ISSUE BRIEF

CURBSIDE COMPOSTING IN ILLINOIS: TRENDS AND EMERGING BEST PRACTICES

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The curbside collection of food scraps for composting has become a popular way for municipalities to pursue sustainability goals and divert waste from landfills. This issue brief summarizes the paradigm shift in waste management from disposal to materials recovery, with special attention to food waste and composting. By reviewing the general trends underway nationwide as well as evaluating the evolution, scope and structure of programs in three Illinois communities, it identifies context-specific "best practices" for communities considering instituting or expanding their food-scraps collection efforts.

RESIDENTIAL MUNICIPAL COMPOSTING PROGRAMS: EVOLUTION AND TRENDS

Communities across the United States are slowly expanding their waste-management services to include the large-scale collection of food scraps for composting. Recent research indicates that about 200 communities had curbside collection programs nationwide in 2015, up from only about 25 a decade before (Yepsen, 2015). Illinois has mirrored the national trend, experiencing a recent surge in municipal composting programs. At least 20 communities throughout the state have rolled out curbside food-scraps collection services since 2015 (Illinois Food Scrap Coalition [IFSC], 2017).

While the motivation for developing a curbside composting program varies from city to city, several inter-related factors often spur their creation, including: (i) pressures to comply with national, state and even county-wide waste-diversion mandates and related policies; (ii) civic environmentalism and the development and widespread implementation of community sustainability initiatives; (iii) improvements in organics collection and processing infrastructure, including growth in local composting facilities; (iv) reductions in landfill capacity and, in some cases, increases in disposal costs; and (v) a desire to leverage the multifold social, economic and environmental benefits of large-scale composting, more generally.

This article explores key aspects of municipal food-waste collection programs in Illinois by drawing on in-depth interviews with public officials, reviews of prior studies and examinations of published data. We begin by summarizing factors that are influencing the development and structure of large-scale food-scraps collection programs across the country, with special attention paid to the governance of and markets associated with commercial composting. Second, we share the experiences of three Illinois communities that have taken different paths toward adopting food-scraps collection programs. Finally, we conclude by identifying a set of emerging best practices that may be helpful for municipalities that are considering developing or expanding a food-scraps collection program.

FROM LOCAL WASTE REMOVAL TOWARD MATERIALS RECOVERY

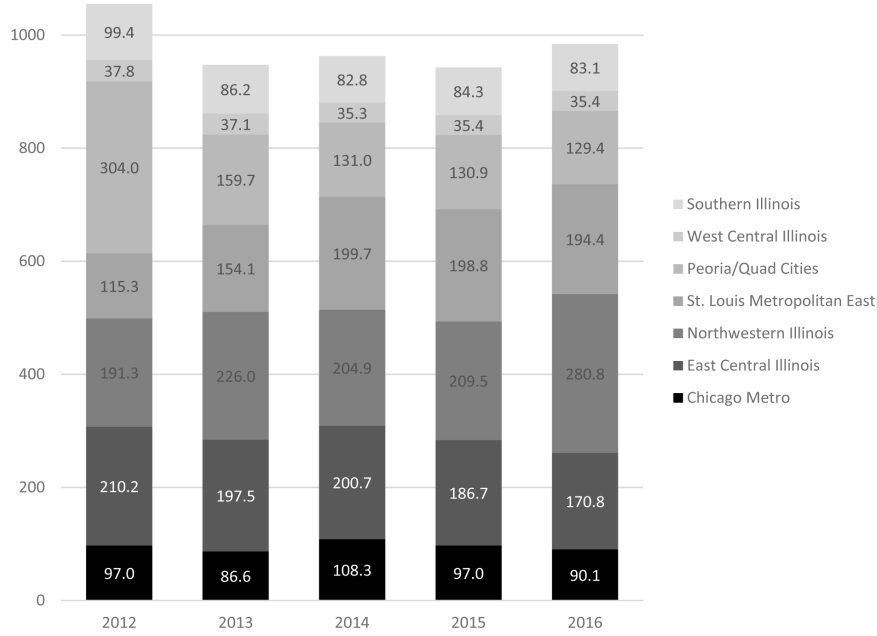
The gradual but widespread transition toward large-scale food-scraps collection should be regarded as part of the longer-term shift in municipal solid waste (MSW) management away from *waste removal* toward *materials recovery*. Coordinated, citywide waste removal has its roots in the sanitary reforms of the late 19th and early 20th centuries (i.e., the Progressive Era), when cities came to the realization that public health could only be achieved through extensive and inclusive infrastructure improvements that benefit everyone (Corburn, 2009). These early efforts gave rise to the development of city sanitation districts responsible for street sweeping, refuse collection, landfill disposal, and other public health-related services largely crafted to protect city dwellers from the byproducts of disposal including noxious odors and disease (Gilstrap, 2012). These services gradually became more mechanized through a variety of technological innovations in transportation (e.g., motorized, large-capacity trucks and barges) and trash processing (e.g., incineration, recycling) (Louis, 2004).

As the environmental movement gained momentum during the 1970s, federal agencies and policies focused on both reducing human contact with waste, and eliminating uncontrolled disposal and recovering valuable materials from the waste stream. One influential policy, the Resource Conservation and Recovery Act of 1976 (RCRA), instituted a nationwide phase-out of unlined waste landfills, resulting in a shift toward fewer and larger disposal facilities. Subsequent rises in disposal costs, together with continued urbanization and local resistance to landfill development, encouraged states and cities around the country to postpone the siting of new landfills by avoiding the dumping of otherwise valuable resources.

Interest in diverting materials from landfills escalated as ever-larger amounts of solid waste were generated, resulting in per capita MSW in the county jumping from 2.68 pounds per day in 1960 to a peak of 4.74 pounds per day in 2000, a 176% rise (U.S. EPA, 2016). Because Illinois residents tended to generate more waste per capita than those in other states (about 20% more per capita in 2007), communities found it necessary to pay haulers to make additional trips to the landfill, increasing waste management costs and consuming, in some cases, scarce landfill capacity (Don Fullerton and Sarah Miller, 2011). In some regions, shortages of landfill space became an issue (Figure 1). Although total available landfill capacity has remained rather stable across Illinois in recent years, the Chicago metropolitan region, which is home to 67.6% of the state's

FIGURE 1

Trends in Available Landfill Capacity by Illinois Region (millions of tons), 2012-2016



Source: Illinois Environmental Protection Agency Landfill Capacity Reports, 2012-2016.

Available landfill space has diminished modestly since 2012, although the declines have been much more significant in the highly populous Chicago metropolitan area as well as in the Peoria/Quad Cities area and East Central Illinois. The St. Louis metropolitan area and Northwestern Illinois regions have seen large increases in available capacity.

total population, accounted for only 9.2% of the state's share in 2016 (90.1 million tons, or 10.4 tons per person). Landfills in this metropolitan region also have the lowest life expectancy in the state at 11.5 years, and have the fewest incentives to expand due to increasing population density, competing land uses and lack of political interest.

Beginning in the mid-1980s, materials recovery through large-scale municipal curbside recycling programs accelerated dramatically throughout the United States, resulting in a three-fold increase in the share of total waste diverted from landfills between 1985 (when 10.1% of waste was diverted) and 2010 (when diversion was 34.0%) (U.S. EPA, 2016). The diversification of municipal waste streams not only curbed many one-way trips to landfill and incineration facilities; it also encouraged a broader transformation of the waste economy, via the development of systems for collecting, processing and marketing post-consumer and post-industrial waste (DePaolo, 1994; Scheinberg, 2003). By 2014, for example, the rate of lead-acid battery recycling in the country had risen to 99% (2.81 million tons) and the rate of corrugated box recycling had surpassed 89% (27.3 million tons) (U.S. EPA, 2016). Likewise, between 2008 and 2014, Illinois experienced substantial growth in the material recovery of metal (a 40.8 percentage point increase), paper (a 10.2 percentage point increase), and textiles (a 17 percentage point increase), which helped boost the statewide diversion rate from 19.1 to 37.3 over the same period (DCEO, 2015).

After 2010, however, recycling rates plateaued, with only 0.15% annual growth recorded between 2010 and 2014 nationwide (U.S. EPA, 2016). Materials recovery in Illinois has also been relatively static for many of the primary recycling groups, including beverage containers, plastics and glass (Don Fullerton and Sarah Miller, 2011). These slowdowns are, in part, due to an easing of consumer demand for recycled products, downturns in prices of recyclable commodities and challenges related to expanding the municipal collection of recyclable goods (Mueller, 2013; Tonjes and Mallikarjun, 2013). This stabilization in recycling has led states, counties and municipalities across the country to gradually turn to the composting of organic waste as a way to achieve greater social, economic and environmental benefits, including landfill diversion.

ENHANCING YARD WASTE DEBRIS COLLECTION TO INCLUDE FOOD SCRAPS

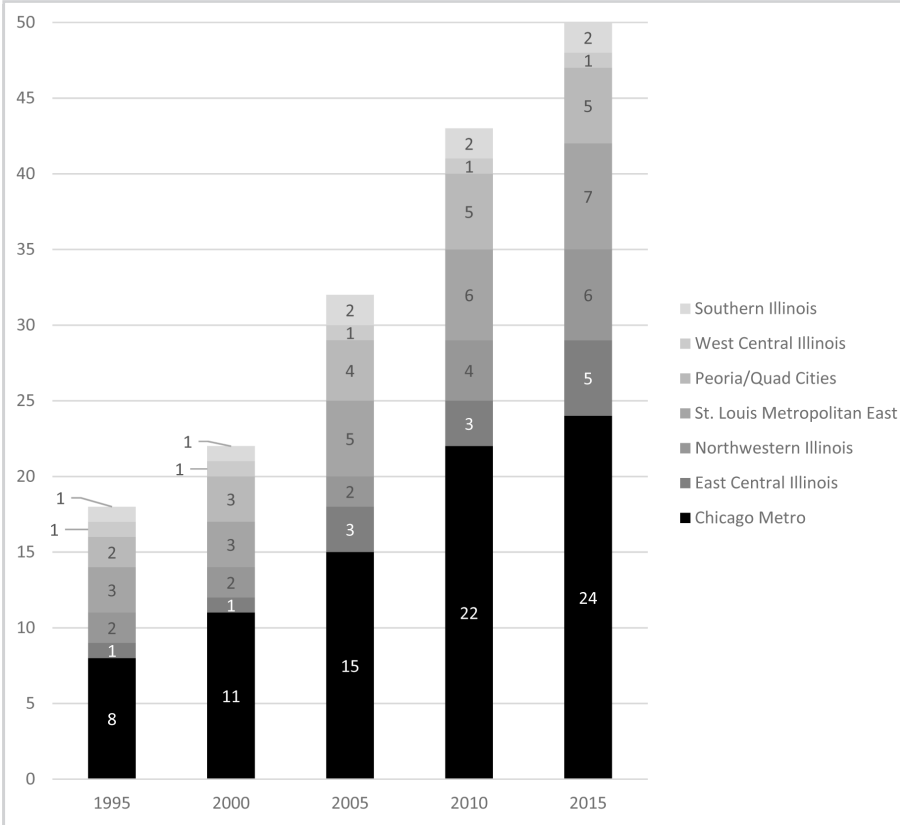
The large-scale municipal composting of organics is not altogether new. Indeed, communities across the country started the incremental process of diversifying

their MSW systems to include curbside organic waste collection and composting nearly three decades ago. In Illinois, this process began in earnest with the passage of Public Act 85-1430 under the Illinois Environmental Protection Act, or EPAct. The Act banned landscape debris (e.g., grass clippings, leaves and brush) from being placed in landfills beginning on July 1, 1990.

The ban also led to the local development of new composting facilities throughout Illinois, including 24 new establishments in the Chicago metropolitan region alone (Figure 2). This growth in composting facilities was concurrent with a drop in the number of conventional landfills, from 43 in 2012 to 38 in 2016 (IEPA, 2017). According to one recent study, at least 20 other states have instituted similar yard-waste bans (Brenda Platt, Nora Goldstein and Craig

FIGURE 2

Active Composting Facilities in Illinois, (cumulative count by year) 1990-2015



Source: Illinois Environmental Protection Agency Permitted Composting Facilities, 1990-2015

Coker, 2014). In 2014, an estimated 5,000 facilities across the United States were licensed to accept organic material, marking a dramatic increase in the local capacity to process solid organic waste.

Developing local capacity for composting yard debris was a prerequisite to reducing organic materials sent to landfills. Between 1960 and 1980, the composting of MSW organic matter was negligible, but it increased to 2.0% in 1990 after the aforementioned yard-debris bans took effect (U.S. EPA, 2016). By 2014, yard debris comprised about 13.3% (34.3 million tons) of total MSW generation, 61.1% (21.0 million tons) of which was recovered via composting. In a relatively short period of time, yard debris became the second-largest category of material diverted from landfills when measured by weight, achieving a rate just below paper and paperboard (68.2%). In contrast, only 5.1% of food waste generated nationwide was recovered for composting (2.0 of the total 38.4 million tons generated). In fact, at 21.6%, food scraps represented the single largest category of material landfilled in the country in 2014.

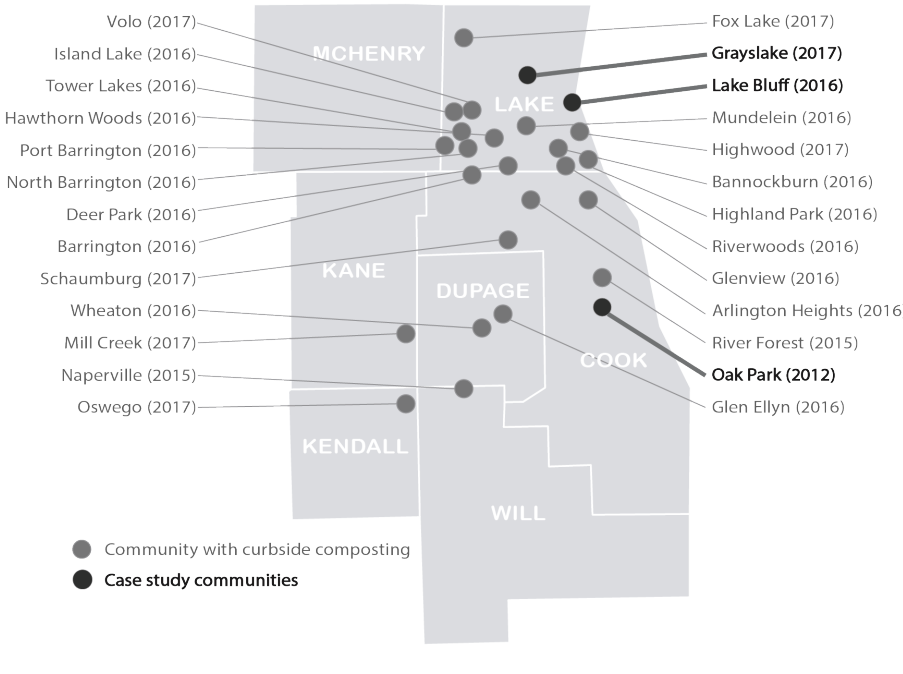
That residents of our country habitually throw away valuable organic resources has not been lost on the general public, non-profit groups, and public entities that have championed and/or adopted ambitious food-scraps collection programs to reverse the pattern. In 2000, San Francisco established its program for curbside collection of food scraps, the first in the United States. Five years later Toronto, Canada, launched its Green Bin collection program, the material from which is composted in the city's own processing facilities. Cities of all sizes across the United States followed suit: large (e.g., Seattle [2005], Denver [2010], Portland, Oregon. [2011], New York City [2013]); medium (e.g., Boulder, Colorado [2010], Cambridge, Massachusetts [2011], Berkeley, California [2012]); and small (e.g., Ann Arbor, Michigan [2010], Oak Park, Illinois [2012]). BioCycle's latest survey identified close to 200 communities across the country with curbside composting programs, representing nearly three million residents in 19 states (Yepsen, 2015).

Spearheaded by advocacy groups including Seven Generations Ahead, schools, Community Assistance for Recycling and Composting Education (SCARCE), and the Solid Waste Agency of Lake County (SWALCO), Illinois signed into law Public Act 96–0418, which exempted commercial composting establishments from the restrictive local siting portion of the facility permitting process designed primarily for conventional landfills and hazardous-waste management sites. In 2013 these permit exemptions were extended to small composting facilities via HB 2335 and HB 3319, which allowed rural farms

to expand the materials accepted for composting, including food scraps; expanded the volume of food waste that could be accepted by "garden compost operations"; and allowed urban farms to enjoy the same permit exemptions as rural farms. Prior to 2009, no Illinois facilities held permits to accept and compost food waste.

In recent years, and in response to changes in the permitting of food composting, Illinois has experienced a groundswell in the municipal collection of food scraps for composting. According to a recent inventory, 26 communities in the state have such programs (Figure 3) (IFSC, 2017). Notably, all of them are located in counties within the Chicago metropolitan region (i.e., Cook [6], DuPage [3], Kane [1], Kendall [1] and Lake [15]). Together, the municipalities represent 673,012 residents and 249,202 households (U.S. Census Bureau, 2017), although not all residents can or do fully participate in their respective composting program. Some of the momentum behind composting in urban locations is being driven

FIGURE 3
Illinois Communities that offer Curbside Collection of Food Scraps, 2017



Source: Illinois Food Scrap Coalition (IFSC) in partnership with the Solid Waste Agency of Lake County (SWALCO).

by the recognition that healthy soil promotes food access in economically distressed neighborhoods. Research by Howard Rosing and Jacob Horn of DePaul University explores this idea by analyzing the wide range of composting policies in North American cities and determining how gardeners in Chicago think about and practice composting (Rosing and Howard, 2016). Their analysis suggests that links between urban gardening and composting will likely grow stronger as the food-waste collection systems grow more sophisticated.

MUNICIPAL CASE STUDIES

To provide an illustration of municipal "best practices," we evaluated published reports and inventories of composting programs throughout Illinois. In addition, we reached out to municipal officials from three communities to gain insights about the evolution and structure of their respective food-scraps collection programs. These communities – Oak Park, Grayslake and Lake Bluff – were selected to illustrate some of the methods underway in three very different contexts.

To inform our case studies, we interviewed Karen Rozmus, Oak Park's outgoing Environmental Services Manager, who was influential in spearheading the village's CompostAble food-scraps collection program and had just recently retired. We also spoke to Village Administrator Drew Irwin and Assistant Village Manager Kevin Timony to inform our understanding of Lake Bluff's and Grayslake's composting programs, respectively.

Each public official was asked open-ended questions about the origin and characteristics of their food-scraps collection program. The semi-structured interviews also included additional conversation-style follow-up questions that provided opportunities for participants to communicate extended meanings, clarifications, or interpretations about particular aspects of their programs. Interviewees were also encouraged to share stories about a broad range of experiences related to their program's evolution, development, goals and effectiveness. This in-depth and interpretive data-gathering strategy yielded information about each program that was both comparable across all three communities as well as nuanced and place-specific. Table 1 summarizes key characteristics of the three municipal programs and contexts, including community population size, program participation rate, program launch date, frequency of food waste collection and the types of organic materials accepted.

TABLE 1 Characteristics of Select Municipal Curbside Food-Scraps Collection Programs in Illinois

COMMUNITY	VILLAGE OF OAK PARK	VILLAGE OF GRAYSLAKE	VILLAGE OF LAKE BLUFF
Launch date	4/1/2012	4/1/2016	3/1/2017
Households subscribing and (participation rate)	1,208 subscribe of 21,612 households (5.6%)	<175 subscribe of 7,699 total households (<2.3%)	Not available
Community goal(s)	reduce landfill waste	derived from SWALCO 60% Recycling Taskforce	derived from SWALCO 60% Recycling Taskforce
Service availability	year-round	yard-waste season (YWS)	year-round
Pick-up frequency	weekly in YWS; bimonthly in winter	weekly	weekly
Membership	optional (subscription)	optional (subscription and PAYT)	optional (basic services)
Sign-up procedure	online or by calling village	calling waste hauler; purchase stickers at local shops for PAYT	calling hauler
Cost for residents	$14.42 per month in YWS; prorated in winter season	$78.80 per YWS; $2.29 per sticker service	no charge to residents, part of basic services
Cart / container	96-gallon (or smaller) cart provided with bucket and box of compostable bags	35-gallon cart can be rented for $3/month, or use own cart up to 32-gallon	35-gallon cart can be rented for $60/year; or use own cart or Kraft bags up to 32-gallon
Organics accepted	landscape waste; soiled paper; most food scraps	landscape waste; soiled paper; most food scraps	landscape waste; limited food scraps
Hauler	Waste Management	Waste Management	Groot
Composting location	Land & Lakes and Willow Ranch Composting Romeoville, IL	Midwest Organics Chicago, IL	Village of Lake Bluff Public Works Dept. and DK Organics, Lake Bluff, IL
Drop-off	not available	community-wide*	not available

* Drop off option available at no additional cost all year

OAK PARK, COOK COUNTY (POP. 52,080)

Having been launched more than five years ago, the Village of Oak Park's CompostAble curbside organics collection program is the longest-running program in Illinois. This voluntary and subscription-based service has grown steadily, beginning with 110 households as a pilot program and reaching 1,200 households at the time of this writing, with new members regularly joining. Oak Park's program is also one of the more comprehensive collection systems in our state, in that it offers year-round service and supports collection of yard debris, paper (e.g., pizza boxes), and both vegetable and animal food scraps including meat, dairy and egg products.

The roots of the program date to at least early 2011, when the village was engaged in contract negotiations with waste haulers. Oak Park's then Environmental Services Manager recommended to the village board that its present hauler be asked to collect food scraps as a way to "sweeten the pot" during the negotiation process (Karen Rozmus, 2017). At that time, the present hauler had, under Public Act 96–0418, already requested and received permits from the state to operate sites that accepted food scraps, some of which were in operation. The village worked closely with the hauler to devise a new contract that incorporated composting services. By April 2012, food-scraps collection in conjunction with yard waste began and was processed in a composting facility in Romeoville, Illinois, about 20 miles from Oak Park.

Oak Park has historically prided itself as being a leader in sustainable practices and has been on the forefront of policies that promote environmental education and social equity (Village of Oak Park, 2017). As such, it was relatively easy to find residents who were eager to participate in a pilot program aimed at collecting food scraps for composting. Subscription costs were initially set at $14 per month, equivalent to the monthly cost of a weekly yard waste sticker. Large volume bins (96 gallons) were used as opposed to standard bins (35 gallons) for collection in part because the hauler had extra bins of the desired color readily available. The larger bins also allowed the village to offer residents the option to share the service with neighbors to lower costs while simultaneously allaying overflow concerns. Between April and November 2011, the 110 households who participated in the pilot program expressed overwhelmingly positive feedback, and at the end of the pilot period many requested that the village extend and expand the program. The hauler agreed to do bi-weekly collections in the winter months, inspiring the village to develop

a more formal program open to residents who use village waste-management services (i.e., largely residents living in single-family dwellings).

Oak Park has continued to expand the program to more residents as well as extend participation to village operations and other public and not-for-profit organizations. Presently, 10 schools, 10 churches, two park district facilities, the Oak Park River Forest Food Pantry, Oak Park Farmers Market, and special events including the village's extensive block parties now participate in the municipal food-scraps collection program.

The village estimates that Oak Park households each throw away between 14 and 18 pounds of food-scraps per week. Although the village has not adopted discrete waste-diversion targets, it estimates that about 50% of waste generated from *participating* residential households and 55% of waste generated from village-related activities are being diverted from landfills. The village's William Beye Elementary School, for example, regularly achieves a 90% or higher landfill diversion rate as part of its Waste-Free-Wednesday cafeteria program due, in large part, to Oak Park's municipal food-scraps collection.

The village hopes to greatly expand participation in its composting program by fostering awareness among residents through various education and marketing campaigns. Other incentive mechanisms, including a Pay As You Throw (PAYT) system, where residents would pay a per-unit fee for disposing of landfill waste, have also been considered by the village as a way to encourage recycling and composting. One of the greatest challenges for higher-density communities such as Oak Park concerns how to extend the program to multi-family households, which represent over 50% of the village total but do not qualify for village-operated residential household waste, recyclable material and yard-waste collection services.

GRAYSLAKE, LAKE COUNTY (POP. 21,117)

In April 2016, the Village of Grayslake began allowing residents the opportunity to co-mingle food scraps with landscape waste as part of its established yard-debris pickup program. The village's scraps subscription service and landscape waste/food-scraps sticker service offers pickup of food scraps during the yard-waste season (YWS, or April through November) via a private hauler.

The curbside service allows residents to compost food scraps by purchasing stickers or sourcing a rigid container, without having to commit to a subscription service. Residents opting to utilize the PAYT service can pay

$2.29 for waste stickers that are made available at local grocery, pharmacy and hardware stores. For those who do wish to subscribe, the cost is $78.80 for the eight-month season. Use of a 35-gallon cart costs an additional $3.00 per month, or residents can use their own (rigid and lidded) container of 32-gallon capacity or less.

Grayslake's municipal curbside composting program is different from the services offered by the other two case-study communities in that it offers its residents a *drop-off* option. Two to three large food-scraps containers complement the single-stream electronics, textile and shoe recycling collection bins located at the village's recycling center. Here, residents may drop off food-scraps along with other recyclable goods year round. The weekly tipping costs for this service are folded into the village's comprehensive waste-hauling contract.

FIGURE 4
Residential Food Scraps Drop-Off Location, Grayslake, Illinois

Source: Solid Waste Agency of Lake County (SWALCO). The signage clearly specifies the types of foods, as well as accompanying paper and cartons, permitted to be placed in the cart. This facility is open daily, except Sunday, during designated hours.

The village, located in Lake County, benefits by being an active member of the Solid Waste Agency of Lake County's 60 Percent Recycling Task Force. The Task Force has put forward ambitious landfill-diversion goals, including achieving a county-wide 60% recycling plus composting rate by 2020, a goal that the village is actively pursuing (Kevin Timony, 2017).

Grayslake is taking steps to make its food-scraps composting program a year-round service. Toward this end, it has strategically negotiated its hauling-contract terms, enabling year-round service if a set participation threshold of 175 households is achieved. That is, if 175 households sign up for the Landscape Waste/Food Scraps Subscription Service by September 1 each year of the contract, then the private hauler would provide collection services at $11.40 per participating household per month during winter months. A common practice with initial curbside recycling services, this agreement allows both the municipality and the hauler to assume some portion of risk.

LAKE BLUFF, LAKE COUNTY (POP. 5,672)

The Village of Lake Bluff began its food-scraps composting program in early 2017, introducing it to the community as a pilot program. Taking advantage of existing, year-round landscape waste-collection services, the new contract with a private hauler and composter allows residents to commingle food scraps and landscape waste. Participants dispose of their yard debris and food scraps in large paper bags, or a 32-gallon bin available for rent at a cost of $60 per year. Similar to Oak Park, the Lake Bluff program is open to all residents who qualify for village-operated waste-management services.

Organic materials explicitly restricted from weekly pick-up include meat, poultry, seafood, paper products, teabags and coffee filters. While these restricted items are compostable and typically accepted at commercial facilities, the village opted for a cautionary approach during the pilot phase in order to avoid confusion, contamination and address local concerns for wildlife. The lower-density village has considerable green space and wildlife, and has historically experienced problems with raccoons and other animals removing refuse from garbage bins. Over the first seven months of programming, however, the village has received only two related complaints, opening up the possibility of accepting more categories of food waste if the program is deemed successful (Drew Irwin, 2017).

Similar to Grayslake, the Village of Lake Bluff is located in Lake County and actively participates in the 60 Percent Recycling Task Force. Advancing

task-force diversion goals was one of the primary motivations driving the establishment of the pilot program.

DISCUSSION AND EMERGING BEST PRACTICES

This article has shown that municipalities are playing important roles across the country and in Illinois to improve environmental performance through food-scraps collection. The growth in curbside composting in Illinois can be attributed to a variety of factors, including state policies that have banned disposing of yard debris in landfills, and easing permitting for large- and small-scale composting facilities in both rural and urban areas. The three case studies also showed that, similar to materials recovery via recycling, composting programs can be successfully implemented in communities of different sizes (small, medium and large) with different population densities (low to high).

Within the past several years, reports have been written about the multifold benefits of composting as well as the challenges and best practices associated with developing municipal food-scraps collection services. The Illinois Food Scrap Coalition (IFSC), for example, identifies six key challenges that are impeding the development of an Illinois-wide food-scraps composting industry and over 20 solutions to address them (IFSC, 2015). The present study does not attempt to replicate such work, but rather provides additional clarity about trends and emerging best practices in light of recent activities in Illinois. We emphasize *emerging* because most of the programs referred to in this paper are truly in their formative stages, unlike recycling, which has achieved relatively high rates of participation only by working through multiple arrangements of collection, contracts and processing. We conclude, then, with a few key insights and emerging best practices for municipalities that are considering adopting or expanding food-scraps collection.

ENCOURAGE AND UTILIZE BROADER-SCALE COORDINATIVE EFFORTS

Municipal composting programs tend to arise more readily when county or other subregional institutions coordinate information-sharing and goal-setting across communities. The Solid Waste Agency of Lake County has coordinated with public entities and non-profits to give it an influential role in promoting awareness around the topic of recovering food waste in Illinois. For example, in 2015, it worked with Seven Generations Ahead, U.S. EPA Region V, and other organizations to create a half-day Food Scrap Composting Forum, which resulted in the development of the Illinois Food Scrap Coalition (IFSC) with

the mission to advance "food scrap composting in Illinois through program implementation, policy and advocacy" (IFSC, 2015).

The solid-waste agency also worked locally with community partners in Lake County to coordinate data collection efforts, such as encouraging its 43 member municipalities to request bids from their residential haulers for year-round curbside collection of organics. This information is continually reported back to municipalities to inform their own contract negotiations and formal requests for proposals (Walter Willis, 2017). The agency also helped five of its municipal members enact commercial franchises in 2014, whereby one hauler was given exclusive rights to collect waste, recyclables and organics from all the businesses in their jurisdictions, resulting in considerable savings.

Similar to other collection services, the costs of curbside composting decrease at larger scales. Expanding route densities, therefore, creates more opportunities for such services to increase their profit base, which could, in turn, reduce costs for municipalities. This is crucial for expanding such services given that year-round collection of food scraps can cost two to four times more than conventional refuse collection.

As reported earlier, a number of municipalities in Lake County have participated in the 60 Percent Recycling Rate Task Force and have taken steps to advance their respective waste-diversion targets. In this way, subregional entities such as counties or councils of governments can work with municipalities to develop a performance target platform that community commissions and other local entities can adopt to promote sustainability goals.

THERE IS NO UNIVERSAL MODEL PROGRAM

Perhaps the key lesson from this study is that multiple paths can be taken to develop and structure food-scraps collection programs and that no single approach is likely to be applicable or successful in all municipal contexts. This said, it would be advisable for municipalities to arrive at a context-sensitive solution through an incremental, transparent process that leverages stakeholder input, broader-scale coordinative efforts and opportunities for contract negotiation.

For medium and large cities, this process may entail working through an environmental commission to guide a feasibility study to estimate present and future waste-generation rates and potential capture of organic wastes from the residential, commercial and institutional sectors. Such a feasibility study can

also help assess the adequacy of regional composting capacity, and the logistics and costs for transferring materials and the optimal times for negotiating and phasing in such a service to residents. Moreover, municipal leaders should keep in mind that successful programs tend to begin with a pilot, which provides insights into the logistics of collection and a community's receptiveness, before commencing with a more general programmatic rollout.

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