

# Hog Wild in Stillwater Schools



# Why is the Stillwater School District Interested in Food Waste Recycling?



# Recycling Food Waste Can:

- ✓ Save money;
- ✓ Be easy to implement;
- ✓ Improve worker safety;
- ✓ Increase cleanliness of operations;
- ✓ Earn points for LEED certification
- ✓ Reduce odors;

... and it's the right thing to do.

## How was Cafeteria Waste Being Managed?

- \* By the sanitary sewer system



- \* By a garbage hauler



# Stillwater Schools

## What were the Costs to Manage Food Waste?

Type of Food Waste	Service Provider	Cost Components
<p>Milk &amp; Juice (Cafeteria)</p> <p>Plate Waste (Dish Room)</p>	Sanitary Sewer System	<p>Garbage Disposal Equipment Purchase</p> <p>Garbage Disposal Maintenance &amp; Repair</p> <p>Garbage Disposal Equipment Replacement</p> <p>Daily Operational Costs (electricity, water, sewer charges, labor)</p> <p>Emergency Costs to Unplug Sewer Line Blockages</p>
<p>Food Prep Waste (Kitchen)</p> <p>Plate Waste (Cafeteria)</p>	Garbage Hauler	<p>Daily Operational Costs (labor &amp; equipment)</p> <p>Hauling &amp; Disposal</p> <p>Minnesota Solid Waste Management Tax (17%)</p> <p>Washington County Environmental Charge (39.5%)</p>

# How Much Food Waste Is There?



# Woodbury Elementary School Studies

## Cafeteria Waste Composition Study

How Much Food Waste is There?

## Garbage Volume Survey

How Much Garbage is There?

# Woodbury Elementary School

## Cafeteria Waste Composition Study

- \* Conducted a five-day study: February 6 through 10
- \* Separated cafeteria waste into four categories
- \* Weighed each category & recorded the data

# Woodbury Elementary School

## Four Waste Composition Study Categories

- \* Food waste
- \* Milk & juice waste
- \* Compostable Trash  
(e.g., milk cartons, paper napkins)
- \* Non-Compostable Trash  
(e.g., metal, glass, plastic)

# Woodbury Elementary School

652 Students • 100 Faculty & Staff

	Average No. Meals Served Per School Day	Total No. Meals Served 2004-05 School Year
Breakfast	30	4,774
Lunch	450	73,276
Total	480	78,050

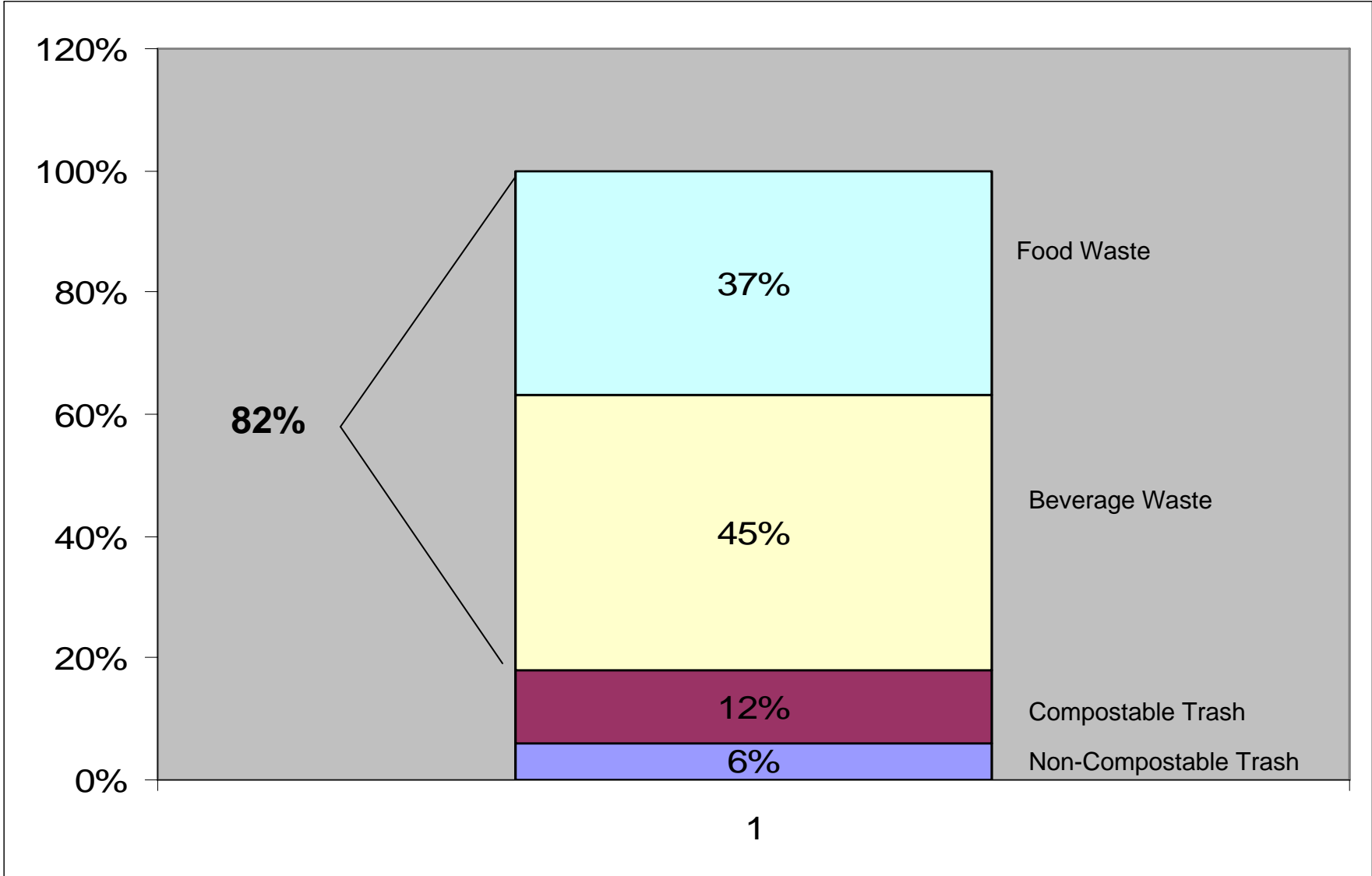
# Woodbury Elementary School

## Cafeteria Waste Composition Five-Day Study Results (lbs.)

Food Waste	Beverage Waste (milk)	Compostable Trash	Non-Compostable Trash	Total Waste
473	568 <sup>1</sup>	146	77	1,264
37%	45%	12%	6%	100%

<sup>1</sup>Equivalent to 66 gallons of milk (one gallon of milk weighs 8.6 lbs.)

# Woodbury Elementary School Cafeteria Waste Composition Study Results



# Woodbury Cafeteria Waste Composition Study

## Summary of Results

- \* 82% of cafeteria waste is food & beverage (milk) waste
- \* 45% of cafeteria waste is currently managed by the sanitary sewer system
- \* 55% of cafeteria waste is currently managed by the garbage hauler
- \* 68% of cafeteria waste managed by the garbage hauler is food waste

# Woodbury Elementary School

## Estimated Food & Beverage Waste Generated Per School Year

	Total No. Meals Served 2004 - 05 School Year	Estimated Food Waste	Estimated Beverage Waste
Breakfast	4,774	0.137 lb./meal 654 lbs.	0.320 lb./meal 1,528 lbs.
Lunch	73,276	0.211 lb./meal 15,461 lbs.	0.243 lb./meal 17,806 lbs.
Total	78,050	16,115 lbs. 8 tons	19,334 lbs. 9.7 tons

Estimated food & beverage waste generated per school year is 35,449 lbs. (17.7 tons).

# Woodbury Elementary School

## Garbage Volume Survey Results

		Weekly Volume (cubic yards)	Monthly Volume (cubic yards)
Current Capacity	6 cu. yd. dumpster Pick-up 5 times/week	30	130
Actual Survey Volume	49.5 cubic yards Generated in 2 weeks	24.75	107
Estimated Volume After Livestock Feeding	Assume SPPS 29% volume reduction	17.57	76

# A Cost Comparison

## Between Managing Food Waste as Garbage vs. Livestock Feed

Compare the Following Monthly Costs

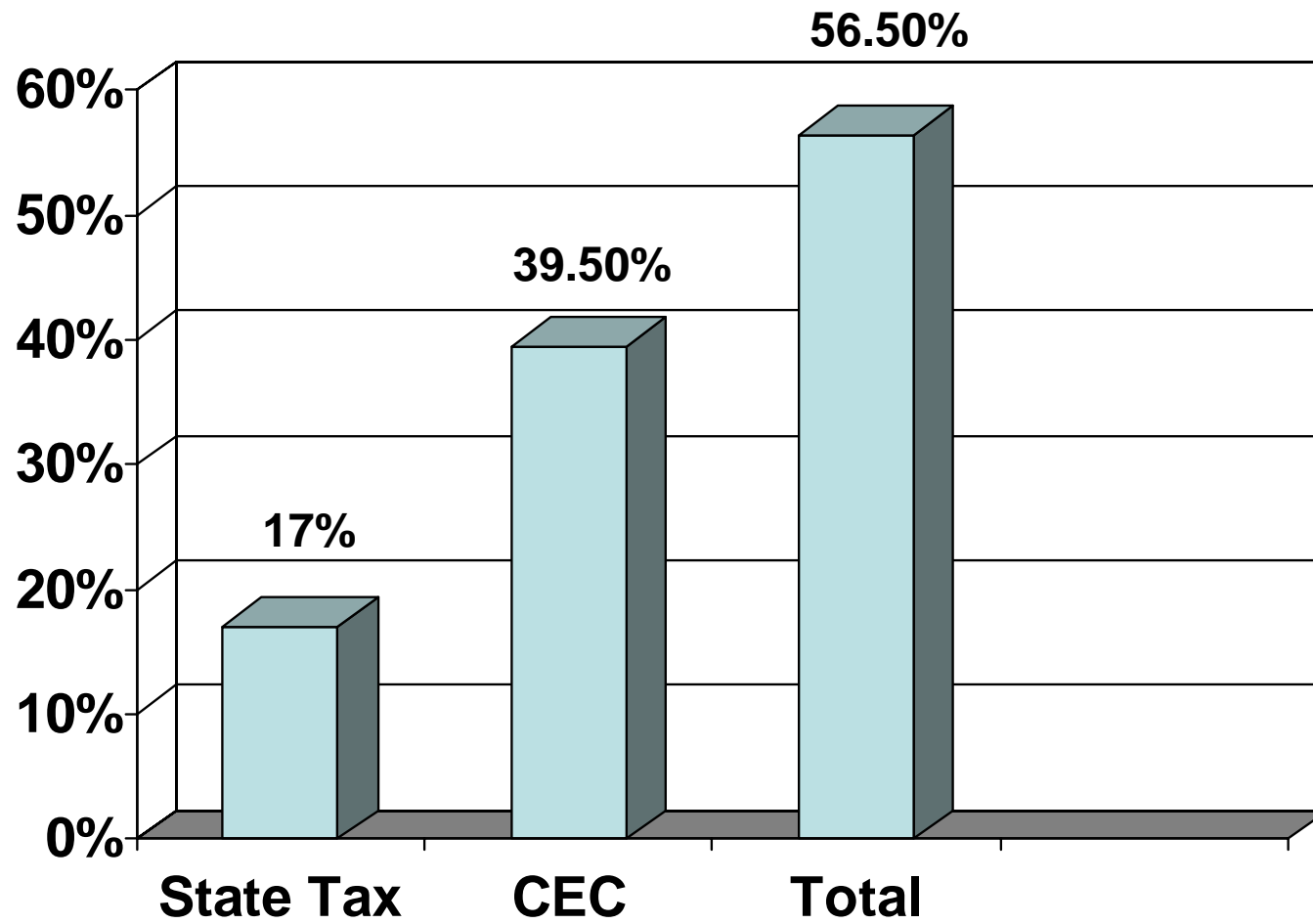
- \* Current garbage service  
(with food waste)
- \* Livestock feeding & garbage service  
(without food waste)

# Woodbury Elementary School

## Cost Components to Manage Garbage

- \* Monthly service fee (hauling & disposal costs)
- \* Fuel surcharge: 4%
- \* Washington County Environmental Charge: 39.5%
- \* State Solid Waste Mgmt Tax: 17%
- \* Current cost per cubic yard: \$4.03

**Washington County Environmental Charge (CEC)  
A More Volume Based Charge and It's Impacts**



**You Don't  
Pay State  
Taxes or  
CEC  
When You  
Recycle**



# Woodbury Elementary School

## Current Costs for Garbage & Recycling

	<b>Garbage</b> 6 cu. yd. Dumpster 5 times/week 130 cu. yd./month	<b>Recycling</b> Dumpster 1 time/week	Total Monthly Cost
Garbage Charge	\$322.08	\$60.00	\$382.08
Fuel Surcharge (4%)	\$12.88	\$2.40	\$15.28
Washington CEC (39.5%)	\$132.31		\$132.31
MN State Tax (17%)	\$56.94		\$56.94
Total	\$524.21	\$62.40	\$586.61

# A Cost Comparison

## Between Managing Food Waste as Garbage Versus Livestock Feed

	Current Cost Per Month	Estimated Livestock Feeding Cost/Month Food Waste Only	Estimated Livestock Feeding Cost/Month Food & Beverage
Sanitary Sewer System	?	?	\$0
Garbage Hauling	130 cu. yd./month \$524.21	76 cu. yd./month \$306.28	76 cu. yd./month \$306.28
Livestock Feeding	\$0	2,048 lbs./month 11 barrels/month \$4.00/barrel \$44.00	4,508 lbs./month 24 barrels/month \$4.00/barrel \$97.46
Total	\$524.21+	\$350.28+	\$403.74

# Woodbury Elementary School

## Estimated Costs for Garbage, Recycling & Livestock Feeding

	<b>Garbage</b> 6 cu. yd. Dumpster 3 times/week 78 cu. yd./month	<b>Recycling</b> Dumpster 1 time/week	<b>Livestock Feeding</b> 4,508 lbs./month 24 barrels/month \$4.00/barrel	Total Monthly Cost
Garbage Charge	\$193.44	\$60.00	\$96.00	\$349.44
Fuel Surcharge (4%)	\$7.74	\$2.40		\$10.14
Washington CEC (39.5%)	\$79.47			\$79.47
MN State Tax (17%)	\$34.20			\$34.20
<b>Total</b>	<b>\$314.85</b>	<b>\$62.40</b>	<b>\$96.00</b>	<b>\$473.25</b>

# SPPS Livestock Feeding Pilot

39% Reduction in School Garbage Volume

## “Right Size” Garbage Service

School Location	September 2005 Garbage Service	January 2006 Garbage Service
Galtier Magnet School	8 cubic yard dumpster	6 cubic yard dumpster
Hancock Magnet School	Pick-up days: M, W, F	Pick-up days: Tu, F

# Cost Comparison Summary

## Livestock Feeding at Schools

- \* SPPS saves about \$182 per month per school
- \* SWCS saves about \$113 per month per school
- \* Does not include potential cost savings due to new garbage hauling rates
- \* Does not include operational, health & safety cost savings

# Cost Comparison

Between Managing Food Waste as Garbage vs. Livestock Feed

- \* **St. Paul Public Schools**

Cost to manage food waste as garbage: **\$92.20 per ton**

- \* **Eden Prairie Schools**

Cost to manage food waste as livestock feed: **\$37.22 per ton**

# How Can We Use this Information?

- \* To estimate the volume of food & beverage waste generated at elementary schools
- \* To estimate the reduction in garbage volume if food waste is separated & managed through livestock feeding
- \* To develop a cost comparison between managing food waste as garbage versus managing food waste as livestock feed

# How Does the Program Work

# Steps To Getting It Started

- Meet with stakeholders. Washington County staff and an experienced consultant provide assistance with program design and implementation.
- Establish collection system in cafeteria
- Schedule collection service
- Train staff and students

# Top Criteria For Successful Program

- Internal support and leadership at the top
- Support from cafeteria staff and custodians
- Initial training of staff and students
- Assistance of student helpers

# Simple Key Message

If you can eat or drink it  
**Red Barrel**

If you can't eat it  
**Grey Barrel**



# Collection



# How Is the Food Waste Managed?



# Minnesota Board of Animal Health Garbage Feeder Permit Requirements

- Food waste with meat and meat by-products is cooked at 212° for 30 minutes
- Facilities and trucks are inspected once a month



# Livestock Feeding Pilot Project

## Roles & Responsibilities

Woodbury Elementary School	Washington County
<p><b>Provide Equipment &amp; Supplies</b></p> <ul style="list-style-type: none"><li>Sorting Table</li><li>Tongs, aprons &amp; gloves for students</li></ul> <p><b>Schedule</b></p> <ul style="list-style-type: none"><li>All school assemblies</li><li>Student assistance in cafeteria</li></ul> <p><b>Support Pilot</b></p> <ul style="list-style-type: none"><li>Work with livestock producer &amp; hauler</li><li>Conduct garbage volume survey</li><li>Provide copies of invoices</li></ul>	<p><b>Train Students &amp; Staff</b></p> <ul style="list-style-type: none"><li>All school assemblies</li><li>Educational labels for barrels</li></ul> <p><b>Implement Pilot</b></p> <ul style="list-style-type: none"><li>County assistance during Week 1</li><li>Press &amp; promotion</li></ul> <p><b>Analyze Costs</b></p> <ul style="list-style-type: none"><li>Review garbage volume survey data</li><li>Recommend garbage service changes</li><li>Report on cost savings</li></ul>

## Direct Benefits to the School

- Provides New Educational Opportunity to the Students
- Promotes Self discipline & cleanliness
- Provides the opportunity to “do the right thing”
- Creates a sense of community in the school
- Improves worker safety

# Additional Benefits

- Can Improve Whole Recycling System
- Can Change Garbage Collection Costs from Volume-based to Weight-based
- Can Change Frequency and Size of Garbage Container Pick Up
- Provides Additional Educational Opportunities

## Quote from Mark Hamre, Principal at Lily Lake Elementary School

“I feel the students have caught onto the recycling program remarkably well and it has become a part of the students’ day. The kids, as young as third grade, are really seeing the big picture behind our efforts and that is gratifying.”

# Quotes From Stonebridge Students

- "We thought it would be really gross but it isn't and the pigs really like it."
- "I like that we're not wasting food and that something else eats what we don't".
- "It looks really bad but the pigs like it!"