

# **Turning Blue Into Green**

**How Chicago's Failed Blue Bag Program  
Could Be Replaced With A True Recycling  
Program Without Breaking The Bank**

*A White Paper by the  
Chicago Recycling Coalition*

*April, 2006*

## **Acknowledgements**

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The Chicago Recycling Coalition would also like to acknowledge the leadership and support of Alderman Joe Moore.

We dedicate this paper to the people of Chicago.

# Turning Blue Into Green

## *How Chicago's Failed Blue Bag Program Could Be Replaced With A True Recycling Program Without Breaking The Bank*

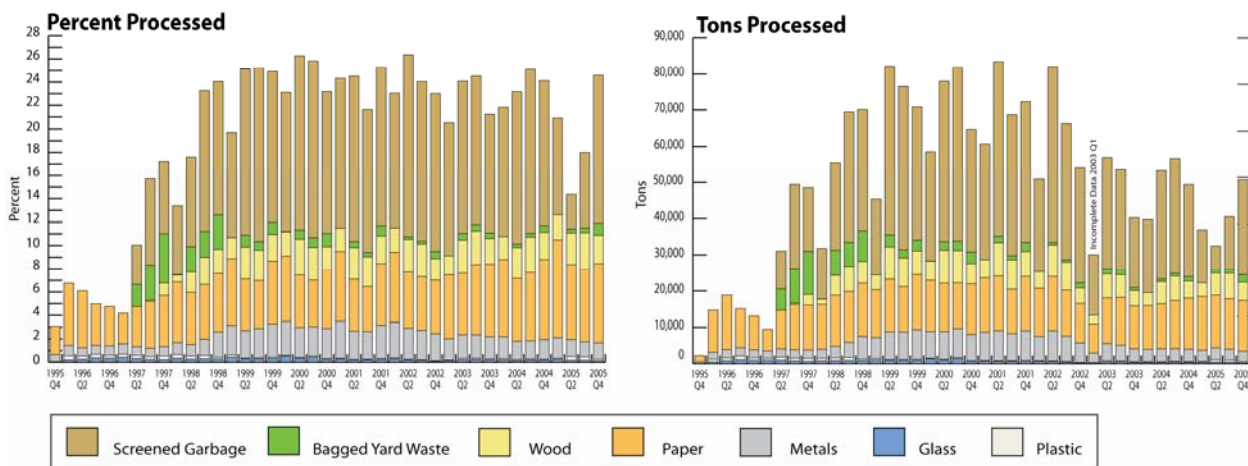
### **Blue Bag Recycling Has Failed In Chicago**

After ten years of blue bag recycling in Chicago, the results are in, and they aren't pretty. By almost any measure, the city of Chicago, which aspires to be the greenest city in America, has a black mark on its environmental scorecard. That black mark is recycling. Until Chicago abandons using the blue bag for recycling, its claim to being an environmentally friendly city just doesn't ring true. This white paper proposes a better alternative, the adoption of citywide source-separated recycling, and provides some estimates of the minimal fiscal impact of making this change.

However you want to measure the blue bag program, the results are dismal. First, almost no one uses it. Even the city has had to admit that only 13% of households served by Streets and Sanitation collection bother to participate. Second, not surprisingly, the blue bag program doesn't create a lot of recyclable materials to send back to markets; in fact only about 10% of the waste stream is actually recycled into new products. An analysis by the Chicago Recycling Coalition (CRC) contained in this report shows that these low yields come at a surprisingly high cost. Third, to bolster these unimpressive results, so-called "screened yard waste" has been created to "cook the books." In fact, this material is little more than garbage that has been pushed through a big sieve. Since no real composting facility will take this material, it's put on top of landfills, and called "diversion" from being landfilled.

No wonder the public has given up on the program, and the media is inspired every few months to do a story on some aspect or other of the program's shortcomings. (For more information on how the blue bag works and doesn't work, a history of recycling in Chicago, and much more, visit the website of the Chicago Recycling Coalition, at [www.chicagorecycling.org](http://www.chicagorecycling.org).)

*Pictures tell the story, ten years of low recycling rates and little material recovered:*



## Imagining Successful Recycling In Chicago

Despite a decade of singing the blue bag blues, the Chicago Recycling Coalition continues to have a green vision for a better alternative: implementing source-separated curbside recycling. It's what almost every other community in the nation uses for recycling – don't we deserve it too? The CRC has been encouraged by a number of recent developments that provide hope that change is possible, so that all Chicagoans will have a real recycling option in the near future. We hope that the analysis and recommendations contained within this report will be used by city policy makers to shape a new, better recycling program.

In 2005, the city started a pilot program in the Beverly community on the southwest side of Chicago, where approximately 700 households have received separate bins for their recycling. While the city has not released a full study of this program, the results that have trickled out are encouraging. Over 80% of households participate, and the recycling rate is over



20%. The basic model in use in Beverly is similar to that used by most municipalities around the United States. If Chicago is going to improve its recycling, the Beverly pilot program is clearly the model on which a new program should be based. The questions that remain are:

- What would a source separation program cost compared to the current blue bag system?
- How should it be implemented or modified?
- What should be done with yard waste, which was not included in the Beverly pilot?

Meanwhile, the last vestiges of defense of the current system have collapsed. For the first several years of the blue bag, the city steadfastly maintained that it was a successful program. The ongoing advocacy of the Chicago Recycling Coalition, paired with media scrutiny, primarily by the *Chicago Tribune*, CBS-2 TV, and WBEZ Public Radio, has changed that viewpoint. CRC's ongoing critiques of the program and analysis of the actual numerical results have helped to focus attention on the real recycling rates, not just the empty rhetoric proclaiming it successful. Meanwhile, the *Tribune's* exposes on a variety of issues, in particular what screened yard waste really is and where it really goes, have led to a new attitude that recycling must change and no longer can we treat recyclables like garbage. Today, city officials don't try to defend the current

program. They acknowledge its limitations. The only thing holding them back is fear of change and lack of clarity about its fiscal impacts.

On December 20, 2005, Alderman Joe Moore (49<sup>th</sup>) announced that he would introduce in the City Council an order to direct the Department of Streets and Sanitation to implement a citywide source-separated recycling program to replace the blue bag. When the order was introduced on January 11, 2006, 26 aldermen signed on as co-sponsors. The city's response? "It will cost too much!" The purpose of this white paper is to define what those costs actually are, to create some context and benchmarks for those costs, and to imagine what real recycling in Chicago could look like.

## What Does Chicago's Blue Bag Recycling Really Cost?

Chicago administrators like to say that the "one-truck, pick-it-up-all-together" blue bag program is the "most cost-effective way" to recycle. It is not. Why? Because of the processing costs for all the tons of garbage collected.

The city cites the annual cost of the program as \$14.5 million (figure reported for 2005 to *Waste News* trade magazine). These costs primarily come from the operation of sorting centers known as Materials Recycling and Recovery Facilities (MRRFs). Workers at these centers sort through every ton of garbage dropped off by city trucks, looking for the recyclables, sometimes in blue bags, more often just mixed in with the trash. In 2005, more than 800,000 tons of garbage was sorted to find less than 80,000 tons of recyclable commodities. The city is well aware that it has created an extremely expensive processing system. To cut costs, it has simply stopped sorting a third of the residential waste collected. Instead, it hauls these loads (including blue bags) straight to transfer stations to be shipped directly to landfills. In other cities and in the Beverly pilot program, recyclables are collected separately from the trash. The cost of recycling is the cost of the trucks and crew that haul the recycling; no garbage picking is involved. In Beverly and elsewhere, the recyclables themselves actually generate revenue when they are sold, rather than being a cost (as part of the incoming MRRF waste), as they are in the blue bag program.

Paying to sort every ton of garbage collected just doesn't make sense. So what does the alternative of a source separated program such as the Beverly pilot cost? After nearly a year of operation, the city has only released preliminary results from the pilot, rather than any full analysis. In media reports, the program has been anecdotally described as costing one dollar per week per household more than the blue bag program. Multiplied by the 660,000 households served by the city (although for 220,000 of them, their trash is never sorted for recyclables), this would mean that a source-separated recycling program would cost an additional \$34 million more than the blue bag.

However, such a calculation is fraught with problems. First, the dollar per week figure came out of news reports; the city has yet to make public the actual costs. And second, pilot programs always cost more per unit than full-scale implementations, because fixed costs are distributed among fewer participants. In addition, a large-scale program offers opportunities to make changes and/or refinements to the methods used in Beverly that could improve recycling results and lower costs.

## What Does Good Recycling Really Cost?

Different cities budget for recycling in different ways. Some bundle their recycling with other solid waste handling costs; some keep the numbers separate; some won't release numbers at all. But as "money" continues to be Chicago's publicly expressed "sticking point" for initiating an effective citywide source-separated program, CRC undertook two studies to analyze municipal recycling costs. The first was to compare the city's blue bag program to recycling in other cities. The second was to model costs of a citywide program based upon the Beverly pilot on a large scale. The results of both studies are surprising and encouraging.

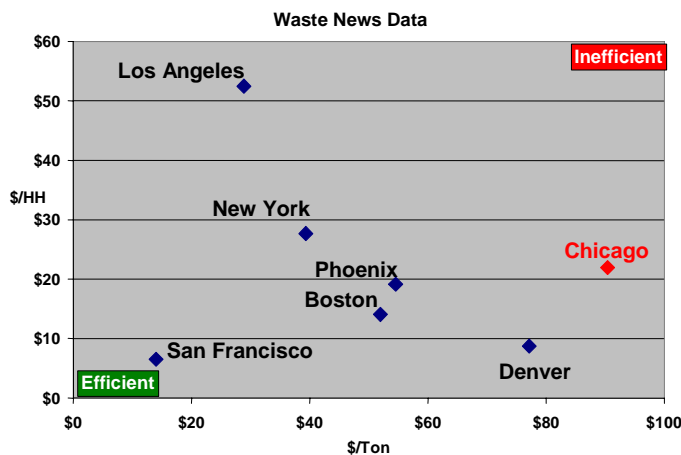
CRC began this research by reviewing the results of the 2005 "Municipal Recycling Survey," published by the trade magazine, *Waste News*, which annually surveys the largest 30 cities in the U.S. The table to the right summarizes a portion of this study. (See Appendix 1 for additional data that was tabulated.) In spite of some critical problems in data collection and organization, the survey is probably the most widely read of any big-city recycling study and provides a good starting point for city-to-city analysis.

<b>Waste News Data</b>	<b>\$/Ton</b>	<b>\$/Household</b>
Chicago	\$90	\$22
Denver	\$77	\$9
Phoenix	\$55	\$19
Boston	\$52	\$14
New York	\$39	\$28
Los Angeles	\$29	\$52
San Francisco	\$14	\$7

Evaluating the costs of a residential recycling program includes looking at:

- How much the recycling program costs per ton collected
- How much it costs per household served

Because of the varying size of the cities surveyed, it makes more sense to use cost per household rather than the total recycling budgets to compare recycling costs. But even more important is the cost per ton, as it measures the effectiveness of a program. (For example, if you had two programs with the same per household cost, but one collected twice as much recyclables, the cost per ton of materials collected would be lower by half.) With those two measures it is possible to see how Chicago's recycling program stacks up. By making a graph with those two values as the axes, a relative sense of the efficiency, or inefficiency, of a recycling program can be found. In the graph below, a program that is efficient in both measures will be on the lower left, while one that is inefficient on both measures will be in the upper right. Most programs end up in between.



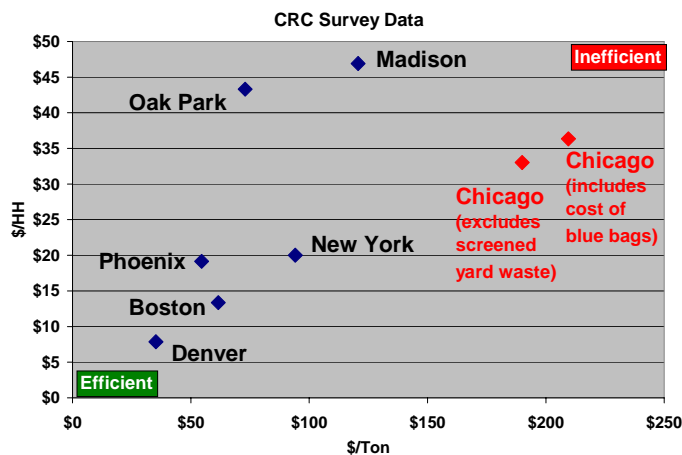
This data from Chicago's peers (large cities making efforts to provide citywide residential recycling) shows that the blue bag's cost per household (\$22) is middling, and that its cost per ton (\$90) is the worst of the lot. Both results are significant because Chicago touts its mixed-collection program for its affordability, but the facts are that other cities pay less or about the same per

household to run source-separated systems that recover far more recyclable commodities for every dollar spent.

However, the *Waste News* survey only gives a picture of municipal recycling in very broad strokes. For example, the self-reported recycling numbers for some cities include commercial and construction and demolition waste. (By including the heavy weight of concrete and steel, Chicago claimed a 52% overall recycling rate!) Others limit their reporting to just what city trucks pick up from residences. Because the focus of this analysis is exclusively on city-run residential programs, and to get the necessary data, CRC developed its own brief survey.

CRC Survey	\$/Ton	\$/Household
Chicago (excluding screened yard waste and adjusted for cost of buying blue bags)	\$210	\$36
Chicago (excluding screened yard waste)	\$190	\$33
Madison	\$121	\$47
New York	\$94	\$20
Oak Park	\$73	\$43
Boston	\$62	\$13
Phoenix	\$55	\$19
Denver	\$35	\$8

By phone and e-mail, we contacted a number of very large American cities (starting with New York and Los Angeles) as well as several local towns (e.g. Elgin, Oak Park, Madison, Wisconsin) that were too small to be included by *Waste News*. We were successful in getting most of our questions answered, although as expected, cost data was the most difficult to obtain. Cities lacking complete information are not included in this graph and table. (See Appendix 1 for the full results, including partial data from other cities.)



For this comparison, CRC computed Chicago’s recycling costs for 440,000 households, or two-thirds of the 660,000 visited by Streets and Sanitation trucks. That is because, as previously noted, the city has chosen to take one-third of the residential loads straight to transfer stations, without sorting for recycling. As for tons recovered, Chicago’s actual amount is much lower than reported to *Waste News*, as that number includes the “screened yard waste” that is merely taken

to an Indiana landfill and creates no usable compost for residential, agricultural or other purposes.

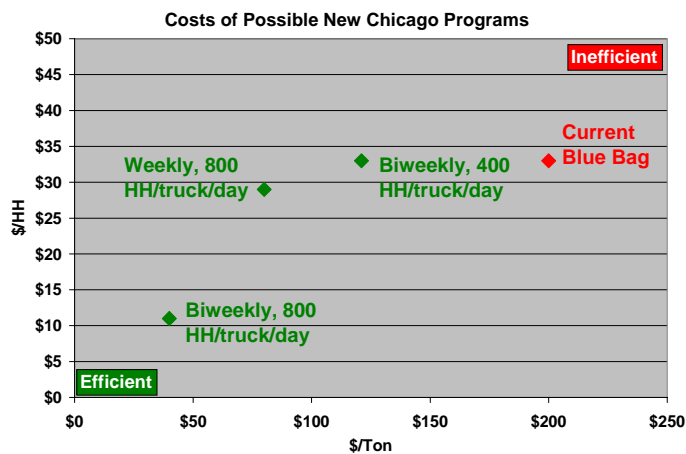
Using actual tonnage recovered in 2005 (recycled commodities plus bagged, not screened, yard waste), Chicago’s residential recycling cost rises to \$190/ton. If you add in the cost of blue bags for participating families, which aren’t a cost in cities that provide bins for separate collection (we estimated \$17/year for 13.3% of the households, that is, the percentage who actually recycle), the cost per ton rises further to \$210/ton. The next highest cost per ton surveyed is

Madison at \$121/ton (but that includes a one-time purchase of new collection bins this past fall). New York City’s per ton recycling costs are only half that of Chicago, at \$94/ton!

According to CRC’s analysis of both data from *Waste News* and our own surveys, it is clear that Chicago’s blue bag, rather than being the most cost-effective big-city recycling program in the country, is one of the most expensive and wasteful.

## What Would Good Recycling Cost Chicago?

CRC also analyzed the Beverly pilot program and carefully researched what scaling it up citywide would cost, using several variables. Our findings? Chicago’s recycling could go from one of the most expensive, inefficient programs in the nation to one that would be both effective and affordable. The graph below shows three estimates of what an improved program would cost to operate compared to the current cost of the blue bag program.



How did we arrive at these projections? CRC considered two key variables: how many households could be served by one recycling truck in a day, and how often would recyclables be collected – weekly or every other week (i.e., biweekly)? In addition, CRC calculated the cost of trucks and crews and the income generated by the sale of the recyclables. The following table compares several program model projections to the current blue bag program. (Appendix 2 details the assumptions and calculations that were used to develop these figures.)

### Projected Costs for a Chicago Source-Separated Citywide Recycling Program

*Annual operation to collect recycled commodities only – does not include yard waste. Start-up costs for either Chicago’s MRRFs for the blue bag program or bins for new program are also not included.*

Pickup frequency	Households/day serviced*	Recycling commodities only (tons)**	Annual cost minus revenue	Cost per ton recycled	Cost per household per year
<b>Projected programs (serving all 660,000 households):</b>					
weekly	400	240,000	\$48,196,200	<b>\$201</b>	<b>\$73</b>
bi-weekly	400	180,000	\$21,698,100	<b>\$121</b>	<b>\$33</b>
weekly	800	240,000	\$19,298,100	<b>\$80</b>	<b>\$29</b>
bi-weekly	800	180,000	\$7,249,050	<b>\$40</b>	<b>\$11</b>
<b>Blue-bag program, 2005 (for 440,000 households currently served):</b>					
weekly	360	72,538	\$14,500,000	<b>\$200</b>	<b>\$33</b>

\*Households per day: 400/day is slightly more than rate in Beverly pilot with two workers, driver and laborer, on truck. Northern Illinois county recycling agencies report 650-850 households/day with one driver, no laborer; 900-1,200 /day with driver only and fully automated truck.

\*\*Assumes that weekly collection will recover a higher percentage of recycling than bi-weekly.



This analysis of the costs of a citywide source separated recycling program makes it clear that it won't break the bank. Using three of the four scenarios above, a new citywide program would cost well less than the anecdotal \$34 million above current costs.

But there are further savings to be gained if source-separated recycling were established citywide: (a) The city would be saved "tipping fees" for the tons of new recycling, as they obviously would not go to the landfill. This is commonly called "diversion credit" and would save the city about \$36/ton. (b) MRRF processing costs for the current program would be eliminated, which are approximately \$14/for every ton of garbage going to the sorting centers (834,339 tons in 2005). The table below shows the operating costs that a new recycling program would create for the city budget. Note, in the most efficient scenarios, *money is actually saved*.

Pickup frequency	Households per day serviced	Recycling commodities only (tons)	Annual cost minus revenue	Tipping fees saved	Cost of new program	Processing costs saved	Net cost
<b>Projected programs:</b>							
weekly	400	240,000	\$48,196,200	\$8,640,000	\$39,556,200	\$11,680,746	<b>\$27,875,454</b>
bi-weekly	400	180,000	\$21,698,100	\$6,480,000	\$15,218,100	\$11,680,746	<b>\$3,537,354</b>
weekly	800	240,000	\$19,298,100	\$8,640,000	\$10,658,100	\$11,680,746	<b>-\$1,022,646</b>
bi-weekly	800	180,000	\$7,249,050	\$6,480,000	\$769,050	\$11,680,746	<b>-\$10,911,696</b>

We believe these numbers are well researched, based upon the best available data that we could find. Unfortunately, the city administration has been unwilling to publicly share its own projections. In New York there has been a much more open debate about the cost of recycling, and even there, the estimates vary widely. *Until Chicago makes public its own data and cost assumptions, these models are the most accurate projections we can make as to what it would cost to operate a real recycling program in our city.*

## CRC Recommendations

We believe the city is beginning to move in the right direction with the Beverly pilot program and that Alderman Moore's proposed order would ensure that the Department of Streets and Sanitation build on this program and work to provide recycling to all households. In addition, we believe the city can learn from the other municipal recycling programs and make the necessary adjustments to produce a cost-effective program for Chicago.

### *The Chicago Recycling Coalition recommends:*

#### **1. The City Council should adopt Alderman Moore's recycling order and improve recycling for all of Chicago.**

The Department of Streets and Sanitation has been very cautious in making any changes to recycling or waste collection. Therefore the department needs a push from Chicago's elected officials to move forward in implementing a citywide recycling program. We realize that such a program would need to be phased in over several years. But it is not acceptable to simply "expand the Beverly pilot" to a few other wards without a *plan* (including benchmarks, timelines, etc.) with the end goal of establishing source-separated recycling for the *entire* city. In addition, the new program needs to improve the city's

current handling of yard waste, which is nearly non-existent. Appendix 3 makes some suggestions on how this could be approached.

**2. The city should conduct an open and public analysis of what recycling really costs in Chicago.**

The success of the Beverly pilot and our own calculations both suggest that a better recycling program could be implemented in Chicago at a reasonable cost. However, the next step needs to be a more thorough analysis of costs and benefits. This must be done in a transparent manner by the city, offering full access to the needed data. Because of the long-term skepticism towards the blue bag by Chicago residents and media alike, in order for trust to be restored, this analysis should be conducted in a public forum. In addition, recycling isn't only about costs and collection methods. It also means producing high quality, marketable commodities that can provide local economic development opportunities, while promoting more sustainable lifestyles in the city. Appendix 4 contains a list of basic principles developed by the Chicago Recycling Coalition that could serve as a model for guiding the city's future vision of recycling.

**3. The city should explore innovative funding strategies for any new costs.**

It is likely that an improved recycling program will carry new costs, in particular, for new collection bins and additional trucks. However, changing the program also creates opportunities to think creatively about new revenue sources to reduce those costs. These could include selling the three city-owned dirty Materials Recycling and Recovery Facilities (MRRFs) to private industry, securing grants or corporate sponsorship of new recycling bins, and viewing recycling as an economic development tool, where the costs of the program are offset by new jobs that could be created by private industry to process materials.

After ten years of the blue bag, it's time for a change! The Chicago Recycling Coalition believes that the future of recycling in Chicago is here today. It is both possible and affordable to end the blue bag and give all Chicagoans the opportunity to have real source-separated recycling. It is our hope that this white paper provides both a foundation and roadmap for policy makers to act.

Mayor Daley wants to make Chicago the greenest city in America. We wholeheartedly agree and believe that updating the city's recycling program must now become the top environmental priority for his administration. There is no question that recycling is one of the best ways for residents to individually participate in the "greening" of Chicago. Replacing the blue bag system with source-separated recycling will help make our city a truly sustainable place to live, work and visit.

## Appendix 1: Survey of other city's recycling programs

### City Recycling Comparisons from *Waste News* 2005 Survey

(Published February 2006. "Collection Method" updated from additional research by CRC)

City	Recycling Budget	Households	Collection Method	Total Tons	\$/Ton	\$/Household per year	Lbs./ Household
Chicago	\$14,500,000	660,000	co-mingled	160,413	\$90	\$22	486
Denver	\$1,400,000	160,000	single-stream	18,150	\$77	\$9	227
Phoenix	\$6,800,000	355,000	single-stream	124,768	\$55	\$19	703
Boston	\$4,000,000	285,000	dual-stream	77,000	\$52	\$14	540
New York	\$88,546,000	3,200,000	dual-stream	2,250,808	\$39	\$28	1,407
Los Angeles	\$39,075,021	745,000	single-stream	1,355,326	\$29	\$52	3,638
San Francisco	\$2,231,988	340,000	single-stream	160,000	\$14	\$7	941

New York collected tons includes 1,527,053 of "other."

Phoenix uses a mix of private and municipal trucks. Tons is the "total" collected by both, as reported to *WN* (62,384+62,384)

### City Recycling Comparisons by CRC, 2005 Data from City Recycling Directors

(Conducted by phone and e-mail, February-March 2006)

City	Recycling Budget	Households	Collection Method	Commodity Tons	Yard Waste Tons	Total Tons	\$/Ton	\$/Household per year	Lbs./ Household
Chicago (incl. blue bags)	\$15,992,260	440,000	co-mingled	72,538	3,783	76,321	\$210	\$36	347
Chicago	\$14,500,000	440,000	co-mingled	72,538	3,783	76,321	\$190	\$33	347
Madison	\$3,050,000	65,000	single-stream	16,324	8,964	25,288	\$121	\$47	778
New York	\$70,000,000	3,500,000	dual-stream	725,000	19,000	744,000	\$94	\$20	425
Oak Park	\$535,652	12,365	single-stream	6,172	1,175	7,347	\$73	\$43	1,188
Boston	\$4,000,000	300,000	dual-stream	N/A	N/A	65,000	\$62	\$13	433
Phoenix	\$6,800,000	355,000	single-stream	124,768	N/A	124,768	\$55	\$19	703
Denver	\$634,400	80,555	single-stream	17,673	342	18,015	\$35	\$8	447
Los Angeles	N/A	750,000	single-stream	190,000	450,000	640,000			1,707
Portland/METRO	N/A	400,000	single-stream	120,664	97,653	218,317	-	-	1,092
Omaha	N/A	121,428	single-stream	17,339	37,451	54,790	-	-	902
Elgin	N/A	28,000	single-stream	12,530	3,280	15,810	-	-	1,129

Chicago: Households are 2/3 of the 660,000 "served" by DSS trucks, as 1/3 of loads bypass sorting centers.

Chicago (incl. blue bags): An average family spends about \$17/year on blue bags at 13.3% participation.

Chicago: Tons recovered from monthly reports to the Chicago Recycling Coalition

Madison: Budget is \$1.35 million for yard waste collection, \$1.7 million for recycling. Not included is brush and yard waste drop-off of 15,379 tons in 2005. Also includes one-time replacement of recycling bins.

Oak Park: Yearly cost is an estimate, based on recycling fees of \$2.11/month/household and \$1.80 per yard waste bag sticker (est. 10 bags/household/year).

Phoenix does not offer weekly yard waste pickups, only quarterly brush collection (and did not share those numbers).

Denver: The city is phasing in the program. Currently about 1/2 the total 160,000 households subscribe.

Portland: The METRO program actually serves not only Portland but 25 cities and 3 counties, so costs vary.

Omaha: Refuse, recycling, & yard waste combined are \$102.06/yr or \$8.51/mo/household, but recycling can't be broken out.

Elgin: Refuse, recycling, and yard waste are billed as a single cost; recycling not broken out.

## Appendix 2: Projected Operating Cost(s) of Source-Separated Municipal Recycling for the City of Chicago

The City of Chicago continues to claim that a source-separated municipal recycling program is “too expensive” compared to the blue bag. Is this a valid argument? How much would such a program actually cost and would it break the bank?

We believe that the city itself has been studying this issue, but unfortunately, it has yet to share a single result with the people of Chicago. Therefore, it has been necessary to research and project the numbers ourselves, making certain assumptions based on best practices from other large U.S. cities.

Our projections are for the collection of recycled commodities only (paper, cardboard, plastics, glass, and metals). As these were collected, hauled, and sold in the Beverly pilot, we know certain basic numbers and can use them to begin to calculate a citywide estimate. Yard waste, however, was not collected separately from the garbage in the Beverly test area. We therefore have no base information for accurate projections as to what sort of composting program the city might initiate and what it would cost. (See Appendix 3, “What About Yard Waste?”)

The following are a list of facts and assumptions that we used to project operating costs for a citywide Chicago recycling program. All numbers, except where indicated, are based on 2005 data.

**Type of recycling program to be implemented:** Single-stream, i.e. where recycled paper products and bottles/cans are co-mingled in one container and picked up by one truck. It is the collection method used by the Beverly pilot and the most common method in northern Illinois communities.

**Frequency of collection:** Both weekly and bi-weekly collection is used in our projections. The Beverly pilot collection is weekly. Bi-weekly collection can save significant labor costs but results in a lower recycling rate.

**Recovery rate:** We project a 20% rate for recovered commodities, based on the 17.5% rate for New York City, reported by recycling director Robert Lange. In NYC however, city trucks collect from all households including the largest high-rises. Chicago should achieve a higher rate, as it does not collect from buildings larger than four units. We noted that the Beverly pilot recovered between 20-30 percent, but the area served is a small homogenous grouping of homes. For bi-weekly collection, we project a lower 15% recovery.

**Crew size and truck:** The city will most likely use a driver, a laborer, and a rear-end packer, as were utilized in the Beverly pilot. However, most other cities researched employ only a single driver to run the route; some towns also use more flexible side-loading trucks.

**Driver, laborer, and truck costs:** For driver (\$35.97/hour, wages and benefits), for laborer (\$34.19/hour, wages and benefits). Projected costs based on a 40-hour work week. All

numbers are from City of Chicago Department of Streets and Sanitation reports to Illinois Department of Commerce and Economic Opportunity (DCEO), per the state grant to the city for the purchase collection bins for the Beverly pilot. Reports were obtained by a Freedom of Information Act (FOIA) request made by the CRC. Truck cost projected at \$2,427/month, also from the report. The costs varied slightly over the reported nine months of the project; this is the monthly average. Assumption is that the recycling truck in pilot was “dedicated” to project and billed for “full use.”

**Daily collection rate:** The Beverly pilot recycling truck emptied about 350 bins a day, per the same report to DCEO. That is, it took about two days a week to collect from the almost 700 homes in the pilot area. However, according to multiple recycling agencies and coordinators in the northern Illinois region, the typical daily collection with semi-automated carts (like Chicago uses) is 650-850, or twice as many as in the pilot. And this is usually with just one driver working, not a driver and laborer as in Beverly. If fully automated trucks are used, where the driver rarely leaves the cab, 900-1,200 bins a day can be serviced. We chose 400 and 800 containers/day for our estimates; but the 400 should not be seen as a productive alternative.

**Revenue from recycling:** During the pilot, the city has received about \$40/ton for its recyclables, from Resource Management, a local company that specializes in processing single-stream recycling.

**Diversion credit, i.e. money saved from avoided tipping fees:** The city pays Allied Waste about \$36/ton at its transfer stations to dispose of garbage. Therefore, every ton recycled would save the city \$36.

**Tons of garbage:** We estimate that the city collects about 1.2 million tons of residential waste a year. This is based on the waste collected in 2001, the last year before DSS trucks began to bypass the sorting centers to drop their loads at Allied transfer stations.

### **Cost Basics**

**Cost of driver:**

8 hours x \$35.97/hr. = \$288/day x 5 days = \$1,440/wk x 52 weeks = \$74,880/year

**Cost of laborer:**

8 hours x \$34.19/hour = \$273.50/day x 5 days = \$1,368 x 52 weeks = \$71,136/year

**Cost of truck:**

\$2,427/month or \$29,124/year

**Total cost for year:** \$74,880 + \$71,136 + \$29,124 = \$175,140

## Cost Projections for Source-Separated Recycling for the City of Chicago

### Commodities only - does not include yard waste

Pickup Frequency	Totes/day serviced	Totes serviced in one week (weekly)	Totes serviced in two weeks (bi-weekly)	Total households	Trucks needed	Annual cost per truck and crew	Annual cost of program
weekly	400	2,000		660,000	330	\$175,140	\$57,796,200
bi-weekly	400		4,000	660,000	165	\$175,140	\$28,898,100
weekly	800	4,000		660,000	165	\$175,140	\$28,898,100
bi-weekly	800		8,000	660,000	82.5	\$175,140	\$14,449,060

### Revenue Projections for Source-Separated Recycling

Pickup Frequency	Est. rate of recycling	Total waste in tons ( 2005)	Est. recycling In tons	Est. revenue per ton recycled	Annual revenue
weekly	20%	1,200,000	240,000	\$40	\$9,600,000
bi-weekly	15%	1,200,000	180,000	\$40	\$7,200,000

## Projected Costs vs. Current Blue-Bag Program Costs

### Costs per Household

Pickup Frequency	Totes/day serviced	Annual cost of program	Cost per household per year	Annual cost minus revenue	Cost per household per year
<b>Projected programs (for all 660,000 households):</b>					
weekly	400	\$57,796,200	\$88	\$48,196,200	<b>\$73</b>
bi-weekly	400	\$28,898,100	\$44	\$21,698,100	<b>\$33</b>
weekly	800	\$28,898,100	\$44	\$19,298,100	<b>\$29</b>
bi-weekly	800	\$14,449,050	\$22	\$7,249,050	<b>\$11</b>
<b>Blue-bag program, 2005 (for 440,000 households currently served):</b>					
weekly	360	\$14,500,000	\$33	\$14,500,000	<b>\$33</b>

### Costs per Ton

Pickup Frequency	Totes/day serviced	Recycling commodities only (tons)	Annual cost of program	Cost per ton recycled	Annual cost minus revenue	Cost per ton recycled
<b>Projected programs (for all 660,000 households):</b>						
weekly	400	240,000	\$57,796,200	\$241	\$48,196,200	<b>\$201</b>
bi-weekly	400	180,000	\$28,898,100	\$161	\$21,698,100	<b>\$121</b>
weekly	800	240,000	\$28,898,100	\$120	\$19,298,100	<b>\$80</b>
bi-weekly	800	180,000	\$14,449,050	\$80	\$7,249,050	<b>\$40</b>
<b>Blue-bag program, 2005 (for 440,000 households currently served):</b>						
weekly	360	72,538	\$14,500,000	\$200	\$14,500,000	<b>\$200</b>

## Savings from Ending the Blue-Bag Program

Cost of landfilling 180,000 tons (which would be recycled in new program) @\$36/ton = \$6,480,000

Cost of landfilling 240,000 tons (which would be recycled in new program) @\$36/ton = \$8,640,000

Cost of processing 834,339 tons at MRRFs @\$14/ton = \$11,680,746

[Tons are quantities reported by Allied Waste to Streets and Sanitation for 2005]

Pickup frequency	Households per day serviced	Recycling commodities only (tons)	Annual cost minus revenue	Tipping fees saved	Cost of new program	Processing costs saved	Net cost
<b>Projected programs:</b>							
weekly	400	240,000	\$48,196,200	\$8,640,000	\$39,556,200	\$11,680,746	<b>\$27,875,454</b>
bi-weekly	400	180,000	\$21,698,100	\$6,480,000	\$15,218,100	\$11,680,746	<b>\$3,537,354</b>
weekly	800	240,000	\$19,298,100	\$8,640,000	\$10,658,100	\$11,680,746	<b>-\$1,022,646</b>
bi-weekly	800	180,000	\$7,249,050	\$6,480,000	\$769,050	\$11,680,746	<b>-\$10,911,696</b>

## Appendix 3: What About Yard Waste?

Chicago is blessed with abundant foliage and a Mayor who encourages the planting of trees. However, since the blue bag program was established, leaves and yard trimmings have been collected and co-mingled with the refuse, and almost all are currently trucked for “composting” on top of Allied Waste’s County Line Landfill in Indiana. In spite of 1990 state legislation that bans yard waste from Illinois landfills, Chicago has never seriously attempted to separately collect this material, choosing instead to waste this precious resource.

Even the Beverly pilot, which uses a separate truck to pick up recycled commodities, continues to co-mingle yard trimmings with the trash. With no city-run yard-waste pilot to evaluate, it is extremely difficult to know what sort of program Chicago is willing to consider: the months and frequencies of collection, the possible destinations for subsequent composting, and the end uses and markets for the final composted product. Costs could vary from less than a million to several million dollars.

What might Chicago’s composting program look like? As a northern city, Chicago does not need to collect yard waste (except for a Christmas tree sweep) from December through March. This seems to be the norm for the Midwest. Otherwise, there is a wide range of options from collection to processing. Here are possible models from other U.S. cities:

- Yard waste would only be collected during designated high-volume weeks in the spring and fall. (Examples are New York City, only collecting for six weeks in late fall; Boston, collecting four weeks in the spring, six in the fall; Madison WI, collecting April, October, November up until first snow.)
- Because yard waste collection would not be year round, it would be unnecessary to provide separate permanent collection bins to households. Instead, residents would be asked to purchase kraft paper bags (examples, Elgin, Omaha).
- To cover part or all of costs, residents could be required to purchase bags and stickers for yard waste to be collected (example, Oak Park).
- Yard waste could be accepted for drop-off at Streets and Sanitation yards or community garden locations. If at DSS yards, the material could be collected in packer or other trucks and hauled to composting locations (example, Evanston and Madison).
- Yard waste could be processed locally and marketed, creating jobs as well as compost. (Examples, Omaha’s Oma-Gro program and Madison).
- A few cities (in particular on the west coast and in Canada) have begun to add food scraps to their yard waste collections. This could also be an exciting project for Chicago, but before initiating “cutting edge” programs, we would recommend getting it right with basic source-separated recycling.

No matter what collection schedule and methods are selected, the city should provide ongoing composting education to neighborhoods, set up frequent workshops at local parks, and regularly offer subsidized affordable compost bins to promote *backyard composting* as the first and most cost-effective option.



## Appendix 4: Chicago Recycling Coalition Principles For A Better Recycling System

The Chicago Recycling Coalition has developed the following eight principles that we believe any new recycling program for Chicago must embrace.

**(1) A program for the entire city.** Even when city officials talk about initiating a multi-bin program, they tend to add the caveat that “recycling won’t work for the whole city.” Underlying this statement, of course, are strains of racial and socio-economic prejudice. Lower income families should be provided with the same services as the more affluent. And to ask those with less money to purchase blue bags, while providing free blue totes to middle-class residents, is simply wrong.

In fact, recycling coordinators in several mid-size Illinois cities have reported that although recycling participation in wealthy neighborhoods is indeed high (around 90 percent), participation in the least affluent areas is still a respectable 70 percent (compared to Chicago’s 13 percent *citywide* blue bag participation.) Another model is New York City. The NYC Department of Sanitation not only collects from *every* neighborhood but from *every* household, including the largest high-rise apartment buildings (compared to Chicago, which only collects from buildings up to four units). Yet New York’s recovery rate is 17.5%, while Chicago’s is only 8%. If NYC can make recycling work for all neighborhoods, why can’t we?

**(2) Source-separated multi-bin collection.** The most basic change needed in Chicago’s recycling is simple: Collect, haul, and process the materials separately. Mixing garbage with recyclables not only reduces the recovery rate but contaminates those materials which are recovered, lowering their value. Source-separated recycling results in higher monetary returns which reduce program costs and provide greater benefits to the environment through the remanufacturing of high-quality recycled commodities.

**(3) Yard waste solutions.** Chicago should follow the lead of many other municipalities (and not just suburbs, but also densely-populated cities) and offer separate yard-waste pickups, at least in the spring and fall. The materials should be taken to bona fide composting facilities to produce a useful product, which could be used on city parks, or sold or given back to Chicago residents. Such a program would not necessitate providing an extra bin to residents; other towns have shown that households are more than willing to purchase large kraft-paper bags to collect their yard trimmings for pickup. In addition, the city should do more to encourage citizens to leave grass clippings on their lawns and promote composting by offering low-cost bins and neighborhood-based information.

**(4) Education.** Currently the city’s educational efforts are little more than cheerleading: “Toss it and Forget it!” or “Give Blue a Try!” Once the city begins to develop a program that actually saves resources, it will be much easier to use environmental facts rather than empty slogans to motivate residents. It should go without saying that educational materials need to be developed not just in English and Spanish, but Chinese, Polish, Russian, Urdu, and other languages spoken by significant portions of Chicago’s diverse population. Getting the message out through local community groups would be a good place to start.

**(5) “Equal opportunity” recycling for residents in larger apartment buildings and condos.**

Even when Chicago implements a citywide source-separated recycling program for households, only 60 percent of the city’s residents will be served. Any residential building complex larger than four units has its waste (and recycling) collected by private haulers. Often these companies offer only blue bag mixed-garbage “recycling,” to avoid sending a second truck, or offer no recycling at all. It is the responsibility of the city to create and enforce regulations requiring private waste haulers to implement programs where recycled commodities are collected and hauled separately from the garbage.

**(6) Expanded drop-off collection.** Before the blue bag program began, the city operated at least one drop-off site for recyclable materials in every one of its fifty wards. Today, only a handful of privately run drop-offs are left. If and when the city expands source-separated alley/curbside collection, additional new drop-off sites will still be needed, as it will take several years to convert all households to the new program. Even then, some apartment and condo residents may still be left with poor recycling options. Well-maintained, clean, and conveniently located drop-off centers may long be necessary if all of Chicago’s residents are to be served with quality recycling opportunities.

**(7) Local economic development.** Chicago may no longer be hog butcher to the world, but why not become the Midwest’s recycling hub? Perfectly positioned as a transportation and financial center, the city should work to attract businesses that will remanufacture and market recycled materials. In New York, the city brought in the huge Visy Paper Mill, which processes over 1,000 tons of paper pulp daily, and is now working with the Hugo Neu Corporation to build a new plant to recycle empty beverage containers. There are economic opportunities, too, for processing yard waste and kitchen scraps, as in San Francisco, where Norcal’s composting operation grinds, blends, and markets the city’s organic waste. In particular, Chicago should take note of jobs that recycling can create.

**(8) Community input.** From the short-lived Solid Waste Management Review Committee in 1990 through today, there has been little opportunity for citizens to be involved in the city’s recycling direction. Instead, Chicago’s closed-door decisions and infrequent reporting has created a legacy of secretiveness and deception. In order to regain the public’s trust, the city will need to begin providing honest reports, transparent data, and regular opportunities for community leaders and environmental activists to join in the decision-making process.