



Solid Waste Management Plan Five Year Update 2017



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Section 1.0

Introduction

The State of Illinois enacted the Solid Waste Planning and Recycling Act in 1988 (“Act”). The Act mandated that counties must each submit to the Illinois Environmental Protection Agency an officially adopted plan for the management of municipal waste generated within its boundaries. The Act serves to encourage the continuous planning for solid waste management and pushes local governments to perpetually move forward with a waste reduction and recycling agenda. The Assembly cited diminishing landfill capacity along with the more environmentally preferable management of waste by increasing conservation of valuable resources and energy. The effort was reinforced in 2014, when the Solid Waste Hauling and Recycling Program Act was put into place to mandate the availability of recycling to commercial entities in the Chicago metro region. Haulers must offer as part of waste hauling or as an additional service recycling services.

The initial DuPage County Solid Waste Management Plan was adopted February 1991 with subsequent updates completed in 1996, 2001, 2007 and 2012. This Plan update evaluates the waste disposal capacity of the County, electronic recycling coverage, and identifies food scrap collection and compost feasibility within the County. The initial Solid Waste Management Plan included multiple recommendations to reduce, recycle and handle solid waste. The County, along with many valuable local government and private sector partners successfully completed several goals including: construction and operation of a regional recycling center and a household hazardous waste facility; the establishment of several recycling drop-off locations; a latex paint recycling and reuse program; an environmental education program as well as supporting reduced requirements on construction and demolition debris recycling.

The United States Environmental Protection Agency has been actively moving perceptions for the management of solid waste from a disposal and recycling toward a much broader delineation of sustainable materials management. The shift is demonstrative of worldwide efforts to embrace life cycle analyses of resource consumption. This approach recognizes that many items should have a second or third life prior to final landfill disposal. Another term that has grown in popularity is “closed loop” which signifies an effort to maintain resources in a manner that does not allow them to go unused at any point.

This perspective of material management has influenced this solid waste management plan update. This document will take a broader approach to planning for waste by considering other technologies that may be a higher or best use in a waste hierarchy. Items that may remain in the waste stream cannot be recycled or reused without significant economic investment so the need for disposal is still prevalent.

Section 2.0

Waste Generation

It is beneficial to understand that the waste stream included in solid waste planning is limited to the items and definitions described below. There are many other waste streams that are generated by industrial, commercial, business entities that do not fall within the definition of municipal solid waste.

2.1 Definitions

The definitions below are taken from the {Illinois} Environmental Protection Act, 415 Illinois Compiled Statutes.

Composting. "Composting" means the biological treatment process by which microorganisms decompose the organic fraction of waste, producing compost.

Food scrap. "Food scrap" means garbage that is (i) capable of being decomposed into compost by composting, (ii) separated by the generator from other waste, including, but not limited to, garbage that is not capable of being decomposed into compost by composting, and (iii) managed separately from other waste, including, but not limited to, garbage that is not capable of being decomposed into compost by composting. "Food scrap" includes, but is not limited to, packaging, utensils, and food containers composed of readily biodegradable material. For the purposes of this Section, packaging, utensils, and food containers are readily biodegradable if they meet the ASTM D6400 standard.

Garbage. "Garbage" is waste resulting from the handling, processing, preparation, cooking, and consumption of food, and wastes from the handling, processing, storage, and sale of produce.

General Construction or Demolition Debris. "General Construction or Demolition Debris" means non-hazardous, uncontaminated materials resulting from the construction, remodeling, repair, and demolition of utilities, structures, and roads, limited to the following: bricks, concrete, and other masonry materials; soil; rock; wood, including non-hazardous painted, treated, and coated wood and wood products; wall coverings; plaster; drywall; plumbing fixtures; non-asbestos insulation; roofing shingles and other roof coverings; reclaimed or other asphalt pavement; glass; plastics that are not sealed in a manner that conceals waste; electrical wiring and components containing no hazardous substances; and corrugated cardboard, piping or metals incidental to any of those materials. General construction or demolition debris does not include uncontaminated soil generated during construction, remodeling, repair, and demolition of utilities, structures, and roads provided the uncontaminated soil is not commingled with any general construction or demolition debris or other waste...

Household waste. "Household waste" means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

Landscape waste. "Landscape waste" means all accumulations of grass or shrubbery cuttings, leaves, tree limbs and other materials accumulated as the result of the care of lawns, shrubbery, vines and trees.

Municipal Waste. "Municipal waste" means garbage, general household, institutional and commercial waste, industrial lunchroom or office waste, landscape waste, and construction and demolition debris.

Recycling, Reclamation, Reuse. "Recycling, reclamation, or reuse" means a method, technique or process designed to remove any contaminant from waste so as to render the waste reusable, or any process by which materials that would otherwise be disposed of or discarded are collected, separated or processed and returned to the economic mainstream in the form of raw materials or products.

Resource conservation. "Resource conservation" means reduction of the amounts of waste that are generated, reduction of overall resource consumption and the utilization of recovered resources.

Sanitary landfill. "Sanitary landfill" means a facility permitted by the Agency for the disposal of waste on land meeting the requirements of the Resource Conservation and Recovery Act, P.L. 94-580, and regulations thereunder, and without creating nuisances or hazards to public health or safety, by confining the refuse to the smallest practical volume and covering it with a layer of earth at the conclusion of each day's operation, or by such other methods and intervals as the Board may provide by regulation.

Transfer station. "Transfer station" means a site or facility that accepts waste for temporary storage or consolidation and further transfer to a waste disposal, treatment or storage facility. "Transfer station" includes a site where waste is transferred from (1) a rail carrier to a motor vehicle or water carrier; (2) a water carrier to a rail carrier or motor vehicle; (3) a motor vehicle to a rail carrier, water carrier or motor vehicle; (4) a rail carrier to a rail carrier, if the waste is removed from a rail car; or (5) a water carrier to a water carrier, if the waste is removed from a vessel. ..

Waste. "Waste" means any garbage, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility or other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows, or coal combustion by-products as defined in Section 3.135, or industrial discharges which are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act, as now or hereafter amended, or source, special nuclear, or by-product materials as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 921) or any solid or dissolved material from any facility subject to the Federal Surface Mining Control and Reclamation Act of 1977 (P.L. 95-87) or the rules and regulations thereunder or any law or rule or regulation adopted by the State of Illinois pursuant thereto.

2.2 Population Trends & Forecasts

The 2010 DuPage County population was reported to be 916,925 from the U.S. Census Bureau. The Bureau projects the County growth to slow to 1.4% increase since 2010 with an average 2.72 persons/household. Current U.S. Census estimates put the population at 929,368 including 338,083 households. The State of Illinois has been experiencing a population decline starting in 2013 according to the U.S. Census Bureau estimates from 2016.

2.3 Waste Composition - IL Commodity/Waste Generation and Characterization Study

In 2014, the Illinois Department of Commerce and Economic Opportunity commissioned the Illinois Recycling Association who utilized CDM Smith to complete an update to the 2008 *Illinois Commodity/Waste Generation Study 2*¹. The report developed metrics for municipal solid waste and industrial, commercial and institutional solid waste generated throughout the State of Illinois. Their methodology included sampling at landfills, modeling to account for moisture content and calculations for commercially generated waste. The data provides the State with a better understanding of what items are being landfilled and enables entities to prioritize efforts based on recycling, diversion availability, and quantity of varying categories of waste. The data can also be folded into strategic planning efforts at the county level.

¹ *Illinois Commodity/Waste Generation Study*

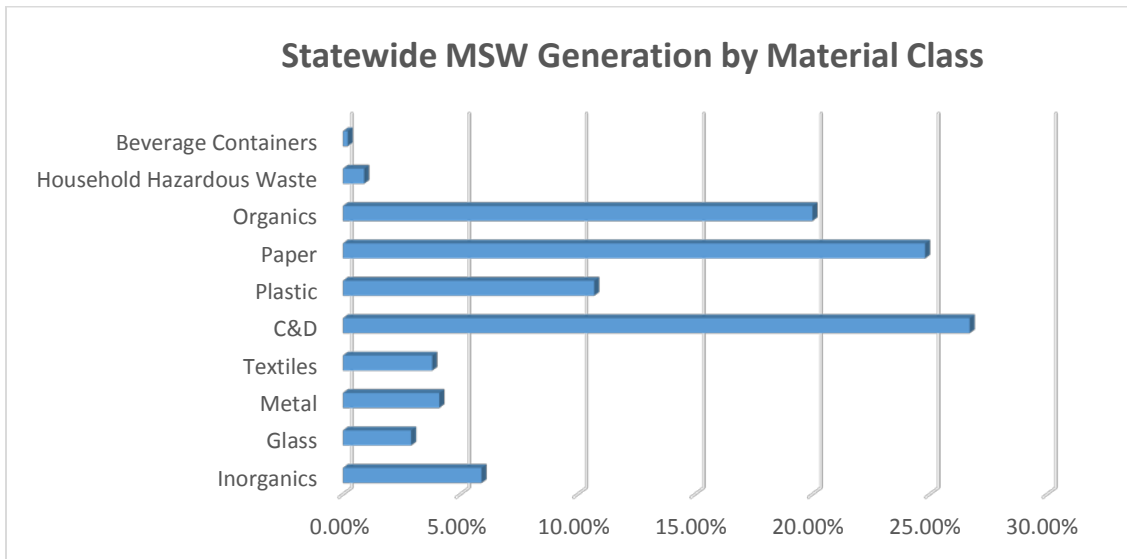


Figure 1: Compiled from data included in the Illinois Commodity/Waste Generation Study Update March 30, 2015

The study also identified the top ten waste categories for both residential municipal solid waste, and urban industrial, commercial & institutional. The tables below reflect just over 50% of the overall waste stream with organics/food scraps comprising the highest percentage by weight. Other large contributors include yard waste and uncoated old corrugated cardboard and brown paper material.

Top Ten Individual Material Categories in Landfilled Urban Residential MSW	
Category	Waste Composition %
Food Scraps	20.6%
Yard Waste - Compostable	5.4%
Uncoated OCC/Kraft	4.3%
Compostable Paper	4.1%
Recyclable Glass Bottles & Jars	3.6%
Other Organic	3.6%
Painted Wood	3.4%
Mixed Paper - Recyclable	3.2%
Diapers	3.2%
Household Bulky Items	3.2%
Total	54.7%

Table 2: Data from Table 2-9, Illinois Commodity/Waste Generation Study Update March 30, 2015

Top Ten Individual Material Categories in Landfilled Urban Industrial Commercial & Institutional Municipal Solid Waste	
Category	Waste Composition %
Food Scraps	15.6%
Uncoated OCC/Kraft	13.3%
Bottom Fines & Dirt	3.8%
Other C&D	3.7%
Compostable Paper	3.6%
Commercial & Industrial Film	3.6%
Wood Pallets	3.4%
Other Film	3.3%
Painted Wood	2.7%
Other Rigid Plastic Products	2.6%
Total	55.6%

Table 1: Data from Table 2-9, Illinois Commodity/Waste Generation Study Update March 30, 2015

The study identified that standard recyclable materials, glass bottles and jars, aluminum beverage containers, ferrous containers, and food waste were at a lower recovery rate than the national average. A recommendation of this plan is to improve the diversion of these commodities.

2.4 Waste Generation Rate

Waste generation varies annually. Table 3 provides a summary of the annual rates from the inception of the first Solid Waste Management Plan in 1990. A waste generation rate is inclusive of all items that are generated from residential, construction & demolition debris, commercial, industrial, and institutional. The rate does not take into account the materials that are repurposed, recycled or otherwise recovered prior to disposal.

The rate identified below was derived from the Illinois Commodity/Waste Generation and Characterization Study Update March 2015 and is an estimate based on landfill waste composition audits and associated modeling. It is consistent with data reflecting an ongoing increase as noted in the U.S. EPA's Advancing Sustainable Materials Management 2013 Fact Sheet which reports that the United States consumed 46 percent more materials on a per capita basis in the year 2000 than in 1975.

The information shows a slight decrease in waste generation for DuPage County since the last Plan Update in 2012. While this time frame included an economic downturn, it also saw a shift in lifestyles for many residents and businesses. Sustainability, zero waste and other resource conservation efforts have become increasingly mainstream. Many corporations and businesses have incorporated sustainability plans that set recycling and waste goals. The impact of this shift is expected to be reflected over the next 5 year time frame ending in 2022.

Historical Waste Generation Estimates for DuPage County Solid Waste Management Plans

Year	Population	lbs./Capita/Day	Estimated tons of MSW/day (Residential, ICI, C&D)	Countywide estimated tons /year
1990	781,200	8.0	3,124	1,140,260
1996	843,067	7.17	3,022	1,103,030
2001	904,161	6.9	3,119	1,138,564
2007	932,670 ⁽¹⁾	6.9	3,217	1,276,592
2012	929,760 ⁽¹⁾	9.19 ⁽²⁾	4,272	1,537,842
2017	929,368 ⁽¹⁾	8.7 ⁽²⁾	4,042	1,475,604

Table 3

⁽¹⁾ Population based on growth estimates not actual U.S. Census data.

⁽²⁾ Rate taken from Illinois Commodity/Waste Generation and Characterization Studies

Section 3.0

Recycling and Diversion

In 2011, The County’s residential recycling rate was calculated to be 41%, with commercial recycling much lower. The *Illinois Commodity/Waste Generation and Characterization Study*¹ concludes that a 19.1% recycling rate is more accurate when industrial/commercial/institutional and construction/demolition waste is included with standard recycling in the calculation. The study is statewide and does not specifically account for the County’s two construction demolition debris recycling operations, nor its proximity to many recycling centers including the intermediate processing facility in Carol Stream. Roughly one-third of the municipalities that provided commercial recycling data as part of the 2016 survey, reported a rate of approximately 21%. A more accurate combined recycling rate for DuPage County is 30%, an average of the reported residential and commercial recycling rates.

3.1 Municipal Contracts

The County continues to collect data on individual municipal contracts to waste and recycling. Appendix A summarizes the waste and recycling information compiled as part of the County’s Solid Waste & Recycling Annual Report for 2016. The data found that all communities in DuPage County offer recycling services to residents. There are variations in how the service is provided and whether the service is extended to commercial and multi-family customers. In recent years, many municipalities have expanded their recycling collection services through one-day or seasonal collection events for non-curbside recyclable items (Figure 2).

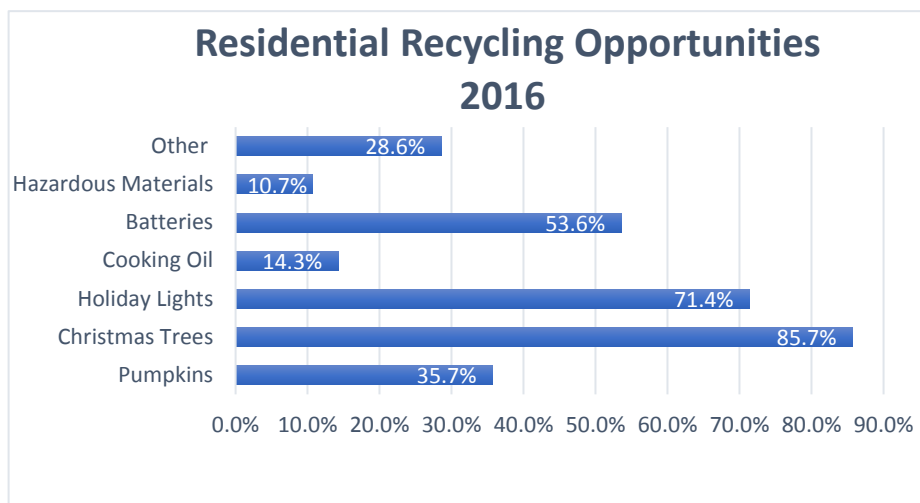


Figure 2

Although commercial waste franchises are not typically found in DuPage County there are a few municipalities that maintain these agreements, the Village of Addison, the Village of Lombard and the City of Oakbrook Terrace. The commercial waste franchise agreement cover businesses and multi-family structures waste and recycling services. The Village of Addison additionally included residential dumpster rental in the waste hauling contract and residents must utilize the Village's for this service.

There are various waste hauling programs that municipalities can utilize. One model offers a flat monthly rate for specified container size and other options include what is known as pay as you throw or volume based. There are pros and cons to both programs. While volume based offers a reduction in costs for those generating less waste, it has been shown to increase contamination in recycling bins. A flat rate program can keep average costs lower due to the known revenue for the haulers. The City of Wheaton recently launched a newer model program utilizing RFID tags for waste and recycling. Each community customizes the expenditure in accordance with their priorities ranging from price to easy access to recycling services. The County will continue to review annual data from the local governments in an effort to provide best practices in the future.

3.2 Multi-Family Recycling

In 2015, the County met with multiple waste haulers to discuss efforts to expand recycling opportunities in multi-family buildings. The discussion and emphasis mirrored that of the recycling industry that contamination rates had increased in single-stream recycling. The County shifted its focus to develop better outreach materials about what can and cannot be recycled. This remains a priority as better recycling yields equate better economic value and recovery rates.

Additionally, at the meeting it was noted that providing recycling services in multi-unit tenant buildings requires consistent ongoing education to address new tenants. Transporting items to shared recycling bins is also challenging for residents to maintain a recycling container within limited space dwellings. Recycling is easily contaminated when residents are not educated on procedures or when waste bins are filled to capacity and tenants utilize the recycling containers erroneously. Recycling can be an additional cost, but can be offset as recycling can reduce waste pickups. Some communities have added waste hauling and recycling services for multi-family buildings to contracts and others have mandated that haulers offer recycling in all waste contracts.

Outside of curbside recycling options, drop-off centers are an outlet for recycling when residing in a multi-family building. The Waste Management DuPage County Recycling Center drop-off center in Carol Stream is available to all residents while the recycling centers in Addison and Naperville are limited to residents within their boundaries. The County has reviewed the viability of additional drop-off centers however, the staffing and financial commitment cannot be secured at this time.

3.3 Construction & Demolition Debris Recycling

Due to its volume of the waste stream, construction and demolition debris recycling is an option to reduce landfilled waste. The County is unique in that it is currently home to three construction and demolition debris recycling sites which are able to process thousands of tons of debris that would be disposed of as a waste otherwise. This type of landfill diversion is being encouraged with a new County effort to educate construction contractors and residents of these local recycling opportunities.

Construction and demolition debris recycling has seen advantageous changes in recent years, as roofing shingles have been approved as an ingredient in road construction. Legislation mandating the recycling of

roofing asphalt shingles was enacted for sites outside a specified distance of a landfill. In contrast, construction wood has experienced some fluctuation and is currently more difficult to recycle. The wood can be utilized for wood chips, mulch, and road base in landfills and has intermittently been used as biomass fuel for electricity generation. There has been a shift in the construction industry to generate less waste material through the use of pre-fabricated items that do not require any trimming therefore do not create waste.

3.4 Household Hazardous Waste

Since the last solid waste plan update, 2012, the City of Naperville relocated the Household Hazardous Waste Facility to their Environmental Collection Campus next to the City's Public Works facility. The transition was made to simplify and consolidate recycling for residents. The new facility reported a significant increase in participation during the first year of operation. In 2016, the site collected an additional 67,000 gallons of household hazardous waste. The City reported that in 2016 there were over the 20,766 drop offs of which 12,594 were from DuPage. As partially funded through the Illinois Environmental Protection Agency, the facility is open to all Illinois residents and the City of Naperville receives financial support from DuPage, Kane and Will counties and the City of Aurora.

Residents have other opportunities to dispose or recycle specific sectors of household hazardous waste. The City of Addison has partnered with a local business to recycle various types of batteries from their residents. Other items that are collected by businesses include compact fluorescent bulbs, paint, automotive fluids, fire extinguishers, propane tanks. The County publishes an Online Recycling Guide to assist residents in locating these recycling services. SCARCE, through the County's environmental education contract and with private grant funding, has worked with various entities to launch eight permanent, used cooking oil collection sites. These collections are augmented by communities hosting one-day collection events following holidays like Thanksgiving. The recycling of cooking oil is beneficial in that it can be made into a new fuel source. It also reduces the amount of cooking oil and grease poured down drains causing blockages in the sanitary system and treatment plants.

Waste Management, Inc. recently launched At-Your-Door Special CollectionSM service which has been added into several municipal contracts and provides another option for communities to safely dispose of household hazardous waste. The company offers pick up service for household, automotive and garden chemical items as well as specified electronics and small battery recycling.

3.5 Electronics Recycling

Starting January 1, 2012 many categories of residential electronics were banned from Illinois landfills. Currently there are 17 items that cannot be placed in with household refuse. DuPage County has been working with electronics recyclers to ensure that consumers have access to recycling sites. The program has struggled to remain sustainable as the manufacturer funded programs are limited and/or reduced and recycling markets for the materials are deemed volatile. Nationwide, many recycling companies struggle to keep up with demand and maintain steady outlets for the hard to handle cathode ray tube devices that have lead in the glass screen. Several companies have been forced into bankruptcy and others have been fined for the improper stockpiling and storage of the devices².

In 2016, the County pursued a system using a recycling fee for the harder to handle items and relaunched two weekday collection sites and two collection sites that are open one Saturday per month, both week day and

² Resource Recycling, *Closed Loop execs ordered to pay millions in Ohio*, Bobby Elliot, August 8, 2017

Saturday programs are staffed by the recycler³. These are conducted through valuable partnerships with the municipalities Burr Ridge, Lisle, Wheaton and Naperville. These communities have voluntarily participated and have agreed to accept items from residents throughout the County.

The Electronic Products Recycling and Reuse Act was significantly amended in 2017 and mandated a specified number of collection sites in counties based upon population density. The changes are effective starting January 1, 2019 and the County of DuPage is expected to receive 5 collection sites. The electronics manufacturers or a manufacturer clearinghouse will be working with Illinois counties to identify the locations, hours, and other details for collection sites.

The County continues to provide information and outreach materials on electronics recycling through flyers, social media, newsletters, advertising, the online recycling guide and the website. A map of locations was developed to display all available recycling options as well as aid in strategic planning of future sites.

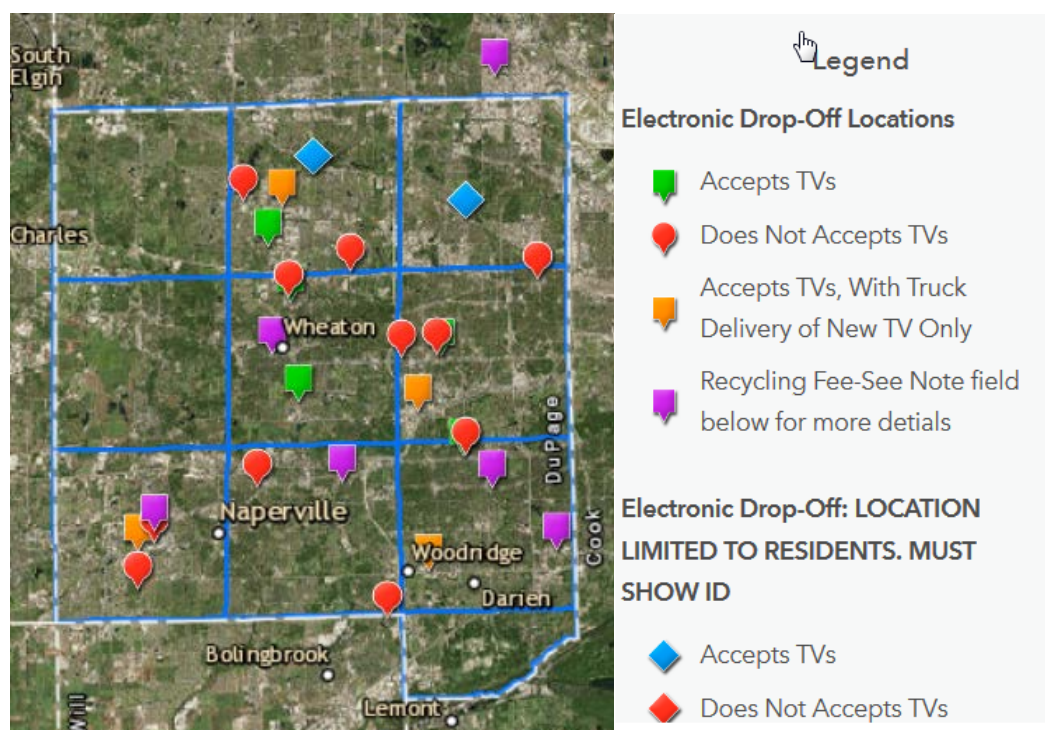


Figure 3: Map of Residential Electronics Recycling Locations in DuPage County

3.6 Sharps/Needles

Sharps remain a difficult item to manage in the waste stream. While the Illinois EPA allows households to place needles in a puncture proof container for landfill disposal, this is not the preferred method. Despite several medicine drop-off locations across the County, these sites cannot accept sharps through their programs. Residents are relegated to purchasing a mail back container for safe disposal or find a local sharps drop-off of which there are few in the County. The waste and recycling industry identifies sharps as a hazard when placed in recycling containers and continues to work on educating and restricting residents from disposing of sharps in this fashion.

³ The Wheaton Saturday collection is staffed by the recycler and local volunteers who desired to remain part of the collection site program.

While it is a smaller portion of the waste stream, sharps are an item that merits consideration. The U.S. EPA estimated that approximately 8 million people in the U.S. use varying types of sharps or needles in the home⁴. They further conclude that this leads to the need for disposal of 3 billion sharps. The City of Westmont included a sharps drop-off kiosk in their municipal waste contract issued to Waste Management. The Village of Lisle offers a drop off point with the Rx Box at the police station for residents and the Glenside Fire District recently launched a collection that is free for residents and for a small fee will accept the needles from residents outside their district. These proactive approaches are commendable and are encouraged.

Some waste companies including Republic Services and Stericycle offer mail back programs for a fee. Waste Management Inc. offers both a mail back program and a sharps drop box collection to communities as well.

3.7 Special Collections/Recycling Events

For many years, DuPage communities, schools and churches have been encouraged by SCARCE, through the County's environmental education contract, to host one-day recycling events. The recycling opportunities vary at each event and encompass items from keys to scrap metal to furniture and pet supplies. More recently, document shredding services have been added to the events. Several communities have worked with their local bank to host document shredding events and the County has provided financial support to communities as well since 2015.

There are several businesses and non-profits that provide recycling services throughout the year. The County provides these opportunities in an online recycling guide by waste category. Communities are encouraged to provide links to the page which can be easily and regularly updated. Residents without access to the internet are encouraged to contact the county via phone for inquiries.

3.8 Landscape Waste and Food Scraps

Diversion of landscape waste has been a statewide priority since 1990 when the waste was banned from Illinois landfills. DuPage County encourages the composting or reuse of landscape waste and prohibits the burning of the waste for disposal in unincorporated areas. Waste-to-energy has been proposed however, businesses have not yet identified economical model for this area.

In a comparison of landfilled commodities from 2008 to 2014, there was a significant uptick in the amount of food scraps.⁵ Curbside collections have seen a rise in popularity with several large waste haulers providing seasonal service in conjunction with their traditional landscape waste. Communities currently with a voluntary curbside food scrap collection include; Glen Ellyn, Naperville, and Wheaton. In addition to the curbside collections, Lombard provides alternative funding to support backyard composting of food scraps. This increase and interest in food scrap composting will assist with diverting this commodity from the current residential waste stream.

In response to this measured increase statewide, the Illinois Food Scrap Coalition ("Coalition") was formed as a statewide effort to divert food scraps from landfills. DuPage County is a founding partner with the Coalition and has staff that participate on the Executive Board. In 2017, the group published the *Economic Impact and Market Study Report: Elements of the Case for Advancing Food Scrap Composting Industry and the Link to*

⁴ *Community Options for Safe Needle Disposal*, U.S. EPA, October 2004

⁵ Comparison of 2008 and 2014 Illinois MSW Landfilled Commodity Materials, Figure 5-2 within the Illinois Commodity/Waste Generation and Characterization Study, 2015.

Building Illinois' Local Food Economy. The group's study was comprehensive and included, among the items, an extensive review of current practices, recommendations, tonnages, market flow and interviews with stakeholders. The recommendations were numerous with several using fee incentives and grant programs to encourage food scrap composting. Of particular notice was the inclusion of a proposal to add food scraps to the landfill landscape waste ban. The study does elaborate that a phased-in approach which includes development of infrastructure would be the most successful roadmap. The study explains that there is low demand for compost which stalls industry development. The group proposes among other things cost-sharing, cooperative purchasing, use in transportation projects and the development of financial incentives. Additionally, the Coalition received grant funding from the State of Illinois and other private funding sources including the Chicago Community Trust for programs including We Compost a free recognition program for entities choosing to compost food scraps in the State of Illinois.

There are limited locations where food scraps can be composted within range of DuPage County. Waste Management, Inc. has a permitted landscape waste and food scrap composting site in Romeoville and Midwest Compost, LLC has locations in West Chicago and Elgin that are permitted to accept and transfer food scraps with yard waste. Further from the County are two additional composting facilities that also accept food scraps for composting - Green Organics in Bristol, IL, and Compost Supply in Newark, IL. The seasonality of collecting the material with landscape waste reduces the impact of the service but this obstacle may be resolved if digesters are utilized. There are discrepancies between the definition of food scrap and what is typically accepted by organic compost sites. Industry members are advocating to modify the definition by removing references to packaging, utensils and food containers that create issues during the composting process.

3.9 Recycling and Contamination

Recycling conserves energy and natural resources and can create jobs. Recycling has become part of the population's daily lives. It has become an every changing industry with many of the changes yielding a negative impact. The switch to single stream began to harm recycling with an additional degradation when carts were introduced. Ever increasing types of packaging has also had an effect. It has become increasingly difficult to identify what is accepted in the recycling bin and this confusion may be leading to apathy about sorting recyclables.

In addition, the recycling stream is changing. The U.S. EPA found an increase in consumption of plastic bags, sacks, wraps, corrugated containers and a reduction in newspaper. While recycling companies have perpetually seen changes in the streams, the newer trend to reduce the plastic or other resource of a product like a plastic bottle, have increased recyclers costs as it takes more to get a ton of material. As discussed below, many recycling companies are trying to simplify the recycling stream to maintain the quality, value and predictability of the items collected.

Waste Management found in 2013 that on average 16% of inbound recycling is non-recyclable. They estimate the cost of the contamination to be approximately \$140/ton which is a 20% increase over two years. The company has launched a Recycle Right campaign that attempts to return to the basics of recycling by encouraging the recycling of valuable items. Resource Management, a local recycling company, reported a nearly 3-fold increase in contamination since 2001 reaching more than 21% in 2017. They recommend several strategies that can aid in the reduction of contamination including developing programs where the local government is invested in a program's success. David Biderman, CEO of Solid Waste Association of North America (SWANA) explained in a January 27, 2016 Waste 360 article that communities are "unknowingly causing the increases by allowing residents to clog up the recycling waste stream with non-recyclable components". He goes on to say that it's "really more important for the individual customer to keep

out contaminants... the processing facilities are seeing a substantial amount of non-recyclable waste thrown in or with waste and it costs time to remove that material – thus causing facilities to charge the haulers more. Those rates get passed on to the cities”. Given these rising costs, many in the industry are advocating for a shared solution with haulers and governments. The City of Chicago recently launched a tagging program where recycling carts can be rejected by the hauler until unacceptable items are removed. Tracking of recyclables to specific routes can aid in determining sources of contamination so that a follow up communication can be made. A multi-faceted approach may aid in stabilizing recycling costs and insulate consumers from future price increases.

Another recent impediment to recycling was China’s implementation of what has become known as the National Sword. In a 2017 statement to the World Trade Organization, the country heightened restrictions on imports of recycling commodities including but not limited to mixed paper, textiles and several types of plastic that are scheduled to take effect in early 2018. China placed restrictions on contamination at percentages projected to be unattainable. Many agencies are focusing on expanding domestic markets but market saturation is expected to take place while businesses broaden. SWANA and industry representatives are to starting to have conversations to educate consumers that there is a real cost to recycling - labor, equipment, transportation etc.

The impact of the impending policy has already forced some communities in the U.S. to reduce recycling or accept disposal waivers. With contamination at the forefront of the National Sword, working to limit unacceptable items has become imperative. This Plan Update is recommending that the County continue to expand outreach about contamination in recycling. The County has developed online information as well as postcards that try to simplify what goes in a recycling bin. Staff will provide technical support to communities and haulers on an as-needed basis.

4.0 EXISTING FACILITIES & CAPACITY

The Illinois Environmental Protection Agency annually reports on the status of waste facilities within the State. The 2016 Illinois Landfill Disposal Capacity Report⁶ stated that there were 38 permitted landfills in Illinois receiving a total of 46,750,820 cubic yards of solid waste. These landfills have a remaining combined available disposal capacity of 983,948,083 cubic yards. At the current disposal rate, these landfills will have a cumulative life expectancy of approximately 21 years. However, landfill capacity and life expectancy may vary year-to-year based on a number of factors, including waste disposal rates, landfill expansion, and the construction of new landfills.

Landfill Capacity and Disposal Volume by Region

Region Number	Geographic Area	Number of Landfills	Capacity (yd ³)	Disposal Volume (yd ³)	Life Expectancy (yrs)
1	Northwestern Illinois	7	280,751,604	16,399,306	17.1
2	Chicago Metropolitan	5	90,108,208	7,817,946	11.5
3	Peoria/Quad Cities	6	129,398,168	4,692,903	27.6
4	East Central Illinois	7	170,783,372	7,313,074	23.4
5	West Central Illinois	4	35,430,276	1,670,290	21.2
6	St. Louis Metropolitan East	4	194,395,976	7,233,307	26.9
7	Southern Illinois	5	83,080,479	1,623,994	51.2
Total		38	983,948,083	46,750,820	21

⁶ Illinois Environmental Protection Agency *2016 Illinois Landfill Disposal Capacity Report*

Table 5 below provides a snapshot of existing facilities that handle waste within DuPage County. The first ten facilities listed operate under permits from the Illinois Environmental Protection Agency. Two facilities are construction and demolition debris recycling centers and are allowed to operate without IEPA permits under the conditions set forth 415 ILS 5/22.38. The third C&D recycling facility was required to obtain a permit when the statute was modified.

Name of Facility	Location	Waste Stream	Permitted/Avg. Capacity/Day
A.K. Mulch	Villa Park	Landscape waste	40 yd ³
Amber Solvent	Addison	Fountain solution	
Anderson Landscape Supply	Elmhurst	Landscape waste	260 yd ³
Bensenville Landfill*	Bensenville	Closed construction and demolition debris	n/a
DuKane Transfer Facility	West Chicago	Municipal solid waste Landscape waste	3,000 tons
DuPage Yard Waste	West Chicago	Landscape waste Food scrap pending	400 yd ³
Greene Valley Landfill*	Naperville	Closed municipal solid waste landfill	n/a
Heritage Crystal Clean/Recycle Technologies	Wood Dale	Anti-freeze recycler	22,700 gal/day
Mallard Lake Landfill*	Hanover Park	Closed municipal solid waste landfill	n/a
Neil's Hauling/Molenhouse	West Chicago	Construction and demolition debris	Not specified
Recycle America/Waste Management DuPage County Recycling Center	Carol Stream	Papers, cardboard, plastic bottles, aluminum cans, steel cans etc.	Not specified
Regional Household Hazardous Waste Facility	Naperville	Household hazardous waste	Not specified
St. Francis Pet Crematory	Wood Dale	Animal carcass storage & transfer	Based on storage capacity
Stericycle	Itasca	Potentially Infectious Medical Waste Transfer & Storage	14,000 lbs.
Wastebox	Lemont	Construction & demolition debris	Not specified
Western DuPage Landscaping Inc.	Aurora	Landscape Waste	
West DuPage Recycling & Transfer, Inc.	West Chicago	Construction and demolition debris	Not specified

Table 5: Existing Solid Waste Management Facilities in DuPage

In addition to these recycling centers, recent legislation allowing the collection and composting of food scraps/organics will soon impact waste within the County. Several businesses are leading the effort to use composting as an alternative to disposal. At this time, commercially collected organics are composted outside of the County. This has impacted how quickly and economically food scraps can be removed from the waste stream. Due to the absence of a local site collecting food scraps cost becomes a factor as there is a need to run an additional truck route. The County would benefit from more local facilities that can meet the site location requirements.

4.1 Waste Disposal Capacity

As estimated in Section 2.4, DuPage County generates 1,475,604 tons of waste per year. The average of recent recycling data has estimated the recycling rate to be 37% which leaves approximately 929,431 tons of waste in need of disposal annually. The DuKane transfer facility is permitted to accept up to 3,000 tons per operating day so it can move 939,000 tons/year. However, service areas must be considered as well as the market forces of private sector waste hauling entities. Large regions of the County are not optimally served due to the lengthy transportation routes which lead to increased costs and air emissions. To address this the County of DuPage will consider new or expanded facilities handling, treating and recycling waste on a case by case basis. Any new proposed pollution control facilities located in unincorporated areas are subject to the siting criteria stipulated in 415 Illinois Compiled Statutes 5/39.2 as well as Chapter 25 of the County's Code.

5.0 MOVING FORWARD

Diversion and sustainability continue to be at the forefront of planning and implementing solid waste recommendations. To guide the public and decision makers, U.S. EPA developed a Waste Management Hierarchy⁷, which is recognized by many entities in solid waste planning as the preferred order of waste disposal.



Figure 4: U.S. EPA Waste Management Hierarchy

The top tier, source reduction and reuse is described by the U.S. EPA to include reuse, donation, purchasing in bulk, package reduction, product redesign, toxicity reduction. Several industries have focused significant efforts on product redesign and product sustainability and are noted by third party certifying bodies or designations including but not limit to Cradle to Cradle, Forest Stewardship CouncilTM, Green-e, Green SealTM, PCF (Processed Chlorine Free) and Level[®] by BIFMA. Information on these products, services or organizations are widely available through various outlets. The County assists with providing information as requested including education on this and other topics through a professional services agreement. The County supports reductions and reuse through various local entities to minimize the overall waste entering Illinois landfills. Education and outreach will continue to be provided to residents, schools, organizations, businesses and other interested individuals on this and all aspects of waste management.

⁷ U.S. Environmental Protection Agency <https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy>

Once all efforts to reduce and reuse have been made, recycling or composting are considered the next best use. Recycling has seen a significant amount of change over the last decade with volatile market values, contamination issues and shrinking end users. Although there continues to be uncertainty in the recycling arena these higher level issues have not deterred municipal waste contracts from including recycling.

The County recognizes the local challenges of contamination and access as limiting factors in expanding or increasing programs or the diversion rate. High rates of unacceptable recyclables harm both the recycling and composting industries and cause significant strain on equipment and personnel. Educational and marketing efforts are underway to assist with addressing this challenge and will aid in the understanding of recyclable commodities, specifically those identified to be at a lower recovery rate in the County; glass bottles, jars, aluminum beverage containers, and ferrous containers. Composting continues to grow as evidenced by the Village of Glen Ellyn's contract to include food scrap pick-up year round. Another area of recycling, construction and demolition debris, is gaining exposure due to green building which requires the reuse and recycling of materials. This sector was identified under the County's Strategic Plan as a priority waste reduction category and as such the County is launching an outreach effort that supports the displacement of this waste from landfills both through recycling and reuse.

The first two categories of waste management hierarchy are easily accessed by the public and opportunities abound within and around the County to divert waste using any of the above methods. Energy recovery is less accessible, but has been achieved through alternative technologies including waste-to-energy and waste-to-fuel developments. As projects arise, these opportunities will be assessed to ensure all other preferred avenues have been explored. Previous studies have found that low landfill tipping fees can be a large barrier to these emerging technologies. As landfill space decreases more opportunities in the energy recovery sector may become available. Other influences that could hasten the development of these technologies include, raising transportation costs, land value, alternative energy portfolios and energy prices.

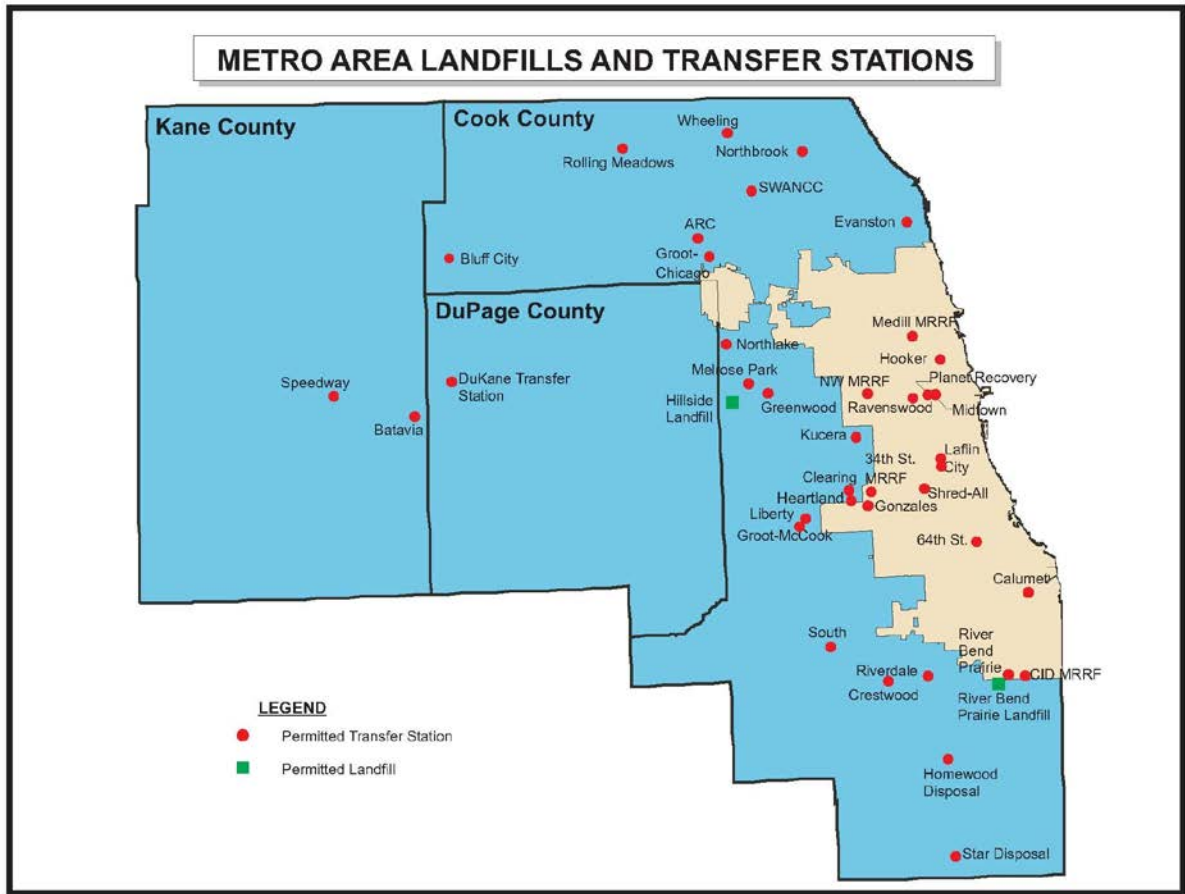
Landfilling continues to be a final option after all other preferred methods are exhausted. Illinois' abundance of landfill sites creates difficulties to the more complicated or energy expending processes of reusing, recycling or recovering energy, however, this five year update continues to focus on sustainable modes of disposing of the nature "things" we consume and collect. Legislation has provided regulatory language which has assisted with providing more incentive for reuse or recycling, and more recently alternative energy through the Future Energy Jobs Act (FEJA,) which may result in an increase the energy recovery sector. The County will continue to monitor and participate, as needed, on legislative efforts that might impact the waste stream. Other recent legislation has evolved around local permitting authority, electronics recycling, commercial franchising, food scrap composting and solid waste planning. Staff will continue to participate in regional and statewide conversations in addition to monitoring pending legislation. DuPage County will continue to provide technical assistance and leadership in all sectors of solid waste management.

APPENDIX A

2016 Municipal Waste & Recycling Data

	Refuse Tonnage	Recycled Tonnage	Landscape Waste Tons	Total Recycled	Total Waste	Recycling Rate
Addison	10547	2386	2074	4,460.00	15,007.00	30%
Bartlett	12919	4491.53	2509.61	7,001.14	19,920.14	35%
Bensenville	5553.32	1242.26	1897.89	3,140.15	8,693.47	36%
Bloomingtondale	7198.95	2084.84	588.87	2,673.71	9,872.66	27%
Bolingbrook	21862.41	6780.04	4811.8	11,591.84	33,454.25	35%
Carol Stream	9639.43	3534.51	13.58	3,548.09	13,187.52	27%
Clarendon Hills	2176	1092	525	1,617.00	3,793.00	43%
Darien	4536.35	2546.26	766.64	3,312.90	7,849.25	42%
Downers Grove	11708.75	5965.78	1975.22	7,941.00	19,649.75	40%
Elk Grove Village	10467	3904	1204	5,108.00	15,575.00	33%
Elmhurst	12561.2	5421.46	1924	7,345.46	19,906.66	37%
Glen Ellyn	6946.6	3526.59	2420.07	5,946.66	12,893.26	46%
Hanover Park	11251	2455	1126	3,581.00	14,832.00	24%
Hinsdale	5327	2428	563	2,991.00	8,318.00	36%
Itasca	3272.32	970.35	782.43	1,752.78	5,025.10	35%
Lisle	8204	2898	521	3,419.00	11,623.00	29%
Lombard	10626	4091	1923	6,014.00	16,640.00	36%
Naperville	37405.1	15655.08	6591	22,246.08	59,651.18	37%
Oak Brook	2995	1221	130	1,351.00	4,346.00	31%
St Charles	7231.34	892.95	892.95	1,785.90	9,017.24	20%
Warrenville	2039	1116	335.5	1,451.50	3,490.50	41%
West Chicago	5756.05	2819.54	773.77	3,593.31	9,349.36	38%
Westmont	4265	1915	619.2	2,534.20	6,799.20	37%
Wheaton	17164	6592	3657	10,249.00	27,413.00	37%
Willowbrook	1033.31	548.62	34.95	583.57	1,616.88	36%
Winfield	2034	856	449	1,305.00	3,339.00	39%
Wood Dale	4386	1145	834	1,979.00	6,365.00	31%
TOTAL/AVERAGE	239,105.13	88,578.81	63,67.92	80,853.41	234,009.56	34%

APPENDIX B



2007 Shaw Environmental Report completed for the County of DuPage