

# Executive Summary

The threat of climate change impacts - increased temperatures, more extreme heat days, and changing precipitation patterns - are becoming more real each day.

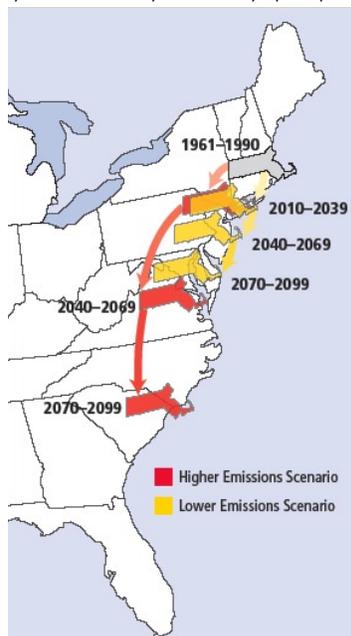
While scientists can not predict exactly how climate change will affect each area of the globe, they can model the general impacts and hazards.

What is **not** disputed are the facts that 1) carbon dioxide (CO<sub>2</sub>) concentrations in our atmosphere have been steadily increasing since pre-industrial times, 2) this increase in CO<sub>2</sub> is largely due to human influence, and 3) that an increase in CO<sub>2</sub> (aka greenhouse gases) in the atmosphere increases the average temperature.

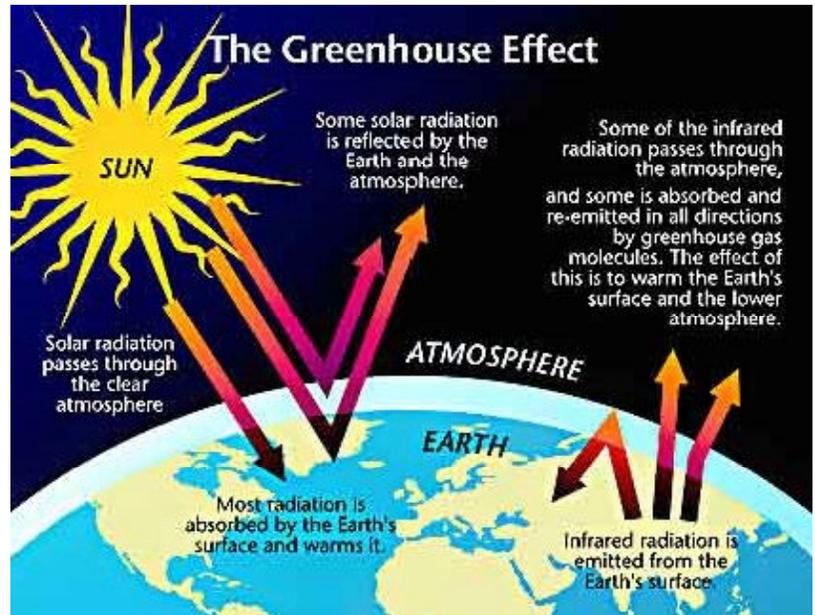
Many credible scientific agencies, such as the U.S. EPA, the IPCC, and NOAA, have stated these facts.

The City of Worcester has decided to take responsibility for its contribution to greenhouse gas emissions. In October 2003, the Mayor Timothy Murray proposed a resolution to City Council and Worcester became the

**Summers in Massachusetts**  
Summer in Massachusetts could feel like the typical summer in South Carolina by the end of the century unless we take action to reduce heat-trapping emissions today.



Source: Union of Concerned Scientists



Source: NACC/USGCP graphic from Union of Concerned Scientists Website (<http://www.ucsusa.org/globalwarming/index.html>)

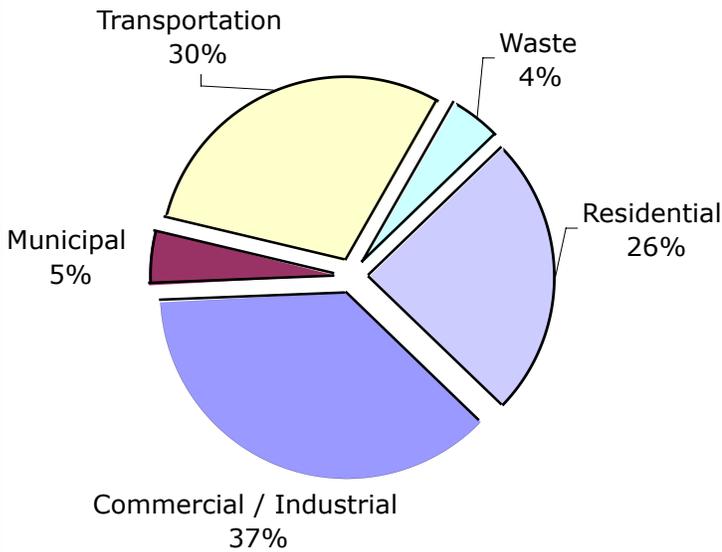
19th city in Massachusetts to join the Cities for Climate Protection (CCP) Campaign - a campaign run by ICLEI Local Governments for Sustainability. CCP is an international campaign of local governments who are committed to reducing their greenhouse gas emissions. CCP offers a five step process to help local governments achieve this commitment: 1) Conduct a Greenhouse Gas Emissions Inventory and Report for the entire community as well as municipal operations. 2) Set a Greenhouse Gas Emission Reduction Target. 3) Develop a Local Climate Action Plan. 4) Implement the Local Climate Action Plan. 5) Monitor Emission Reductions

CCP has engaged over 770 communities worldwide, 25 of which are in Massachusetts. Many of these communi-

ties have completed Step 3 by putting together an Energy Task Force to advise on and write their Climate Action Plans. In February 2006, City Manager, Michael V. O'Brien appointed 14 representatives from City government, businesses, utilities, universities and the environmental community to Worcester's Energy Task Force (ETF) and contracted with the Regional Environmental Council to hire a part-time Energy Consultant to coordinate the

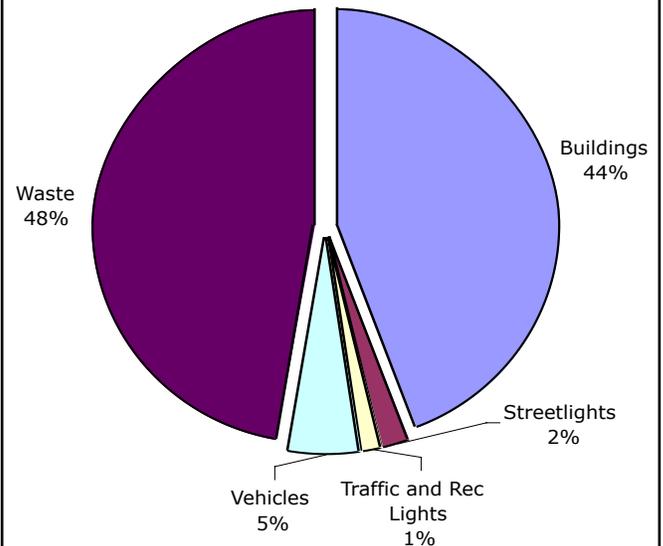
### COMMUNITY GHG EMISSIONS BY SECTOR

The majority of emissions are produced from transportation, households, and businesses, with municipal emissions making up a smaller, but meaningful, portion.



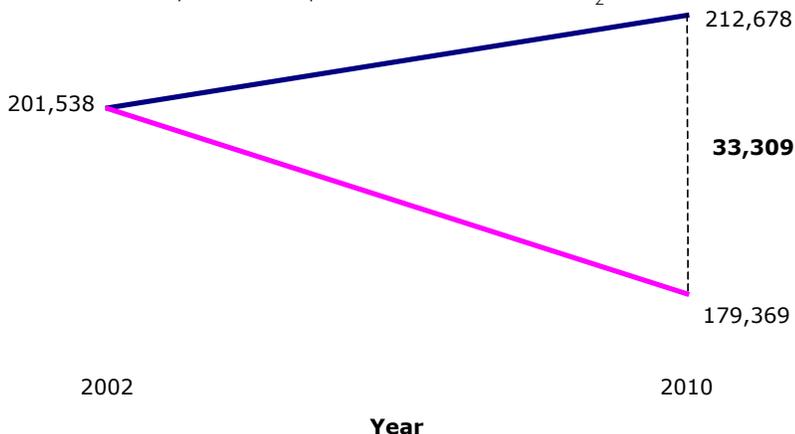
### MUNICIPAL GHG EMISSIONS BY SECTOR

The vast majority of municipal greenhouse gas emissions come from energy consumed by buildings and waste generation, while vehicle emissions also play a large role.



### BUSINESS AS USUAL VS. 11% REDUCTION TARGET

Worcester would need to reduce the forecasted "Business as Usual" 2010 emissions by 15.7% to meet a target of an 11% reduction of 2002 emission levels by 2010. Reported in tons of eCO<sub>2</sub>.



group. The mission of the ETF was to create a step-by-step plan to reduce energy consumption, reduce greenhouse gas emissions and increase the use of clean, renewable energy in a cost-effective manner in the city of Worcester.

This Climate Action Plan helps Worcester complete CCP's Step 3, but its purpose reaches beyond CCP. First, it also helps Worcester to be less wasteful in its energy use, thus saving money and making better use

of taxpayers' dollars. Second, the plan helps to attain the 20% renewable electricity goal adopted by the City Council in March 2005 and support the generation of clean, renewable sources of energy, thus contributing to a more reliable, safe, and secure energy supply.

CCP Step 1, Worcester's greenhouse gas emissions inventory, was originally completed in April 2004 by Carissa Williams, Worcester's Energy Consultant, as part of her master's degree work at Clark University. The purpose is to show where greenhouse gas emissions originate and thus where reduction may be made.

A municipal reduction target, the second step of CCP, of **11% below 2002 GHG emission levels by 2010** is being proposed along with submission of the Climate Action Plan to the Worcester City Council. Within this plan, the Energy Task Force proposes various actions that the City may take to reduce their greenhouse gas emissions. These measures range from increasing energy and fuel efficiency to using renewable energy sources and reducing waste. Implementation of all measures in this plan would lead to a municipal GHG reduction of approximately 43%, well over the 11% 2010 target. The majority of these emission reductions would result from reducing waste at schools, increasing residential curbside recycling, and capturing methane from the Greenwood Street landfill. Capturing methane from the landfill and turning it into energy also has the potential to produce almost 45% of the entire municipal electricity needs (including the UBWPAD sewage treatment plant) as a clean, renewable resource.

CPP Steps 4 and 5 involve implementing and monitoring the actions proposed in this plan. To effectively accomplish this, the Energy Task Force should evolve into an advisory committee and include more members from the local business community as well as more university and residential representatives. As the Energy Consultant's grant-funded position will be ending this month, the City should hire a full-time Energy Manager (EEM) who, with the help of the ETF, would be responsible for overseeing plan implementation, helping to find sources of funding, creating new reduction targets, and enlisting citizen support. The Energy Manager could also complete an annual GHG emissions inventory to monitor energy use and the effects of emission reduction actions, as well as author an annual progress report on the status of measures that have been implemented and measures planned for the next year.

The effort to stabilize man-made greenhouse gases in the atmosphere will require a long-term commitment. The emission reduction goals that are currently being set on local, national and international levels are the starting point for an unprecedented global effort to lessen the potentially devastating impacts of an environmental problem that can affect every person on this planet. The City of Worcester has begun to take steps to protect itself and its citizens from climate change and rising energy prices by passing the Cities for Climate Protection Resolution, creating an Energy Task Force, and, most recently, becoming a member of ICLEI. The most important next steps for Worcester include hiring a full time Energy Manager, implementing cost-effective emission reduction measures, and creating a modern GHG emissions database. Creative ideas and solutions are always welcome.

# Summary of Key Proposed Reduction Measures

Measure	Estimated Implementation Cost	Est. tons eCO <sub>2</sub> Reduced Annually	Est. Annual \$ Savings	Payback Period	Estimated Fuel Saved/yr	Page #
<b>Energy Efficiency</b>						
Upgrade 200 Exit Signs From Incandescent Lights to LEDs	\$3,000	23	\$7,972	< 5 months	61,320 kWh	52
<b>Co-Benefits:</b> Reduces 243 lbs/yr of criteria air pollutants. Longer life of LEDs reduces maintenance costs.						
Upgrade to More Efficient Lights in the Pearl/Elm Garage	\$44,280	89	\$31,387	1.4 years	241,440 kWh	54
<b>Co-Benefits:</b> Reduces 957 lbs/yr of criteria air pollutants. Longer life of fluorescents reduces maintenance costs. Better light quality.						
Change-A-Light Campaign	\$190,527 (\$3/household)	2,424	\$1,042,376 (\$16.41/home)	2 years	6,541,427 kWh	55
<b>Co-Benefits:</b> Reduces 25,925 lbs. of criteria air pollutants. Educates the community on energy use and shows the City's dedication.						
<b>Renewable Energy</b>						
Promote Clean Energy Choice	To be determined	16,455	\$324,124	Unknown	44,400,605 kWh	63
<b>Co-Benefits:</b> Provides funding for municipal clean energy projects. Reduces criteria air pollutants by 175,971 lbs/yr. Educates the community on renewable energy and the City's dedication to the future of its residents.						
Purchase RECs	\$25,000	309	0	0 (immediate)	833MWh offset	67
<b>Co-Benefits:</b> City recovers all cost from MTC. Reduces 3,301 lbs. of criteria air pollutants. Helps reach 20% by 2010 goal.						
Install Hydro Power at the Water Filtration Plant	\$300,000	292	\$63,072	4.8 years	788,400 kWh	70
<b>Co-Benefits:</b> Reduces 3,125 lbs. of criteria air pollutants. Helps reach the municipal goal of 20% by 2010. Reduces electrical demand.						
Solar Heat at Schools	\$2,788	1	\$341	8.2 years	217 therms	72
<b>Co-Benefits:</b> Reduces 5 lbs./yr of criteria air pollutants.						
Solar Hot Water at the Water Filtration Plant	\$24,000	7	\$1,456	16.5 years	18,194 kWh	74
<b>Co-Benefits:</b> Reduces 72 lbs. of criteria air pollutants. Helps to reach the municipal goal of 20% renewable electricity by 2010.						
Install a Wind Turbine at Crow Hill (site of the new North High)	\$1,000,000 (\$500,000 w/funding)	148	\$52,000	19.2 years (9.6 w/funding)	400,000 kWh	75
<b>Co-Benefits:</b> Reduces 1,584 lbs. of criteria air pollutants. Helps to reach the municipal goal of 20% renewable electricity by 2010. Provides an educational resource for students and the community. Potential partnership with the Ecotarium.						
Solar Power at Vocational School	\$8,000	1	\$390	20.5	3,000 kWh	77

## Summary of Key Proposed Reduction Measures (cont'd)

Measure	Estimated Implementation Cost	Est. tons eCO <sub>2</sub> Reduced Annually	Est. Annual \$ Savings	Payback Period	Estimated Fuel Saved/yr	Page #
<b>Vehicle Fleet and Transportation</b>						
Enable 5-minute Shut-off in Trucks	\$0	671	\$130,150	0 (Immediate)	63,180 gallons	83
<b>Co-Benefits:</b> Reduction of 16,748 lbs/yr of criteria air pollutants. Less headaches and health problems for vehicle operators.						
Increase Fuel Efficiency of Gasoline Vehicle Fleet	Variable	224	\$36,738	Unknown	21,739 gallons	85
<b>Co-Benefits:</b>						
B-20 Pilot at Hope Cemetery	To be determined	4	-\$1,218	NA	1,965 gallons	90
<b>Co-Benefits:</b> Cost may be less from a different supplier or with credits applied. Less headaches and health problems for vehicle operators.						
Increase Employee Carpooling	To be determined	4,742	\$1,063,920 (for employees)	NA	443,471 gallons	94
<b>Co-Benefits:</b> Reduction of 1,375,158 lb/yr of criteria air pollutants, including a large reduction in ground level ozone creating pollutants. Lower percentage of employee paycheck being spent on traveling to work. Opportunity to lead by example for other businesses in Worcester.						
<b>Waste</b>						
Encourage Recycling at Apartment Complexes	To be determined	12,048	Unknown	Unknown	3,393 tons trash	103
<b>Co-Benefits:</b> Prevents emissions from incineration. Reduces energy needed for new products. Educates the community on waste and energy.						
Increase Residential Recycling Rate	To be determined	30,407	\$312,776	Unknown	8,565 tons trash	106
<b>Co-Benefits:</b> Prevents emissions from incineration. Reduces energy needed for new products. Educates the community on waste and energy.						
Implement Recycling at Schools	To be determined	14,813	\$152,376	Unknown	4,172 tons trash	107
<b>Co-Benefits:</b> Provides an opportunity to teach students about the importance of recycling and sustainable living.						
<b>Energy Manager</b>						
<b>Hire a Full-time Energy Manager</b>	<b>\$70,000**</b>	<b>346,989*</b>	<b>\$1,111,564*</b>	<b>Unknown</b>	<b>NA</b>	<b>46</b>
<b>Co-Benefits:</b> Provides the opportunity to designate the City as a leader on issues of the environment, energy and sustainability.						

\* Represents the potential municipal cost and pollution savings of the proposed reduction measures that the Energy Manager would assume responsibility for. \*\*Includes benefits.

# Proposed Next Steps for Key Measures

## **1. HIRE A FULL-TIME ENERGY MANAGER**

A full-time Energy Manager is needed to continue as the guiding force of the Climate Action Plan. This individual would be responsible for overseeing the implementation of the Plan, ensuring that proper plans are developed before implementing reduction measures, updating the emissions inventory, and writing progress reports. The Energy Manager would serve as a unifying entity among the fragmented municipal departments regarding energy use, planning, budgeting, supply, and load aggregation and would serve as a gatekeeper for all municipal energy use data.

**Want more info? See page 46.**

## **2. Install a 100KW Hydro-Power Turbine at the Water Filtration Plant**

The water filtration plant has a rare opportunity to be a highly productive renewable electricity generation source because of the nearly constant flow of water. Installing hydro-power could produce a significant amount of the electricity consumed by the water treatment facility.

### **Next Steps:**

- Bring in a small hydro-power professional to do a site and cost assessment.
- Determine the amount of money the City has available for this project and if further funding sources are needed.
- Communicate with MTC on how to proceed to ensure funding.

**Want more info? See page 70.**

## **3. DEVELOP A PLAN FOR INSTALLING A 250KW WIND TURBINE AT THE NEW NORTH HIGH**

The majority of renewable electricity produced in the U.S. comes from wind power. Installing a turbine in Worcester benefits the City by reducing GHG emissions, helping to meet the clean electricity goal, saving money on electricity costs, providing an educational tool, and providing a publicity tool for demonstrating leadership in energy.

### **Next Steps:**

- Allow city employees and residents to make suggestions on potential wind sites.
- Suggestions can be reviewed by the Energy Manager and ETF and she/he can create a list of potential sites to be assessed along with a document with all of the suggestions and the pros/cons of each.
- Develop and adopt appropriate zoning ordinance to regulate wind power.
- Develop a partnership with the EcoTarium.
- Bring in a wind installer to assess the Crow Hill site and (maybe) other potential sites.
- Determine the amount of municipal money available to implement a wind installation.
- Contact MTC to determine best way to proceed.

**Want more info? See page 75.**

## **4. ENABLE 5-MINUTE SHUT-OFF IN MUNICIPAL TRUCKS**

Medium to heavy duty trucks in the City's vehicle fleet have the ability to be programmed to turn-off after a period of idling. A diesel vehicle idling for one hour each day wastes 500 gallons of fuel and is equivalent in engine wear to driving an additional 64,000 miles.

### **Next Steps:**

- Put a plan in place for enabling the shut-off, determining who will be responsible and by when the switch should be complete.
- Do It!
- Be sure to enable shut-off on all new vehicles.

**Want more info? See page 83.**

## **5. MUNICIPAL ANTI-IDLING POLICY**

It is a Massachusetts law that no vehicle (unless under certain circumstances) can idle for longer than five minutes. The City should pass a supporting policy and bring awareness of this law and the harmful effects of idling to Worcester's residents.

### **Next Steps:**

- Collaborate with WPS to identify key pickup areas and determine how many signs are needed.
- Estimate cost of printing and installation.
- Apply for grant funding if needed.
- Reduce idling - print signs, install and educate!

**Want more info? See page 84.**

## **6. POST ANTI-IDLING SIGNS AT SCHOOLS**

Schools are some of the worst places for vehicle exhaust. Parents who pick-up students often idle for 10-15 minutes. The City can cost-effectively post anti-idling signs to remind people that running their cars is polluting their children's air, not to mention wasting their gas and money.

**Want more info? See page 84.**

## **7. POTENTIAL ELECTRICITY GENERATION FROM METHANE AT GREENWOOD STREET LANDFILL**

Capturing the methane from the Greenwood Street Landfill and burning it to produce electricity has the potential to produce 45% of the municipal electricity needs from a clean, renewable resource and to reduce municipal GHG emissions by 30%.

### **Next Steps:**

- Continue to monitor test well.
- Install more test wells.
- Contact the proper companies for site assessments and cost estimates.
- Conduct neighborhood meetings for input.

**Want more info? See page 81.**

## **8. PROMOTE CLEAN ENERGY CHOICE®**

Clean Energy Choice® is a program sponsored by the Massachusetts Technology Collaborative. Residents of Worcester participate by paying a small additional fee on their electric bills for renewable electricity. Their premium is matched by MTC is put into a Clean Energy Fund for the City to be used for renewable energy projects.

### **Next Steps:**

- Create a goal for the number of sign ups.
- Create partnerships.
- Determine a plan for outreach.
- Issue a challenge to City employees.
- Secure outreach funding if needed.

**Want more info? See page 63.**

## **9. CREATE A CLEAN ENERGY CHOICE® COMPETITION BETWEEN SCHOOLS**

Reaching out to students is one of the most effective tactics for disseminating information. Not only are you teaching children at a young age, they often in turn relay that information to parents. The City and School Department should organize a Clean Energy Choice® competition within Worcester Public Schools to encourage increased participation. The school with the highest percentage of forms (or maybe a certain number by a certain date) returned and successfully processed would win an award and prize. This also could be incorporated into the science curriculum on renewable energy.

**Want more info? See page 116.**

## **10. RENEWABLE ENERGY AND ENERGY EFFICIENCY CURRICULUM DEVELOPMENT**

It is important to educate students about energy issues. The Massachusetts Technology Collaborative offers a guide to incorporating lessons plans about energy resources and climate change into the MA science curriculum frameworks. They offer free curriculum materials on their website [www.masstech.org/cleanenergy/curriculum/about.htm](http://www.masstech.org/cleanenergy/curriculum/about.htm). There are also many locally held professional development workshops on the topic of teaching about energy.

**Want more info? See page 116.**

## **11. CREATE AN ENERGY THEME FOR THE ANNUAL SCHOOL PROJECTS FAIR**

Every May WPS hold a joint Projects Fair. The Energy Task Force proposes that the theme of the 2007 fair be renewable energy and energy efficiency.

**Want more info? See page 117.**

## **12. PURCHASE \$25,000 WORTH OF RENEWABLE ENERGY CERTIFICATES (RECs)**

The City has passed a resolution to purchase or produce 20% of the electricity used for municipal buildings and lighting from clean, renewable sources by 2010. One risk-free way of helping to meet this goal is by purchasing what are called Renewable Energy Certificates (RECs). The purchase of RECs will also be matched by MTC and put into Worcester's Clean Energy Fund.

### **Next Steps:**

- Set a Clean Energy Budget of at least \$25,000 / year
- Work with MTC to expand the \$20,000 match to \$25,000
- Set up an agreement with Mass Energy
- Publicize this action to help market Worcester as the "Green heart of the Commonwealth"

**Want more info? See page 67.**

## **13. UPGRADE 200 EXIT SIGNS FROM INCANDESCENT LIGHTS TO LEDs**

LED lighting is vastly more efficient than the traditional incandescent lighting, saving energy, time, money, and preventing GHG emissions. This action will pay for itself within months.

### **Next Steps:**

- Determine the number of municipal exit signs and current lighting type of each sign.
- Work with NGrid to retrofit all incandescent signs and to determine the cost effectiveness of upgrading other types of exit sign lights (i.e. fluorescents).
- Implement a policy to ensure that future municipal exit signs are the most efficient lighting available

**Want more info? See page 52.**

## **14. INCREASE THE EFFICIENCY OF LIGHTING IN THE PEARL/ELM GARAGE**

Parking garages have high lighting and energy requirements because of the amount of time and space that it needs to be lit. Increase the efficiency of the lights can save money, electricity, and prevent GHG emissions. Additionally,

National Grid offers a rebate for upgrading parking garage lighting.

**Next Steps:**

- Have NGrid conduct an energy audit and efficiency assessment of the Pearl/Elm Garage.
- Implement NGrid's lighting energy efficiency recommendations.

**Want more info? See page 54.**

**15. IMPLEMENT A CHANGE-A-LIGHT CAMPAIGN: ENCOURAGE RESIDENTS TO USE CFL BULBS**

If every household in Worcester changed one bulb, it would amount to an energy savings of 6.54 mega-watt hours and a cost savings of over 1 million dollars annually. Other cities have implemented similar campaign, and Worcester has a good opportunity to partner with local resellers, Spags/Building 19 and Bulbs.com, to promote this action.

**Next Steps:**

- Determine the time line, goals, and partners in the Change-A-Light educational campaign.
- Seek out necessary funding.
- Implement the campaign and save energy.

**Want more info? See page 55.**

**16. DEVELOP AN ENERGY MANAGEMENT SYSTEM USING ENERGY STAR'S PORTFOLIO MANAGER**

An Energy Management System is important to the tracking of individual building's energy use, audits, and upgrades. Knowing the energy profile of individual buildings can save the City money and energy, and can essentially pay for itself after one to two years.

**Next Steps:**

- Input buildings data into Energy Star's Portfolio Manager online.
- Work with National Grid to set up Energy Audits and to document upgrade recommendations.
- Prioritize upgrades based on capital costs, cost savings, and energy/resource savings.
- Implement upgrades, documenting completed actions, and continue to track buildings energy and water consumption as well as energy audits and upgrade history.

**Want more info? See page 49.**

**17. PASS A MUNICIPAL ENERGY EFFICIENCY PURCHASING POLICY**

A municipal Energy Efficiency Purchasing Policy means that when new appliances, lighting, and temperature control systems are purchased, their energy use and life-cycle costs are taken into account. This will ensure that new items have the greatest energy efficiency for their intended use, which will save the City money and reduce emissions.

**Want more info? See page 58.**

**18. PASS A MUNICIPAL GREEN BUILDING POLICY**

Green building means building in a way that reduces energy use, water consumption, sprawl, and indoor air pollutants. A municipal Green Building Policy means that the all new municipal buildings and major renovations would be required to meet LEED Silver standards unless the DPW & P, Architectural Services Division first makes a finding such certification is inappropriate. A draft Green Building Policy, based on the City of Arlington's policy, can be found in Appendix A.

**Want more info? See page 59.**

**19. 2KW OF SOLAR ELECTRICITY PANELS AT THE NEW VOCATIONAL SCHOOL**

Solar electric panels (aka PV), while not the most cost effective technology, can provide a wonderful educational opportunity for residents and students. This is particularly important for a vocational school where students are

being trained in up and coming technologies.

**Next Steps:**

- Determine the amount of money the City has available.
- Bring in a solar expert for a site, power and cost assessment.
- Contract with solar installer and determine from whom to purchase the solar panels.
- Ensure solar panels will be electronically monitored for production.
- Apply for MTC funding.

**Want more info? See page 77.**

**20. LOOK INTO SOLAR HEATING, HOT WATER, AND ELECTRICITY AT SCHOOLS AND OTHER BUILDINGS**

Solar technologies, such as air and water heating, can save the City energy, money, and reduce GHG emissions. They are often easy to install and maintain and can be used as an educational tool as well.

**Next Steps:**

- Bring in a solar expert to assess several predetermined Worcester public schools for solar heating, water, and electric feasibility.
- Other municipal buildings may also be considered for solar heating, hot water, and/or electricity, including the **water filtration plant, the airport, and UBWPAD.**
- Determine amount of money available or an acceptable payback period.
- Seek out funding sources if needed.
- In new construction, assess the use of active and passive solar heating in the design stage.

**Want more info? See pages 72-74, 79.**

**21. BIODIESEL (B-20) PILOT PROGRAM AT HOPE CEMETERY**

The use and production of biodiesel has been increasing exponentially over the past 5 years and the growth is anticipated to continue. Many local governments in New England and throughout the country have begun to use biodiesel in their diesel vehicles. Biodiesel is made from vegetable oil and reduces pollution and GHG emissions.

**Next Steps:**

- Educate Hope Cemetery fleet director on the proper process of switching to B-20.
- Determine if a separate RFP is needed to purchase B-20 in the short term.
- Include B-20 specifications in the next RFP for vehicle fuel.
- Look into aggregating demand with other local communities.

**Want more info? See page 90.**

**22. INCREASE FUEL EFFICIENCY OF VEHICLE FLEET BY PURCHASING VEHICLES W/ A HIGHER MPG RATING**

Often times inefficient vehicles are purchased for the municipal fleet when there is no need. A Fuel Efficient Vehicle Policy should be developed and passed stating that the most fuel efficient vehicle will be purchased in the class required to perform the needed tasks.

**Next Steps:**

- Pass a Fuel-Efficient Vehicle Purchasing Policy. (See Appendix A for a sample policy)
- Purchase and install a modern vehicle fleet software that can properly track mileage and fuel use.
- Develop a method for determining life cycle costs of new vehicles, and determine the increase in initial cost (if any) the City is willing to pay for more efficient vehicles.

**Want more info? See pages 85-89.**

### **23. INCREASE EMPLOYEE CARPOOLING**

Transportation accounts for about a third of GHG emissions in Worcester and in the state. Driving to work contributes significantly to this, and the City should be encouraging municipal employees to carpool, telecommute, take public transportation, bike, or walk to work.

#### **Next Steps:**

- Create an electronic survey for employees to fill out about their daily commute (samples can be found at MA DEP, ICLEI, and BWC). This will help to determine where reductions attempts should be made and to measure the results of education in changing commuter patterns.
- Create an online carpool message board for city employees so that workers coming from the same areas may easily link up.
- City Manager should send out an email to employees requesting that they complete the survey, announcing the creation of the carpool e-board, and encouraging employees to carpool - highlighting the benefits.

**Want more info? See page 94.**

### **24. OFFER EMPLOYEE TELECOMMUTING**

#### **Next Steps:**

- The feasibility of telecommuting will have to be determined by individual department heads.
- If it is feasible, they will have to decide on the number of telecommuting days that are appropriate.
- Once these two steps are completed, employees must be educated about this option (aka benefit).

**Want more info? See page 96.**

### **25. INCREASE EMPLOYEE COMMUTERS TRAVELING BY PUBLIC TRANSPORT/BIKING/WALKING**

#### **Next Steps:**

- Determine feasibility of various incentives.
- Create partnerships with WRTA and MBTA.
- Educate employees.
- Report on successes, obstacles, and solutions.

**Want more info? See page 97.**

### **26. PROMOTE AN EMPLOYEE TAKE PUBLIC TRANSPORTATION, BIKE, OR WALK TO WORK WEEK**

Once a year some City officials take part in an Elected Officials take public transportation to work day. The City should expand on this idea to promote a week of taking public transportation, biking, or walking to work. Incentives could be offered by department heads for City employees, and the City could also issue a challenge to all businesses and employees who work in Worcester.

**Want more info? See page 118.**

### **27. RECYCLE AT SCHOOLS**

Implementing a recycling program in schools can save the City hundreds of thousands of dollars each year by reducing waste disposal fees. This would also significantly reduce GHG emissions and could serve as an example to other communities. Additionally, recycling in schools would teach Worcester's youth about recycling, making them more likely to recycle at home.

#### **Next Steps:**

- Determine equipment and resources needed to implement a recycling program.
- Decide which products will be recycled.
- Draft an implementation plan.

- Create a plan to get students excited.
- Begin recycling and record the amount of recyclables and trash.

**Want more info? See page 107.**

### **28. INCREASE RESIDENTIAL RECYCLING RATE FROM 27 PERCENT TO 50 PERCENT**

Since Worcester began its curb-side recycling program in 1994, recycling rates have decreased from 36.5% of waste in 1994 to 26.6% of waste in 2005. The City has a lot to gain by encouraging residents to recycle, such as reducing a significant amount of GHG emissions and saving a substantial amount of money.

#### **Next Steps:**

- Educate residents on how to make it easy to recycle (i.e. put a small bin for recyclables next to every trash bin in the house).
- Recycle at schools.

**Want more info? See page 106.**

### **29. MUNICIPAL OFFICE RECYCLING PILOT AT 44 FRONT STREET**

Some municipal offices are in privately owned buildings, such as the Planning, Department, Grants Acquisition, and Workforce Development, which are all at 44 Front Street. There is no recycling in this building, so building occupants must either throw everything in the trash and recycle it themselves. The City should set up a pilot recycling program at 44 Front Street for the municipal offices there. This will serve as an example and case study for other businesses in Worcester that are in a similar situation.

**Want more info? See page 108.**

### **30. INSTALL RECYCLE BINS AT CITY HALL AND DOWNTOWN**

To show the City's commitment to recycling, recycling containers should be installed next to trash cans inside of City Hall and in the outdoor downtown area. This will show people walking through downtown that Worcester cares about protecting the environment where they live and work. It may also motivate people to recycle in their own homes, knowing that their local government is putting in the effort to do so.

**Want more info? See page 108.**

### **31. ENSURE THAT RECYCLING CONTAINERS ARE VISIBLE AT EVERY MUNICIPAL EVENT**

Similar to placing recycling containers in City Hall and downtown, is the idea of providing the opportunity for people to recycle at City-sponsored events. This provides a leadership example for residents and lets them know that their city places importance on recycling. In 2005, the City received a DEP grant that provided event-type recycling containers that have been used at City-sponsored events at various parks. It is important to have these recycling containers visible at every City event without exception.

**Want more info? See page 108.**

### **32. ENHANCE THE MUNICIPAL BUY RECYCLED POLICY**

The City currently has a "Buy Recycled" policy that goes out with all of its RFPs. This policy states that preference should be given to products containing recycled materials provided that the cost does not exceed 10% more than the cost of the same "new" product. However, Purchasing Director John Orrell states that he "can think of no bidder that has ever taken advantage of it". The City should enhance this current policy to make it more prominent, perhaps requiring the proposal of products that use recycled materials and those that do not, particularly with products like paper. Having a strong "buy recycled" policy supports the demand for recycling.

**Want more info? See page 108.**

### **33. PROTECT OPEN SPACE, SUPPORT COMMUNITY GARDENS, AND PLANT MORE TREES**

Increasing the “green” in a City has many benefits: 1) Trees help to shade buildings and block winds, thus reducing the need for heating and cooling; 2) Vegetation filters air of harmful pollutants and takes up CO<sub>2</sub>; 3) Greenery helps to mitigate the Urban Heat Island effect; and 4) Studies have shown that green environments help kids concentrate, increase girls’ confidence, reduce violence and crime, and increase neighborliness.

***Want more info? See pages 109-114.***

### **34. MAINTAIN ENERGY AND CLIMATE INFORMATION ON THE CITY WEBSITE**

Having clear information online is vital. The City’s website is its face to the world, and information should be kept up to date and useful. In September 2006, Energy Task Force web pages were posted to the City’s website containing information about climate change, the mission of the ETF, and how residents can be a part of the solution. As GHG reduction measures are implemented, these actions should be publicized on these web pages.

***Want more info? See page 115.***

### **35. HOLD AN ENERGY FAIR**

This should be a highly informative and fun event that includes many community partners, vendors, and representatives. The main focus of the event should be to engage the entire community in learning about the City’s GHG emission reduction initiative and ways for individuals and businesses to take an active role in helping to meet Worcester’s GHG reduction goals. The fair would provide information about businesses, professional firms, organizations, and individuals offering sustainable energy products and services to Worcester residents and businesses and could be held on the City Common. Examples of vendors include green-building contractors, solar specialists, architects, energy conservation specialists, energy star representatives, clean energy suppliers, business consultants, environmental educators, and many other useful resources.

***Want more info? See page 118.***

### **36. COLLABORATE WITH LOCAL UNIVERSITIES AND PARTNER WITH LOCAL ORGANIZATIONS**

It is important for the City to partner with local organizations and universities for several reasons. 1) Combine efforts, many organizations are working on the same energy and climate change issues. 2) Make use of local resources, students are interested doing work on climate change and renewable energy. 3) Connect with the community, by collaborating with others, the City is reaching out into the community and creating a more unified approach to energy and climate change education.

***Want more info? See page 117.***

### **37. PARTICIPATE IN THE ANNUAL EARTH DAY FAIR**

Every year the City of Worcester partners with the Regional Environmental Council to sponsor the city-wide Earth Day clean-ups. The REC also sponsors an Earth Day Fair around the same time. Last year the REC partnered with the EcoTarium to put on a larger event. The City should participate in the annual Earth Day fair and distribute information about the Climate Action Plan, Worcester’s energy goals and actions, and other environmental initiatives, such as the mercury take-back campaign, curb-side recycling, and hazardous waste collection. By having a presence and distributing brochures at the Earth Day Fair, the City can help residents to understand how they can take an active role in lowering their own energy emissions output.

***Want more info? See page 118.***