

Curbside Composting Report | Brookings, SD

July 28, 2017

On May 9, 2017, the Brookings City Council made a motion directing staff to research curbside compost bins or neighborhood compost collection areas. They requested this item be brought back for discussion within three months.

A subcommittee of the Sustainability Council Urban Ag Committee and City staff researched the issue and prepared the following report for City Council review. The members were Norma Nusz Chandler, Robert McGrath, Betty Beer, Jennifer McLaughlin, Holly Tilton Byrne, Shari Thornes, and Todd Langland.

The report includes a summary of the current program, elements of a successful program, State and local regulations, comparisons to other cities, potential opportunities, and recommendations.

SUCCESSFUL CURBSIDE COMPOSTING PROGRAMS

The Department of Urban Studies and Planning, Massachusetts Institute of Technology analyzed curbside compostable collection in the United States in the attached “Municipal Curbside Compostables Collection: What Works and Why,” report. The report states that their “analysis yields several important insights about formulating, designing, and implementing an effective curbside compostables collection program-that is, one that achieves high participation and diversion rates with low levels of contamination.

Effective curbside compostables collection programs tend to arise most readily in places where conditions are favorable in two respects. First, an ambitious waste diversion mandate at the state or county level and/or high or rising landfill costs create incentives for a municipality to divert its waste from landfills. And second, two factors enhance a municipality's ability to respond to those incentives: (1) a nearby processing facility that can handle the city's food waste and (2) preexisting infrastructure for collecting and processing yard waste. Without a strong incentive to divert organic waste and the capacity to do so, it is more difficult to establish a program; that said, even communities with relatively inhospitable initial conditions are finding creative ways to institute curbside compostables collection.

In designing an effective curbside compostables collection program, municipalities must do two things. First, they must gain the cooperation of haulers, something that is easier for communities that directly provide collection service or contract with a single hauler. Gaining hauler cooperation involves recognizing that for haulers the efficiency of collection routes (maximizing the tonnage collected while minimizing distance traveled) is a paramount consideration. And second, municipalities must motivate waste generators to both participate at high rates and separate organic materials properly in order to minimize contamination. To these ends, municipalities can provide incentives that make it relatively cheap and convenient to separate organics, disseminate adequate and well-designed information that makes composting readily comprehensible, and-most effective of all-mandate participation.”

Finally, in launching curbside compostables collection, municipalities with effective programs almost invariably begin with a pilot program that reveals which approaches are likely to work best in that particular place and demonstrates the program's viability to local skeptics. Whenever possible, program officials have pursued state or county grants to launch their pilot program(s). And several effective programs have worked with local nonprofits to get composting off the ground and then to enhance participation and set-out rates through education and incentive campaigns.

The basic requirements for a curbside composting program are a convenient, safe collection system and a permitted composting site. However, to have a truly successful program an extensive public education program would be needed. The public education would have to concentrate on making sure the public understood what materials could be composted and what materials could not be composted. The public education would also be needed to expand participation rates to a reasonable level to make the program worthwhile. Therefore, public education is important enough to be almost considered a basic requirement.

SOUTH DAKOTA REGULATIONS

Regulations addressing composting operations are governed by the South Dakota Department of Agriculture and the South Dakota Department of Environment and Natural Resources. The Department of Agriculture has regulations related to labeling of the finished compost, testing of the finished compost and payment of a fee per ton on the distributed compost. The Department of Environment and Natural Resources (DENR) has regulations on siting, design, and operations of all Solid Waste Facilities in the state. However, they do not have specific regulations for composting operations. The DENR follows Federal law, which at this time considers composting part of solid waste operations because by definition food scraps are classified as municipal solid waste (MSW). Therefore, subject to the same regulations as a solid waste landfill.

The State of South Dakota does have “primacy” in regards to the EPA. Primacy means the EPA has reviewed the DENR regulations and the state’s ability to enforce the regulations and determined that the state DENR can issue permits, conduct inspections and handle enforcement without the EPA being directly involved. The state can also amend the Federal language as long as there is not any increased danger to the environment, although they do review any language changes. Other states throughout the nation have revised their regulations to reflect the different types of composting operations.

A good example of South Dakota revising their regulations is the recent deleting of Chapter 74:27:18 Statewide Comprehensive Solid Waste Management Plan. The Comprehensive Solid Waste Management Plan is discussed in the Federal regulations.

CHAPTER 74:27:18 - STATEWIDE COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN ((Deleted)

At the request of the Department of Environment and Natural Resources, the Legislative Research Council deleted Chapter 74:27:18, Statewide Comprehensive Solid Waste Management Plan and Appendix A, effective April 15, 2013, pursuant to SDCL 1-26-8.1 and 1-26A-1. The authority to promulgate this rule was repealed by SL 2012, ch 215, § 31, thus the rule is deemed obsolete by operation of law.

This plan was deleted because each regional landfill is required to submit a comprehensive solid waste management plan for their service area every five years prior to renewing their operating permit. Therefore, each region of the state has a plan unique to their local area. Each local area has different recycling markets, different waste streams, different programs, diversified haulers, and different resources available to manage solid waste.

The Brookings region is fortunate to have industries and businesses that aggressively recycle their own waste such as 3M, Daktronics, Larson Manufacturing, Wal-Mart, and HyVee to name a few. Bowes Construction also recycles asphalt and GCC Ready Mix, Inc. accepts old concrete. There are also several businesses in the region that accept scrap iron and old autos. Cook’s Wastepaper and Recycling Inc.

(Waste Connections), Engineering Services, Brookings Dumpster Service as well as the City of Brookings Collection Service are involved in collection and/or processing traditional recycling. There are also companies in the region that handle special wastes such as waste oil, light bulbs, etc. As a result, our service area has a very comprehensive solid waste management plan. Incidentally, the service area for the Brookings Landfill is all of Brookings County, all of Moody County, the eastern half of Kingsbury County, the southeastern corner of Hamlin County, the southern half of Deuel County and portions of Lake County

CITY OF BROOKINGS REGIONAL LANDFILL - CURRENT CONDITION.

The City of Brookings Regional Landfill serves 35 communities in a six county region. Last year, the City collected 4,740 tons from Brookings residence, which includes food scrap waste. The Brookings Landfill can currently compost yard waste but not municipal solid waste (MSW) or source separated organic material (SSOM).

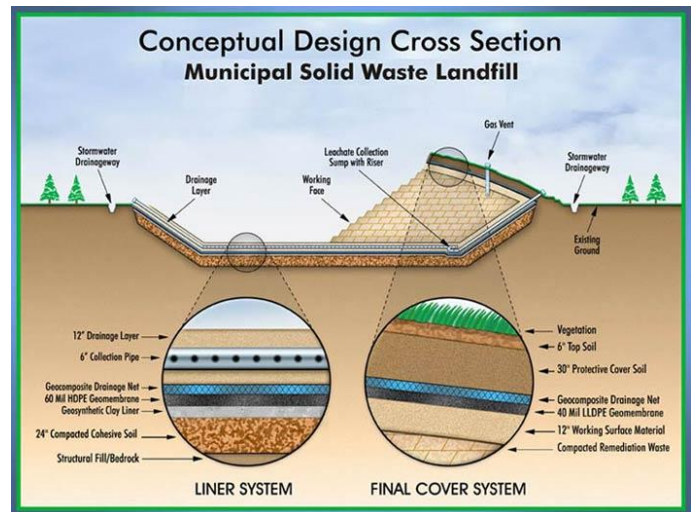
The yard waste program consists of collecting city yard waste bags, loose yard waste brought into the landfill primarily from landscapers and yard service companies, and yard waste brought in during Spring Cleanup and the Free Fall Leaf Drop-off. The sale of the bags, in excess of 67,000 bags or 752 tons, pays for the collection part of the program and contributes to paying for the operating costs of the composting activity at the landfill.

LANDFILL CONSIDERATIONS.

The South Dakota Department of Environmental and Natural Resources (Waste Management Department) has no regulations/guidelines set up for curbside composting. If the Brookings Regional Landfill and the Solid Waste Collection would start a curbside composting program the following is a list of items to consider. Regulations would be necessary in order to determine cost estimates for the following:

- 1) Land purchase/Location of Facility,
- 2) Building Structure,
- 3) Monitoring Wells
- 4) Leachate System/enclosed holding tank,
- 5) Monthly testing services,
- 6) Liner Costs,
- 7) Permit change,
- 8) Truck and containers, and
- 9) Operational costs including personnel.

Another factor to consider is that there are some long-term benefits of methane production that are generated from food scraps in the landfill. This methane could be collected at a future time, but may not be feasible if composting is implemented. While composting also generates methane, it is more difficult to capture and utilize the methane gas. Methane gas, which is natural gas, when collected from the landfill is intended to be used as a heat source for the landfill buildings. Any excess gas could be sold.



LOCAL FOOD SCRAP COLLECTION REGULATIONS

Another option is for the City of Brookings to write its own regulations. According to the State, the cities can establish its own regulations for the collection and transportation of wastes. Cities can opt to be more stringent than what will be required in the State’s local permit requirements. No additional review or approval would be required by the EPA.

74:27:17:02. Local governments responsible for waste management. Standards and responsibilities for frequency of collection, specifications, and maintenance of transfer stations receiving less than 500 tons of solid waste per year, standards for collection vehicles, and transportation of wastes to permitted facilities shall be defined by the local or regional person responsible for waste management. Local governmental agencies shall ensure compliance with department rules by each solid waste facility under their jurisdiction.

SOUTH DAKOTA COMPARISON

The only composting operation permitted to compost municipal solid waste (MSW) in South Dakota is the Rapid City Regional Landfill. The Rapid City Regional Landfill was permitted as an existing facility when the rules were passed in 1991. The Rapid City Regional Landfill constructed a Material Recovery Facility (MRF) in the 1980’s. The purpose of the MRF when originally built was to separate traditional recycling and organic material from household solid waste (industrial waste and commercial waste went directly to the landfill). Today traditional recycling is collected in a cart system similar to our operation with drop off locations for cardboard and paper products. As a result now the MRF’s primary function is to separate organic materials from the garbage that is destined for the landfill. Rapid City receives a large volume of organic material directly from grocery stores, restaurants, etc.

Once the organic material is separated, it goes through a process of being tumbled in large vats, and then moved to buildings where the temperature and moisture are controlled until the material is considered compost. At this point it is blended with conventional yard waste compost. The Rapid City Regional Landfill makes three compost products. Yard waste compost (their largest volume), 50% MSW compost/50% yard waste compost blended, and 50% bio-solids (from their waste water plant) /50% yard waste compost blended.

The cost of this operation is one of the reasons that the tipping fee for Rapid City Regional Landfill is \$59.00/ton the highest in South Dakota. As a comparison the Brookings Landfill is \$44.00/ton.

COMPARISON OF OTHER SOUTH DAKOTA SOLID WASTE/COMPOSTING OPERATIONS

Below is a comparison table of other South Dakota Solid Waste/Composting Operations. The information in the table was gathered from the various locations’ websites.

Location	Landfill Tipping Fee	Curbside Collection of Food Scraps for Composting	Use a transfer station	Reason for transfer station	Charge for accepting Yard Waste at composting Facility/Landfill	Price of Finished Compost
Brookings	\$44.00/ton	No	No		\$44.00/ton except free for Spring Cleanup and Fall Leaf disposal	Free
Brown County / Aberdeen	\$38.00/ton	No	No		\$-0-	Free
Huron (Pierre)	\$43.00/ton	No	Yes	Garbage baled and	\$81.09 one-time fee for cart for curbside collection	\$15.00/ton

				hailed to Pierre, SD		
Mitchell	\$39.00/ton	No	No		\$4.00/month for curbside collection fee	Free
Pierre	\$43.00/ton	No	Yes	Garbage baled and hauled to the landfill a few miles out of town	\$-0-	\$15.00/ton
Rapid City	\$59.00/ton	Yes*	No		\$-0-	\$20/ton, but discounted to \$5 (was free prior to 10/16)
Sioux Falls	\$36.00/ton	No	No		\$10.00/ton	Free
Vermillion	\$46.50/ton	No	No		\$10.00/ton	Free
Watertown	\$33.00/ton	No	No		\$22.00/ton	First 2 tons free; \$20.00/ton for additional material
Yankton	\$46.50/ton (Vermillion)	No	Yes	Garbage hauled to landfill at Vermillion	\$-0-	Free
<p>The City of Rapid City collects municipal solid waste (MSW) and hauls it to the Material Recovery Facility (MRF) at the Rapid City Landfill where the organic compostables are separated from the rest of the waste. The organic compostables are blended with 50% yard waste compost to make a finished product of 50% organic food waste and 50% yard waste. Rapid City also makes a compost product that is 50% yard waste and 50% bio-solids from their waste water plant. This facility was originally designed and permitted in the 1980's to separate traditional recycling, organic food waste, and landfill waste. They now collect traditional recycling curbside; so now there is no need to separate their recycling.</p>						

MINNESOTA COMPARISON

As part of this report the Sustainability Council researched how composting was being handled in Minnesota. Minnesota did amend their solid waste regulations in 2015 and recognized three different types of composting operations. The amended regulations added a distinct new category of composting identified as Source Separated Organics (SSO). The permitting requirements for a SSO facility are between the minimal requirements for composting yard waste and the very stringent requirements for composting municipal solid waste (MSW) according to *Municipal Curbside Compostables Collection: What Works and Why?*

Minnesota does have permitted SSO and MSW composting sites. Below is a list put out by the Minnesota Pollution Control Agency (MPCA). Many communities are testing or implementing programs to divert the entire organic waste stream, not just yard waste for composting. The MPCA has permitted the following solid waste/food waste facilities:

- Creekside Organic Material Processing: Hutchinson
- Dodge County Transfer and MSW Compost Facility: Mantorville
- Empire Processing Facility: Rosemount
- Full Circle Organics: Good Thunder

- Mdewakanton Sioux Community Organics Recycling Facility: Shakopee
- Prairieland Solid Waste Management: Truman
- Swift County Compost/ Recycling Facility: Benson
- Tri-County Organics: St. Cloud
- WLSSD Source Separated Compost Facility: Duluth

Some of the facilities listed above are privately owned and operated and some are publicly owned and operated. However, most of the source-separated organic material sites are privately owned and operated. Creekside Organic Material Processing is owned by the City of Hutchison. It is hoped that the softening of the regulations will allow more new sites to be established and allow existing operations to expand. Currently, there is limited composting capacity for source separated organic material sites and municipal solid waste sites in Minnesota.

There have been curbside composting programs started in Hennepin County (Minneapolis). There are 45 communities in Hennepin County (population of 1,168,431) as of 2013 twelve communities were participating in curbside collection of organics. This represented 17,300 households out of an estimated 300,000 households that receive curbside trash collection. This is a 5.76% participation rate. The county estimated that the average annual per capita residential set out rate for participating households is 108 pounds/year. The staff of Hennepin County is concerned that the limited capacity of the permitted sites in their area will slow the expansion of the curbside composting program.

The community of Burnsville, MN (population 60,828) started a pilot program in 2002. However, they had to discontinue the pilot program in 2010 when the number of participating households dropped to 30. Another contributing factor to why they were forced to quit the pilot program was the cost to haul the organics to a permitted facility that was 35 miles away.

There are some lessons that can be learned from the Minnesota pilot programs. The first lesson is that a permitted composting facility must be relatively close by. Hauling costs for any distance will be an issue. The second lesson is the importance of having the regulations softened to recognize source separated organic material sites as a distinct category for composting. The third lesson is the importance of public education and possibly some financial incentive to increase participation.

KEY FACTORS

In order to develop a successful and sustainable curbside composting program, there are several key factors that would need to be addressed:

1. Establishment of state permitting regulations by State of South Dakota and or local regulations by the City of Brookings.
2. Evaluate permitted processing facility options:
 - A. Create a local permitted processing facility, or
 - B. Evaluate access to another permitted facility, or
 - C. Other considerations:
 - 1) Are the anaerobic digesters at the Waste Water Treatment Plant an option?
 - 2) Does the Waste Water Treatment Plant have capacity to allow mixing in additional curbside organic waste and would their regulations allow it?

3. Other facility factors:
 - A. Distance to facility
 - B. Capacity to accept specific waste
 - C. Cost of hauling
 - D. Additional regulations
 - E. Contamination mitigation
 - F. Types of food waste to accept

4. Evaluate funding options for facilities and operations

5. Research funding options for pilot programs

6. Residential participation:
 - A. Program options:
 - 1) Curbside
 - 2) Backyard
 - B. Participation estimate
 - C. Evaluate incentive options

7. Private hauler cooperation

8. Commercial, Multi-Unit Residential, and Institutional Participation
 - A. Participation estimate
 - B. Incentives
 - C. How do we target Commercial, Institutional and Multi-Unit Residential participation (biggest potential volume all hauled by private haulers)?

9. Operational:
 - A. Trucks
 - B. Containers
 - C. Personnel costs
 - D. Collection frequency
 - 1) Seasonal yard waste
 - E. Collection fee
 - 1) Impact Landfill collection fees
 - 2) Impact on Landfill tipping fees
 - F. Facility costs
 - G. Participation estimates

10. Public outreach and education efforts

OPPORTUNITIES & BENEFITS

The City of Brookings has several advantages that can be turned into benefits related to a curbside composting program.

1. Brookings has a very high rate of participation in the collection of curbside recyclables (nearly 80%), so the idea of another curbside collection would be easy to explain. According to the “2016 State of Curbside Report” that analyzed 465 cities nationwide, average participation rate is 54 percent.

2. Most of the industries and businesses in Brookings do a fantastic job of recycling or diverting waste from the landfill. As a result, the public is exposed to environmental protection not only at home but work too.
3. Since Brookings has a high awareness of environmental protection, it would be easy to get the public enthusiastic about a curbside composting program with adequate public education.
4. Brookings is a smaller community than those in the Twin City Metro Area, where the pilot programs were conducted. We have fewer barriers such as traffic, private garbage haulers, and easier public outreach in a smaller community.
5. The City of Brookings does have trucks, carts and collection routes already established, so modifications should be less painful depending on how the state amends the regulations.
6. Grant funding is currently available for a City sponsored curbside composting pilot program.
7. A curbside composting program should qualify for grants and/or loans from the SDDENR. The grant program typically requires a match, but the City of Brookings could get some funding to start a curbside composting program.

COMMITTEE RECOMMENDATIONS

1. It is recommended the City of Brookings work in concert with the South Dakota Department of Environment and Natural Resources to develop regulations that will apply to composting food scraps. Since the landfill is a permitted solid waste facility, any regulations developed would apply to the City's operation as well as any privately owned facility. If possible, it would be advantageous to encourage the regulations be administered by the state as permit conditions versus administrative rules. Permit conditions allow the state to handle each solid waste facility on a case-by-case basis versus one-rule fits all. The state does have primacy for the administration of the Resource Conservation and Recovery Act (RCRA), but must stay within the confines of the definitions of solid waste, which includes food waste as Municipal Solid Waste (MSW). Therefore, helping the state with examples of how to reword certain definitions to allow less restrictive composting regulations from Region 5, which includes Minnesota or Region 7, which includes Iowa, would be a good strategy.
2. Once regulations are created, the City of Brookings should encourage private development of a *Source Separated Organic Material Site* and collection service. The City could also consider developing its own local regulations and providing the service itself. At that point, the key factors cited above would require in-depth analysis.
3. Most cities initiate composting programs with a pilot program. Since large businesses and institutions generate the highest volume of waste, the Committee recommends, after regulations are in place, the City seek funding for a pilot program for the large consumer composting.
4. Since Brookings has a high awareness of environmental protection, Brookings should develop a public education program to promote residential backyard composting and its benefits.

REFERENCES/RESOURCES

- Municipal Curbside Compostables Collections: What Works & Why?, Department of Urban Studies and Planning, 2014
- "The 2016 State of Curbside Report," The Recycling Partnership

DEFINITIONS (SOUTH DAKOTA ADMINISTRATIVE RULES 74:27:07:01)

Collection: The gathering of solid waste from public and private places for recycling or disposal;

Commercial Solid Waste: Solid waste generated by stores, offices, restaurants, warehouses, printing shops, service stations, and other nonmanufacturing, non-household sources;

Composting: The controlled biological decomposition of the organic portion of solid waste in a manner resulting in an innocuous final product that may be applied to land for the purposes of soil conditioning;

Existing facility: Any facility receiving solid waste before October 9, 1991, that is in compliance with past design and operational regulations and practices;

Household waste: Solid waste derived from households, including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day use recreation areas, but not waste from commercial activities, that is generated, stored, or present in a household;

Leachate collection system: Any combination of landfill base slopes, liners, permeable zones, pipes, sumps, pumps, or retention structures that are designed, constructed, operated, and maintained to monitor, collect, and remove leachate generated in a solid waste landfill;

Liner: A continuous layer of natural or synthetic materials beneath and on the sides of a surface impoundment, landfill, or landfill unit, which prohibits the downward or lateral escape of wastes, waste constituents, or leachate;

Municipal solid waste landfill facility – MSWLF: A facility that receives any household waste for land disposal;

New facility: A facility constructed after October 8, 1991;

Source-separated compostable materials:

(1) are separated at the source by waste generators for the purpose of preparing them for use as compost;

(2) are collected separately from mixed municipal solid waste, and are governed by the licensing provisions of section 115A.93;

(3) are comprised of food wastes, fish and animal waste, plant materials, diapers, sanitary products, and paper that is not recyclable because the commissioner has determined that no other person is willing to accept the paper for recycling;

(4) are delivered to a facility to undergo controlled microbial degradation to yield a humus-like product meeting the agency's class I or class II, or equivalent, compost standards and where process rejects do not exceed 15 percent by weight of the total material delivered to the facility; and

(5) may be delivered to a transfer station, mixed municipal solid waste processing facility, or recycling facility only for the purposes of composting or transfer to a composting facility, unless the commissioner determines that no other person is willing to accept the materials.

(Minnesota Codified Law 115A.93) - "Source-separated organic material."

A. "Source-separated organic material" means: (1) source-separated compostable materials and yard waste, as defined under Minnesota Statutes, section 115A.03, except sanitary products and diapers; (2) vegetative wastes generated from industrial or manufacturing processes that prepare food for human consumption; and (3) compostable materials that meet the standards in ASTM D6400 and ASTM D6868, incorporated by reference under part 7035.0605.§

B. Unless specifically permitted by the commissioner under part 7001.0150, source-separated organic material does not include: (1) animal wastes such as manure or carcasses; (2) fish wastes generated from industrial or manufacturing processes; (3) meat by-products generated from industrial or manufacturing processes; (4) sanitary products; or (5) diapers.

C. Source-separated organic material does not include: (1) septage; or (2) sewage sludge, as defined in part 7041.0100, subpart 49. (Minnesota Administrative Rules 7035.0300 Definitions)