Transportation

Data was collected from the New Jersey Department of Transportation (NJDOT) and combined with vehicle surveys conducted by Nick Bradford and the Hammonton Green Committee. A map of Hammonton, which is provided to the public by the Greater Hammonton Chamber of Commerce, was studied to determine the different road types and mileages in Hammonton. Types of roads that were observed for mileage and usage were arterials, county major connectors, county minor connectors, local collectors, and local streets. Vehicle Miles Traveled (VMT) for each road type was calculated using Average Annual Daily Totals (AADT) provided by the NJDOT and mileage that was measured using the mileage scale on the map.

It was determined that Hammonton contains 65.34 miles of local collector and local roads, 28.8 miles of county major connector and county minor connector roads, and 16.9 miles of arterial roads. According to the NJDOT, the average annual daily totals for each are as follows: 1,023.5 miles for local collector and local roads, 2,894.4 miles for county major and minor connector roads, and 11,913 miles for arterial roads. The result is a Vehicle Miles Traveled (VMT) of 119.5 million.

Vehicle surveys were conducted to determine the percentage of gasoline vehicle types used in Hammonton. The results are listed in this graph:



This graph shows that the most common vehicle types used on Hammonton roads are light truck, SUV, and pickups. They accounted for 43% of the vehicles driven in Hammonton. The second most utilized vehicle types are automatic mid-sized cars, which accounted for 35%. The rest of the vehicles are made up of full size, compact, heavy truck, and van vehicles. Motorcycles accounted for less than 1% of the vehicles. Taking into account the road mileages, VMTs, and vehicle types in Hammonton, a total of 77,243 tons of eCO2 were calculated to have been emitted as a result of normal transportation. In addition, the normal transportation use in Hammonton also accounted for the emission of the following criteria air pollutants:

Pollutant	Emissions (lbs)		
NOx	277,080		
SOx	18,524		
СО	4,250,839		
VOC	400,162		
PM <sub>10</sub>	6,411		

It is important to note that this report does not take into account transportation related emissions from waste pick-up, recycling pick-up, public transportation, or school bus use. In addition to vehicle types, the average amounts of passengers per vehicle types were also surveyed. The results are as follows:



Overall, an average of 76% of the vehicles surveyed only contained one passenger, a total of one person in the car. In addition, 21% of the vehicles contained 2 passengers, and 3% contained 3 or more passengers. Although these numbers were not taken into account when calculating the green house gases emitted from transportation, they do indirectly affect the amount of gases emitted. An increase in carpooling and/or public transportation can be seen if these numbers vary from calculations that may be conducted in future inventories.

# Solid Waste

This section evaluates the greenhouse gas emissions that resulted from waste disposal in the residential and commercial sectors. To estimate the emissions from Hammonton's waste disposal, an analysis of waste tonnages, the greenhouse gas potential as a result of its organic content, and the disposal methods of the waste were evaluated.

According to data collected from the Town of Hammonton, local residents disposed of 6,364.66 tons of solid and bulky waste in 2008. Waste that was disposed of by municipal owned buildings is included in the residential tonnage and is not accounted for separately. When organic materials that are disposed of in waste such as paper and food decompose, they produce methane. This is a very potent greenhouse gas that is estimated to be twenty-five times more effective at trapping heat than carbon dioxide.

To determine the amount of organic materials in Hammonton's residential waste, hundreds of roadside trash cans were evaluated on trash day. Each trash can was surveyed for the percentage of paper products, food waste, plant debris, wood/ textiles, and all other waste in each. As a result, the following is an estimated percentage of the contents found in residential waste:

Waste Type	Percentage
Paper Products	28%
Food Waste	11%
Plant Debris	10%
Wood/ Textiles	5%
All Other Waste	46%

When the percentages are combined with the total waste tonnage, the estimated amount of greenhouse gases emitted from residential waste disposal is 2,769 tons of eCO2.

To determine the emissions from Hammonton's commercial customers, tonnage information was received from the multiple waste haulers that serve them. The commercial waste haulers estimate that 13,192 tons of waste was collected from their Hammonton customers in 2008. The amount of Greenhouse gases that were emitted due to the disposal of commercial waste was determined using the same percentages as the residential sector. As a result, the total amount of emissions is 5,737 tons of eCO2.

The overall solid waste disposal from Hammonton is 19,557 tons. This tonnage results in the emission of 8,506 tons of eCO2 and is disposed of into a managed landfill.

#### Sewage

The treatment of wastewater from municipalities is often energy intensive and thus contributes significantly to the town's greenhouse gas emissions. All of the wastewater from Hammonton is treated at the Hammonton wastewater treatment plant. According to the plant, Hammonton used 324.35 million gallons of wastewater in 2008 with the usage being pretty consistent on a monthly basis. Based on budgetary data received from the town clerk's office, the total amount of electricity used to treat wastewater from 2008 was 19,622 kWh, or 67 MMBtu. Hence, the wastewater from the Town of Hammonton contributed 11 tons of eCO2 annually.

# **Municipal Operations**

Energy usage and green house gas emissions resulting from the use of municipal facilities and operations were measured and evaluated for 2008. Information was provided by the Town Clerks Office and Town Accountant Frank Zuber.

#### Electric Usage

Total electricity usage from government owned facilities and operations was found to be 41,672 kWh, resulting in 194 tons of eCO2 emitted. Electricity data was collected for town hall, the water department building and pump house, and streetlights. The sewage department is not included in the municipal section of the inventory since its electricity usage is a result of wastewater used by Hammonton residents. The electricity usage for each building is as follows:

Building	Electricity Usage			
	(kWh)			
Town Hall	4,881			
Water Department	1,671			
Pump House	4,062			
Streetlights	31,058			
Total	41,672			

The town hall was only operational for 8 months in 2008. The number presented above is an estimate for its usage from a 12 month period so that it can easily be compared to future inventories.

#### Gas Usage

Total gas usage from government owned facilities was found to be 30,421 therms and responsible for 188 tons of eCO<sub>2</sub>. In addition, municipal gas usage was responsible for the following amount of criteria air pollutants:

Pollutant	Emissions (lbs)		
NOx	511		
SOx	20		
СО	32		
VOC	28		
PM <sub>10</sub>	16		

The municipality's vehicle fleet consists of 108 vehicles that belong mostly to the police, highway, fire, sewer, and water departments. They used approximately 33,897 gallons of unleaded gasoline and 26,560 gallons of diesel. In addition, the town also purchased 3,067 gallons of unleaded gasoline for the rescue squad. Overall, this vehicle fleet emitted 679 tons of  $eCO_2$  and was responsible for the following amount of criteria air pollutants:

Pollutant	Emissions (lbs)		
NOx	2,906		
SOx	269		
СО	25,186		
VOC	2,745		
PM <sub>10</sub>	209		

## Projections

Although historical energy usage and greenhouse gas emission data for Hammonton is not readily available, projected emissions can be determined by using known growth rate trends of major emissions sources. Projections were made for 2020, the year in which the State of New Jersey aims to reduce its greenhouse gas emissions by twenty percent. Future emission and energy consumption estimates include normal traffic, residential energy use, commercial energy use, and waste. These numbers assume that there are no policy changes, no increase use in energy per capita, and a continuation of the town's current population growth.

Year	Norr Transpo	Normal Transportation		Residential Energy Use		Commercial Energy Use	
	MMBtu	$eCO_2$	MMBtu	eCO <sub>2</sub>	MMBtu	eCO <sub>2</sub>	eCO <sub>2</sub>
2008	907,010	77,243	704,085	70,766	465,880	57,324	8,517
2020	1,133,763	96,554	844,902	84,919	554,397	68,216	10,987
Increase	25 %		25 % 20%		19%		29%

To prevent an increase in greenhouse gas emissions in the future, changes in policies currently need to be made that creatively and proactively address climate change.

# **Suggested Measures**

The following options are presented to shape changes and alterations in municipality policies and practices that could most effectively result in a reduction in green house gas emissions from Hammonton.

## **Residential Energy**

The second largest source of greenhouse gas emissions from Hammonton is Residential Energy use. The following actions and policy changes can effectively reduce the use of electricity, natural gas, fuel oil, propane, and fuel wood in Hammonton homes.

## Energy Conservation and Efficiency Education

Promoting the conservation of energy and use of energy efficient products could significantly reduce the use of electricity from the community. Through education, local publications, presentations, and displays at community events the municipality can provide residents with information on energy conservation. To draw more interest in the subject, the town can raise awareness to how conserving energy helps to save money. For example, there are federal tax incentives and state rebates available for the use of Energy Star appliances. Community workshops that demonstrate how to weatherize homes, use energy efficient products, and proper home energy management can also gain interest from town residents.

It is estimated that a typical American home can reduce energy cost by fifteen percent through proper home weatherization. Proper energy management and energy efficient products could additionally reduce energy usage by a third.

# Encourage and Promote Clean Energy

There are many incentives that are available by both the state of New Jersey and the federal government to encourage the installation and use of alternative energy sources. For example the New Jersey Board of Public Utilities (BPU) and the New Jersey Clean Energy Program offer rebates, incentives, and promotions for the use of clean energy. Specifically, the Clean Energy Program has a Renewable Energy Incentive Program (REIP) that reduces the upfront cost of installing renewable energy systems. It seems as though a few residents in Hammonton have already taken advantage of these rebates since, according to Atlantic City Electric, the use of rooftop solar photovoltaic arrays have tripled since 2008. This increase now produces an additional 91,060 kWh of clean energy in Hammonton.

By promoting the rebates and incentives that are available from the state and federal government, the municipality can help residents reduce their contribution to climate change.

## Promotion of the Clean Power Choice Program

The Clean Power Choice Program is a statewide program offered by the BPU's office of Clean Energy that allows residents to choose a clean, renewable source of energy. When residential customers participate in this program, they increase the demand for and use of clean energy in New Jersey. According to the program, there are 39 residential homes in Hammonton that currently purchase their electricity through them. This number can increase through the promotion of the Clean Power Choice Program from the municipal government.

#### Landscaping Emission Reduction

The amount of greenhouse gases emitted as a result of landscaping was not determined for this inventory. However, the use of gas powered lawn equipment is a significant source of emissions. It is suggested that a lawnmower can produce nearly 100 times more smog and 10 times more carbon monoxide than a new car. Emissions from landscaping can be reduced through the promotion of low maintenance landscaping and native plantings. An example of this type of landscaping is the rain garden that was planted behind the library in Hammonton by the Hammonton Green Committee. An increase in such garden's can significantly reduce the amount of greenhouse gases emitted from landscaping.

# **Commercial and Industrial Energy**

The third largest source of greenhouse gases emitted from Hammonton is the commercial and energy use. The following actions and policy changes can effectively reduce the use of electricity, natural gas, fuel oil, propane, and fuel wood in Hammonton businesses.

## Encourage Energy Efficiency and Renewable Electricity

There are financial incentives offered by New Jersey's Clean Energy Program for commercial, industrial, and municipal customers to integrate energy efficient and renewable energy technologies into new construction, upgrades, and new heating and cooling equipment installations. According to data received from Atlantic City Electric, electricity produced by commercial owned solar panels in Hammonton is now ten times the amount it was in 2008. An additional 168,192 kWh is produced annually with the addition of these new solar arrays, proving that Hammonton's commercial sector is interested in clean energy. Through the encouragement and promotion of renewable energy from the municipality, greenhouse gas emissions from commercial and industrial businesses can effectively be reduced.

# Transportation

## Sustainable Community Practices

A Sustainable Community is a community whose actions address its current needs without compromising the needs of future generations. Decisions should be made to address an equal balance of Environmental, Economical, and Social needs. Actions that can help Hammonton work towards a Sustainable Community and increase walking and biking throughout the town include Mixed Use Zoning, Policies focused on Smart Growth and Re-Development, Preserving Open Space, and High Density Neighborhoods,

Mixed use zoning is zoning that integrates housing, commercial, and retail buildings in the same vicinity. This practice can reduce the reliance on private vehicles since needs by residents can more easily be met by walking or biking from their house to close by commercial and retail buildings. Smart growth is anti-sprawl development that benefits the environment and the economy and supports pedestrian and transit oriented growth in a community.

Re-Development revives abandoned buildings to prevent the development of buildings on untouched property. This can also reduce urban sprawl by keeping businesses and housing in a centralized area. Open Space are spaces that are used for recreation, social interaction, and physical activity. Preserving these areas helps to protect native species of plants and animals and can be obtained by building in already developed areas.

A High Density Neighborhood is a compacted development that allows a greater number of people to live on a smaller piece of land. This can increase the protection of open space and encourage a less energy intensive lifestyle.

## Make Streets More Pedestrian Friendly

Making the streets in Hammonton more pedestrian friendly can increase walking and biking throughout the town. An effective way to increase walking and biking throughout the town is to make it more appealing for pedestrians. Doing so can promote a healthier lifestyle for residents, increase business for businesses, and decrease the use of transportation. Ways to increase the appeal for pedestrian activity include traffic calming, improving sidewalks, and designating street crossing areas.

Traffic calming is a way to slow down traffic to make the streets less dangerous to cross for pedestrians. Techniques include increasing the use of stop signs, speed bumps, and circles, decreasing traffic speeds, installing vegetated medians, creating and/or widening bike lanes, and installing attractive crosswalks. Improving the sidewalks in town will make them easier and more attractive for pedestrians to use. This can be done by widening sidewalks, adding artistic designs, installing brick work, and planting vegetation such as native trees, bushes and plants. Designating street crossing areas will make it easier and more desirable for pedestrians to cross streets. This can be done by installing stop and go pedestrian lights and creating designated street crossing areas on the street.

# **Community Programs**

## Support the Continuation of Hammonton's Farmer's Market

The Hammonton Farmer's Market was started in the summer of 2009 by Main Street Hammonton and the Hammonton Green Committee to promote eating locally grown food. Purchasing locally produced foods eliminates fuel waste and minimizes the creation of green house gases. In most cases, locally grown food is food that has been grown or raised within a one hundred to two hundred mile radius of the consumer. Promoting the consumption of locally grown food can easily be achieved in Hammonton since there are many farms located within it.

Purchasing locally grown food can also protect Hammonton's local farmland by increasing the demand for local food production and in return supporting sustainable community practices. Another advantage associated with farmers markets is that they stimulate the local economy by cutting out the "middle man", allowing the seller to receive a larger cash return on their product. Several studies show that a dollar spent locally generates twice as much income for the local economy. The increased foot traffic around town also helps out local merchants.

#### Support and Encourage Community Clean-Ups

Community clean-ups are a good way to encourage good environmental responsibility throughout the town. An annual Hammonton Lake Clean-Up was started in 2009 by Hammonton Organized for a Positive Environment (HOPE). The organization is comprised of the Hammonton Environmental Commission, the Hammonton Lake Water Quality Committee and the Hammonton Green Committee and has been very successful with both their annual clean-ups. Their success shows that residents of the town are willing to support and participate in community clean-ups. Hammonton can increase the number of clean-ups throughout the town with the continued support and encouragement from the local government.

#### Green Fairs

A green fair is a community-wide event that encourages and educates local residents on how changes made in their daily lives can directly affect the health of their environment and the health of their families. The Hammonton Green Committee created an annual Green Day Festival back in 2008 and it has been a success ever since. The festival educates residents on eating locally, energy conservation, energy efficiency, and green living. Through a continued support and encouragement from the local government, the town can continue to benefit from an annual Green Day Festival.