

## **Recycling Policies in Chicago and Beyond: Failures in Information Collection and Provision**

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Prepared for the Chicago Recycling Coalition

October 9, 2015

### **Introduction**

The increase in climate change-related weather events, and the rise in pollution across the globe requires the implementation of the most appropriate and “sustainable” practices. To this end, municipalities have established recycling policies to salvage marketable materials, eliminate the need for wasteful disposal mechanisms like landfilling and incinerating, provide a potential revenue stream, and foster environmental awareness in order to garner public support. Yet, the 34.3% national recycling rate is non-uniformly reported by cities, making it a challenge to reliably compare and assess city-by-city rates (EPA 2015), much less urban-to-rural rates. Indeed, elected officials – both local and at higher levels of government – are incentivized to greenwash the state of recycling in order to appear more environmentally conscious and economically savvy, and highlight their abilities to reduce air pollution and effect a lower unemployment rate.<sup>1</sup> The reported data may thus present a less than accurate picture of the extent to which waste is recycled vis-à-vis the amount that is actually sold as repurposed commodities instead of simply being landfilled anyway.

This data collection and provision problem is especially prevalent in Chicago, where we observe a number of barriers to establishing an accurate recycling rate. The goals of this paper are thus to assess and evaluate the existing recycling metrics for Chicago and other comparable municipalities, to describe the ways in which cities collect and present their recycling data, and, in light of successes elsewhere, to prescribe a number of educational initiatives to bolster recycling that draw upon improved access to and provision of data. We show below that the

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<sup>1</sup> Recycling has been shown to reduce air pollution and sustain four times as many jobs through composting rather than landfilling or incinerating trash (Giovanis 2015,199; Platt and Goldstein 2014, 20).

patchwork system of Chicago's recycling collection is the principal obstacle to establishing an accurate recycling rate for the city, and that this is a function of the city's limited access to and provision of recycling data. Remarkably, the city does not systematically obtain information from its private haulers, nor does it appear that Chicago's Department of Streets and Sanitation collects this information for the recycling it collects. This can be easily remedied by transitioning away from a recycling rate that is based on tonnages collected to a rate that is based on what is actually baled and sold. We also call for increased attention to recycling collection inefficiencies as well as increased accountability for the recycling practices of multiunit, commercial, and industrial properties.

### **The Importance and Challenges of City-Based Comparisons**

There is a lack of comparative analyses of recycling policies of major U.S. cities. Granted, making comparisons across municipalities often tends to result in a most-different comparative analysis given the county and state legislation within which each municipality's policies exist. In other words, the comparative approach is only as valuable as the variance between/among cities can be controlled. Additionally, much of the existing literature on this topic is either in need of updating, having been published in the early to mid 1990s, or is focused especially on individualistic and psychological reasons to recycle rather than taking on the subject at a more macro-oriented, city-based scale (Oskamp 1995; Jenkins, Martinez, Palmer, and Podolski 2003; Folz 1991). Filling this gap in the literature, our comparison of city-based recycling practices offers a formal addendum to a discussion primarily limited to traditional media reporting.<sup>2</sup>

There are exceptions. A report prepared by the Bureau of Waste Prevention, Reuse and Recycling (BWPRR) for the New York Department of Sanitation, for example, offers a city-based comparison of recycling as well as the various methods of calculating the recycling rate, a description of how to incorporate commercial and construction/demolition (C&D) recycling rates, and an outline of the different city-based practices with regard to public and private recycling pickup, among other policy-related factors. The BWPRR study is not only an in-depth examination of the many decisions, programs, and group-level efforts that determine a municipal recycling program's success, but it also illuminates how recycling rates can be manipulated.

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<sup>2</sup> See, for example, Abel (2012), Horst-Hatch (2012), and Clarke (2014).

Recycling C&D material, for example, that is clearly different from the material that the majority of businesses and residents are recycling can inflate recycling rates (New York Department of Sanitation 2001, 22). We see this in Chicago with *Waste News*' 2001 Waste Report that Chicago's recycling rate was at 47.9%, but this included an enormous amount of C&D material.

Several studies employ a comparative policy approach to municipal recycling rates with focus on one or a handful of cases. Lauf's comparison of three municipalities' recycling rates in Illinois-side suburbs of St. Louis concludes that the most influential factor in determining curbside recycling participation is the program's cost (Lauf 2009, 111, 119). That is, of the three towns studied, the one that charged residents for each bag of trash they threw away ("Pay-As-You-Throw") also had the highest recycling rate (117). Similarly, Wang compares both recycling rates and the transition from multi-stream to single-stream recycling in three suburbs in the San Francisco/Oakland area. Among these three municipalities, single-stream increases recycling more than multi-stream due to its less user-intensive strategy; yet, for at least one of the studied municipalities, access to educational materials about recycling boosted the recycling rate even more (Wang 2006, 18, 20).

Methodologically, there are strengths of both large-scale, multi-city analyses and descriptive, case-study analyses. We attempt to account for both approaches by ultimately conducting a program evaluation of Chicago while benchmarking it to a handful of cities across the U.S. We thus account for the makeup and efficiency of Chicago's recycling program as well as social and political factors unique to Chicago. While there are no formal modeling attempts to test for the direct impacts of these social and political factors on the city's recycling rate (in terms of how many tons are collected or how many of these are actually baled and sold as commodities), they are ultimately referenced as we assess the Chicago recycling program's ease of access to information, educational outreach goals, and level of transparency.

### **Variable Conceptualization and Case Selection**

The following four interdependent measures are highlighted: efficiency, determinants of the recycling rate, data transparency, and education and outreach. "Efficiency" is a traditional marker of recycling policy success, namely the recycling/waste diversion rate for a municipality. To this end, we will consider changes in the reported recycling rate over time, expansion of recycling into more industries and geographic areas, and the recycling program's ease of use for

residents, businesses, and others. “Determinants of the recycling rate” captures the extent to which residents can recycle a variety of materials in their bins, the extent to which composting is available for the proper recycling of organic waste, and the breadth of access. “Data transparency” relates to the availability and access of the data upon which a city’s recycling rate is based. Specifically, we consider the extent to which recycling rates (for public, private, residential, and commercial collection) are identifiable and trackable. Given the extent to which municipalities provide data online, we focus especially on city-based data portals. Finally, “education and outreach” refers to those initiatives taken by a city to disseminate information and awareness about its recycling program to the public. This includes residents’ knowledge about what can be recycled and engagement in recycling advocacy with various communities across the city, both which have been found to improve recycling rates (Sidique et al. qtd. in Mueller 2013, 509).

The sample selection was based on two primary factors. Cities demographically analogous to Chicago – New York and Los Angeles – are joined by three of the most “sustainable” cities in the U.S. – San Francisco, Portland, and Seattle. Including Chicago, all of these cities are uniform in the following ways: residences of more than four units and commercial buildings are required by law to recycle; residences of four units or less are provided with municipality-provided recycling pickup service; there is commingled (“single-stream”) recycling pickup with the exception of New York, where there is dual-stream collection (Fitzgerald et al., 2012, 50); and recycling drop-off sites are located in various areas of each these six cities.

## **Comparative Analysis**

### Claims of Recycling Efficiency

Among all six municipalities, Chicago’s 2014 recycling rate is the lowest at only 11.08% (“Blue Cart 2014...”). This “Blue Cart” rate accounts only for residential buildings of four units or less for which Chicago’s Department of Streets and Sanitation and its two privately contracted haulers are responsible. In contrast with the trend of recycling rates among many American cities, it is also notable that Chicago’s rate has decreased six percentage points over the past few years from a high of 17.18% in 2008 when the city’s Blue Cart program was introduced. Paradoxically, it was over this same period that the program was being fully implemented (“Blue

Cart- 2008...”). In New York, where the Department of Sanitation picks up recycling from all residences, the diversion rate is 16.1% (NYC.Gov 2015).<sup>3</sup> In Los Angeles, on the other hand, the waste diversion rate is 76.4% (City of Los Angeles 2013, 3), with the city providing recycling to residential buildings of four units or less while owners of commercial properties are responsible for procuring their own recycling pickup. It is noteworthy that the majority of LA’s waste diversion is based on composting and source reduction rather than the traditional recycling of used goods (Ibid, 6), a point upon which we expand below.

The three remaining cities under analysis all have notably high recycling rates. At 80%, San Francisco’s diversion rate in 2012 is highest (SF Environment 2015), and is picked up exclusively through the city’s private contractor, Recology. Portland follows closely with a 70% residential and commercial recycling rate in 2014, where a total of 37 private haulers regulated by the city are responsible for recycling collection (City of Portland, 2015). It should be noted that this rate may be inflated, as a 6% increase has been added to the rate for additional “recovery credits” which include home composting, waste prevention, and reuse activities that may not involve products being recycled in a traditional sense (Ibid). With recycling pickup services provided entirely by two private providers (Kennan 2014), Seattle posted a municipal solid waste recycling rate of 56.4% in 2013, which includes commercial and residential rates (Seattle Public Utilities 2015). For San Francisco, Portland, and Seattle, composting is also included in regular recycling pickup.

#### Determinants of the Recycling Rate

For pickup service by Chicago’s Department of Streets and Sanitation only, the city posts an official 2014, four-units-or-less residential recycling rate of 11.08%, but the city attests that its other buildings actively recycle as well. These claims are rooted in the 1993 Chicago High Density Residential and Commercial Source Reduction Ordinance (RCSRO) which requires that building managers and owners provide recycling services for at least three kinds of material to their tenants (Dumke 2007). However, recycling data for multiunit and commercial properties are not actively tracked in Chicago, with the latest statistics for these types of properties ending in 2009.<sup>4</sup> Also troubling is the lack of enforcement of the RCSRO, as evidenced in Dumke

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<sup>3</sup> While the scope of pickup in New York is thus greater than that of Chicago, NYC’s diversion rate still does not include commercial and other non-residence properties.

<sup>4</sup> It is claimed that these residences’ waste diversion rate was 19% (2009 Waste Characterization...).

(2007) and more recently on the website, [mybuidlingdoesntrecycle.com](http://mybuidlingdoesntrecycle.com). With roughly 45% of Chicago's housing stock comprised of condominiums and five-unit-or-more rental properties, an enormous amount of recycling data is going untracked by the city (Housing Studies 2012). Perhaps it should come as no surprise that Chicago has no active composting component in its recycling program other than yard waste and encouraging residents to compost at home ("Chicago Recycles Video...").

New York picks up recycling from residences of all sizes, but the commercial recycling rate is omitted from its tracked data. Data for New York reflect a temporary suspension of the collection of glass and plastic, dropping the recycling rate from 20.1 in 2001 to 11.4% shortly thereafter (Giambusso 2015). While New York has begun a pilot composting collection in certain areas, the city does not engage in widespread compost collection despite the fact that roughly one third of the city's waste is comprised of organic material (Miller and Spertus 2014). Similarly, Los Angeles does not provide composting bins along with their normal recycling services, although it does provide yard waste bins. While Los Angeles' Solid Resources Citywide Recycling Division provides five-unit-or-more residential buildings with weekly recycling, which incentivizes residents of these properties to recycle ("Multi-Family Residential..."), aggregating relevant data and thus calculating recycling rates for these multiunit buildings is challenging because the city employs several different private haulers.

San Francisco may have the most complete and data-trackable recycling program of all the cities studied here. The city's private contractor, Recology, regularly collects both traditional recycling and organic waste pursuant to the city's Mandatory Recycling and Composting Ordinance in order to enforce the separation and pickup of recyclable materials (SF Environment 2015). At the same time, all 37 private contractors that collect Portland's residential and commercial recycling contribute to the city's annual recycling report, which details the method of collection and how the recycling rates are calculated for each type of building (City of Portland 2015). In its annual report, Seattle also details its recycling collection rates as well as the recycling process for single-family, multiunit, and commercial properties (Seattle Public Utilities 2015). Finally, while composting is mandatory in Portland for properties of four units or less, and optional in properties of five units or more, composting is mandatory in Seattle ("Guide to Composting Food Scraps"; "Seattle Composting").

## Data Transparency Issues

Chicago's recycling data is deficient on several levels. Divided into the six recycling zones for pickup, the total amount of recycling hauled from residences that are four units or less is available to the public at the city's "About Blue Cart Recycling" webpage. There are, however, no pickup data for other properties because the owner/landlord is responsible for establishing a recycling plan. The only reliable data for properties other than those that are four units or less is drawn from the city's 2009/2010 Waste Characterization and Waste Diversion Study ("2009 City of Chicago").<sup>5</sup> Unlike Portland or Seattle, in Chicago, there are no annual reports of recycling statistics to facilitate our understanding of the progress being made, the methods of calculating the various recycling rates, and goals and policies for the future. We also found the data portal for the City of Chicago to be unwieldy and thus challenging to browse or search for recycling-related information. The video and text-based description of the recycling process and the tutorial about what can be recycled are informative, but this information only targets residences of four units or less ("Chicago Recycles: The Complete Video").

New York is relatively better than Chicago in terms of its provision of information relating to its recycling rates. Both annual and monthly statistics are available at the city's Department of Sanitation (DSNY) website, with distinctions made between diversion rates from DSNY and non-DSNY collections (NYC.gov). The variety of reports available conveys an image of a city relatively committed to disseminating recycling-related information. For example, NYC's Open Data site provides waste diversion and capture rates at the district level for each of the city's five boroughs, allowing residents to monitor their immediate community's recycling performance (NYC Open Data). Like Chicago, New York also provides a web-based video to notify residents of what materials can be recycled. Los Angeles, on the other hand, provides its comprehensive 2013 recycling report online, but there is no other information that further subdivides and thus compares residential and commercial recycling rates. And, unlike both Chicago and New York, Los Angeles does not provide annual reports, informative videos, or alternative ways to convey information to Internet users ("What You Can Recycle at the Curb" 2015).

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<sup>5</sup> These data are not only already dated, but they do not even reflect an entire calendar year.

In light of San Francisco's recycling prevalence, it is surprising that the city provides no annual statistics regarding its recycling rate on its website.<sup>6</sup> There is no breakdown between the diversion rates of commercial or residential properties despite the fact they are all collected by only one private contractor (SF Environment 2015). Ultimately, San Francisco's purported 80% recycling rate may not be as groundbreaking as the city likes to proclaim: the city counts recycled C&D debris in its recycling rate, unlike most other cities in the U.S., thus conflating the recycling of heavy industry with that of residents and commercial businesses. If this C&D recycling rate were removed, the real waste diversion rate would drop to around 61%. While still an impressive recycling rate, it is considerably different from the originally reported rate of 80% (MacBride 2013). Nonetheless, the city's website clearly presents information with regard to what is recyclable, and it provides information to residents and businesses alike about how recycling programs can be implemented.

Portland and Seattle's annual recycling reports break down the residential, commercial, and other related rates involved in their respective recycling programs (City of Portland 2015; Seattle Public Utilities 2015). Further information regarding which materials are recyclable and how to implement recycling programs for multiunit and commercial properties is easy to locate on both cities' websites. Seattle's website is particularly impressive given its interactive cost calculator for all three bin collections as well as its "How to Recycle" videos. The videos describe how to properly recycle and dispose of organic waste and composting, where recycled goods ultimately end up, and how to dispose of hazardous waste. No other city discussed here provides the public with such an extensive set of interactive information ("How to Recycle"... 2015).

### Education and Outreach

There is ample room for improvement of Chicago's educational initiatives related to recycling. As discussed already, although the city's website provides guidance regarding recyclable content to be placed in the Blue Carts, more must be done to improve the general public's understanding of the problem. For instance, the contamination rate for material thrown into the recycling bins is between 18-20% for the city-provided pickup service and 30% for Chicago's private recycling service providers, Waste Management and Resource Management respectively (Bentley 2015). Judging by the sheer number of testimonials on a website like

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<sup>6</sup> All that is reported is the aforementioned 80% diversion rate in 2012.

[mybuildingdoesntrecycle.com](http://mybuildingdoesntrecycle.com), the city has either insufficiently educated its multiunit residential property owners and managers, or it is viewed as a poor enforcer of the city's recycling ordinance. Since June 2011, the City of Chicago has not issued a single fine for a five-units-or-more residential building or commercial property's failure to provide recycling, despite the widespread acknowledgement that there are countless violations by non-recycling buildings (Bentley 2014; "Number of Tickets/Citations").

New York's educational orientation is considerably different. In 2006, NYC's Solid Waste Management Plan founded the Office of Recycling Outreach and Education (OROE) to increase participation in New York's curbside recycling program. OROE utilizes a grassroots, community-centered approach ("Office of Recycling Outreach and Education, OROE"), and the website provides information regarding the material-by-material breakdown of how to recycle more of each product, a listing of free services and programs to promote best recycling practices, details about how to implement recycling for large events, and details about OROE events which promote recycling and other waste-reduction practices. This is consistent with the education and outreach approach in Los Angeles, where the focus is on ensuring that residences not covered by the city's own collection receive the necessary information to have onsite recycling. At Los Angeles' Sanitation Department website, one can also find a backyard composting guide, information about how to recycle at large events, food waste diversion options for restaurants, among other types of information. There is, however, no organized outreach platform on par with New York's OROE.

Similar efforts are represented by San Francisco, Portland, and Seattle, although each city takes a novel approach to education and outreach. In San Francisco, the Department of the Environment's website includes links to school curricula promoting environmental awareness, with lesson plans centered on waste reduction and composting ("Curriculum"). The city's green jobs program, known as "Environment Now," engages in targeted residential outreach campaigns in order to promote the city's goal of zero waste by 2020 ("Projects"). A thorough overview of what can be recycled and how to set up recycling programs for businesses and residents is also provided on the Department of Environment's main page. In Portland, city-based educational initiatives focus primarily on providing a comprehensive overview of what materials can be recycled and encouraging greater involvement by residents in the recycling process. A unique educational element on the city's website is the complete history of the city's

garbage and recycling system, essentially informing residents where the city stands with its recycling rate, why certain recycling policies are justified, and what such policies are intended to do (“History of Portland’s Garbage and Recycling System”). Seattle’s educational outreach is consistent with the aforementioned examples, although it lacks any online videos detailing the city’s recycling process. In eighteen different languages, Seattle also offers web links to printable flyers which contain information about recycling, composting, and waste disposal, showcasing the city’s attempts to maximize its recycling outreach efforts (“Help Residents Recycle”).

### **Recycling Policies and Practices in Comparison**

Clearly, there are recycling policies and practices which can be implemented by Chicago should it decide to overhaul its recycling program. From an efficiency standpoint, as of 2012, San Francisco, Portland, and Seattle have achieved waste diversion or recycling rates above 55%.<sup>7</sup> The gap between Chicago’s 11% Blue Cart recycling rate and these cities’ programs, in terms of residential recycling, is simply enormous. We exercise caution when comparing Chicago to Los Angeles, as the latter’s 76.4% recycling rate appears to be comprised primarily of waste diversion tactics related to composting and source reduction rather than traditional recycling.<sup>8</sup> And, in New York, where the waste diversion rate is approximately 16% and thus closest to Chicago among the cities of our identified sample, there have been improvements over the last ten years. Yet, in Chicago, recycling rates have moved in the opposite direction despite an increase in the number of Blue Carts made available to eligible residents.

The scope and reporting of recycling collection offers a major point of distinction among the six cities analyzed here. San Francisco’s private contractor collects and reports on the waste, composting, and recycling collection of both residences and businesses, as do Seattle’s two private contractors. Portland, despite having dozens of private recycling contractors, successfully tracks and reports commercial and residential recycling rates and outlines its methods of calculation. Chicago, New York, and Los Angeles, however, all lack citywide organic waste collection and do not track recycling rates for commercial properties or five-unit-or-more

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<sup>7</sup> As stated earlier, a more accurate waste diversion rate for San Francisco may be 61% rather than 80%.

<sup>8</sup> We acknowledge that composting is an integral part of effective waste reduction practices and must be promoted in addition to recycling of paper, aluminum, etc.

residential buildings (except for New York, which is responsible for all residential pickup).<sup>9</sup> To have a truly effective recycling program, cities must provide clear indicators of how recycling occurs at commercial, industrial, institutional, and other multiunit residential properties. Given the data maintenance practices of Portland and Seattle, where annual reports are successfully compiled with a detailed breakdown of recycling rates and policies in various sectors, Chicago, New York, and Los Angeles seem to reflect the hazards between data unavailability and the use of private haulers.

Chicago could benefit from improvements in recycling-based data presentation and greater accessibility to these data. New York, for example, offers web users a district-by-district recycling diversion rate spreadsheet, and Portland's and Seattle's recycling web pages are informative, cohesive, and designed in an engaging and easy-to-navigate format. Further, and in light of New York's Office of Recycling Outreach and Education, Chicago can do much more to work closely with the larger community, as well as sub-communities and neighborhoods, to organize events and mobilize in order to better educate residents and encourage proper recycling habits. For example, San Francisco's Green Jobs program performs outreach in areas to promote their 2020 Zero Waste goal and provide materials to advance composting and waste reduction and reuse. Though Chicago's website has instructional videos and information for residents about recycling, the high contamination rates of the city's Blue Carts highlight the need for more robust recycling education-related measures.

### **A Call for Further Improvements**

Our overarching concerns can be distilled into the need for more effective recycling policies, greater data availability, and better education to encourage reduction, reuse and recycling. Recycling and waste diversion rates allow us to determine how much material is being collected in Blue Carts, but this does not tell us which, and how much, recycled materials are actually being reused, sold as baled commodities, and thus ultimately diverted from landfills and incineration. If the estimated 18-30% contamination rate of Chicago's Blue Cart recycling stream is any indication, the recycling stream in other cities may be comprised of inappropriate content. If we measure waste diversion rates on the basis of recycled material that is actually

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<sup>9</sup> With regard to the variety of materials that can be collected in recycling bins, each city differs slightly for one type of material or product, but the intricacies of each are outside the scope of this analysis.

repurposed, it could assuage concerns by residents and businesses that recycling is flawed and excessively costly. More importantly, we would have much more accurately calculated waste diversion rates rather than relied on what is essentially a “garbage can diversion rate.” The adoption of a more precise measure across municipalities in the U.S. will increase the reliability of true recycling, rather than “recycling” defined solely by the fact that it enters a recycling bin or sorting facility but nonetheless is dumped in a landfill or incinerated. Additionally, having accurate information will allow us to understand what makes for effective recycling. This understanding will serve as a foundation upon which to make logical decisions on how to improve recycling programs and, consequently, recycling rates.

We also note that there is very little coordination across American cities. Given variance in the methods of recycling pickup, variance in the calculation of the waste diversion rate, variance in the quality and methods of dissemination of educational materials, and variance in the presentation of what is public data, recycling in America is anything but uniform. Indeed, one might argue that cities operate in isolation from one another with regard to recycling policy coordination, and by doing so are not leveraging information that, if shared, could more rapidly and cost effectively improve recycling rates nationwide. We suggest that, given geographic differences, cities take an initial step and begin coordinating first at the regional level. Portland and Seattle, for example, might be able to establish a recycling partnership where, after establishing which recycled and organic materials are accepted, there will be a focus on achieving economies of scale by sharing best practices with each other, by sharing recycled material for reuse, by creating a consortium to stabilize the market for recycled materials, and by ultimately serving as models and potentially hubs for their surrounding municipalities. Chicago is primed to take on such a role given that it has traditionally served as a trade, financial, production, and cultural hub for the Midwest region.

Municipalities must establish policies that make sense, enact laws that embody those policies, create a framework for accountability and actually hold residents and businesses accountable, education, and regularly evaluate their progress. We thus recapitulate with the following points. First, municipalities must provide recycling and composting services to all residential, commercial, industrial, and institutional structures, regardless of size. In Chicago, simply mandating but not enforcing the High Density Residential and Commercial Source Reduction Ordinance has resulted in untold waste. Second, recycling must be tracked and the

attendant data must be made available in a complete, easy-to-access, and understandable format for city residents, businesses, analysts, and the city itself. To be most useful, data should be as disaggregated as possible, separated into property type (e.g., single-family, multiunit, commercial, etc.), pickup routes (e.g., length of route, time/day of route), community, demographic makeup, and recycling content (i.e. subdivided by material) and quantity. Without these data, our efforts are thwarted to properly assess recycling effectiveness. Third and finally, educational initiatives must be overhauled in order to decrease contamination of the recycling stream. Chicago's 18-30% contamination rate can be quickly and cheaply reduced through efforts resembling those of New York's Office of Recycling Outreach and Education where the primary goal is to provide recycling education, increase recycling education at community events, and bolster networking opportunities to further promote recycling and environmentally-friendly practices. Targeting schools (recycling curricula) and businesses (cost-saving recycling measures) will result in a trickle-down effect, bringing understanding of proper recycling practices into the larger public consciousness. These simple actions will do much to help cities like Chicago best achieve its heavily promoted, but hazy, green image.

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