

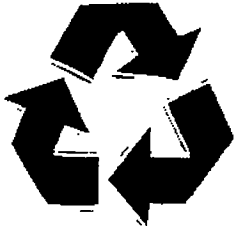
CITY OF LA CROSSE
PLASTIC RECYCLING
FEASIBILITY and IMPACTS

November 2009
Dale J. Hexom, P.E.
Director of Public Works



CITY OF LA CROSSE
PLASTICS #1 & #2 FEASIBILITY and IMPACT
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INTRODUCTION and EXECUTIVE SUMMARY

INTRODUCTION

This plastics recycling feasibility and impact study was directed and authorized by Council Resolution 2009-09-020, adopted on September 10, 2009. A copy of the resolution is included in the appendix.

The study focuses on the recycling of plastics #1 and #2. Brief information on the other types of plastics is also provided. Included in the study is basic, historical information related to the City of La Crosse's refuse and recycling program.

The intent of the study is to provide the Council with the necessary information to make a decision on whether or not to recycle plastics #1 and #2 in the City of La Crosse. Since that decision has financial and political implications, the study does not make a recommendation.

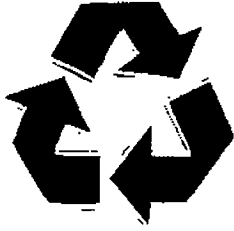
EXECUTIVE SUMMARY

An estimated 194 tons of plastic #1 and #2 would be recycled annually from the City's 16,875 households.

The reduction of 194 tons of plastic material from the waste delivered to the Refuse Derived Fuel Plant would have no noticeable or measurable impact.

The 194 tons of plastic out of the City's average of 13,000 tons of refuse would have no measurable impact and would not result in a measurable cost savings.

An amendment to the current collection contract with Harter's Quick Clean up would be required and would cost the City an additional \$50,625. The cost would be adjusted annually based on number of households and Consumer Price Index (CPI).



City of La Crosse Refuse and Recycling Overview

Residential refuse and recycling collection to approximately 16,800 households, with a population of roughly 51,800, is provided by the City of La Crosse under contract with Harter's Quick Clean-up. The current contract with Harter's runs through July 31, 2012. The City may request to add to or change the terms of the contract and to negotiate those changes with Harter's.

Refuse collected by Harter's under contract with the City is required to be disposed of within the La Crosse County Solid Waste System. The Solid Waste System includes the La Crosse County Landfill, and the XCEL Energy Refuse Derived Fuel Plant (RDF) located on French Island. Currently, La Crosse County and XCEL Energy have a contract that runs through 2023 for the annual delivery of 73,000 tons per year of 'acceptable' solid waste that is used for refuse derived fuel. Annually, the volume varies but is generally in excess of the minimum.

Annually, the City produces an average of 13,000 tons of municipal solid waste. Listed below are the volumes for the past five years.

CITY OF LA CROSSE SOLID WASTE VOLUMES

2004	13,629 tons
2005	12,825tons
2006	13,565tons
2007	13,411tons
2008	12,848tons

The City currently pays \$60.00/ton for the disposal of the solid waste at the La Crosse County System. This is in addition to the fee paid to Harter's Quick Clean-up for the collection of the solid waste.

The City of La Crosse has had a recycling program for many years, in compliance with the State of Wisconsin Department of Natural Resources rules and regulations. However, because of the RDF in the County there is an exemption for recycling certain materials including plastics. Each individual municipality within La Crosse County can therefore decide on their own whether to recycle plastics or not.

La Crosse currently provides dual stream, residential curb side collection of recyclables on an every-other week basis. Additionally the City provides two locations for drop off of recyclables, one at each yard waste drop off location. Included in the current recyclables are: glass jars and bottles, steel cans, aluminum cans, and newsprint. Listed below are the volumes of recyclables for the last five years.

CITY OF LA CROSSE RECYCLABLE VOLUMES

2004	1,015tons
2005	1,241tons
2006	1,216tons
2007	1,320tons
2008	1,126tons

The City also provides some other solid waste services to residents. Yard waste consisting primarily of grass clippings and leaves is collected curb-side when placed in yard-waste bags or containers that have a green yard waste sticker on them the same day as other recyclables from mid-March through mid-December. The City also provides two yard waste drop off sites that are open the end of March through the end of November. There is no additional charge to residents for this service. Listed below are the volumes of yard waste collected or dropped off.

CITY OF LA CROSSE YARDWASTE VOLUMES

2004	1,903tons
2005	1,830tons
2006	1,697tons
2007	1,696tons
2008	1,548tons

Large, bulkier items such as chairs, couches, mattresses, furniture, waste lumber in four (4) foot lengths, and a number of other items are also collected from households every other week. There is no additional charge for this service. Listed below are the volumes of large, bulky items collected.

CITY OF LA CROSSE LARGE BULKIE ITEM VOLUMES

2004	1,134tons
2005	1,259tons
2006	1,189tons
2007	1,130tons
2008	855tons

Household appliance disposal is also a service provided by the City of La Crosse. For a fee of \$25 per appliance, residents can have old appliances picked up at the curb-side and disposed of. Listed below are the numbers of appliances that have been collected in the last five years.

CITY OF LA CROSSE APPLIANCE DISPOSAL

2004	1,623
2005	1,569
2006	1,082
2007	643
2008	382

With the exception of appliance collection and disposal, all of the solid waste services are currently funded through the tax levy. However, not all taxable property in the City is able to use the services provided. Apartments and multi-family dwellings larger than four units have to provide for their own solid waste and recycling services. Similarly, commercial businesses, retail stores, bars and restaurants, and industry must provide for their own waste disposal, as do tax exempt properties.

Listed below is the Refuse and Recycling Department budget for the last six years.

REFUSE & RECYCLING BUDGET

2004	\$2,018,678
2005	\$2,072,759
2006	\$2,090,714
2007	\$2,174,896
2008	\$2,163,665
2009	\$2,309,391



PLASTICS RECYCLING BASICS

Plastics come in a great number of different sizes, shapes, and materials. The Society of the Plastics Industry in 1988 developed the single digit code of 1 through 7 that we've all become familiar with. These codes are based on the chemical composition of the plastics. The code number is commonly formed into the base of the plastic bottle or container to make identification somewhat easy. Some plastics such as plastic bags or foam packing material may not have the code or symbol printed on them. Listed below is a brief summary of the plastic types and their relative recyclability.

Number 1 PET or PETE

Polyethylene terephthalate.

Found in: single use bottled beverages, soft drinks, bottled water, salad dressings, vegetable oils, and many others.

PET can be recycled into: fiberfill for winter coats, carpet, new plastic bottles, and a variety of other products.

Number 2 HDPE

High density polyethylene

Found in: milk jugs, laundry detergents, bleach, household cleaners, motor oils, juices, plastic bags, and others.

HDPE can be recycled into: other jugs and bottles, floor tile, building materials, benches, fencing, etc

Number 3 PVC

Poly vinyl chloride

Found in: plastic piping, vinyl windows, siding, some plastic wraps, some bottles.

PVC is rarely recycled, but is made into: deck boards, paneling, flooring, matting, etc. Not often accepted at material recycling facilities.

Number 4 LDPE

Low density polyethylene

Found in: dry cleaning bags, squeezable bottles, bread bags, frozen food bags

LDPE is not often included in curbside recycling programs due to limited markets. Can be recycling into trash can liners, paneling, composite lumber, floor tile, etc.

Number 5 PP

Polypropylene

Found in: food bottles including ketchup, syrup, and yogurt, bottle caps, medicine bottles, Tupperware and other house wares, etc.

PP can be recycled into brooms, brushes, bins, pallets, trays

Number 6 PS

Polystyrene

Found in: disposable plates and cups, packaging material, carry-out containers

PS has been recycled into insulation, egg cartons, packing materials, etc.

Number 7 OTHER

Polycarbonate, polyethersulfone

Found in: hard plastic sports bottles, three and five gallon jugs, DVDs, 'bullet proof' materials

Polycarbonate is difficult to recycle. The chemical BPA is found in polycarbonate.

Has been recycled into plastic lumber

Plastics #1 and #2 are the most commonly recycled plastic materials. This is largely because they can be more easily transformed into other products, resulting in a market for the plastic fiber.



PLASTIC VOLUMES AND REFUSE DERIVED FUEL PLANT IMPACTS

This section addresses the anticipated volume of plastics #1 and #2 that may be recycled in the City of La Crosse. Since these materials currently would be delivered to the Excel Refuse Derived Fuel (RDF) plant on French Island, the impacts of removing plastics #1 and #2 are also briefly reviewed.

PLASTIC VOLUMES

There are numerous reports and studies that attempt to characterize the waste stream and quantify the composition. Generally speaking, plastics of all types comprise approximately 12.1% of the total waste stream.

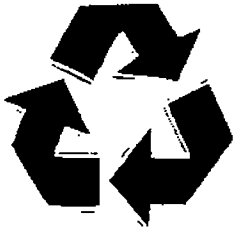
State-wide, the Wisconsin Department of Natural Resources estimates that approximately 7.5 pounds of plastic containers are recycled per person each year. Using that figure, and a City of La Crosse population of 51,800 results in approximately 194 tons of plastic containers that may be recycled.

Hilltopper Refuse and Recycling, a local firm that currently operates a recycling facility, reports that their experience with recycling of PET 1 and PET 2 is approximately 10-12% of the total recyclable waste stream. Since the City of La Crosse does not currently include recycling of plastics in the waste stream, the current recycling data likewise does not include plastics. Therefore, this assessment will use the 194 tons of plastic estimate.

There are currently approximately 16,875 residential households in the City of La Crosse. Using the figures from above results in approximately 23 pounds of plastics generated per year from each household. Since recyclables are collected on a bi-weekly basis, this may result in approximately 0.9 pounds of plastic per household for each recycling collection period. With the majority of the plastics to be recycled in the form of bottles, the size of the bottle is more an issue than is the weight. This will be further discussed in the next section.

RDF IMPACTS

Currently, an estimated 73,000 tons of solid waste are delivered to the Excel Energy Refuse Derived Fuel (RDF) facility annually. The elimination of an estimated 194 tons of plastic from the City of La Crosse is insignificant, and will have no measurable impact on the RDF facility. Similarly, plastics 3 through 7 are not proposed to be recycled and will therefore continue to be delivered to the RDF. It would therefore be assumed that there will be no measurable difference in the RDF air emissions as a result of the City of La Crosse eliminating plastics #1 and #2 from its waste being delivered to the RDF.



PLASTICS COLLECTION AND COSTS

Plastics Collection

Recyclables from residential properties are co-mingled and must be placed in eighteen gallon bins that are specifically identified as La Crosse Recycles bins. No other bins or containers are recognized for the collection of recyclables. Bins are sold to residents at a cost of \$8.00 per bin.

Collection of recyclables from households takes place every other week. Generally, plastics #1 and #2 consist of soft drink bottles, bottled water bottles, milk jugs, soft drink bottles, and some detergent bottles. Unless flattened, these bottles can take up fair amount of space in a recycle bin.

Each household is obviously unique in their individual recycling habits and the number of persons in the household. For some, one recycling bin and collection of recyclables every other week is probably adequate. Others with larger families may already have problems fitting all the recyclables into the bin for semi-weekly collection.

The addition of plastics #1 and #2 to the recycling stream may cause some households to need a second recycling bin. Based on the City's current practice, those residents would have to purchase the second bin at the current cost of \$8.00. An alternative that would need further research would be the replacement of the current 18 gallon bins with a larger bin or container. This may be an option that could be considered prior to the expiration of the current collection contract.

Plastics Collection Costs

Harter's Quick Clean-Up currently collects the residential recyclables city-wide from the 16,875 households every other week. Harter's is paid monthly based on that number of households regardless of whether or not each household puts out recyclables.

Mr. Gary Harter has indicated that the cost to the City to add the collection of plastics #1 and #2 would be \$0.25 per household per month. Under the terms of the contract, this collection rate would be adjusted annually by the Consumer Price Index. Likewise, the number of households is also adjusted annually.

The current collection contract is structured such that Harter's receives any revenue from the sale of the collected recyclables. Similarly, if there is a cost for the disposal of the collected recyclables Harter's is fully responsible for that cost.

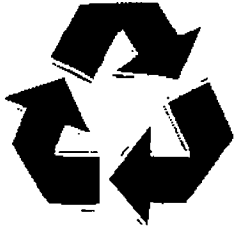
The cost implications for the collection and recycling plastics #1 and #2 to the City are:

16,875 households

\$0.25 per household per month

\$4,218.75 per month

\$50,625 per year



PLASTICS RECYCLING FEASIBILITY – SUMMARY

The 16,875 households, including approximately 51,800 people, produce approximately 13,000 tons of solid waste annually

The City of La Crosse currently recycles approximately 1,100 tons of aluminum cans, steel and tin cans, glass, and newsprint annually.

La Crosse County currently has a contract with Xcel Energy to deliver 73,000 tons of acceptable solid waste to the Refuse Derived Fuel (RDF) facility on French Island through 2023.

The City of La Crosse has an agreement with La Crosse County to deliver solid waste collected in the City limits to the La Crosse Disposal System.

Based on available recycling industry and government agency information and experience, approximately 7.5 pounds of plastic is generated by each person annually.

It is estimated that the City of La Crosse would generate approximately 194 tons of plastic annually that could be recycled.

Based on the current tipping fee of \$60/ton of acceptable solid waste, the 194 tons of plastic removed from the City's wastestream represents an on paper annual savings of \$11,640.

The reduction of 194 tons from the wastestream represents less than 1.5% of the annual solid waste delivered to the RDF. Over the last nine years, the City's annual solid waste production has ranged from a low of 12,668 tons to a high of 13,629 tons. The City would not realize any measurable monetary savings with the removal of plastics from the waste stream.

Removing 194 tons of plastic #1 and #2 from the City of La Crosse's wastestream results in a decrease of approximately 0.26% on the volume of waste being delivered to the RDF. Since the annual waste volume can vary significantly, removing plastics will have no measurable impact on the RDF. Other plastics will continue to be delivered to the RDF, so there will probably be no measurable change in the off gas emissions from the RDF.

Recyclables are currently collected twice monthly (every other week) from the 16,875 households using 18 gallon bins. Bins are currently sold to households for \$8.00 each. The addition of plastics to the collected recyclables may result in the bin being too small for some households.

Harter's Quick Clean-up is currently under contract with the City of La Crosse for the collection of refuse and recyclables. This contract expires on July 31, 2012.

Harter's Quick Clean-up has indicated that adding the collection of plastics #1 and #2 would require an amendment to the contract with a fee of \$0.25 per household per month to provide the collection service.

The added fee, based on the current number of households, results in an annual expense of \$50,625 for the City of La Crosse.



REFERENCES

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www.earth911.com

www.ecologycenter.org

www.epa.gov

www.greenstudent.com

www.thedaileygreen.com

www.recyclemorewisconsin.org

Municipal Solid Waste in the United States. 2007 Facts and Figures. U.S. Environmental Protection Agency, EPA530-R-08-010, November 2008

Solid Waste Management Plan, La Crosse County Disposal System, February 2008, Foth

The 2009 Recycler, Vol. 4 No 1, City of La Crosse, January 2009

Wisconsin Department of Natural Resources, 2006 Recycling Survey Executive Summary



CITY OF LA CROSSE COUNCIL LEGISLATION

CAPTION:

Resolution authorizing the feasibility and impact study of recycling plastic.

REFERRAL ROUTE:

Intro. 08/13/09
J&A

ACTIONS AND DATES: (for Clerk's Office use only)

DRAFTED BY:

REQUESTED BY:

CM Jai Johnson

INTRODUCED BY:

Read in by CM Jai Johnson

RESOLUTION

WHEREAS, the Common Council has made a commitment to pursue more sustainable practices in city operations, and

WHEREAS, plastic recycling has become common practice, and

WHEREAS, the Strategic Plan for Sustainability calls for a study of the feasibility and impact of a City-wide plastics recycling program, and

WHEREAS, many citizens have expressed strong support for such an initiative.

NOW, THEREFORE, BE IT RESOLVED by the Common Council of the City of La Crosse that the Public Works Department, working in conjunction with the City's waste management contractor, Xcel Energy and the County Solid Waste Department and Board, shall complete a feasibility and impact study of the city-wide recycling of plastics #1 and #2.

BE IT FURTHER RESOLVED that this study will be informed by the principles of the Natural Step and will thereby include consideration of the impact to the Waste-to-Energy operation and our contractual obligations to same, the transport of plastic material to a recycling center, any additional hauling related to collection, the need for additional or alternative collection bins, and any other environmental, economic or social costs and benefits.

BE IT FURTHER RESOLVED that the Public Works Department will report its findings to the Common Council no later than December, 2009.