

## The 2009 Helena Climate Change Action Plan

*Helena has not been immune to the effects of a warming climate. A few examples help to illustrate the point and set the stage for the work undertaken by the Helena Climate Change Task Force. Since April 1880, Helena has been host to a National Weather Service (NWS) station. Based on the data collected by the NWS, overall annual average daily temperatures have been calculated and compared on a yearly basis. The annual average temperature in Helena is 43.9 °F, based upon 128 years of data. Of the 10 warmest years on record, four have occurred since 2000: 2001, 2003, 2006, 2007. The warmest year on record is 2007 with an average daily temperature of 48.4 °F (McCahon, 2008). Likewise, extreme summer temperatures in Helena have increased over the last two decades (based on National Weather Service data compiled by DEQ), with the average number of days over 90 degrees doubling. Comparatively, the coolest years on record occurred sporadically between 1911 and 1996, with 1951 reported as the coolest year with an average daily temperature of 39.8 °F (McCahon, 2008). Stream flow records in Helena’s primary water source, the Ten Mile watershed, echo the surprising changes in temperature.*

*Readings from the United States Geological Survey (USGS) Tenmile Creek gage station reveal that the average summer runoff for the past 8 years was 34 percent lower than the average runoff for the 85 previous years. Similar trends appear throughout Montana and the northern Rockies. US Temperature and Precipitation Trends show decadal average increases from 1976 forward (<http://www.cpc.ncep.noaa.gov/trndtext.shtml>). All of Montana is shown as getting warmer. The Montana Climate Office (<http://climate.ntsug.umt.edu/>) has *Weather Station Trends 1951-2004* ([http://climate.ntsug.umt.edu/mtclimate/multi-city\\_files/frame.htm](http://climate.ntsug.umt.edu/mtclimate/multi-city_files/frame.htm)) for Billings, Great Falls, Bozeman, Missoula and Kalispell, showing increasing average March temperatures and decreasing annual snowfall.*

The 2009 Helena Climate Change Action Plan is the most recent in-depth consideration of a variety of environmental issues as they relate to climate change.

Maintaining a healthy and sustainable community to reduce the global footprint is a desirable overall environmental goal. The Helena Climate Change Task Force Action Plan includes 8 recommendations to address some of the **climate change issues** addressed in the ENVIRONMENT chapter of the Growth Policy:

- *Hire a Sustainability Coordinator* to assist with public outreach and assist with implementing the Climate Change Action Plan – a part-time position has been filled with grant funding.
- *Sign mayors Climate Protection Agreement* – this agreement was signed in January 2010, and Helena joined nearly 1,000 other cities nation-wide, including the Montana cities of Bozeman, Billings, Red Lodge and Missoula, in committing to meet three actions:
  - *Strive to meet or beat the Kyoto Protocol targets: 7% reduction in GHG emissions (community-wide) from 1990 levels by 2012 (this was already accomplished for the municipal government);*

- *Urge the state and federal government to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol; and,*
- *Urge the U.S. Congress to pass bipartisan greenhouse gas reduction legislation.*
  
- *Develop a Green Team of staff from each City department to ensure implementation of the Task Force recommendations, and to ensure input from City staff in the ongoing development of effective sustainability policies and practices.*
  
- *Develop citizen conservation oversight through a new Citizen Conservation Board advisory board, and affirm a commitment to reduce municipal and community-wide GHG emissions, conserve water, implement other resource conservation activities and help Helena make the transition to a sustainable economy in the purpose of certain advisory boards.*
  
- *Developing education and outreach to publicize GHG reduction, water conservation and other resource conservation measures will be a critical tool for reaching both municipal and communitywide GHG reduction, water conservation, sustainability targets, and the impacts of inaction.*
  
- *Implement a program of ongoing data collection, monitoring, and reporting ...to reduce or avoid greenhouse gas emissions, including ...not just energy usage and GHG emissions, but will also encompass water consumption (and eventually track other resource conservation activities such as the implementation of green purchasing practices and waste diverted from the landfill).*
  
- *Develop funding and leveraging resources to ...support the longer term funding for staff and resources to support a sustainability program.*

This Action Plan provides 8 **recommendations for transportation, waste, recycling, public-private partnerships** (TWRP) to reduce GHG emissions in the sectors of waste management, transportation and public-private partnerships, and identified ways to educate and inform the public about water conservation and reduction of GHG emissions.

- *Support formation of an urban-area transportation district to decrease vehicle miles driven in the Helena area for commuting and non-work related travel, and to increase the mobility of elderly, disabled, low-income, student and visitor populations.*
  
- *Improve non-motorized transportation policy and infrastructure to increase the ease of non-motorized transportation in Helena and decrease vehicle miles driven.*
  
- *Establish true pay-as-you-throw (PAYT) program to achieve a 19% reduction in trash to landfill by 2011, 22% by 2015.*
  
- *Adopt a Resolution to meet EPA goal: 35% recycling of municipal solid waste to divert 35% of the City's solid waste by 2020 and save 7,078 tons of CO<sub>2</sub> per yr.*

- Institute a per-bag fee system to reduce the use of disposable shopping bags achieve a 30% reduction of disposable shopping bag distribution at stores in Helena by July 2011, saving 653 tons Co2.
- Adopt a municipal Back-to-the-Tap policy with a public education campaign to encourage using tap water, and eliminate City purchases and sales of bottled water to extend life of landfill, and reduce cost of litter cleanup and removal at events and meetings.
- Adopt a Green Blocks Program with installation of cost-effective conservation measures and on-going educational efforts to publicize conservation measures and encourage further action by participants.
- Increase local food production and consumption to reduce GHG emissions due to the transportation of food shipped long distances.

The 2009 Helena Climate Change Task Force Action Plan identified 7 recommendations related to **water supply, treatment and recovery**:

*The Task Force recommends a multi-faceted conservation strategy that addresses infrastructure conservation opportunities, the rate structure, outreach and education, conservation incentives, and conservation regulations. The working group proposes a five-year timeline to implement its recommendations, starting with an ambitious upgrade of outreach and education and a modification of the rate structure, progressing to specific conservation incentives, and finally improving the regulatory approach to water conservation.*

- Adopt conservation rates to reduce overall water demand, especially summer demand on the water treatment plant, and increase resilience of City water supply.
- Continue upgrade of supply and treatment facilities as outlined in 2005 Water Facilities Plan to enhance supply and water treatment capacity.
- Adopt “Lush and Lean” landscaping practices for municipal Properties to reduce water use on City properties.
- Study and develop community water conservation incentives, and develop a multi-faceted education and outreach water conservation program to reduce demand on the water supply system and consequently, reduce the need for infrastructure expansion and its requisite costs.
- Research and adopt a targeted program to regulate water use to reduce gallons per capita per day demand from 175 in 2005 to 100 in 2025 (as an annual average) and to reduce maximum per capita daily demand from 487 gpd to 287 gpd.
- Pursue water supply/municipal watershed protection to protect those parts of the watershed that are effectively fully functional and to restore those parts of the watershed that have been

*impaired by human activity; and to enhance the resilience of the Tenmile watershed as a key part of the municipal water supply.*

The 2009 Helena Climate Change Task Force Action Plan identified 15 **energy-related** recommendations:

- Lighting upgrade at the Tenmile water treatment facility for Co2 reduction of 111 tons.
- Study / install water-source heat pump at the Tenmile facility for Co2 savings of 274 tons.
- Study / install biomass generator at the Tenmile facility for Co2 savings of 210 tons (or roughly three times that much if systems are also pursued at the Missouri River Treatment Plant and the Waste Water Treatment Plant).
- Efficiency upgrades, Tenmile facility for a projected benefit of 644 tons of Co2 savings each year.
- Zero waste wastewater treatment energy target which would include *establishing energy reduction goals, identifying large energy sinks in the facility and alternatives to those, attracting research activity from Montana’s universities to assist plant managers, and seeking regional and national recognition for the City’s efforts that might attract further resources.*
- Develop a comprehensive energy management strategy *with a detailed analysis of the City’s energy use, across all of its departments, and end with establishing goals and an overall action plan for energy conservation, renewable energy activities and long-term management and monitoring of the City’s energy consumption.*
- Adopt energy efficiency standards for City-owned buildings in concert with its Comprehensive Energy Management Strategy.
- Improve lighting efficiency of City buildings, *often a big-ticket item in terms of cost-effective energy savings.*
- Reduce “plug loads” in buildings, the energy demand of electrical equipment used in a building.
- Work with the utility (NorthWestern Energy) and regulator (Public Service Commission) on policies to support conservation and renewable energy
- Study / develop renewable energy projects at City / County facilities
- Adopt State efficiency standards and improve fleet performance to a 10% reduction from 2007 levels by 2020, equating to a reduction of 179 tons (from 1,788 tons).
- Study biodiesel use and supply to potentially reduce emissions from the city’s diesel vehicles by about 15 equating to 151 tons of Co2 avoided each year.

- Convert streetlights and parking lots to LED / solar technology; a 25% reduction in the 2007 street light-related energy expenditures would save \$143,351.
- Employee commute and waste reduction: *Investigate options to reduce fuel use from employee commuting (through car pooling/trip reduction goals/incentives, telecommuting, non-motorized commuting, etc.); and establish a comprehensive recycling program.*

## **Lighting**

Although LEDs are not the most efficient form of lighting in terms of lumens per watt, their extremely long life makes them more economical to operate over their span of operation because they need to be changed so infrequently, and LEDs can provide a more pleasant spectrum of light than sodium lamps do. Source: <http://www.ecogeek.org>

LED lights use just one-tenth the energy of an incandescent bulb, and last up to 100,000 hours –greatly reduces maintenance costs. LEDs do not use trace mercury that exists in CFL lights and can provide a more pleasant spectrum of light than sodium lamps. Sources: 2009 Helena Climate Change Task Force Action Plan and [www.ecogeek.org](http://www.ecogeek.org).

LED street lights are integrated [LED](#) (Light Emitting Diode) light fixtures that is used as [street lighting](#). Because they are more energy efficient than other technologies used for street lighting,<sup>[1]</sup> LED street lights can save on the cost of keeping streets well lit during the night. Source: Wikipedia ([http://en.wikipedia.org/wiki/LED\\_street\\_light](http://en.wikipedia.org/wiki/LED_street_light))