

Appendix 2C

Resource Conservation

Minnesota law contains policies related to waste management. Solid waste management in the State is strongly grounded in the need to safeguard the environment, conserve and recover material and energy resources, and protect health and safety. Resource conservation occurs when materials and energy use is avoided or materials and energy are appropriately recovered from waste and put to further use.

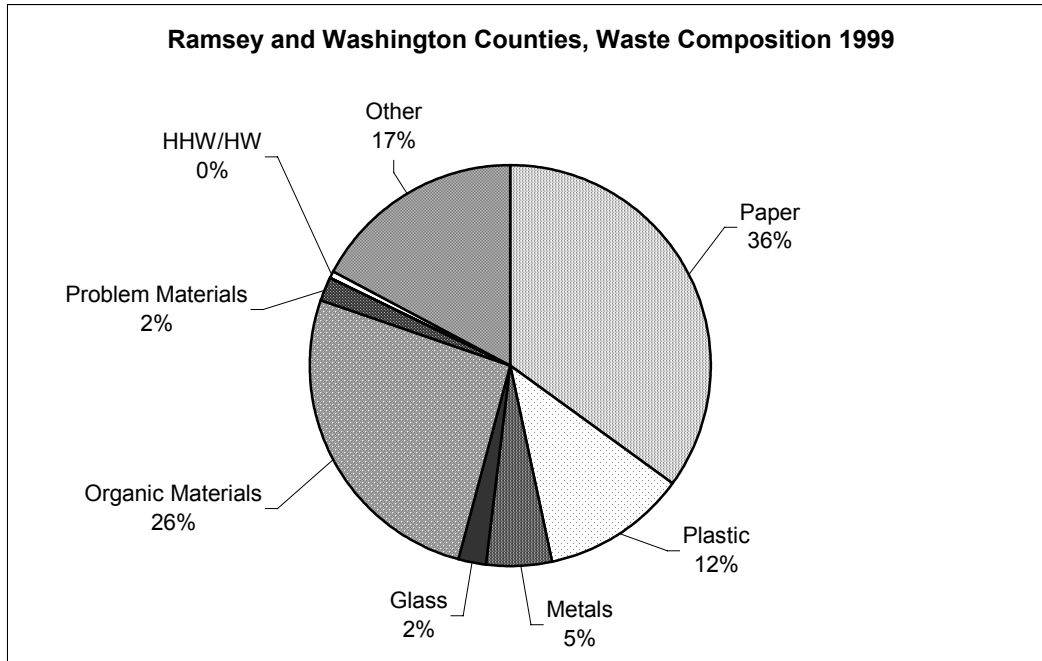
Studies by the Solid Waste Management Coordinating Board and the Minnesota Office of Environmental Assistance document resource conservation and greenhouse gas issues related to various forms of waste management.

- ◆ Waste reduction, recycling and composting typically result in overall reductions in several key air and water pollutants compared to landfilling.
- ◆ Waste reduction and recycling reduce overall energy consumption, primarily due to avoided production and the reduced energy required to obtain and use recycled instead of virgin materials.
- ◆ Nearly all methods to reduce and recover solid waste decrease global warming potential as recovered materials and energy replace virgin sources of materials and energy.
- ◆ Landfilling, particularly landfilling at facilities that do not recover methane for energy recovery, increase global warming potential, despite the fact that landfills also sequester, or store, some carbon that could otherwise be released.

Examples of resource conservation benefits of recycling include:

- ◆ Each ton of recycled paper requires about 4,102 kwh less energy than virgin paper production (EPA).
- ◆ Each ton of recycled paper saves approximately 17 trees (Riverside Paper Company).
- ◆ The manufacture of recycled paper requires 7,000 less gallons of water per ton compared to non-recycled paper. (EPA)
- ◆ Using recycled aluminum beverage cans to produce new cans takes only 5% of the energy it takes to make them from virgin materials (Can Manufacturers Institute).
- ◆ Making glass from a mixture of one-half recycled glass and one-half raw materials reduces water consumption by 50%, mining wastes by 79% and air pollutants by 14%. (BFI)

The SWMCB and OEA conducted a waste composition study in 1999, including data specific to Ramsey and Washington Counties. Examining that data shows considerable resource value in residential and commercial mixed municipal solid waste that is collected and delivered either to the resource recovery facility or landfills. A summary is shown in the following chart:



Environmental gains can be realized with additional recovery of resources currently in waste. A few examples are:

- ◆ If just one-half of the corrugated containers, newspaper, office paper, and mixed mail now being thrown away each year in Ramsey and Washington Counties was recycled, more than 1 million trees would be saved.
- ◆ If just one-half of the estimated 117 million aluminum cans that are tossed in the trash each year were recycled, enough energy would be saved to provide electricity to 8,000 homes per year.
- ◆ If just one-half of the food waste and non-recyclable paper (e.g., used paper towels, pizza boxes, etc.) now being tossed in the trash from the Counties each year was diverted to composting, the finished compost could cover a football field and end zones to a depth of 32 feet. This amount would fill 3.4 million 40-lb. bags of compost that could be used on gardens or farm fields.
- ◆ Landfilling is on the rise. In 2000, 88,000 more tons of trash produced in Ramsey and Washington Counties were landfilled than in 1996. This difference would cover a football field to a depth of 59 feet. Landfill space could be better used for handling waste with no better management option, rather than for recoverable resources. Land can be preserved for more valuable, healthier uses than burying garbage.