

University of Minnesota Waste Recovery Services

Presentation Objectives

 Overview of Operations in Preparation of Tour:
 Como Recycling Facility - Nick Kluge, Operations Supervisor

ReUse Program Warehouse - John Sundsmo, Manager

Current Program Development: Laying the Foundation for Zero Waste Buildings

Virtual Alkaline Digester Tour

Organization and Services

Waste Recovery Services

- A Division Within Facilities Management
- Provides Services for Entire Twin Cities Campus (Over 50,000 Students)
- Over 200 Buildings
- □ 24 Million Square Feet

Services Provided

- MSW Collections
- Recycling Program
- ReUse Program
- Organics Collection
- Debris Processing
- Infectious Waste Collection

Como Recycling Facility: 3009 Como Ave S.E.


Fleet

Packer Trucks (4)

- MSW Route
- OCC Route
- Organics Route
- Spare

Box Trucks (3)

- Minneapolis Campus Recycling Route
- Saint Paul Campus Recycling Route
- ReUse Route ECYCLING PROGRAM

Rolloff Trucks (2)

- MSW, Recycling and Organics Compactors
- 10, 20, 30 Cubic Yard Box Service

Stake Truck (1)

TA

(PEDUCE, REUSE AND W RECYCLE)

Infectious Waste and Animal Carcass
 Collection

Municipal Solid Waste (MSW) FY2015 Total:

9,109 tons per year

3,810 tons recycled annually

5,299 tons disposed (incinerator - HERC)



Material Recovery Statistics FY

2015		
Alaterial	Tons Recovered	Revenues
Office Paper	1123.8	\$98,795
Cardboard	826.7	\$32,202
Newspaper	53.2	\$2,603
Organics	1610.2	(\$16,170)
Bottles and Cans	195.9	\$49,019
Total Recycling	3809.7	\$182,619
Percentage Recovery	41.8%	



Locations



Debris Stream Total Debris: 3,083 tons

- Reuse: 4 tons
- Recycled: 1906 tons
- Incinerated: 167 tons
- Landfill: 561 tons



The Recycling Infrastructure
Called "The Quad System"
Over 20,000 Containers
Consistent Color Code Campus-Wide

Serviced by Custodial Program
 450 Custodians
 Team Cleaning Model



Recycling Storage Areas

- Ideally Located at Docks
- Custodians Transfer Materials from Quads to Meese Carts

Serviced by Recycling Route to the Como Recycling Facility





University of Minnesota Como Recycling Facility

Reuse Program

ReUse Program Warehouse

□ 883 29th Avenue SE

□ Open to Public:

Thursdays 8am to 8pm
 First Saturday of the Month; 12 pm to 4 pm

Current Projects

Waste Exchange Software (MNTAP)
Virtual Warehouse





Preparation of a Zero Waste Building Humphrey School of Public



Transformation

OLEUS

□ Combine Office Paper and Newspaper Plus □ Add Organics (New Quad System) □ Implement Centralized Collection □ Options For Deskside Containers Change Custodial Procedures □ Influence Purchasing of Food Service Ware

Event Coordination toward Zero Waste



System

The New Quad



Collection

- Custodians no longer service desk-side waste receptacles
- Employees deposit their own trash and recyclables into quad containers
- Centralized containers are serviced by custodians
- Put waste management responsibility into hands of the individual occupant
- Leads to Waste Reduction

Containers

- Give Staff Options for Recycling at Their Desk
- □ Use Existing Trash can
- Matching Trash Paired with Blue Bin
- □ Trash with Blue Bin plus Saddle
- □ Trash with just Saddles



□ 3.5 gallon vs 7 gallon

Desk-side Management Options

Wet/Dry Approach

Place "Wet" organic waste in the central Organic Quad

Place "Dry" trash in deskside waste container Place "Recyclables" in desk-side recycling container

Custodial

Separate Material Collection from Cleaning Develop Material Collection Routes □Trash/Organic Recycling Improve Collection Equipment Reduce Plastic Bag Use

Implementation Process



Office Quad -> Organic Quad





Informational

FAQs of Organic Recycling







This is not Compost Compost Trainable Occupants Post it notes Question page



Collection Process



Paper Towel Collection



Servicing Buckets

- Emptying Contents into Organics Brute
- Ability to Remove Trash from Organics



Cleaning the Bucket

- □ Take Restroom Paper Towels
- □ Place Inside Bucket
- □ Use Tongs to Wipe Interior
- **G** Spray if Necessary

Refill

Empty Soiled Paper Towels into Organics Brute



Insert

- □ Repurposed Bucket
- Bucket Used for Daily Waste Generation
- Quad Base Lined with Compostable
 Bag; for Extra Capacity
- No lid: Allows Moisture to Escape
 Retarding Microbial Growth

Paper Towels vs Compostable

Bag Sost of Daily Bag use vs Abatement Value

- □ \$148,000 vs \$54,000
- Repurposed Paper Towels
- Great at Absorbing Liquids
- Bags Can Leak







Brady Steigauf

- University of Minnesota Student
 - □ Majoring in Urban Studies
 - Double Minor in
 Sustainability Studies and
 Public Health
 - Interned with Sierra Club's Beyond Coal Campaign
 - Officer for Students for Sustainability student group
 - □ Member of MSA's Sustainability



MINNESOTA STUDENT ASSOCIATION

Students for Sustainability







Digester

- Disposal of Animal Carcasses
- Facility within Vet School
- Receiving Area Accepts
 Whole Large Animal Carcasses
 Barrels of Small Animal

Carcasses



Necropsy Room

- Analysis of Red Deer Herd for CWD, Chronic Wasting Disease
- Most Effective Method for Handling Infectious Agents (Prions)



Digester Chamber

- □ Capacity: 7,000 Pounds
- □ Addition of KOH
- Cooked for 3.5 hours at 300F
- Effluent Discharged to Sewer (pH 10.5)
- Ideal for Land application or as Feedstock for Anaerobic
 Digester after Neutralization



Internal Basket

Retains all Non-Digestible
 Material

Gamma Rumen Contents

Bones



Bone Residue

Added to On-Campus Manure Composting Process



Questions Accepted, Jokes Preferred