

Recycling and Reuse Technology Transfer Center

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**Black Hawk County Waste Quantification: BHCHD Intern report for the
RRTTC**

Publication: 1995 - 058

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Spring 1995

95-058

BLACK HAWK COUNTY WASTE QUANTIFICATION

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Date of Internship: Spring 1995

Waste Quantification Project:

Introduction:

For this project we were to find the amount of commercial waste entering the landfill for Cedar Falls and Waterloo. To do this we visited the Public Works in both cities to gather information on garbage totals and pick-up practices. Using the data gathered, the amount of residential and commercial waste could then be determined. Because of pick-up practices a figure for the amount of commercial waste entering the landfill had not previously been determined.

The commercial waste quantification project involved:

- * Determination of commercial waste percentage in the total waste-stream to the Black Hawk County landfill. Helpful in solid waste planning and management of the landfill.

- * Also found the percent of residential waste for Cedar Falls, Hudson, and Waterloo on a household and per person basis.

Information Process:

- * Spoke with Mr. Frembgen on two occasions.
March 16 and April 3, 1995

- * Met with Dick Grimm once.
April 12, 1995

- * Used the 1990 U.S. Census data.
Information gathered- population of Black Hawk County
Average persons per household

- * Residential waste figures from
Cedar Falls Public Works records
Hudson Public Works records
Waterloo Public Works records

It was necessary to use estimates of residential waste per person per day, to find the commercial waste estimates.

Actual records for all commercial waste are very difficult to obtain, due to the large number of commercial waste contractors that are located in Black Hawk County. Not only are there a few large contractors, but there are numerous small private haulers as well.

The estimates are consistent with other available information.

Sources of Data:

- * Tom Frembgen, Supervisor Cedar Falls Public Works Transfer Station.
- * Dick Grimm, Supervisor Waterloo Public Works
- * United States Census Data, 1990
- * Gary Wilcox, Solid Waste/Resource Recovery Administrator

Conclusion:

Our main finding was that Cedar Falls had less waste going to the landfill than Hudson and Waterloo. This is probably due to the extensive recycling program in Cedar Falls. Hudson takes about the same amount of waste to the landfill as Waterloo.

The per person waste figure for Black Hawk County is greater than the three cities because of commercial waste materials included in garbage totals and not given a separate category. Subtracting the per person figure for Waterloo, for example, from the one for Black Hawk County would yield a figure for the amount of commercial waste entering the landfill under the category of garbage. This is only an estimate using average per person waste generation. It is difficult to arrive at an exact figure due to the number of commercial haulers, large and small, who pick up from various locations throughout Waterloo and Cedar Falls.

Waste Quantification Data (1994):

Black Hawk County: Total Population - 123,798

Garbage to landfill (lbs): Includes garbage, min cash customer,
over min cash.

- 164,478,860lbs. for Fiscal Year 7/1/93 - 6/30/94

Waste/person/day ==> 164,478,860lbs/123,798 total pop/365days

Black Hawk County Total = 3.64lbs/person/day

Waste Quantification Results (1994):

Black Hawk County - 3.64lbs/person/day

Cedar Falls - 1.17lbs/person/day

Hudson - 1.70lbs/person/day

Waterloo - 1.76lbs/person/day

Waste results show a much larger pound per person for Black Hawk County as a whole. This is due to the commercial waste which is delivered to the landfill along with residential waste. The amount of commercial waste is not separated from garbage, minimum cash customer, and over minimum cash customer figures and therefore raises the estimate for all of Black Hawk County.

The estimated amount of commercial waste coming to the landfill can be figured by subtracting the average pounds per person for the three cities from the county pounds per person figure.

The figures for Hudson and Waterloo are going to be more accurate for the county. Cedar Falls has begun volume-based pick-up and has a good recycling program which has lowered the pounds of waster per person in the city.

$$3.64\text{lbs/person/day} - (1.70\text{lbs} + 1.76\text{lbs})/2 = \\ 1.91 \text{ lbs. of commercial waste/person}$$

Cedar Falls (1994 data):

4 routes x 3200 customers/route = 12800 customers

lbs garbage/customers/day for each month

Jan. 1,025,840lbs/12,800customers/31days
= 2.59lbs/customer/day

Feb. 944,040lbs/12,800 customers/28days
= 2.63lbs/customer/day

Mar. 1,261,700lbs/12800/31days
= 3.18lbs/customer/day

April. 1,088,360lbs/12,800customers/30days
= 2.83lbs/customer/day

May. 1,212,300/12,800customers/31days
= 3.06lbs/customer/day

June. 1,305,520lbs/12,800customers/30days
= 3.40lbs/customer/day

July. 1,207,500lbs/12,800customers/31days
= 3.04lbs/customer/day

Aug. 1,381,760lbs/12,800customers/31days
= 3.48lbs/customer/day

Sep. 1,073,580lbs/12,800customers/30days
= 2.80lbs/customer/day

Oct. 1,051,200lbs/12,800customers/31days
= 2.65lbs/customer/day

Nov. 1,039,520lbs/12,800customers/30days
= 2.71lbs/customer/day

Dec. 1,054,202lbs/12,800customers/31days
= 2.66lbs/customer/day

Cedar Falls Total Residential Waste = 13,645,522lbs

13,645,522lbs/12,800 persons/365days = 2.92lbs/person/day

1990 Census Data shows 2.5 persons/ household

2.92lbs/2.5 persons = 1.17lbs/person/day

Hudson Waste (1994 data):

680 customers

lbs garbage/customers/days

Jan. 96,580lbs/680customers/31days
= 4.58lbs/customer/day

Feb. 77,500lbs/680customers/28days
= 4.07lbs/customer/day

Mar. 91,180lbs/680customers/31days
= 4.33lbs/customer/day

April. 105,260lbs/680customers/30days
= 5.16lbs/customer/day

May. 110,840lbs/680customers/31days
= 5.26lbs/customer/day

June. 90,880/680customers/30days
= 4.45lbs/customer/day

July. 113,580lbs/680customers/31days
= 5.39lbs/customer/day

Aug. 112lbs/680customers/31days
= 5.31lbs/customer/day

Sep. 101,620lbs/680customers/30days
= 4.98lbs/customer/day

Oct. 90,540lbs/680customers/31days
= 4.30lbs/customer/day

Nov. 84,860lbs/680customers/30days
= 4.16lbs/customer/day

Dec. 92,500lbs/680customers/31days
= 4.39/customer/day

Hudson Total Residential Waste = 1,167,360lbs

1,167,360lbs/680customers/365days = 4.7lbs/customer/day

1990 Census Data shows 2.76 persons/ household

4.70lbs/2.76 persons = 1.70lbs/person/day

Waterloo (1994 data):

4 routes : 1150 customers/truck/day x 5 trucks = 5750customers/day

5750 customers/day x 4 days = 23,000 customers

Jan. 2,719,040lbs/23,000customers/31days
= 3.81lbs/customer/day

Feb. 2,232,240lbs/23,000customers/28days
= 3.47lbs/customer/day

Mar. 3,190,780lbs/23,00customers/31days
= 4.48lbs/customer/day

April. 2,667,060lbs/23,000customers/30days
= 3.87lbs/customer/day

May. 2,778,120lbs/23,000customers/31days
= 3.90lbs/customer/day

June. 3,573,180lbs/23,000customers/30days
= 5.18lbs/customer/day

July. 2,932,760lbs/23,000customers/31days
= 4.11lbs/customer/day

Aug. 4,154,960lbs/23,000customers/31days
= 5.83/customer/day

Sep. 2,767,840lbs/23,000customers/30days
= 4.01lbs/customer/day

Oct. 3,431,240lbs/23,000customers/31days
= 4.81lbs/customer/day

Nov. 2,944,220lbs/23,000customers/30days
= 4.27lbs/customer/day

Dec. 2,458,620lbs/23,000customers/31days
= 3.45lbs/customer/day

Waterloo Total Residential Waste: = 35,850,060lbs

35,850,060lbs/23,000customers/365days = 4.27lbs/customer/day

1990 Census Data shows 2.42 persons/ household

4.27lbs/2.42 persons = 1.76lbs/person/day