

Appendix
What do Climate Action Plans say that is relevant to Chevy Chase?
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1 May 2008

Background

The Town of Chevy Chase is in the process of finishing its greenhouse gas assessment and preparing a climate action plan to fulfill the commitment we made when we signed the U.S. Mayors' Agreement on Climate Protection in 2006. As of April 25, 2008, 839 mayors representing close to 80 million U.S. citizens in 50 states have signed the agreement. Signing the agreement commits the signatory to reduce its greenhouse gas emissions (GHG) at least as much as the Kyoto Protocol (ratified in Feb. 2005) would have done (7% below 1990 by 2012). The Town can set its own goals and deadline, however. ICLEI (International Council for Local Environmental Initiatives) is the body that supervises and supports compliance with the Agreement and the Town is a member of ICLEI. Membership commits us to a five stage process to achieve reductions in GHG emissions:

1. Carry out a greenhouse gas assessment
2. Set goals for reducing greenhouse gases
3. Establish a Climate Action Plan (CAP) to achieve those goals
4. Implement the CAP
5. Monitor and report on progress

A climate action plan is a medium term (5-10 years) strategy for reducing greenhouse gas emissions. It defines actions, estimates CO₂ reductions, and (usually) calculates the cost of the actions. Most available CAPs were developed for ICLEI's Cities for Climate Protection or the US Mayors' Agreement on Climate Protection.

This is a summary of a number of Climate Action Plans available over the internet, with special attention to those components that relate most to the Town of Chevy Chase. Although only the smallest jurisdictions available were selected, most towns and cities are considerably large than Chevy Chase's and have larger governments. While there are undoubtedly creative ideas in other CAPs (either not found or not reviewed) the strategies and tactics in the fourteen CAPs reviewed converged on a core set of activities. For the sake of time and brevity, the author did not review others. If any reader has found interesting and relevant new programs elsewhere, we would welcome the input (townoffice@townofchevyCHASE.org). The findings from the CAPs are presented in condensed bulletized form below. If the reader wishes more detail, you should visit the document posted on the website provided.

Format of Climate Action Plans

Most CAPs have a standard format. First they review the greenhouse gas assessment, including some projection back to an earlier date (usually 1990) and forward to a later date (usually 2010 or 2020). The GHG assessment is generally divided into a "corporate" section (that looks at municipal operations) separately from the "community" section (that includes

commercial, residential, industrial, solid waste disposal, transportation, and land use/trees). They usually disaggregate GHG by source (electricity, gasoline, natural gas, etc.) and by end use or sector (commercial, residential, etc.). Generally the climate action plan itself is divided into separate substrategies for the government of the jurisdiction, industry, commercial, power, and residential sectors.

CAPs were examined only for the smallest jurisdictions available (except for Seattle, which is seen as a model). Nonetheless there were none as small as Chevy Chase. The characteristics of the cities and towns are shown in Table 1 and the gross parameters of their climate action plans are shown in Table 2. Detailed summaries of the salient points of the CAPs are presented in the appendix.

How CAPs should be strengthened.

Many of the CAPs reviewed have very modest CO₂ reduction goals that would, it seem, not even achieve Kyoto goals, much less achieve the quicker and deeper CO₂ reductions that are now considered necessary to avert a climate catastrophe¹. The plans also anticipate quantum jumps in CO₂ reductions to achieve 2020 and 2050 goals without any clue about how the dramatic improvements will be achieved.

In addition, the CAPs do not capture all CO₂ emissions. They do not, for instance, include air travel (into or out of a city). When Aspen, Colorado calculated its air travel, it constituted almost half of total transport which itself constitutes two-thirds of Aspen's CO₂ emissions. Aspen is a relatively small city with a large amount of private and commercial air traffic for tourism and so is a special case. Nonetheless, air travel should be included in assessments where relevant. In addition, no city included the energy costs of consumer goods in their calculations except to the extent that they are reflected in solid waste. Carbon dioxide is emitted in the extraction of resources, production, and transport of all goods and those who consume more goods will be causing emissions of more CO₂. Perhaps these emissions will be captured by other cities or by state CAPs but the aggregate of city CAPs is clearly missing a lot of emissions. This suggests that GHG reductions goals need to be even stronger rather than weaker than Kyoto. Future GHG assessments, including that of Chevy Chase, should include acknowledgement of off-the-books carbon emissions and consider reducing them in CAPs.

Some of the strategies featured in the CAPs are no longer considered to have the emissions payoffs promised. The use of biofuels, for instance, and green tags are now less certain to reduce greenhouse gas emissions. Aspen and some other towns acknowledged the issues with renewable energy credits and set up its own local offset program, for instance.

There are several approaches to climate protection that do not involve greenhouse gas emissions that were rarely quantified in the CAPs. These include increasing reflectivity and reducing heat islands, conserving water, and enhancing urban forest (the CO₂ absorption of which is only part of its climate benefit). Black roads and roofs absorb heat rather than reflecting it. This increases local and possibly global warming. Use of light colored materials would reduce heat absorption. Water use affect global warming both because of the energy required to

¹ Heat by George Montbiot (2007)

process sewage, purify water, and pump it. On the other hand, global warming will make water supplies more reliable through rain patterns and changes in temperature. In the Chevy Chase region, excessive runoff as well as global warming threaten the health of the Potomac River and Chesapeake Bay which are critical to the economy, recreation, and aesthetics of the region.

Maryland State (CAP being developed): <http://www.mdclimatechange.us>

Sources of emissions: 38% transportation, 38% electricity generation, 9% residential, 9% industrial, 6% commercial.

Between 1990 and 2004 CO₂ emissions in MD increased by 11.1 million mtCO₂e by 2020 or 16%. US avg. during same period 18% increase.

Electricity CO₂ increased by 17%, transportation increased by 31% overall (17% per capita), industrial declined by 35%, household natural gas grew by 29% for home heating and household consumption of electricity increased by 46%, commercial building electricity grew by 57% (1990-2004 figures, from A Blueprint for Action, June 2007, Environment MD Research and Policy Center).

MD Global Warming Goal: 25% reduction below 2006 levels by 2020 and 90% reduction by 2050.

State Strategy:

- Cap and Trade program within Northeast Regional Greenhouse Gas Initiative.
- Energy Efficiency Performance Standards,
- Energy Investment Fund,
- change building code (LEED as model),
- improved lighting efficiency standards,
- tax inefficient vehicles,
- strengthen renewable portfolio standards for power companies (% energy from renewables),
- reduce state government carbon footprint (renewable energy, Energy Star purchase requirement, expand community energy loan program, energy efficient buildings, create office on climate change),
- Climate change awareness and energy efficiency education for MD residents,
- climate in school curricula,
- enhanced carbon sequestration in forests (built into carbon trading program),
- “pay as you drive” insurance option (rates lower the less you drive)
- excise tax low mileage new cars at higher rate

Environment MD proposals for state:

Already in existence:

- Regional greenhouse gas initiative (4.6 million mtCO₂e by 2020)
- Clean cars program (3.5 million mtCO₂e by 2020)

- Renewable electricity standard (0.8 million mtCO₂e by 2020)
- Appliance efficiency standards (0.4 million mtCO₂e by 2020)

Future recommendations:

- Strengthen renewable energy standard (4.8 million mtCO₂e by 2020)
- Adopt a low-carbon fuel standard (3.7 million mtCO₂e by 2020)
- Reduce growth in vehicle travel through smart growth and expanded transportation choices (3.3 million mtCO₂e by 2020)
- Establish energy efficiency programs (3.1 million mtCO₂e by 2020)
- Expand use of combined heat and power (2.6 million mtCO₂e by 2020)
- Government “lead by example” (2.0 million mtCO₂e by 2020)
- Strengthen residential and commercial building energy codes (1.3 million mtCO₂e by 2020)
- Reduce the number of automobile commutes (0.7 million mtCO₂e by 2020)
- Require energy saving tires (0.6 million mtCO₂e by 2020)

Total reduction in GHG below 2006 by 2020: 23% (29.8 million mtCO₂e by 2020) (which will bring us just below 2000 levels!)

Montgomery County (2004 plan being revised): <http://local-warming.blogspot.com/2007/04/montgomery-county-md-re-climate-change.html>

Montgomery County Goal: reduce emissions by 80% by 2050.

Strategy:

- Increase renewables to 20% total energy purchased by 2010,
- Clean Energy Rewards to incentivize residential energy purchasers to buy renewables,
- LEED Silver or equivalent in all new county funded facilities over 10,000 sq. ft.,
- LEED certified or equivalent for all new non-residential or multifamily construction,
- bus fleet, many of which use alternative fuels.

Berliner’s proposals for county:

- Require new home construction to meet EPA energy star standards
- Require the sale of low carbon gasoline at retail stations County-wide (when available)
- Increase fuel economy standards and use of biofuels for County vehicle fleet
- Elimination (or justification for use) of SUVs in the County fleet
- Development of a Renewable Energy Action Plan, including exploration of creating a Sustainable Energy Fund
- Provide property tax credits for solar and geothermal energy uses Include climate change as factor in drafting of County Planning Board's master and sector plans
- Create a new Office of Ratepayer Advocate to advocate for the lowest energy rates consistent with environmental stewardship
- Request recommendations from the Executive regarding conversion of the current energy tax into a carbon tax and joining an emissions "cap and trade" program

Takoma Park, MD. Local Action Plan for Reducing Greenhouse Gas Emissions, Feb. 2000. <http://www.takomapark.info/library/reference/environment/greenhouse.pdf>

700 business and non-profits.
Historic preservation district.

9800 automobiles, 148 million miles (119,341 tons CO₂) per year (excluding commuting to other parts of DC area).

Current emissions 347,679 tons (14.4 tons/resident) of which electricity (51%), gasoline (30%), natural gas (12%). Excludes flow-through traffic (with through traffic counted, 32.3 tons per capita or 540,341 tons for City. Half comes from auto driving and gasoline and 16.2% from homes (much of which electricity) and remainder (25.8%) from stores, offices, industries and government. Waste 0.2% of 1990 CO₂ emissions.

Emissions by sector: commercial and government (40.4%), transportation (34.3%), residential (25.3%). Government: buildings (5873 mmBTU), vehicle fleet (3333 mmBTU), streetlights (3094 MMBTU), waste 0 (1 mmBTU but 1 CO₂e tons)

1995 interim update: all energy use went down since 1990 (conservation incentives and programs, higher appliance standards, electricity pollution production decreased, new METRO line, more telecommuting, new solid waste facility in county)

Prediction to 2010: increase population to 18600, increase emissions to 323,059 tons/yr.

Goal: reduce 20% below 1990 level by 2010 through conserving energy use, switching from coal-fired electricity to natural gas and renewables, increased use of transportation alternatives (mass, walking, bicycles, low emission and alternative fuel vehicles), increased protection of green spaces and tree planting, and increased recycling (possibly through pay as you throw).

Near term priorities:

1. Create municipal electric utility to purchase electricity from cleaner generation and provide access to renewable power and energy conservation/efficiency technologies for citizens.
2. Offer commercial sector (incl. Apartment bldgs) access to cost-effective energy efficiency improvements in bldgs (energy service performance contracting, groups purchases of energy efficiency upgrades).
3. Build public awareness.

Actions already taken:

1. TP Elementary applied for PV rooftop system.
2. Various studies and events.
3. Energy efficiency upgrades in Municipal Building and Library (-30%)
4. Aggressive recycling program
5. Tree ordinance and purchase/preserve parcels of land for green and open space

6. Use of compressed natural gas for city vehicles on pilot basis (discontinued)
7. PV electricity to light park picnic shelter and street/public pathway.

Actions to be taken:

1. Takoma Park Power utility
2. Street lights (2.5% of 2,400,000 kwh): Study induction lighting?
3. Aggregate green power purchasing: reduce all electricity CO₂
4. Public information dissemination \$25,500-52,000 per year.
5. Revolving loan fund for low income home improvements
6. Group purchasing program for energy efficient technologies (\$25,500-52,000); reduce CO₂ by 13,254 tons e CO₂; savings: \$1.5 million.
7. Efficiency upgrades (energy and water efficiency) at building sale transfer \$8,500-17,000/year. Up to 1% of selling price required to be invested in the property to achieve Home Energy Rating Service efficiency upgrade standards.
8. Education about tree selection, planting and maintenance. Cost <\$5000/yr; no CO₂ impact, no savings calculated.
9. Education about trees and parking lot heat islands. Costs \$1500, CO₂ reduction uncertain, savings tbd.
10. Plant trees in median strips of NH Ave and Univ. Blvd. Costs \$10,000, CO₂ reduction 42 million BTU equiv., uncertain savings.
11. Build bioretention areas and plant trees to slow storm water (unknown costs, CO₂ impacts, or savings)
12. Permeable surfaces for streets and driveways in new construction (costs, CO₂ impact, and savings unknown)
13. Larger tree boxes for new plantings (in commercial areas)
14. Pay as you throw trash service to reduce trash and increase recycling (revenue neutral; reduce 512 tons eCO₂). Small volume trash service (20 gal container /wk) to limit trash disposal for tax rebate (revenue neutral, reduction of \$17 disposal cost per household per year; reduce 205 tons e CO₂)
15. Textile recycling program (cost <\$500/yr, reduce 7 tons e CO₂). Curbside collection of textiles and small reusable items (cost <\$1000/yr, reduce 84 tons eCO₂)
16. Mandate business recycling and enforce requirements (cost \$10,000-30,000 per year, reduce 1285 tons eCO₂)
17. Add all narrow-necked plastics to curbside recycling program (cost <\$500 first year to reduce 41 tons eCO₂)
18. Cleaner municipal fleet (cost \$100,000, reduce eCO₂ by 119 ton/yr; savings \$12,000/yr)
19. Vehicle scrappage program (offer rebates for pre 1980 vehicles) (cost \$25,000, reduce eCO₂ by 26 tons/yr; save \$2667/yr).
20. Promote alternative modes of transportation (cost \$5000, reduce eCO₂ by 11 tons/yr, savings \$1213). Connect residents and employers to Commuter Connection program, provide info, identify city staffer as contact.
21. Improve transit information (cost \$1000, reduce eCO₂ by 4 tons/yr; savings \$578/yr)
22. Bicycle and pedestrian facilities (install bike racks, lanes/paths, and improve sidewalks) (costs \$522,500, reduce eCO₂ by 37 tons/yr; save \$3750/yr)

Seattle Washington

<http://www.seattle.gov/climate/docs/2005%20Seattle%20Inventory%20Full%20Report.pdf>

Climate Action Plan 2006. Progress report and remeasurement 2007.

2012 Target : 7% reduction below 1990 levels (680,000 tons CO₂ = 147,000 cars)

Electricity about 7 cents /kwh; water 2.29-3.35 per 100 cu. ft (sept-may vs. may-sept); \$7.45 /100 cu. ft. sewage; gas 0.93/therm; 9 member city council; budget \$3.3 million; revenue \$2.5 million.

Emissions by sector (2005): residential 9%, commercial 12%, industrial 19%, transportation 59%, other 0.1%.

Per capita emissions: 11.5 tons/yr.

1. Reduce Seattle's dependence on cars (reduce 170,000 tons CO₂)
 - a. Increase supply of public transit
 - b. Increase bicycling and pedestrian infrastructure
 - c. Lead a regional partnership for road pricing system
 - d. Implement a new commercial parking tax
 - e. Expand efforts to create compact green urbanized neighborhoods
2. Increase fuel efficiency and use of biofuels (200,600 tons CO₂)
 - a. Increase avg. fuel efficiency of Seattle's cars and trucks
 - b. Increase substantially the use of biofuels
 - c. Decrease emissions significantly from diesel trucks, trains and ships
3. Achieve more efficient and cleaner energy for homes and biz. (316,000 tons CO₂)
 - a. Maintain Seattle City Light at Net Zero GHG
 - i. Meet load growth through conservation and renewables
 - b. Substantially increase natural gas energy conservation
 - c. Strengthen state residential energy code
 - d. Reduce Seattle Steam's use of natural gas
4. Build on Seattle's leadership
 - a. Continue strong leadership example
 - b. Mobilize entire community
 - c. Create Seattle Climate Partnership
 - d. Leverage regional, state and national climate solutions
5. Sustain our commitment
 - a. Direct more resources to the challenge
 - b. Monitor and report on progress

Relevant examples from action plan

Goal: 335 K tons CO₂ recycled

- Ban recyclable paper and cardboard and glass, metal and plastic bottles in household garbage
- Provide curbside recycling at no charge
- Set up volume based garbage collection fees

- Provide curbside collection of yard debris and food waste to households at modest fee
- Encourage waste minimization and recycling through education
- Mulching lawn mowers used in city operations; electric or hybrid electric mowers and other equipment
- Drive smart program in conjunction with AAA
- Grants and rebates for gas efficient furnaces, home weatherization, education about conserving hot water use, shower head and faucet aerator program, green building program (technical assistance, incentives, education)
- Improve energy code
- Climate action awareness campaign
- Grants to neighborhoods to form biodiesel cooperatives, ridesharing, tool sharing, anti-idling and energy conservation campaigns

Seattle had 40% tree canopy in 1972 but it is down to 18% today (2006). 70% of forested parklands infested with ivy and other invasives threaten to become ecological dead zones. They intend to replace deciduous trees with evergreens. Restoring 2500 ac. Of forested city parkland through a public private partnership (greenseattle.org)

Adapting to climate change:

Reduce thermal mass of houses to minimize need for A/C in light of increased external heat

Boulder, CO

http://www.ci.boulder.co.us/files/Environmental%20Affairs/climate%20and%20energy/cap_final_25sept06.pdf

Climate Action Plan 2002.

GOAL: reduce 350,000 metric tons CO₂ equivalent from 2004 levels by 2012 (24% decrease)

COST: Annual cost \$860,000 (2007) to \$1.07 Million (2012) of which
Energy efficiency program: 51% (*savings* \$463/ton CO₂ not emitted)
2012 budget includes paying for shortfall in CO₂ reduction by buying renewables

FINANCING: \$5.6 public sector; \$10 million in Xcel rebates.

GHG inventory 2004.

1.56 MM tons CO₂ equivalent 1990

1.81 MM tons CO₂ equivalent 2004

Elect. 61% GHG emissions

Transport 28%,

natural gas 17%

solid waste 4%

Commercial: 30%

Transport: 28%

Residential 17%

Industrial 15%

CU 5%

Solid waste 4%

Street lights 1%

One energy provider (Xcel) offers rebates for lighting, HVAC upgrades, evaporative cooling.

Xcel (electricity provides) required to spend \$196 million on demand side management and energy conservation 2006-2013.

Sources and costs of emissions reductions

	% of target emissions reduction	Cost to public sector \$
Energy efficiency	22	(463)
Renewable energy	58	7
Transportation	11	1
Education and outreach	12	20
Administration	--	--

Energy Efficiency

Commercial Sector:

- Continue and expand Building Performance with Energy Star Program
- Work with property and business owners on leasing practices and barriers to energy efficiency
- Facilitate contractor and building professional training, skill growth and awareness of Xcel rebates
- Work with boulder Economic Council and Planning and Development Services to evaluate incentives for the construction and remodeling of high-performance buildings.
- Recognize companies' commitments and results.
- Develop green building strategic or master plan.
- Explore regulatory options, including more aggressive building codes and standards, for future implementation.

Industrial Sector:

- Create industrial energy users group to share expertise, successes and lessons learned
- 50% industrial users participate in Xcel Energy's rebate programs, particularly recommissioning
- Connect industrial users with external resources
- Facilitate energy service company (ESCO) projects and performance contracting in the Boulder market
- Support skill development for facility and operations managers
- Recognize companies' commitments and results.

Residential sector

- Increase promotion of existing resources and services such as Longs Peak Weatherization, Home Performance with Energy Star, Xcel rebates and federal tax credits
- Continue city-sponsored weatherization program for households that meet established income qualifications
- Continue compact fluorescent light bulb giveaways
- Develop user-friendly website that educates residents on how to reduce GHG emissions in their homes and locate resources to help them implement measures
- Conduct neighborhood sweeps to distribute and install conservation kits to 300 hh per year
- Support of implement single- and multi-family energy audit programs
- Work with local retailers and contractors to promote high efficiency equipment and efficiency best practices to residents
- Explore bulk purchase and installation program for common energy efficiency materials, such as insulation
- Policy for minimum efficiency standards in affordable housing program

- Explore regulatory options, more aggressive building codes and standards, for future implementation

City operations:

- Set target of reducing city electricity use and natural gas use by 20% and 10% respectively from current levels and by 2012
- Explore establishment of a cost-allocation system to fund energy efficiency improvements throughout the organization
- Promote employee energy conservation

Switch to Renewable Energy

Transportation

- Support transportation master plan initiatives
- Work with transportation staff to better incorporate GHG emissions reduction strategies into the TMP
- Support Boulder County transportation initiative, particularly those that build infrastructure for ethanol and biodiesel
- Educate auto dealerships and vehicle owners about flexible fuel vehicles and ethanol
- Promote biodiesel and highly fuel efficient cars including hybrid-electric vehicles
- Include information on website about how to receive rebates for hybrids
- Explore carbon offset program whereby drivers can offset the GHG impact of driving through the purchase or renewable energy credits

Educational campaign

- Waste reduction
- Water conservation
- Urban forestry
 - Increase planting to offset trees removed 1:1 (or go to 2:1)
 - Plant additional trees strategically to maximize energy savings
 - Continue to plant large maturing/longer lived tree species
 - Request funding to improve enforcement of existing city code to increase survivability of trees planted in public right of way
 - Consider land use code changes to improve the long-term survivability of trees on private and public land
 - Promote changes in land use planning for long term benefits
 - Potential collaboration between city depts. And non—profits to offer low cost trees to residents to strategically plant for shade. Start with 100 trees in 2007 and increase with demand
 - Develop and educational campaign for private property owners on strategic planting of trees for energy savings
 - Consider revisions to the Green Points Program Guidelines to better educate builders and home buyers and require strategic planting of trees for energy conservation for development projects

- Determine the feasibility of strengthening the tree preservation requirements in the land use code for private development.

Some specific interesting ideas:

Commercial

- free or subsidized energy and water audits
- standardize labor and material costs among participating contractors for common measures,
- provide financial tools to those considering efficiency upgrades,
- provide free consulting regarding placement of shade trees,
- pre-approve contractors for program participation,
- provide meaningful ways to businesses and building owners to be recognized for achievements in energy efficiency)
- Use Energy Star for benchmarking
- Require building benchmarking at time of sale, refinancing or financing events and disclosure of ratings to buyers, lenders, and city
- Require benchmarking with requirement that buildings reach an energy efficiency standard
- Establish commercial sector procurement guidelines requiring all electrical equipment to be energy star.
- Adopt more stringent building codes that improve performance over standard codes (Calif Title 24)

Residential

- Brand GHG reduction with logo and tag line and principles
- City could offer financial incentive to share cost of audit and Energy Star certification with homeowner
- Energy efficiency training for key players (builders, contractors, RE agents, architects, designers, landscapers)
- Incentives for refrigerator recycling
- Low or no interest energy efficiency and renewable energy financing for predetermined energy, water, and air quality improvements
- Refrigerator removal for \$35 rebate, keeps fridge out of landfill and recycles coolant
- Home energy audit (Portland, Austin, Tampa Bay)
- Bulk purchase and installation of insulation
- CFL giveaways, low flow shower heads, educational materials, help with thermostats, fridge and hot water heater temps.
- Recognition for green points
- Green building master plan
- Residential energy conservation ordinance.

City Facilities

Establish energy reduction target for city organization

- HVAC equipment
- Weatherization
- Thermostats
- Turn off computers and lights
- Purchasing requirements
- Solar hot water
- Purchase renewables
- Install PV on city facilities

Transport

- Reduce single occupancy vehicle (SOV) travel to 25% of trips
- Transport mgmt plan
- GO Boulder: walk and bike week
- Promote and expand carshare
- Green vehicles for city fleet
- Improve transit, walking and biking infrastructure
- Promote change in land use planning for long term benefit

Reduce Solid Waste

- Existing recycling to include milk and juice cartons
- Center for Hard to Recycle Material (CHARM)
- Neighborhood community gardens compost projects
- School education
- Farmers market have compost education

Conserving Water: 4.77 KWH/1000 gal to process water for potability

- Continue existing rebates for efficient washing machines, dual flush or ultra low flow toilets, drip irrigation, sprinkler controllers, heads or nozzles, soil amendments, and buffalo grass.

Forestation

400,000 urban forest trees sequestering 110,000 m tons CO₂ or 43,000 reduction annually due to sequestration and avoidance (not included in GHG inventory due to lack of 1990 benchmark)

- Existing actions pruning schedule, plant 80 trees/yr, education public, arbor day in schools, tree policy.
- Plan: increase tree planting and maintenance
- Education and incentives for pub/priv partnership

Newton, MA <http://www.ci.newton.ma.us/sunergy/EAP021005.pdf>

GHG emissions: 1.1 million tons (13.6 tons per person)

Goal: Community: 7% below 1998 levels by 2010; Reduce 160,000 mtCO₂e (14% below current)

Municipal: 20% reduction (4,000 mtCO₂e); 15% below current.

Community strategy

1. purchase electricity from renewable sources (16,100-34,600 mtCO₂e)
2. Increase energy efficiency and sustainable practices in buildings and infrastructure (68,000-145,000 mtCO₂e)
3. Increase use of distributed and renewable energy (20,450-40,800 mtCO₂e)
4. Increase use of fuel efficient vehicles and increase in alternative modes of transportation (36,000-57,600 mtCO₂e)
5. Reduce volume of solid waste (1,000-2,800 mtCO₂e)

Municipal strategy

1. increase energy efficiency in public buildings by 20% (3830 mtCO₂e)
2. Increase efficiency of street lighting by 20% (480 mtCO₂e)
3. Purchase 10% of electricity from renewable sources (1000 mtCO₂e)
4. Install solar energy and distributed generation (200 mtCO₂e)
5. Reduce fuel use for municipal vehicle fleet by 10% (350 mtCO₂e)

Community emissions: 21% electricity, 25% natural gas, 24% heating oil, 27% gasoline, 3% diesel;

Energy growth grew 6% between 1998 and 2002 (emissions grew by 5.4%) Residential grew 1.6%, commercial grew 9.6%, and transportation grew 7.8%. Annual electricity use/household increased 10% from 7736 to 8534. Increases due to weather, population, economic development, appliances, income, house size.

Municipal emissions: water and sewage 6%; schools 57%, streetlights 9%, vehicle fleet 13%, other public buildings 15%.

Some interesting ideas:

- Use LEED standards for public buildings and residential design; encourage exceeding code.
- Incorporate life-cycle costing requirements into all municipal construction projects
- Boiler and Window replacement in schools and public buildings.
- Community donations to install solar panels on community services center
- Neighborhood solar challenge for pv and solar hot water
- Enforce state anti idling law
- Biodiesel in school buses
- Tax incentives for privately owned efficient vehicles

- Social marketing to educate consumers about financial benefits of more efficient vehicles and alternative fuels
- Signage and maps to make walking more user friendly
- Build and maintain sidewalks on both sides of every street
- Encourage schools to develop and implement “walk to school programs”
- Survey and improve bike parking and storage options at all schools, public buildings and transit stops.
- Modernize zoning ordinance to allow for mixed-use, higher density developments at certain transportation nodes
- Pay as you throw trash (pay by volume of trash to encourage recycling)
- Environmentally preferable purchasing policies, including energy star certification
- Implement life cycle cost accounting in purchasing decisions to account for impact on waste generation
- Designate a “no-waste purchasing day” where people avoid purchasing products that have packaging that must be thrown away.
- Promote green homes construction and renovation

Amherst, MA. http://www.amherstma.gov/departments/Conservation/CAP_9-27-05_FINAL-cover1.pdf

CAP Oct. 2005

13,051 tons refuse, 3893 tons recycling, 3.7 million gallons water per day, 3965 acres open space, Three institutions in town: UMass, Amherst College, Hampshire College.

GHG inventory finished 2001, 1997 baseline.

Goal: 35% reduction below 1997 by 2009 (110,316 tons eCO₂). 1997 320,960 tons eCO₂ released. Predict 2009 emissions of 318,940 (reduction due to closing landfill). Other emissions will increase by 22,188 tons eCO₂.

1997 emissions by sector: 22% residential, 50% commercial, 1% industrial, 24% vehicle use, 3% waste. Town operations 4% of total.

Actions already in place reduce 43,532 tons eCO₂

Strategies:

Energy use and facilities (108,978 tons eCO₂)

- Participate in Mass. Technology collaborative Clean Energy Choices program (tax-deductible donation by households and businesses, given back to town in green energy building projects)
- Energy reduction program in public facilities
- Energy efficiency upgrades in wastewater treatment plant
- LED traffic signals
- Town employee energy education
- Purchase efficiency equipment and appliances

Transportation (2247 tons eCO₂)

- Town green fleet
- Town employee commuter incentive; work from home;
- Town wide bike and ped friendly environment
 - Painted lines and logos on all streets
 - Signage for bikes at all intersections
- Increase use of public transit (information, on-demand vans etc.),
- Police bike patrols
- Safe Routes to School program to get kids walking and biking to school

Waste management (29,410 tons eCO₂)

- Support responsible manufacturing and disposal of products; producer take back campaigns
- Landfill methane recapture
- Rain barrels customized \$23 savings from \$85.

- Buy recycled policy
- Convert to aqueous based parts cleaners.
- Composting restaurant food waste
- School green team

Land use and planning

- Open space planning process
- Bikeway connections
- Progressive zoning (cluster development to save open space)
- Active living by design initiative (inventory and integrate existing open space and recreational resources to promote active lifestyle)
- Community preservation initiative
- Use of vegetation to shade buildings and combat heat island effects (plant more trees)
- Encourage green building construction

Community education and resources

- Renewable energy fair
- PR and marketing program
- Earth Day celebration (air conditioner turn in)
- Practical hands on advice on sustainable Sundays.
- Greening the roadways festival (alternative vehicles to see and test)
- Bike commute week
- School curriculum development
- ESCO energy saving program, in home survey, discount on repairs, hotline on Energy Bucks (ways to get savings, rebates, etc.)
- Change a light, change the world campaign
- Renewable energy grants through third party

Albany, CA: Goal 25% reduction from 2004 levels by 2020. No CAP yet.

Anacortes, WA: http://www.cityofanacortes.org/Documents/ICLEI_Report.pdf

Reductions target 15% below 2000 by 2020 both community and municipal operations.

Base year emissions: 172,537 tons eCO₂ community and 12,219 tons eCO₂ municipal operations.

Goal 15% reduction below 2000 by 2020 for both community and municipal opns.

Sources community emissions: commercial 21%, industrial 6%, transportation, 40%, residential 39%, waste (-2055 tons eCO₂)

Sources municipal operations emissions: 81.3% water and sewage, waste (-24 tons eCO₂), buildings 8.4%, vehicle fleet 6.5%, employee commute 1.3%, street/traffic lights 2.7%.

Existing measures: community (green power purchase, 331 tons eCO₂; residential recycling 1945 tons eCO₂) and municipal (city hall boiler 19 tons eCO₂, city hall lighting retrofit 1 tons eCO₂, hybrid in fleet 2 tons eCO₂, water treatment plant lighting retrofit 24 tons eCO₂, Waste water air compressor 27 tons eCO₂, government recycling 89 tons eCO₂)

Proposed measures:

Community

Residential

- Green power challenge (green power costs \$0.02 /kwh more) for residents, commercial, and industry. Provide incentives to sign up (discounts at local businesses, local pride (2946 tons eCO₂ residential, 2605 tons eCO₂ commercial, 863 tons eCO₂ industrial)
- Energy Star buildings and appliances – encourage residents and businesses; education and incentives to builders; expedited permit review

Transportation

- Reduce annual VMT by 5% by encouraging carpooling, biking walking, and public transport. Could be incentives. Smart growth policy. (3149 tons eCO₂)

Waste

- Expand recycling to commercial sector

Municipal Operations

- Green Power purchase (¼ electricity) 168 tons eCO₂; cost \$6791.
- Resource conservation manager position (176 tons eCO₂) \$50,000 cost totally offset with savings
- Computer monitor upgrades (11 tons eCO₂), \$1732 savings
- LED exit signs (36 tons eCO₂)
- Vending machine power savers (2 tons eCO₂) savings \$349.

- Vehicle fleet (increase hybrids, use B20 biodiesel in garbage trucks (39 tons eCO₂) cost of fuel comparable.
- Employee trip reduction performance program (24 tons eCO₂)
- Streetlights (smaller bulbs, reduce amount of time streetlights on, LED when available): 1/3 reduction in energy use: 113 tons eCO₂; savings \$50,189
- Waste/sewage more efficient motors
- Purchase green power (1/4) (2222 tons eCO₂) cost 0.01/kwh
- Install appropriate technology blowers, sludge drier
- Install LED exit lights at waste water treatment plant (25 tons eCO₂), \$3565 saved.
- Expand municipal recycling program (from paper to glass plastic and aluminum)

Keene NH: <http://www.ci.keene.nh.us/planning/climateLAPSummary.htm>

This CAP is has useful data for making calculations of CO₂ and costs. Energy Star savings on office equip pg. 59.

1995 baseline: 204,529 tons CO₂ or 9.02 tons per person.

Emissions by sector: 32% residential, 36% commercial/industrial, 31% transportation, 1% waste.

Municipal sources: 37% building, 15% vehicle fleet, 2% streetlights, 22% waste, 24% water/sewage.

Goal reduce 10% below 1995 level by 2015.

Municipal:

Immediate savings

- Energy efficient equipment
- Methane recovery at landfill
- 10% awareness challenge
- trees and shrub expansion
- purchase green power
- environmentally preferable products
- police units on bicycles
- biodiesel project
- streetlight conversions
- electric vehicles for police
- internal recycling program

Short Term Savings (1-5 years)

- Police units on bikes
- Expanded bike path outreach
- Employee parking reimbursement
- Employee telecommuting

Long term savings (10+ years)

- Solar panel installation
- Compressed natural gas hybrid car replacements
- Retrofit city buildings
- Traffic calming
- Mixed use development

Responsible for previous measures

- Energy efficiency coordinator
- Climate change education and outreach

Total tons: 1376 tons CO₂, total savings \$121,702 (see details pg. iv)

Community Measures

- Solar hot water installation
- Lobby for renewable portfolio standard
- Lighting replacements
- 10% challenge energy
- recycling outreach
- multi-unit outreach
- backyard composting (359 tons CO₂, savings \$42,003) (selling bins at reduced rate)
- 10% transportation challenge
- lobby for increased CAFÉ standards
- Lobby for renewable portfolio standard
- 10% challenge energy (no incentives)
- lighting replacements
- school bus conversion to biodiesel
- recycling program

Interesting ideas:

- increase number of energy audits available to homeowners
- explore improving building codes for new development
- pilot program in conjunction with EPA Energy Star
- Rebuild America Partnership

Bellingham, WA

<http://conservation.whatcomcounty.org/energy/documents/BellinghamGHGInventoryandActionPlan.pdf>

CAP May 2007. Municipal goal reduce emissions 64% from 2000 by 2012 and 70% by 2020. Community goal: 7% below 2000 levels by 2012 and 28% by 2020.

Emissions 2000: 950,000 tons CO₂; by 2005 it had risen to 997 tons CO₂; transportation 45%, city government 2%,

Municipal sources: 27% buildings, 10% vehicle fleet, 8% employee commute, 10% streetlights, 45% water/sewage, 0% waste.

Community sources: 24+% residential, 23+% commercial, industrial 8%, transportation 45%, waste 0%

Existing measures:

Municipal

- Purchase green energy
- LEED buildings
- Fleet biodiesel
- Fleet hybrid vehicles
- Employee commute trip reduction
- Purchase 100% green power for lighting, water/sewer,
- Best mgmt practices in water/sewer
- LEED buildings (2 bldgs 21 tons CO₂)
- City hall recycling

Community

- Residential & commercial purchasing green power
- LEED buildings residential, commercial, government
- Federal building Energy Star
- Industrial company upgrades (cold storage)
- Hybrids and biodiesel
- Community car share (13 tons CO₂)
- Sanitary service biodiesel
- Construction and demolition recycling and Restore
- Commercial food composting
- Curbside recycling

Phase II

Municipal

- Conservation resource mgmt (package from ESCO)
- Environmental procurement program
- Hybrids, biodiesel, and ethanol fleet

- Employee commute – 35% reduction in VMT
- Sludge pyrolysis use sewage gas and cogeneration from heat
- All city can/bottle recycling and organics recycling

Community

- Energy conservation challenge (residential, industrial, commercial); promotion, diy
- Public education
- Promotion of LEED, Energy Star, & green stars.
- Energy conservation challenge
- Promotion of LEED
- “all municipal measures”
- energy conservation challenge
- achieve alternative transportation mode shift/safe trips to school (individualized marketing program; improved walking and biking paths)
- limit idling, starting around schools
- promote biofuels
- promote hybrids
- increase curbside recycling rate (increase from 31% of waste to 35% recycled)

Homer, Alaska <http://www.ci.homer.ak.us/CLPL.pdf>

CAP 12/07

Goal: 12% reduction from 2000 levels by 2012 and 20% by 2020. Plan directed specifically at city operations.

Sources of community emissions: transportation 21%, marine 17%, commercial (includes municipal bldgs/facilities) 36%, residential 24%, waste 2%.

Sources of municipal gas emissions: fish dock 18%, bldgs/streetlights 28%, water/sewer 28%, vehicle fleet 8%, waste 1%, high mast lights 3%.

Actions:

- Install wind turbines
- Reduce stationary diesel heating fuel by 25% in city buildings through energy efficiency
- Reduce electricity by 25% in city bldgs through energy efficiency
- Tidal power generation system
- Replace police SUVs with hybrids
- Install hydroelectric micro turbines in water treatment plant
- Reduce paper in city hall by 30%; digital filing
- Increase renewable energy sources to 30% total

Some interesting ideas:

- Install metering and monitoring devices and provide monthly reports to track energy consumption in city facilities and activities
- Integrate energy efficiency as a requirement in city contracts
- Conduct energy audits for all city bldgs and implement recommendations
- Build all new city bldgs to LEED standards
- Limit thermostat setpoints to 68 degrees heat and 75 degrees cooling.
- Introduce pay for parking for popular tourist site
- Promote development of a “free bike” program;
- establish a bike library program that allows local residents to check out a bike a different locations in town
- implement EPA Comprehensive Procurement Guidelines
- community wide electronic recycling events
- “complete street” designs (to encourage bikes, peds, and transit users as well as autos)
- assist developers and builders in evaluating plans to increase energy efficiency and promote non-motorized transportation
- adopt building codes and incentives to increase energy efficiency in all new residential and commercial development
- outreach and advocacy targeted to all segments of population

- set up a ‘sustainability fund’ with grants, climate action plan tax (with local electric utility based on electricity usage), fuel tax, voluntary “offsets”, city offsets of employee travel, savings from energy efficiency gains, home spit parking fees.
- Use sustainability fund to develop programs and plans, implement, community events and campaigns, compile data

Brattleboro, VT. <http://www.brattleboro.org/vertical/Sites/%7BF60A5D5E-AC5C-4F97-891A-615C172A5783%7D/uploads/%7B8E554F52-EB49-422F-8E2A-C90242FDF15B%7D.PDF>

CAP Oct. 2003.

Goal: 10% reduction below 2000 by 2010

Basic strategy: provide leadership through municipal buildings and operations and develop and lead a public education program and a 10 percent challenge campaign.

Emissions by sector: waste 8%, transportation 45%, residential 19%, industrial 19%, commercial 9%.

Reduction: 5642 tons CO₂ annually, annual savings \$5.5 million, implementation cost \$396,442, pay back 0-5 .5 years (latter for woodchip system).

- LED traffic signals
- 10% challenge residential, commercial programs (efficiency Vermont's rebates for lighting and appliances, energy education and outreach to citizens and school children, informational material and workshops). Includes green lawn campaign (allowing portion of lawns to go to meadow and wildflowers; using a push or electric mower rather than gas powered), bulk fuel purchase club.
- "district energy system for downtown business district to replace individual building based boilers, furnaces, and cooling systems.
- efficiency upgrades to town buildings (audits, retrofits, solar panels (\$22,500 to install, reduced cost \$320.4, payback 70 yrs.)
- efficiency upgrades to school buildings
- woodchip heating system at high school
- convert town fleet to biodiesel
- use of CFLs in residences and commercial buildings
- bicycling outreach program
- Brattleboro-Bennington bus line
- Establish energy efficiency environmental coordinator
- Performance contracting with an Energy Services Company (ESCO) to perform energy audits and retrofits on Town-owned buildings. No upfront investment and minimal risk. Costs of work paid from guaranteed energy savings resulting from retrofits and ESCO responsible for maintenance. Incentives from Efficiency Vermont
- VOLT program (Fannie Mae loan program to provide up to \$20,000 to homeowner in unsecured consumer credit at very reasonable rates for implementing efficiency upgrades to their homes; LA, SF, Tampa, Meridien CT use it).
- Purchase of environmentally preferable produces by town.
- Methane recovery system at landfill
- Recycling
- Home composting (save 59 tons CO₂)

- Pay as you throw solid waste disposal (fee for each bag)
- Climate outreach and education for public schools and beyond (inserts in tax bills, public displays, tables at events, continuous public forums, press coverage, citizen participation in CCP process)

Belmont Mass.

www.town.belmont.ma.us/public_documents/BelmontMA_BComm/vision21/cappublicinput.doc

Citizen inputs to strategy.

Belmont Public Input Suggestions for Local Climate Action to Reduce GHG Emissions

04/04/06: No CAP available but these ideas posted on town website.

Recycling

- . Library recycling
- . Belmont recycling procedures – make available
- . Why don't schools recycle more?
- . Pay as you throw
- . Restaurants – recycle bottles

Other measures

- . Set a deadline for completion of Climate Action Plan
- . Make short-term ideas available to all (e.g., via electric dept. newsletter)

Get the word out

- . Go to select groups/focus groups
- . Hold house meetings/house parties
- . Town Day

04/06/06

Transportation:

- . Reduce impact of individually owned automobiles
- . Reduce impact of individually owned motorcycles
- . Public transportation – need better schedules, need alternatives
- . Focus on large CO2 contributors - two Cycle engines: snow blowers, leaf blowers, lawn mowers, etc.

Waste Management

- . Recycling – encourage paper
- . Revisit pay as you throw program
- . How much does waste disposal contribute to total emissions?
- . Municipal recycling – are we doing all that we can do?

Building Efficiencies

- . Energy-efficient building codes for new construction
- . Target rental housing as well as single family and commercial/industrial
- . Consortium to retrofit houses of worship and private schools (ESCO)

- . Other groups, such as Cushing Sq. and Waverly Sq. businesses

Residential Campaigns

- . CFL (compact florescent lights)
- . Home energy audit/tax credits
- . Energy Star

Vegetation

- . Buy trees (which are okay to buy/expected to last - oak, hickories)
- . Trees for new housing units

New construction

- . Rain water runoff/collection/reuse
- . Eliminate impervious surfaces
- . Building codes should be strengthened to be much more energy-efficient
- . Trees, perhaps planting one for each bedroom built

Alternative solutions

- . Renewable Energy Tax Credits
- . Town reductions – sell our reductions/credits? Regional? State?

Develop A Publicity Campaign

Zoning – Transit – Oriented Development

PR

- . Town Day
- . Channel 8 (local cable channel)
- . Monthly Film Series
- . Regular Contributions to paper
- . Decisions by Town Meeting™ = opportunity to educate
- . Presentations to other committees
- . Presentations to precinct TM members
- . Presentations to PTOs, etc.
- . Public service announcements – get kids to do the “spots”
Channel 8, 9, 96 (local channels)

04/12/06

Transportation

- . Encourage car pooling
- . Avoid drive-through businesses
- . Car-sharing (zip cars)
- . Encourage public transportation
- . Shuttle bus to connect town centers
- . Change public transportation – schedules, cleaner vehicles

- . Use pedi-cabs
- . Create an anti-idling campaign
- . Facilitate non-vehicular transportation, e.g., bicycles, walking, pedi-cabs
- . Promote locally grown food

Waste management

- . Encourage local stores to avoid heavily packaged items
- . Avoid plastics, in general
- . Help businesses/houses of worship to recycle
- . Encourage schools, municipal offices and business to recycle
- . Require restaurants/eateries to provide recycle containers for bottles/cans

Energy efficiency/Alternative energies

- . Programmable thermostats
- . Replacement windows
- . Encourage the Belmont Municipal Light Department to purchase renewable energy
- . Start clean energy program for businesses and residents to buy into
- . Energy audits: residential/houses of worship/commercial

Education

- . Public education: use energy efficient appliances
- . Strategy: competition to lower energy use

Misc:

- . Make utilities and those who dig up roads accountable for capturing natural gas
- . Coordinate w/Health department on initiatives that reduce GHG emissions *and* have a health component
- . Ordinance on two-cycle engines (health dept.?) lawn mowers, leaf blowers, snow blowers
- . Collect or develop data on e.g., snow blowers v. jeep w/plows, buses vs. cars, air conditioners (older ones are very harmful), fans vs. ac

10/5/06 (following *An Inconvenient Truth* screening at Belmont High School)

Transportation

- . Don't let your car idle
- . Have an anti-idling policy for town employees
- . Take public transportation
 - . Make it easier to get around town via public transportation
- . Walk more
- . Buy locally grown food as it reduces impact of food transportation

Waste management

- . Take cloth bags to stores
- . Bring your own mug to stores you frequent for coffee, tea, etc.
- . Have businesses subsidize those who use reusable bags and cups, e.g., \$.05 per bag or cup)
- .

- . Energy conservation/alternates
- . Town houses of worship should join Interfaith Power and Light
- . Ensure town moves toward LEED certified/green building design
- . Conserve energy – shut off lights, etc.
- . Unplug phone chargers (vampire energy use)
- . Vegetation
- . Create edible school yard gardens to provide children w/food
- . Plant more trees

Education

- . Write “Renewable Energy for Dummies” book
- . Provide information for households regarding renewable technologies
- . Show *Inconvenient Truth* to classrooms and at PTA/PTO meetings

Post-forum ideas:

- . Organize a car-free day: for those who usually drive to work, try an alternative (public transport, carpooling, bicycling, walking) for that one day
 - . Install patch on all municipal/school computers to avert them from draining power when not in use
 - . Support/encourage renewable energy systems for municipal, business, and residential use (wind, solar)
 - . Use a clothesline to dry clothes
 - . Develop regional partnerships with other towns to concentrate on bulk purchases and sharing of resources
 - . Pursue public-private partnerships for green building development
 - . Contract with a company to manage recycling of construction waste/demolition
- Encourage town to work with local banks to provide low-cost loans for energy conservation/renewable energy improvements to homes and businesses.

Kirkland, WA http://www.ci.kirkland.wa.us/Community/Kirkland_Green/climateprotection.htm

CAP "Update" 2006 and 2007. Signed 2005

Goals: 10% reduction below 2005 by 2012
20% reduction below 2005 by 2020

2002 emissions 18% higher than 1990
2005 12% decrease from 2002

"Action List"

1. Inventory global warming emissions in City operations and in the community, set reduction targets and create an action plan
2. Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact walkable urban communities
3. Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling, and public transit
4. Increase the use of clean, alternative energy by, for example, investing in "green tags", advocating for the development of renewable energy resources, recovering landfill methane for energy production, and supporting the use of waste to energy technology
5. Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money
6. Purchase only Energy Star equipment and appliances for City use
7. Practices and promote sustainable building practices using the U.S. Green Building Council's LEED program or a similar system
8. Increase the average fuel efficiency of municipal fleet vehicles; reduce the number of vehicles; launch an employee education program including anti-idling messages; convert diesel vehicles to bio-diesel.
9. Evaluate opportunities to increase pump efficiency in water and wastewater systems; recover wastewater treatment methane for energy production
10. Increase recycling rates in City operations and in the community
11. Maintain healthy urban forests; promote tree planting to increase shading and to absorb carbon dioxide
12. Help educate the public, schools, other jurisdictions, professional associations, business and industry about reducing global warming pollution

Interesting ideas

- Promote statewide event encouraging (through prizes) citizens throughout the state to try riding their bikes to work during May
- Replacing incandescent street lamps with more energy efficient LEDs. The signal shop is also introducing inductive lighting technologies to some of the street light applications.
- Vending Miser devices on vending machines
- Weathermatic clocks to control irrigation systems at city facilities
- Lecture on low impact development techniques and practices
- Storm water newsletter and storm drain stenciling program

- Ultralow sulfur diesel fuel required for all diesel engines in fleet
- Waste Management, the City's hauler, is required to use ultra low sulfur diesel with no greater than 15 ppm sulfur in all of its operations within the City or other low emissions fuels as approved by City Staff. The City, in turn, is obligated to pay Waste Management \$8500 for each particulate trap installed in up to fourteen of its collection vehicles reducing emissions by up to 90%.
- Olympic Office Supply collects our empty toner cartridges and returns them to the toner remanufacturer
- Discounts on mulching mowers, compost bins, soaker hoses, and possibly rain barrels. Promotes education in planting correctly for the area and reducing pesticide use.
- Removing harmful invasive plants in City parks
- Adding tree removal permit forms, tree flyers, and surface water brochures to the Building Department's permit tree on City Hall's "Main Street" (website)
- Tree management and required landscaping in the Kirkland Zoning Code

Fort Collins, CO <http://fcgov.com/airquality/lap.php>

Not dated but Council resolution in 1999 suggests that is when it was adopted.

GHG emissions by sector: 1990 (Total 1,360,000 tons CO₂ e)

- 4% solid waste
- 23% residential
- 21% commercial
- 22% industrial
- 30% transportation

Per capita CO₂ e emissions 1990: 15.5 tons. Predicted to go to 23.9 tons in 2010.

Emissions growth 1990-1997: 30% in residential, 29% in commercial, 28% industrial, 63% transportation, 27% decrease in landfill/solid waste. Forecast to 2010 159% increase over 1990 (85% residential, 86% commercial, 72% industrial, 346% transportation, 63% decrease landfill). Explanation: “Although residential electrical appliances are becoming more energy efficient, the square footage of new homes is increasing, as is the number of appliances per household, accounting for the predicted 3% per year increase in electricity consumption in the residential sector.”

City Government emissions (212m337 BTUs, 1990): 36% water and sewage, 2% waste, 32% buildings, 22% streetlights (25,584 BTUs), and 8% vehicle fleet.

Although existing planned, pending and new measures will reduce CO₂ e by 1.1 million tons, 2010 will still be 76% higher than 1990.

Strategy

- Move people from cars to transit, carpooling, walking and bike
- Streets: energy efficient streetlights, traffic signals, asphalt recycling
- Facility services: energy efficient buildings (whole building approach), equipment and lighting.
- Natural Resources: divert waste from landfill, waste composting, waste reduction, natural areas preservation and restoration, education campaigns, pollution prevention
- Utilities: change electricity source (wind pilot), energy efficient buildings, improve electricity distribution system, energy efficient water and sewage treatment, water conservation
- Fleet services: 75% city vehicles will meet ULEV standards
- Forestry: support tree plantings and stewardship
- Purchasing: buy recycled procurement policy
- Building and zoning: Energy efficient buildings (adopt model energy code, 1997, economic incentive for E Star and Energy Score rating systems for new homes, training builders on city’s energy code, distribute builder’s guide to energy efficient home construction.

Interesting ideas:

- Commuter pool matching
- School pool
- VanGO Commuter Van
- Level of service standards for pedestrians and bikes
- Expand bike path network
- Reduce hours of operation of street lights
- Solar electricity powered streetlights
- Reduce number of streetlights
- Asphalt recycling
- Energy efficiency and LCC considerations in building design standards
- HVAC variable frequency drive upgrades in large building
- Install occupancy sensors (movement sensors for lights)
- Pay as you throw trash rates
- Construction debris recycling program
- Compost bin sales to residents
- Increase composting within city government 25%
- Promote use of low pollution lawn mowers
- REACH home weatherization program
- ZILCH: zero interest loans for home energy improvements
- Methane flaring in water and sewage treatment
- Mandatory water metering program
- Water conservation requirements for commercial development covering landscaping and irrigation systems
- Mandatory renewable in electric deregulation or comparable energy conservation
- Green building program for residences

Aspen, CO <http://www.aspenglobalwarming.com/pdf/CAP.pdf>
and assessment: http://www.aspenglobalwarming.com/pdf/emission_inventory_2004.pdf

May 2007, CAP for 2007-1009

ZZ

2004 emissions 50 tons/person

Their assessment includes air travel to/from Aspen, much of which is outsiders and in private planes.

Sources:

- Electricity buildings: 19.8% (166,557 tons)
 - 46.7% residential
 - commercial 50.8%
 - municipal 2.5%
- Natural gas and propane 12.7%
- Ground transportation 25.1%
 - Of which hwy 82 is 60% and “around town” is 17.4% and “tourist” is 19%
- Air travel commercial 22.2%
- Air travel private 18.8%
- Landfill 1.4%
- Nitrous oxide (from fertilizers applied on city property) 0.04%

Goal: 30% reduction below 2004 levels by 2020

2005 City made legally binding step to reduce government operations GHGs by 1% per year by joining the Chicago Climate exchange and in doing so created the GHG cap and trade challenge of 1% emissions reduction for all internal City departments.

Actual reductions by the City by the end of 2006: 11.5%

Final Canary Action Plan is result of collaboration between Aspen Global Warming Alliance, members of the public, businesses, non-profit organizations, utilities, and City and County staff.

Action Plan Sections and reduction goals

	2020 emissions reductions as % total
Policy research and education	n/a
Buildings: energy efficiency	13%
Ground and Air	66%
Electricity: renewable energy	20%
Landfill: waste reduction & Recycling	1%
Carbon Offsets	<1%

Interesting ideas

- Require all new construction (commercial and residential) to be 50% more energy efficient than the International Energy Conservation Code by 2009
- Encourage and incentivize existing buildings (commercial and residential) to reduce GHG emission 20% below 2004 by 2009
- Extend parking pricing to all appropriate areas to reduce single occupancy vehicle use and dedicate a portion of revenue to reduce vehicle miles traveled
- Increase paid parking rates as needed
- Offset program with revenue dedicated to local reduction projects
- Establish a carbon tax that dedicates its revenue to future energy efficiency projects.
- Inform residents, businesses, and institutions about how their actions affect global warming by reporting CO₂ e lbs on utility bills, energy audits on transfer of property
- Provide tools to the community to estimate its GHG emissions and make emissions reductions. In 2006 The Energy Tracker was introduced to individuals and businesses with the help of Maroon Corps. At least 4 major businesses are now tracking their energy consumption.
- Community Office for Resource Efficiency to promote energy efficiency and conservation. With REMP funding and funds generated through other local emissions offset programs, CORE will take a lead role in developing energy saving programs and continue to build partnerships with other valley governments.
- Require the calculation of life cycle cost analysis in the City Asset Management Program
- Develop and adopt energy and resource efficient building standards for all existing City facilities
 - Require all city funded remodel projects to exceed the International Energy Conservation Code by 15% on retrofits
 - Explore requiring audits of affordable housing properties at time of sale, funded by the City. Improve audited units to Energy Star level or better.
- Require all new construction (commercial and residential) to be 50% more energy efficient than the IECC by 2009
- Financing for the purchase of high efficiency appliances at time of their replacement, HVAC, weatherization services and renewable energy systems. 2006: provided financial assistance for appliance rebates, renewable energy systems and energy audits.
- Develop and implement a plan whereby each housing and commercial unit in Aspec must meet its REMP (“innovative”
- renewable energy mitigation program that invests fees collected in lieu of regulatory compliance with building codes into solar systems and more efficient appliances in public and private projects throughout county) requirements through on site renewable energy and efficiency practices, effectively retiring the REMP in lieu fee option within a 10 year period through incremental increases in the percentage of renewable energy required and raises in the fee structure.
- Increase energy efficiency requirements for all construction. Expand the requirements for the REMP in residential projects and extend it to include commercial development.
- Facilitate the auditing and weatherization of 50 households

- Explore requiring an energy rating of residential properties at time of sale.
- Explore requiring energy use per square foot benchmarking for commercial properties at time of sale, change of use, and/or building permit applications
- Require alternative transit during employee travel for business whenever feasible
- Require use of low or no CO₂ e technologies in all city vehicles and equipment such as medium duty construction equipment. Dedicate funding for research and development of these technologies.
- Educate all employees on fuel-efficient driving practices such as avoiding unnecessary idling.
- Establish city policy that requires net decrease in transportation related emissions compared to existing developments, such as affordable housing projects (this may involve offsetting new GHG emissions).
- Limit parking passes for construction projects.
- Work with the construction industry and transportation providers to reduce vehicle trips to and from construction sites.
- Create, manage and promote a voluntary carbon offset program funds from which will be invested in local, verifiable ghg emissions offset projects and efficiency programs in order to mitigate ghg emissions from air travel.
- Promote fuel efficient rental car fleets
- Meet all growth in electricity demand since 2004 with new zero carbon dioxide sources of electricity with an end goal of 100% renewable energy by 2015
- Expand demand side management program in government to reduce electricity demand by 5%
- Establish policy that would require all city funded events to be zero waste
- Secure use and location for compost bin
- Make duplexing (paper printing) the default setting for all city owned computers
- Require city contractors and vendors to document the use of recovered material in their product and follow environmentally responsible solid waste management practices.
- Require that all city funded construction projects be deconstructed and/or use 10% of recycled content and/or reclaimed products
- Expand the viability of deconstruction and use of recycled materials for small and large scale building projects throughout Aspen
- Promote consumer behavior that reduced GHG emissions by purchasing locally produced food and other products and services

“The carbon market in the United States is currently unregulated; there are no rules or baselines for the industry, leading to an overall lack of transparency and consistency in accounting and implementation of offset programs.: While the purchase of offsets does consolidate small amounts of funding for large scale offset projects, because the money leaves the community, an offset program is ultimately an economic and financial drain as it fails to increase the efficiency or economic development of the community investing in offsets. To offset both of these issues, the City of Aspen with cooperation from the Board of County Commissioners and CORE will create a local offset program in which revenue from

locally purchased offsets will go towards funding local carbon offset projects and energy efficiency and renewable energy programs.

- Establish a local trust, either through CORE or through another contracted entity to manage a local offset program that would keep the majority of revenue local.
- Create a “low carbon footprint” guidelines for all city funded events, including picnics, parties and meetings that encourages food providers to purchase product within a 500 mile radius.
- Create a booth at the Farmers Market for Aspen locals to share and sell small quantities of home grown food.

Williamstown, MA http://www.coolwilliamstown.org/action_plan.pdf

(institutions include Williams College and Clark Art Institute)

CAP 2002

Goal: 10% reduction below 2000 levels by 2010

2000 emissions: 116,117 tons e CO₂ or 13.8 tons e CO₂ per person.

Sector sources of emissions:

Municipal energy use: 3%

Municipal transportation: 0%

Waste from all sectors: 1%

Residential energy use: 33%

Residential transportation: 20%

Commercial energy use: 15%

Commercial transportation: 5%

Institutional energy use: 22%

Institutional transportation: 1%

Strategy

- Purchase energy efficient products
 - Lighting
 - Appliances and office equipment
 - Heating and cooling
- Purchase green power
- Purchase fuel efficient vehicles
- Support regional bike path
- Build “green”
- Install renewable energy systems
- Increase recycling, reduce waste
- Increase composting.

Most of above actions through providing cost savings info to residents and making sure suppliers carry products. Place phantom load detector in library.

Interesting new actions

- Recommend households purchase CFL torchiere lamps (in addition to regular CFLs)
- Photovoltaic system on Williamstown Elementary School
- Wood burning at DPW facility
- All town purchases be energy efficient
- Promote energy star standards for new construction and major renovations. Local contractors encouraged to learn about the system and to suggest it to their clients. Town develop a mechanism for identifying design and construction professionals with a proficiency in sustainable design.

- Construct new town building to Energy Star and LEED standards.
- Increase police bike patrols
- Sponsor “go green” days
- Plant more trees around Town Buildings
- Convert Fleet vehicles to biodiesel
- No idling campaign. Idling a car or truck for more than 10 seconds uses more fuel than restarting the engine and idling for 10 minutes per day wastes an average of 26 gallons of gasoline per year. Contrary to popular belief, idling is an ineffective way to warm up a car and can actually damage an engine. The best way to warm up an engine is to drive the car.
- Solar hot water heating.