

## BEST PRACTICE AREA 3: GREENHOUSE GAS REDUCTIONS

### Vision

Air quality is excellent due to reduced greenhouse gas emissions. This has been achieved through sustainable building practices, renewable energy and energy efficiency breakthroughs, and through connected and multimodal transportation systems that reduce the need for single-occupancy vehicle trips.

### Background

Greenhouse gas (GhG) emissions by municipalities' operations come from a variety of sources: Buildings contribute approximately 35-40% of emissions through their use of electricity and natural gas (see also BPA 8). Water supplies and treatment infrastructure can account for significant amounts (from 10-25% depending on size and age of facility and efficiency of operation). Other contributors are street lighting, transportation fuels such as gasoline and diesel, and wastewater treatment facilities. The first step in making reductions in greenhouse gas emissions is to establish a baseline from which to measure improvements in energy efficiency. As improvements are monitored, tracked, and published, they can serve as incentives for private building owners to follow.

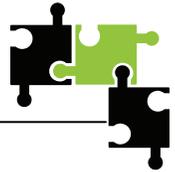
Transportation accounts for 15-20% of GhG emissions. Conservation measures through proper maintenance of the public fleet can improve fuel efficiency, while alternative fuels and hybrid vehicles can further increase efficiency and greatly reduce emissions, depending on the size and number of vehicles (see also BPA 5). When one considers private vehicle use, greenhouse gas reductions are multiplied through increased fuel efficiency, reduced miles traveled and availability of alternative fuels and transportation.

Another source of greenhouse gasses is landfilling, which produces methane, which has 23 times greater heat trapping capacity than carbon dioxide. The positive effect of recycling and composting can be great. A significant portion of “stuff” currently being landfilled – some studies have shown percentages as high as 50% – can either be recycled or composted. Landfills are the single largest direct human source of methane.<sup>2</sup> Conversely, the process of aerobic composting produces small amounts of vapor, consisting of water and carbon dioxide. When the volume of waste produced by restaurant, business and multi-family facilities are considered, the case for composting becomes even stronger. In communities

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<sup>2</sup> Platt, Brenda, et al. Stop Trashing the Climate. Institute for Local Self-Reliance. June 2008.





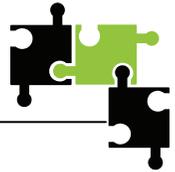
that are agriculture-based, composting is even more compelling, as it provides valuable nutrients and replaces soils lost through erosion and poor agricultural practices (refer also to BPAs 1, 2, 10).

Some municipalities have moved to large-scale composting as a way to greatly reduce the amount of landfill. The compost is then sold for gardening and landscaping purposes. Restaurant food waste can sometimes be collected for distribution to local farms for feedstock, further reducing landfill and therefore, greenhouse gasses.

### Goals

- A. Improve collection of baseline data on emissions from public/private buildings and facilities.
- B. Work to reduce greenhouse gas emissions through reductions in Vehicle Miles Traveled (VMT), through the goals of the Sustainable Multi-Modal Transportation initiative (see also Best Practice Area 5).
- C. Reduce greenhouse gas emissions through improvements to management and operations of municipal fleets. Increase use of electric vehicles, hybrid vehicles and flexible / alternative fuels.
- D. Reduce the energy and costs expended in water pumping and treatment by encouraging water conservation, rainwater collection systems, and the reuse of greywater for domestic purposes.
- E. Reduce greenhouse gas emissions by increasing the production, marketing and sale of locally-grown and sustainably produced foods, thus reducing transportation costs and artificial inputs.
- F. Reduce greenhouse gas emissions through prevention, recycling and composting of municipal solid waste.
- G. Explore the potential for capturing landfill gas (biogas) for use as fuel, thus reducing greenhouse gas emissions.
- H. Continue to explore the potential for biofuel production from a variety of non-food-based biomass sources, emphasizing those that can be sustainably managed.
- I. Educate and build public support for GhG reductions by emphasizing funding sources and incentives for the goals mentioned in this section, as well as the long-term cost savings and benefits of greater energy independence (see also Best Practice Area 7).



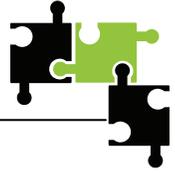


## Initiatives and Action Steps

The following three initiatives for initial action were identified through public input and reflect local stakeholders views of which goals would have the most profound effect on moving the Joint Planning District toward sustainability. The three prioritized initiatives focus on public education and cost savings, management and operations of municipal fleets, and reduction of solid waste.

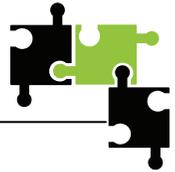
1. **Teach reduction** Educate and build public support for greenhouse gas reductions by emphasizing funding sources and incentives for the goals mentioned in this section, as well as the long-term cost savings and benefits of greater energy independence (refer also to BPA 7).
  - a. Publish often and through multiple venues – newsletters, utility flyers, community workshops – funding sources for energy efficiency upgrades/retrofits for commercial and residential property owners.
  - b. Publish websites that offer information and other links on ways to reduce energy consumption, how to apply for rebates, grants and other funding opportunities.
  - c. Coordinate with BPA 13, on the following actions:
    - C1. Stormwater generation and treatment, which accounts for a percentage of energy use and GhG emissions.
    - C2. Development issues which affect stormwater generation, building design and roads, all of which are interconnected and have impact in GhG emissions through energy use to purify water, operate buildings, and miles traveled. By focusing on more sustainable development models, energy consumption in each of these categories can be reduced, thereby reducing GhG emissions.
  - d. Coordinate with BPA 4, Land use, to stop sprawl. This includes restoration of existing buildings, infill development, greater density and innovative zoning to promote use of existing infrastructure; again, each of these strategies has potential to reduce GhG emissions.
  - e. Coordinate with BPA 12, Sustainable Education, on the following actions:
    - E1. Start with the City and County; set an example of how GhG reduction can be accomplished on one building; publish results and expand throughout the system of public buildings.
    - E2. Coordinate with community-based education efforts by designating a Sustainability Coordinator who is the conduit between city and community, and serves as a valuable resource.





- E3. Coordinate with Academia – local school districts and St. Cloud State – to develop curriculum on sustainability which includes reduction of GHG emissions and conservation of resources.
- f. Collect baseline data on greenhouse gas production for local area schools through the use of EPA’s Climate CHECK system or other GHG tracking tool.
2. **Raise MPG, Switch to Alternatives-** Reduce greenhouse gas emissions through improvements to management and operations of municipal fleets. Increase use of electric vehicles, hybrid vehicles and flexible/alternative fuels.
- Inventory existing fleet.
  - Identify vehicles that may need maintenance that would improve efficiency.
  - Prioritize vehicles that may be due for replacement with a more efficient model.
  - Establish criteria for vehicle purchase, including mpg ratings, and other pertinent information.
  - Publicize the substantial efforts already going on in this area – for example, the Husky Fried Ride (new Metro Bus St. Cloud State route powered by recycled deep fryer vegetable oil) and Metro Bus use of E85. There are, however, serious questions as to whether corn-based ethanol results in a net energy gain or loss as well as issues of soil erosion and depletion of water supplies from irrigation and large amounts of water used in corn-based ethanol production, so promotion of E85 may not be appropriate.
  - Establish carpooling policy which limits (or eliminates) public vehicle use for one-person trips.
3. **Make Dirt, Not Gasses** - Reduce greenhouse gas emissions from landfills through prevention, recycling and composting of municipal solid waste. Tie efforts to BPA1 Initiative #2 “When Zero Makes your Community Number One” and the idea of increasing participation through education, greater accessibility, incentives and technical assistance.
- Evaluate existing waste-hauling volumes to determine percentages of trash vs. recyclables vs. compostables.
  - Provide compost kits for homes; partner with local schools to enlist students in building bins for resale to interested residents. Proceeds of sale will benefit participating schools’ environmental education programs (or one of their choosing related to sustainability). Alternative: establish grant program which would allow students to be paid minimum wage for participating in program.



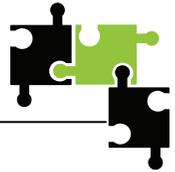


- c. Form a task force of interested restaurant owners, business partners, and residents to be advocates for composting within their municipalities. Set up pilot project with one local (independent) restaurant, one local business facility, and one local multi-family housing facility to test a composting program.
- d. Use incentives to encourage individuals to meet recycling goals and produce less trash. Example: Current green bags, priced at \$2; encourage people to recycle vs. toss.
- e. Use incentives to encourage recycling in public places (restaurants, public buildings, businesses, etc).
- f. Incorporate educational tools – website and brochure- on how to compost.

### General Actions

- I. Encourage walking, biking, transit: Coordinate with “Connected Streets” and “Transit Options” actions listed for BPA 5 which are linked to Greenhouse Gas Reductions: These initiatives strive to provide better street connectivity and include walkable and safer routes to encourage walking and bicycling and use of transit as options to automobile travel.
- II. Engage with St. Cloud State University: Enlist St. Cloud State to work with a Sustainable Team and to classify one building on campus as “No Waste”. Track and publish findings to highlight potential for campus-wide program.
- III. Advertise local commercial examples: Enlist the Chamber of Commerce to promote good examples of energy efficiency. Target four buildings each year that have undergone retrofits that have improved efficiency, thereby reducing greenhouse gasses. Publish greenhouse gas reductions so public can make a connection between reductions and impact on totals.
- IV. Recognize residential stars: Showcase a minimum of two residential properties each year that are performing better than the average. Publish “how-to” remedies that others can implement and source information for these ideas. Advertise rebate programs that residents can use to make their homes more energy efficient, by low-cost means such as added insulation, caulking and sealing.
- V. Capitalize on available resources: Capture methane from landfills in locations where it is not currently being done.
- VI. Promote action: Publish websites where people can calculate carbon footprint, and see solutions to reducing their carbon footprint.





VII. Focus on Buildings: Because buildings – residential and commercial – contribute up to 40% of GhG emissions through use of energy sources, it is important to coordinate GhG reduction efforts with actions in BPA 8 – Building Practices. These actions include:

- a. Calculating emissions and setting targets for improvement (choose one building to start, publish results and set new targets; document annual improvements.
- b. Audit buildings in bottom third of energy performance ranking and implement all energy efficiency opportunities that offer payback under 5 years.
- c. Enter public building data into the MN B3 database and rank buildings in regard to energy performance.
- d. Calculate CO<sub>2</sub> emissions from wastewater treatment, water towers and lift stations.
- e. Work with local school districts to ensure that all schools are built to a green building standard.
- f. Encourage private property owners (residential and commercial) to submit data to Energy Star, and to set annual goals for energy efficient improvement through upgrades and/or retrofits.

