

Identification of Regional Composting Facility Sites and Its Costs

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Problem Statement and Motivation

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- ▶ Problem Statement

- ▶ San Miguel County, including Mountain Village and the Town of Telluride, lost its composting operator.

- ▶ Motivation

- ▶ Planet Blue Grass offered \$7,500 towards the composting effort.
 - ▶ The Colorado Department of Public Health and Environment has a planning grant to help initiate a new composting facility.

Research Questions

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- ▶ Where should a composting site be located?
- ▶ How much will it cost?
- ▶ What are the issues with composting zero-waste events' food waste?
- ▶ What are the best practices for composting?

Literature Review

- ▶ Composting Science
- ▶ Food Waste Composting
- ▶ Composting Methods
- ▶ Equipment and Facility Requirements
- ▶ Compost Materials
- ▶ Life Cycle Assessment and Environmental Benefit
- ▶ Flow Control Laws

Regulation Review

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- ▶ Waste Management Division
 - ▶ Type I Feedstock – Untreated wood waste and yard and green waste
 - ▶ Type II Feedstock – Source separated food waste
- ▶ Class II Compost Facility
 - ▶ Facility requirements
 - ▶ Operation requirements
 - ▶ Financial assurances and plans
- ▶ Air Quality Permits
 - ▶ Volatile Organic Compounds (VOCs)
 - ▶ Particulate Matter number 10 (PM-10)
 - ▶ Best Management Practices (BMPs)
- ▶ Composting Stakeholder Process



Special Event Food Waste to Compost

Methods

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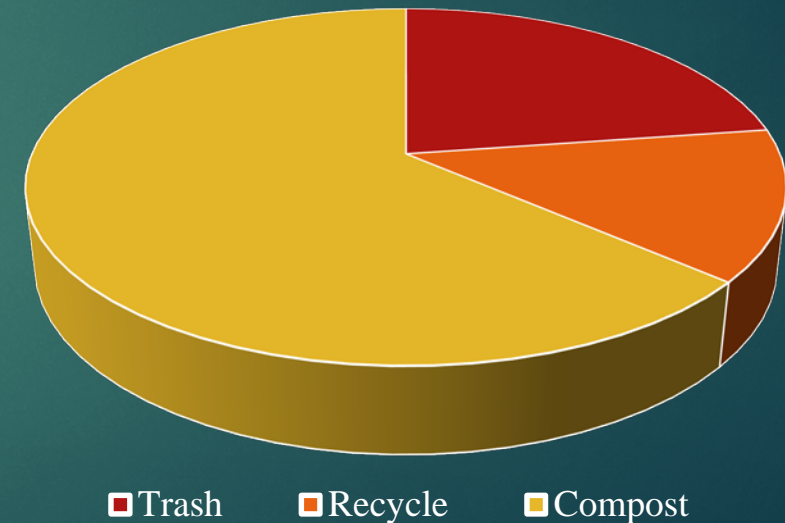
- ▶ Volunteer at a zero-waste event
- ▶ Interview Class I & II Compost Operators in Colorado
 - ▶ Capital Requirements
 - ▶ Operation and Maintenance
 - ▶ Business Factors
- ▶ Site Visits

Findings

Zero-Waste Event

- ▶ Recycled or Composted 77% of event waste by volume
- ▶ No weigh scale
- ▶ Water stations
- ▶ Volunteers
 - ▶ Assure source separated waste
 - ▶ Education

Zero-Waste Event Collection Station



Findings

Compost Operator Interviews

- ▶ Capital Requirements
 - ▶ Compacted Clay Liner
 - ▶ Equipment costs
 - ▶ Best Practices are to reduce equipment costs
- ▶ Operation and Maintenance
 - ▶ Measure wet tons of materials composted
 - ▶ Share staffing resources/Train staff
 - ▶ Windrow composting method
- ▶ Business Factors
 - ▶ 50-Mile Service Area
 - ▶ Establish tipping fees
 - ▶ Permitting costs



Windrow Composting with Turner

Findings

Site Visits

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- ▶ Nine identified sites
 - ▶ Identify Pros and Cons
 - ▶ Narrow to three priority sites
 - ▶ Explore Composting Methods



Illium



Norwood Transfer Station



The Old Ouray County Landfill

Estimates

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- ▶ Materials to Compost
 - ▶ 13 pounds of food waste per week per household
 - ▶ 300 pounds of food waste per restaurant
 - ▶ 100 wet tons per week or 210 cubic yards per week
- ▶ Illium Alternative (0.5 Acre) \$1,145,604
 - ▶ Equipment Cost Estimate \$795,750
 - ▶ Permit, Engineering, Bond and Site Costs \$349,854
- ▶ Norwood Transfer Station Alternative (1.25 Acre) \$599,085
 - ▶ Equipment Cost Estimate \$227,750
 - ▶ Permit, Engineering, Bond and Site Costs \$371,335
- ▶ Old Ouray County Landfill Alternative (2.5 Acre) \$832,690
 - ▶ Equipment Cost Estimate \$206,950
 - ▶ Permit, Engineering, Bond and Site Costs \$625,740

Recommendations

Alternative Selection, Model, and Grants

- ▶ Norwood Transfer Station Alternative
 - ▶ Windrow composting method
 - ▶ Share staffing resources
 - ▶ Already permitted as a waste transfer station
- ▶ Hub and Spoke Recycling Model
 - ▶ Promote partnerships
 - ▶ Not duplicate services
 - ▶ Cost effective
- ▶ Grants
 - ▶ Colorado Recycling Resources Economic Opportunity Fund
 - ▶ United States Department of Agriculture

Recommendations Zero-Waste Event

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- ▶ No aluminum foil food wrappers
- ▶ Better product labelling
- ▶ Continue to use volunteers
 - ▶ Education
 - ▶ Source separation
- ▶ Weigh materials to compost



Conclusions

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- ▶ Use Alternative Selection Criteria
 - ▶ Costs
 - ▶ Lowest greenhouse gas emissions
 - ▶ Water quality protection
- ▶ Develop a Business Plan
 - ▶ Waste audit
 - ▶ Cost alternative
 - ▶ Rates and charges
- ▶ Maintain Partnerships
 - ▶ Community
 - ▶ Businesses
 - ▶ Flow Control



Sneffels Event Partner