

Project Overview

The Iowa Waste Reduction Center (IWRC) at the University of Northern Iowa was contracted by the Iowa Department of Natural Resources (DNR) to investigate food waste generation in the Industrial, Commercial and Institutional (ICI) sectors throughout the state of Iowa. The objectives of the Iowa DNR's ICI request for proposal directly align with the IWRC's purpose. Being created under the 1987 Iowa Ground Water Protection Act, the IWRC's mission is to assist Iowa small businesses with environmental regulations compliance and to reduce the amount of solid waste being directed to Iowa landfills.

To meet the objectives of the Iowa DNR's proposal, the IWRC implemented the Iowa Industrial, Commercial and Institutional Food Waste Generator Study. This project identified Iowa's ICI food waste generators, documented generation characteristics, and calculated food waste generation rates.

All of the information was then organized into a Microsoft Access Database to make it easily accessible and provide a stable format to store the data. Using the database allows users the capability to view pre-generated reports and to query the database in order to extract specific generator data when needed. The data was also imported into a geographic information system (GIS) allowing users to manipulate and analyze the data using a geographical perspective.

It should be noted that the Iowa Industrial, Commercial and Institutional Food Waste Generator Study was a theoretical study of food waste generated in the state of Iowa and it does not document actual characteristics of Iowa food waste generators and generation rates. The data provides a snapshot of food waste generation rates in Iowa based on generation characteristics collected in the fall of 2014.

The generation rates for eight of the ten generator categories was calculated using generation factors derived from previous academic and industry research. The methodology used in this project and the citation for these sources for generation rates from each ICI category is documented below. Information obtained from the project's survey for the two remaining categories, food manufacturers & processors and food distributors & wholesalers, and similar studies done in the past by Connecticut and Massachusetts determined it was not possible to develop accurate generation rates for these generator categories. Based on this analysis, food waste generation rates for these categories are not included in this project.

Strategic Marketing Services (SMS) located at the University of Northern Iowa was imperative to completing the objectives of this project by identifying and surveying Iowa ICI generators on food waste generation characteristics. The findings from the SMS survey can be found in SMS project report which is included in the project's database.

The data collected in this project has created an important planning tool that will provide the Iowa DNR with critical information for managing food waste in Iowa by providing generalized data on where food waste is generated and how it is disposed. It will provide the necessary information to create projects, programs, and facilitate development of the food waste management infrastructure that will hopefully divert food waste from Iowa landfills.

Citations

Identifying, Quantifying, and Mapping Food Residuals from Connect Businesses and Institutions
<http://www.ct.gov/deep/lib/deep/compost/ssomfile/ssomreport.pdf>

Analysis of the U.S. Food Waste Among Food Manufacturer, Retailers, and Wholesalers
http://www.foodwastealliance.org/wp-content/uploads/2013/06/FWRA_BSR_Tier1_FINAL.pdf

Food Waste Estimation Guide
<http://www.recyclingworksma.com/food-waste-estimation-guide/>

Iowa Industrial, Commercial and Institutional Food Waste Generator Study Formulas Used to Estimate Food Waste Generation Rates

CATEGORY	FORMULA (tons/yr)
Colleges & Universities	Meals Served: 0.35 lbs food waste/meal Students (on campus population): 405 meals/student/yr Students (non-residential): 108 meals/student/yr ((On campus housing population * 0.35 lbs food waste/meal * 405 meals/student/yr) + ((Enrollment - on campus housing population) * 0.35 lbs food waste/meal * 108 meals/student/yr)) * 1 ton/2000 lbs
Convention Centers & Casinos	Visitors: 0.45 lbs food waste/visitor Seats: 0.6 lbs food waste/seat/day If number of visitors available: visitors per year * 0.45 lbs food waste/visitor * 1 ton/2000 lbs If no visitor per year: Capacity * 0.6 lbs food waste/seat/day * 365 days/yr * 1 ton/2000 lbs
Correctional Institutions	Inmates: 1 lbs food waste/inmate/day Capacity * 1 lbs food waste/inmate/day * 365 days/yr * 1 ton/2000 lbs
Hospitals	Beds: 3.42 lbs food waste/bed/day Number of beds * 3.42 lbs food waste/bed/day * 365 days/yr * 1 ton/2000 lbs
K-12 schools	Students: 0.5 lbs food waste/student/week Enrollment * 0.5 lbs food waste/student/week * 36 weeks/school year * 1 ton/2000 lbs
Nursing Care Facilities	Beds: 1.8 lbs food waste/bed/day Number of beds * 1.8 lbs food waste/bed/day * 365 days/yr * 1 ton/2000 lbs
Restaurants	Full-Time Employees: 1500 lbs food waste/employee/yr Number of Employees (actual) * 1500 lbs food waste/employee/yr * 1 ton/2000 lbs
Supermarkets	Full-Time Employees: 3000 lbs food waste/employee/yr Number of Employee (actual) * 3000 lbs food waste/employee/yr * 1 ton/2000 lbs