BLOOMINGTON SCHOOL DISTRICT (ISD 271)

SOURCE-SEPARATED ORGANICS RECYCLING PROGRAM 2008/2009, 2009/2010 FINAL REPORT

Prepared For:

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I. INTRODUCTION

Bloomington School District (ISD 271) implemented their source-separated organics (SSO) recycling program in the 2008/2009 school year with the help of a Hennepin County Waste Abatement Incentive Fund grant. The motivation for implementing this program was to reduce solid waste set out for disposal through a recycling program targeting organics coming from school kitchens and cafeterias; previously only cardboard, plastic, glass and cans were recycled. Among the overall goals of the SSO recycling program are:

- Reduce waste through SSO diversion in all of the school kitchens and cafeterias;
- Reduce the use of plastic silverware by purchasing washable silverware;
- Utilize the program to promote environmental awareness and education.

It became apparent during the first year of implementation that introducing an SSO recycling program beyond kitchen collection was needed. As a result the program was gradually expanded to lavatory paper towels and staff lunchrooms. To date, the SSO recycling program has been rolled out in all of the District's schools, except the high schools.

The purpose of this report is to provide an operational overview and cost-benefit analysis of the current program for FY 2008/2009 and FY 2009/2010. This analysis includes documenting the expenses associated with program operation and evaluating the cost effectiveness of the program.

II. DISTRICT AND PROGRAM DESCRIPTION

A. SCHOOLS AND ENROLLMENT

The Bloomington School District serves all of the City of Bloomington. The District operates ten elementary schools, three middle schools, and two high schools (Olson middle and elementary schools are connected, and share a kitchen and trash-pickup site). The schools, grade levels and FY 2008/2009 and FY 2009/2010 enrollment numbers are summarized in the attachments.

B. ORGANICS COLLECTION PROGRAM

Though operationally similar, the Bloomington SSO recycling program can look different from school to school. For example, in some schools there is a container for dumping liquids (i.e., unfinished milk, soup, etc.), which helps reduce the weight of bagged organics and trash, minimizing accidental spills or injuries. Other schools within the District don't have this type of container at the cafeteria sorting stations but may instead take advantage of a nearby dish room sink for dumping unfinished milk. Most of the cafeterias are on the first floor not far from the waste disposal area. Other program differences are primarily related to factors such as the layout of the cafeteria, the number and availability of containers, and what set-up seems to work best in a given school.

Figures 2.1 and 2.2 show typical layouts for the sorting stations. Usually, there are two sorting stations set up in each cafeteria. Where these are located within the cafeteria is determined by

student in-flow and out-flow in the cafeteria as well as the location of the kitchen area. The sorting stations consist of one 32-gallon red container for trash, one 32-gallon yellow container for co-mingled cans and bottles and one 32-gallon green container for organics. In addition to the color-coding, all the sorting stations have signage on them indicating in both pictures and words the types of materials that go in them.

In most cases, the sorting stations are set up near the kitchen area. A dish-room counter is available where students can place their reusable trays. In some cases there is also a nearby table with a tub of soapy water where students can drop their silverware.

Figure 2.1: Olson Elementary School

Figure 2.2: Olson Middle School

The school kitchens also participate in the SSO recycling program and have similar containers in strategic areas within the kitchen. Meal-preparation scraps such as fruit and vegetable trimmings, parchment paper and paper packaging are placed in these containers.

Students generally provide sorting monitoring of the containers during the lunch periods. Paras also may work the lunchroom but typically do not assist with monitoring the SSO recycling program. Custodial staff empties the containers when full.

Compostable bags are used for lining the organics containers. When these bags are nearly full they are tied off, and the containers are wheeled out to the disposal area where the bags are placed in organics collection containers. A Waste Management truck typically services these containers once or twice a week. At the middle schools, compactors are used for SSO (described in section III) The collected organics were originally delivered to the U of M arboretum. They are now delivered to Resource Recovery Technologies (RRT).

The program is a collaborative effort between site coordinators, buildings and grounds staff, food service staff, school administrations, principals, teachers, students and Hennepin County environmental services.

1. Implementation timeline:

December 2007 to March 2008: Maintenance-shop staff and site coordinators for Olson Elementary and Olson Middle schools visited other districts to observe their organics programs' set-ups. Colored barrels were sourced and purchased, then the sorting tables were designed and built. The maintenance-shop staff experimented a bit -- hole sizes had to be adjusted, countertops were too heavy at first, for a while Plexiglass tops were used and then rejected – but once the table was designed, the material was bought in bulk, welded together, the tops were put on and brackets for signs were added. Then school-site coordinators were recruited.

April 2008 to May 2009: A pilot program was begun at Olson Elementary and Olson Middle schools, which share a building and a trash site. This location was chosen as the pilot because the food service coordinator and facilities director share the same building as the two schools, making it very convenient to keep an eye on the programs, hold meetings with teacher coordinators, and tweak the programs to work out the bugs. In November 2008, the SSO program was rolled out to Valley View Middle, Oak Grove Middle, Valley View Elementary, Oak Grove Elementary and Hillcrest, and in May 2009, Washburn, Normandale Hills, Poplar Bridge, Ridgeview, Westwood and Indian Mounds were added. Site coordinators who had successfully overseen SSO programs at their schools would teach new site coordinators as additional schools began their programs.

III. PROGRAM METRICS

A. TONS OF SOURCE-SEPARATED ORGANICS RECOVERED

Actual tons of SSO collected from each school or school district over the last several years has not been tracked. Because of the way the routes are structured and the fact that weights are not calculated until actually dumped on a tipping floor there is no direct method to obtain this information. However, by keeping track of the number of SSO containers at each school has, and how often these are serviced, backing into an estimate of the tonnage coming from the District is possible. SSO containers, for purposes of this discussion, are the containers located outside near the solid waste and cardboard dumpsters, and the blue co-mingled recycling carts. At the start of the 2010 school year, Waste Management allowed all co-mingled recyclables (cans, glass, plastic) to be included with the cardboard and paper recycling.

At the middle schools, the trash compactors went from being used to compact trash to being used to compact organics because the schools had much more organic waste. And the trash dumpsters came to be used for organics and vice versa. The compactor is housed in a special enclosure attached to the building. When the dumpster is emptied, a Waste Management operator pulls up his truck, disconnects the hydraulics to the compactor, dumps the container contents into his truck, then puts the container down and reconnects the hydraulics.

The timeframe for servicing these containers are measured by school year (early September through early June).

For the 2008/2009 school year, it was calculated that across all participating schools in the district, the average weight of a yard of organics is about 175 pounds. Assuming there is little

variation between schools and considering schools began the organics program at various times throughout the year, this would put the amount of organics being recovered from the Bloomington School District at approximately 162 tons for the 2008/2009 school year.

For the 2009/2010 school year, across all participating schools in the district, the average weight of a yard of organics was estimated at 175 pounds. Assuming there is little variation between schools and considering that schools began the organics program at various times throughout the year, this would put the amount of organics being recovered from the Bloomington School District at approximately 115 tons for the 2009/2010 school year, which amounts to a total of 277 tons for the two-year grant period.

B. CONTAMINATION ISSUES

With the oversight of the site coordinators, students, and some of the custodial staff actively promoting and monitoring the program, contamination rates have been maintained well within the 10% by volume level. At times, students were throwing away the real silverware, so principals at those schools were notified, and lunchroom coordinators were told to watch out for this, and the situation improved.

C. OTHER CHALLENGES AND LESSONS LEARNED

Student volunteers were not always available to monitor the sorting tables. Site coordinators were then advised that the program needed their attention. Occasionally site coordinators were not monitoring the program as needed. This was addressed by updating the site-coordinator list semi-annually to reflect teachers leaving the school.

Starting with a couple of pilot schools, which can be monitored closely for a few months to fine-tune the program and make corrections, was a good idea. Then those findings were implemented at future locations. It was important to be flexible on waste-container sizes and frequency of pick-ups. Increased frequency adds the most cost. At the middle schools, it was found that using trash compactors was more efficient for the organic waste than for the trash because as the SSO programs got up and running, there was more organic waste than trash.

D. COMPOSTABLE BAGS

The Bloomington School District uses the BioTuf Heavy Duty liner.

The main issue with the compostable bags has been, and still is, the cost of the bags. The pricing on these bags is considerably higher than the cost of typical plastic bags.

E. SILVERWARE

Silverware was found to be quite inexpensive, so the decision was made to switch from plastic utensils to real ones. The cost was about break-even. All the schools have dishwashers, and the trays were already being washed, so trays to wash the silverware, too, were purchased. There is some loss on the silverware with some being thrown away and others being manipulated into

creative shapes by the students, but principals at those schools were notified, and the rapid pace of having to replace silverware slowed. All schools that have SSO programs are now using reusable silverware.

F. ENVIRONMENTAL EDUCATION INITIATIVES

At each of the 13 schools operating SSO recycling programs in FY 2008/2009 and FY 2009/2010, the district has done the work on education and program promotion. From the beginning, each school appointed a Site Coordinator to oversee the rollout of the program with a major focus on promoting the program and educating students and staff. This was done through signs, with both words and pictures to help with easy identification of what should go in which bin, and presentations held by site coordinators at their schools. Some schools used pep rallies and news bulletins.

The SSO program received media coverage in the Bloomington Sun-Current in June 2008. Additionally, the program was included in a superintendents' status report in January 2008, and an article was written for a City of Bloomington newsletter in October 2008. Those three articles are attached. The SSO program was included in a May 2008 PowerPoint presentation to the School Board on support services' green programs.

Site coordinators also recruited students to help monitor the sorting stations. The lessons learned from recycling and organics composting is something the students can carry over to their adult lives.

G. FINANCIAL ANALYSIS

In order to determine the ongoing cost-benefit analysis of the Bloomington School District's SSO recycling program, two components need to be examined. The first is the actual cost for SSO recycling program operations with the second being any savings that may accrue from a reduction in solid waste management services. These are discussed below.

1. SSO Program Costs

The cost components of the District's SSO recycling program for the last two fiscal years are broken out in the attached table.

As seen in the attached table, the cost of operating the District's SSO recycling program in FY 2008/2009 was approximately $31,000. The largest costs were for the recycling station tables ($390 each) (27.7%), collection and tipping fee services (20.6%), compostable bags (21.7%) and carts/containers (27.2%).

The cost of operating the District's SSO recycling program in FY 2009/2010 was approximately $21,485. The largest costs were for the collection and tipping fee services (63.05%) and compostable bags (37%).

2. MSW Collection and Disposal Costs

The attached table shows the annual cost for solid waste and recycling-collection services for each of the schools participating in the SSO recycling program. For comparison purposes FY 2007/2008, FY 2008/2009 (July through June) are shown.

The first thing that should be noted in looking at the annual solid waste and recycling collection services costs for the various schools is that the numbers for various schools are not for a full 12-month period as SSO programs began at different times throughout the year. As a result, drawing any conclusions regarding solid-waste collection cost trends for these schools would be difficult to do.

What the attached table shows is that the general trend for individual schools is a decrease in solid waste and recycling costs. There are a number of factors that could be contributing to these changing costs including:

- Normal year-to-year variations in waste generation;
- The fullness of the dumpsters when they're serviced (typically haulers charge by the trip and the cost will be the same whether the dumpster is half full or full); or
- Reduced cost, in some cases, due to organics diversion.

Comparing the FY 2007/2008 and FY 2008/2009 quantities, size, and frequency of collection for the solid waste dumpsters at each school may explain some (though not all) of the cost differential.

Overall, on a district-wide basis, the cost for solid waste and recycling services increased by 26% between FY 2007/2008 and FY 2008/2009. However, the cost for solid waste and recycling services decreased by 43% between FY 2008/2009 and FY 2009/2010.

3. Cost-Benefit Analysis

With the SSO recycling program in place, an estimated avoided collection and disposal cost can be calculated for FY 2008/2009 to FY 2009/2010, which was approximately $12,381. This amount includes both the Minnesota Solid Waste Management Tax (17%) and the Hennepin County Solid Waste Management Fee (14.5%).

Based on the reported costs in the attached table, the District's SSO recycling program cost approximately $30,935 to operate in FY 2008/2009. This cost was offset not only by the avoided cost of disposal calculated above but also by funds from a two-year Hennepin County Waste Abatement Incentive grant received by the District in 2008/2009 ($18,750). Approximately 100% of these grant funds went toward the cost of the program in FY 2008/2009.

H. NEW SSO RECYCLING INITIATIVES FOR 2010/2011

We want to work with the high schools to explore expanding the SSO recycling program to those locations. Hopefully we will be able to roll this program out to our two high schools in the future.

IV. CONCLUSIONS

The Bloomington School District's SSO recycling program continues to offer students and staff the opportunity to recycle lunchroom organics generated at 13 schools. A number of parties have been involved in ensuring the program continues from year to year, including the Buildings and Grounds Department, school custodians, staff site coordinators, students and school principals.

In FY 2008/2009 and FY 2009/2010, about 277 tons of SSO was collected. This is an impressive amount of food waste and non-recyclable paper being diverted from the trash and to composting.

During FY 2009/2010 no substantial changes were made to the day-to-day operation of the SSO recycling program.

Overall costs for solid waste and recycling collection were down at the SSO sites by about 43% in 2009/2010. Based on FY 2009/2010 reported SSO recycling program costs and the cost for solid waste and recycling collection services, the avoided collection and disposal costs associated with the recycled SSO program is approximately $12,381.

Though the avoided disposal and collection cost does not offset the cost of the SSO recycling program, the program has proven valuable in terms of environmental awareness with students and staff working at the schools where the program has been implemented. The ongoing operation costs are manageable since the schools are generating less trash and the district is paying less solid-waste tax because organics are tax-exempt. Without the WAIF grant, it would have been much more difficult to carve out the up-front capital costs from the district's budget. Now that the Bloomington school district has established recycling and organics composting as the norm and the right thing to do, we are not going to go back.