

**Environment and Natural Resources Trust Fund  
2011-2012 Request for Proposals (RFP)**

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**LCCMR ID: 152-F3+4**

**Project Title:** Municipal Organics: Assessing Economic, Social and Environmental Impacts.

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**Category:** F3+4. Renewable Energy

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**Total Project Budget:** \$ \$501,356

**Proposed Project Time Period for the Funding Requested:** 3 yrs, July 2011 - June 2014

**Other Non-State Funds:** \$ 0

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**Summary:**

Nobody knows the best way (composting, digestion etc.) to manage organic wastes in Minnesota, yet we are nearing huge investments that cement the path. This project provides best practices.

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**Location**

**Region:** Statewide

**Ecological Section:** Statewide

**County Name:** Statewide

**City / Township:**

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_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ Employment	_____ TOTAL _____%

## 2011-2012 MAIN PROPOSAL

**TITLE: Municipal Organics: Assessing economic, social and environmental impacts.**

### I. PROJECT STATEMENT

**Goal 1: Minnesotans are ready to take action on organic waste.** This project will enable MN's government, communities and businesses to make informed long-term decisions and major investments in infrastructure by providing locally relevant tested information and aggregated data currently unavailable in the U.S. MN Pollution Control Agency (MPCA) has identified the lack of information around best practices in composting as a significant challenge. As part of a public/private/academic partnership, this project will build from the significant investments made in composting, including work completed by the Green Institute, UofM, Eureka, MPCA, and others, to create a comprehensive document that will provide a comprehensive set of decision making tools.

**Goal 2: Information necessary to make to make informed and balanced decisions is accessible.** This project will establish quantifiable criteria for cost, social and environmental impacts that the State will use to make policy, permitting and funding decisions; municipalities will use the tool to implement programs that meet the best interests of residents and business can be confident investing in composting infrastructure.

**Goal 3: A holistic understanding allows MN to realize the full potential benefits of composting.** Composting consists of a complex, multi-stage set of systems. Each choice made within a system can impact and limit other choices. For example, education and collection methods, such as back yard composting, co-collection with recyclables etc. will impact participation rates, costs and the ability to use various processing options. The different processing methods, such as windrows, combined with anaerobic digestion will affect the emissions of Volatile Organic Compounds and methane at different stages as well as impacting the end use of the compost because some processes make compost with a higher nitrogen content. How the compost is used, such as healing our depleted croplands to grow food, in road beds, as alternative daily cover on landfills, or for landscaping, has environmental, financial and public perception implications too.

**Why:** Composting is a critical strategy for MN to decrease greenhouse gas emissions, improve exhausted farmland soils and mitigate climate change through soil's vital function as a carbon sink. The landfilling of biodegradable materials, such as foods scraps, non-recyclable paper products and yard trimmings, make landfills the single largest human source of methane emissions in the U.S. Methane has 23-70 times more heat-trapping capabilities than CO<sub>2</sub>. In the U.S., 40% of our agricultural soil is seriously degraded and we lose 5 billion tons/yr. to erosion. In addition, for each one percent increase in organic carbon in the soil (top foot), 132 tons/hectare of CO<sub>2</sub> can be sequestered. The solution is to reduce and compost the organic material that is currently being wasted in landfills and incinerators in a way that ensures high-quality end-product that is put to its highest and best use.

**How:** This project will bring together leading experts, including a diverse representation of sectors and perspectives, to leverage the investments, studies and work already completed in MN and around the country. We will fill in any research gaps in this significant body of work and then create quantitative, criteria based analysis allowing for the comparison of competing composting options to create locally relevant best practice strategies.

### II. DESCRIPTION OF PROJECT ACTIVITIES

1. Define each composting system from the perspective of all relevant stakeholders based on comprehensive academic research of studies, site visits and stakeholder interviews. For example, municipalities have many options for removing compostables from landfills i.e.

curbside collection w/ yard waste, co-collection with recyclables. Systems definitions include options for each stage of the process, from collection to processing to energy production, to final compost use.

2. Create a decision-making matrix that uses quantitative cost, environmental and social criteria to evaluate comprehensive composting options.
  - o First, quantitative measurements will be defined for the criteria. For instance, the social impact could be measured by participation levels or jobs created. Environmental impact could be measured by carbon or toxics reductions.
    - To do this, data will be studied to determine appropriate units of measurement and conversion formulas that allow for apples to apples comparison. For instance, using carbon equivalents if different processes produce different types of green house gas emissions.
    - The criteria will then be vetted to ensure practical use by target audiences. The information will be accessible and understandable so it is used.
  - o Next, a framework will be created to allow for the comparison of various scenarios. For instance, how education or the impact of collecting materials with different methods (backyard composting or co-collected with recycling) will impact the composition and volume of materials, how the composting process (such as anaerobic digestion or static piles) will impact the nutrient level of finished compost and potential end use.
    - We will identify all potential options to include in the scenarios through a comprehensive review of studies, reports, site visits and interviews.
    - The data will be evaluated and information synthesized to identify additional research and analysis needed to fill in missing pieces.
    - Once a comprehensive analysis of all scenarios is available, the quantitative criteria will be applied and the matrix populated.
3. Create and distribute decision making tools for municipal organics for use by MN's government, communities and businesses to make informed long-term decisions and major investments.
  - o By working with target audiences, we will create a best practices guide specific to their needs (i.e. government's need relative to legislation, communities need relative to resident's desires and businesses needs relative to investment).
  - o Promote and distribute information and tools through networks, web and presentations.

### III. PROJECT STRATEGY

**A. Project Team/Partners:** The team is a public/private partnership and an academic project with Eureka and the UofM. **Eureka-** Project lead to focus on collection, criteria development, education and production of best practices(paid). **UofM-** Depts. of Animal Sciences, Bioproducts and Biosystems Engineering- main project partners- focus on economics and quantification of data and testing of criteria, matrix development. (paid). **Linden Hills Power and Light-** outreach and participation data (paid). **Green Institute-** energy, feedstock analysis and other data (unpaid). **MPCA-** feedback at each phase of the project (unpaid). **U.S. Compost Council-** feedback and guidance on the composting systems to be included and the legitimacy of the sources of data used in the analysis.

**B. Timeline Requirements:** The time requirements will fall within the 3 year timeframe.

**C. Long-Term Strategy and Future Funding Needs:** This project does not have any future funding needs. As the culmination of previous investments and work, impacts are far reaching and include; rule making, policy development, investment and program implementation. Through distributed guides for policy makers, investors, and others, additional benefits will be leveraged and we will create a system where we can do it once and do it right the first time.

**IV. TOTAL TRUST FUND REQUEST BUDGET 3 years**

<b>BUDGET ITEM</b>	<b>AMOUNT</b>
<b>Personnel:</b>	
<b>Project Activity 1 (Defining Each Composting System)</b>	
U of M Graduate Students: Research	
Salaries: 3 grad. students 50% FTE yr. 1 or 3120 hours	\$60,992
Benefits	\$45,960
Eureka Directors: Convene and interview stakeholders	
Salaries: 2 staff 20% FTE each or 832 hours	\$28,000
Benefits	\$9,800
Eureka Manager: Detail collection systems w/ supported data	
Salaries: 1 staff 20% FTE yr. 1 or 416 hours	\$12,000
Benefits	\$4,200
Eureka Director oversight/project management of U of M Grad. students/ER staff for	
Salaries: 1 Director 10% FTE yr. 1 or 208 hours	\$8,500
Benefits	\$2,975
<b>Project Activity 2 (Develop Criteria for Decision-making Matrix, )</b>	
U of M Graduate Students (comprehensive review/documentation of studies):	
Salaries: 3 grad. students 50% FTE yr. 2 or 3120 hours	\$60,992
Benefits:	\$45,960
Eureka Directors (Develop and frame matrix criteria):	
Salaries: 1 Director 20% FTE yr. 2 or 416 hours	\$14,000
Benefits:	\$4,900
Eureka Manager: (Assist U of M staff in populating Matrix):	
Salaries: 1 Manager 20% FTE yr. 2 or 416 hours	\$12,000
Benefits:	\$4,200
Eureka Director (oversite/project management):	
Salaries: 1 Director 10% FTE yr. 2 or 208 hours	\$8,500
Benefits:	\$2,975
<b>Project Activity 3 (Document creation and distribution)</b>	
U of M Graduate Students (Create finished documents for presentation)	
Salaries: 3 grad. students 50% FTE yr. 2 or 3120 hours	\$60,992
Benefits:	\$45,960
Eureka Executives and Director (Target audiences and deliver messages)	
Salaries: 2 Directors 10% FTE yr. 3 or 416hours	\$14,000
Benefits:	\$4,900
Eureka Director (oversite/project management):	
Salaries: 1 Director 10% FTE yr. 3 or 208 hours	\$7,000
Benefits:	\$2,450
<b>Contracts:</b>	
Behaviorial Psychologist: Activity 2: Social impacts criteria development	\$10,000
Linden Hills Power & Light: Activity 2: Collection, participation studies and other	\$10,000
<b>Equipment/Tools/Supplies:</b>	
Life cycle analysis software	\$3,500.00
Sample collection and test supplies	\$10,000.00
<b>Travel: Be specific. Only in-state travel essential to completing project activities can be included.</b>	
U of M and Eureka Recycling staff travel within 7 county metro fro data collection and facility analysis. Split 50/50 3 yr. total= 12,000 miles @ \$.55/mile	\$6,600.00
<b>TOTAL ENVIRONMENT &amp; NATURAL RESOURCES TRUST FUND \$ REQUEST</b>	<b>\$ 501,356</b>

**V. OTHER FUNDS**

<b>SOURCE OF FUNDS</b>	<b>AMOUNT</b>	<b>Status</b>
<b>Other Non-State \$ Being Applied to Project During Project Period:</b>		
Environmental Protection Agency Region 5	\$50,000	Pending
<b>Other State \$ Being Applied to Project During Project Period:</b>		
Minnesota Pollution Control Agency	\$50,000	Pending
<b>In-kind Services During Project Period:</b>		
Eureka Recycling: Executive Oversight and Overhead	\$50,000	
<b>U of M Faculty Oversight</b>	\$100,000	
<b>Funding History:</b>		
Department of Energy through Green Institute (Anaerobic Digestion Feasibility and Pilot Collection Scenarios)	\$305,000	
Highwinds Fund: Macalester College (Pilot Collections)	\$30,000	
Unity Avenue Fund	\$15,000	



## Project Manager Qualifications & Organization Description

### **Project Manager Qualifications**

Bryan Ukena is currently Director of Business Development for Eureka Recycling. Mr. Ukena has over twenty years experience in the design and development of solid waste and recycling collection and processing programs. He is currently completing a thorough assessment of Eureka's organics collection and processing programs. Prior to his joining Eureka Recycling, Mr. Ukena worked for more than 15 years in the recycling field in designing, developing and operating the residential, commercial and industrial recycling programs in Arkansas and Colorado.

### **Organization Description**

Eureka Recycling is the only organization in Minnesota that specializes in zero waste. The organization's services, programs, and policy work present solutions to the social, environmental, and health problems caused by wasting. A 501(c)(3) nonprofit organization, based in the Twin Cities of Saint Paul and Minneapolis, Eureka Recycling's mission is to demonstrate that waste is preventable, not inevitable. Because this mission is realized by any person or group that chooses to prevent waste, Eureka Recycling provides opportunities for everyone to experience firsthand that waste can be prevented.

Perhaps most well-known for its \$9 million annual recycling operations, Eureka Recycling has provided curbside and apartment recycling services, education, and advocacy since 2001. Eureka Recycling has a wide range of initiatives designed to prevent the needless wasting of our discards through reuse, recycling, composting, waste reduction, producer responsibility and more. These initiatives provide over 100 jobs for individuals who demonstrate our mission every day in the work that they do.

By its efforts in programs, services and advocacy, Eureka Recycling aspires to help individuals, organizations, and communities understand the significance of zero waste and to achieve their own zero waste goals.