Solid Waste Agency of Northern Cook County






2014 Solid Waste Management Plan Update

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Prepared by

CBI

2014 SOLID WASTE MANAGEMENT PLAN UPDATE
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EXECUTIVE SUMMARY

1.1 Planning Background

Development of the initial Solid Waste Agency of Northern Cook County (SWANCC) Solid Waste Management Plan began in 1988. At that time, SWANCC consisted of 26 member municipalities (today, the Agency is comprised of 23 member communities) who had joined together to provide for the economical and environmentally sound management of their municipal solid waste.

The initial Plan was developed in two parts, consisting of a Phase I Solid Waste Needs Assessment (completed in 1989) which characterized waste generation and waste management habits in SWANCC member communities. The Phase II Solid Waste Management Plan was adopted by the SWANCC Board of Directors in April 1991. The Plan was innovative and forward-looking, and received awards for excellence from the Illinois Chapters of the American Planning Association and the Consulting Engineers Council.

The 1991 Plan was developed in accordance with the requirements of the Solid Waste Planning and Recycling Act (SWPRA) (415 ILCS 15/). Plans developed in accordance with SWPRA addressed the following provisions:

- Describe the origin, content and quantity of waste generated within the region currently and project the origin, content and quantity of waste to be generated during the next 20 years;
- Describe the facilities where waste is currently handled and the capacity of those facilities;
- Describe the facilities and programs proposed for management of the region's waste during the next 20 years;
- Evaluate proposed facilities and programs;
- Describe the schedule for development and operation of each facility or program;
- Identify potential sites or describe how sites will be selected for development of proposed facilities; and
- Identify the governmental entity responsible for Plan implementation.

The 1991 Plan provided recommendations to address first source reduction and recycling within the region, then disposal of the remaining waste. SWANCC and its members have implemented a number of the recommendations established in the 1991 Plan, and have been leaders in developing and implementing innovative programs to meet the needs of its members. Some of the recommendations in the 1991 Plan were not implemented, due to changes in the market and the industry that resulted in the identification of alternate approaches to meet the Agency's objectives.

The 1991 Plan recommended development of broad-reaching education programs for homeowners, businesses, and schools. SWANCC has developed extensive resource materials and provides significant education to its members on methods to reduce and properly manage their wastes, including through providing community presentations on waste reduction and recycling and composting workshops.

Expansion of curbside and drop-off recycling opportunities was also recommended in the 1991 Plan. Curbside recycling programs were already developing in member communities when the Plan was developed, and the Plan spurred rapid implementation of curbside recycling across the region. SWANCC's members have continued to be early adopters of advancing strategies for collection of residential recyclables through the conversion first to single-stream recycling and later to cart-based collection of recyclables to boost recycling efficiencies and increase diversion. The Agency has developed a number of drop-off programs for specialty materials (such as current programs for electronics, medications and sharps, fluorescent bulbs, batteries, mercury thermometers and switches, and holiday lights), providing these unique recycling opportunities in partnership with its members.

The 1991 Plan called for the development of a number of solid waste facilities, including 2-4 baling transfer stations, a landfill/balefill facility, and a composting facility. The Glenview Transfer Station was the first facility to be constructed and began operating in 1994. The Glenview Transfer Station is centrally located in the region and provides capacity to handle all of the residential waste disposed by member communities. In addition, the Glenview Transfer Station also handles landscape waste and some commercial waste quantities.

While the Agency had originally intended to develop a balefill to provide for disposal of its waste, conditions in the regional disposal market subsequently changed and the Agency adapted to this change. When the 1991 Plan was being developed, there was considerable concern among member communities about the reliability and long-term availability of disposal capacity because many local landfills were closing, and disposal costs were increasing rapidly and were unpredictable. Permitting of the balefill was a protracted process, extending the development timeframe. As the permitting issues were being addressed, the Glenview Transfer Station was constructed and the Agency procured a private operator for the facility and interim disposal capacity at a privately-owned landfill. By the time federal permitting and legal issues associated with the balefill were resolved, a number of regional landfills had been developed by the private sector to serve the Chicago metropolitan area. The Agency chose to continue utilizing privately-owned regional landfills for disposal capacity instead of pursuing development of the balefill.

SWANCC staff and the Executive Committee developed a draft Long Range Planning Report in January 2003 to review and update elements of the 1991 Plan and provide strategic guidance to the Agency for future policies and programs. However, the Plan has not been formally updated since its original adoption.

1.2 Purpose of the Plan Update

The 1991 Plan encompassed a 20-year planning period. Because the 20-year term of the initial Plan has now expired, the 2014 Plan Update provides an important opportunity to review the overall direction of the Agency and evaluate potential future policies, programs and facilities. In addition, the operating contract for the Glenview Transfer Station, owned by SWANCC, is set to expire in 2015 and existing Agency debt is also scheduled to be retired in 2015. The 2014 Plan Update will assist SWANCC in upcoming business planning in addition to guiding development of future policies and programs.

Today, SWANCC's mission remains largely unchanged from its inception. It is SWANCC's mission to facilitate cost-effective and environmentally sound solid waste management practices for its member communities. To fulfill this mission, SWANCC has established the following values and objectives:

- Ensure reliable, price-stabilized disposal of waste materials from the member communities.

- Promote programs to reduce, reuse and/or recycle materials to conserve resources and landfill capacity.

- Maintain a high level of service to member communities by:
  - Providing innovative, sustainable and affordable services desired by the member communities;
  - Providing services that address niche markets not served by the private sector and that provide a benefit to the members; and
  - Providing services that are cost-competitive with the private sector (for comparable types of services).

- Optimize the value of SWANCC's operations by achieving economies-of-scale. Where market opportunities exist and there are benefits to the members, increase the quantities of waste / recyclable materials managed.

This 2014 Solid Waste Management Plan Update represents the solid waste policy for SWANCC's member communities for the next 5-year planning period. This Plan Update will be forwarded to Cook County for inclusion in the Cook County Solid Waste Management Plan. To the extent that there is any inconsistency between the SWANCC Plan Update and Cook County's Solid Waste Management Plan, as updated or amended, the SWANCC 2014 Solid Waste Management Plan Update represents the solid waste policy of SWANCC and its member communities.

1.3 Plan Development Process

Development of the Solid Waste Management Plan Update has been managed by SWANCC staff with input and direction from SWANCC's Executive Committee. Prior to commencing the planning process, SWANCC's Board of Directors received a number of presentations to provide background information and an understanding of factors impacting the development of the Plan Update. These presentations included the following, which are also available for viewing on the Agency's website at http://swancc.org/swancc-contacts:

- Overview presentation by Julian D'Esposito, legal counsel for the Agency, on May 9, 2012, providing background regarding the formation of the Agency and member commitments established through the Project Use Agreements.

- Agency operational presentation by Steven Schilling, P.E., Assistant Executive Director of SWANCC, on September 12, 2012, providing an overview of the Glenview Transfer Station operations and costs.

- Waste generation and composition presentation by Chris Martel, P.E. and Abby Mazza of CDM Smith, on September 12, 2012, providing a review of the waste stream in Illinois, including what components make up the waste, the differences in residential and commercial waste streams, and what possible wastes could be diverted from these streams.

- Resource recovery technologies presentation by Devin Moose, P.E., Solid Waste Consulting National Program Director for Shaw Environmental, Inc., on November 14, 2012, providing a regional waste management trend summary and identifying potential resource recovery options.

- Planning process overview by Walter Willis, Executive Director of the Solid Waste Agency of Lake County (SWALCO), on November 14, 2012, providing a summary of the process to develop a county-wide solid waste plan and discussing how SWALCO's 60% diversion plan was created and was being implemented.

SWANCC subsequently retained Shaw Environmental, Inc. (Shaw), a CB&I company, in April 2013 to assist in the collection and analysis of data and preparation of the Plan Update report. Additional input to the planning process was obtained from a number of stakeholders, as further described below.

Visioning Sessions with Agency Representatives

At the outset of the solid waste management planning process, Shaw and SWANCC staff conducted a series of visioning sessions with the Agency's Executive Committee and Board of Directors. Visioning sessions with the Executive Committee were held June 26, 2013 and July 24, 2013. A visioning session with the Board of Directors was held August 14, 2013.

These visioning sessions were important to begin identifying the diversion and disposal programs and strategies that may be of value and interest to the Agency in the future, and to secure input from the members on their individual community objectives as well as their broader vision for the Agency. The visioning discussions assisted in the process of narrowing a universe of potential options for future waste management to a reasonable and focused list that may best meet the specific priorities and interests of the Agency and its member communities.

Stakeholder Meetings

Following the visioning process with the Executive Committee and Board of Directors, a series of three regional stakeholder meetings were held in September 2013. The purpose of the stakeholder meetings was to obtain input on waste management topics from elected officials, municipal staff, and the public, discussing current community and Agency programs, satisfaction with existing services, and interest in future programs. Meetings were held as follows:

- Tuesday September 10, 2-4 PM, Oakton Community College Skokie Campus (7701 North Lincoln Avenue, Skokie, IL 60077)
- Wednesday September 11, 5-7 PM, Oakton Community College Des Plaines Campus (1600 East Golf Road, Des Plaines, IL 60016)
- Thursday September 12, 7-9 PM, Arlington Heights Village Hall Board Room (33 S. Arlington Heights Rd., Arlington Heights, IL 60005)

Meeting notices were widely distributed to Delegates and Alternates of the Board of Directors, managers, mayors, finance directors, public works directors, recycling coordinators, SWANCC's e-list, community e-lists (Glenview, Evanston, Skokie and Buffalo Grove), and to the Chicago Tribune and Daily Herald. In total, approximately 50 municipal officials, municipal staff, waste and recycling service providers, and members of the public attended the three meetings, in addition to members of the Agency's Board of Directors.

Attendees were provided a brief introductory presentation at each meeting, followed by a facilitated session for comments, questions, and discussion among the participants. A detailed summary of the comments received during the stakeholder meetings is provided in Appendix A; the principal input from the regional stakeholder meetings included the following:

- Maintaining cost-effective service is an important factor for both members and service providers when exploring options for expanded or new programs.

- The educational school and community programs, resources, and presentations provided by SWANCC staff are valuable. Continued outreach is needed to make residents aware of the benefits of recycling, what happens to materials collected for recycling, and how to access community and SWANCC programs.

- There is interest in and/or a perceived need for:
    - Increasing recycling access at multi-family properties.
    - Increasing public access to recycling at individual businesses, in downtown areas and business districts, and in other public spaces.
    - Continuing to evaluate options for management of food scraps.
    - Identifying additional opportunities for the collection of household hazardous wastes.
    - Evaluating options for construction and demolition debris recycling.
    - Jointly procuring residential collection services.
    - Evaluating options to recycle textiles that are not suitable for donation or reuse.

The input received through the regional stakeholder meetings is consistent with and generally parallels much of the discussion from the visioning process with the Executive Committee and the Board of Directors. This input provides additional support for the options that are considered in this Solid Waste Management Plan and will help SWANCC to establish future policy and priorities.

Resident Survey

Participants in the visioning sessions and the regional stakeholder meetings generally represent those stakeholders who are regularly engaged in solid waste management issues and had specific interest in the planning process. To secure input from a more representative cross-section of the membership, a scientific survey of a random sampling of households throughout the SWANCC member communities was conducted.

The scientific survey was conducted by telephone by Lake Research Partners, a national public opinion research firm. The survey questionnaire was developed collaboratively by Shaw, SWANCC staff, and Lake Research Partners and was designed to be completed in 10 minutes. A copy of the survey questionnaire is contained in Appendix B.

The survey was deployed December 2-8, 2013. A total of 23,813 calls were made, and the surveyors secured responses from 604 households in SWANCC member communities. Based on the number of responses secured, there is a margin of error at the 95% confidence level of ± 4%; in other words, if 50% of respondents answered a given question with the same response, we can be 95% confident that the percentage across all SWANCC households that would answer the same would be ± 4% of 50%, or between 46% and 54% of households.

A detailed summary of the survey findings is contained in Appendix C. Key findings from the survey indicate the following:

- Overall satisfaction with waste and recycling services: There is generally a high level of satisfaction with current services. Among single-family households, 99% are satisfied with their garbage service and 98% are satisfied with their recycling service. Satisfaction among residents in apartments or condos is somewhat lower at 88% satisfied with garbage service and 78% satisfied with recycling service.

- Recycling participation: Reported participation in recycling is high across all types of households, but is notably higher in single-family households than in apartments or condos. 96% of single-family households report that they recycle, compared to 78% of apartment/condo households. Apartment/condo households that do not recycle cited the service not being offered as the primary reason.

- Program awareness: The majority of households are aware of and have participated in programs that are sponsored by SWANCC for collecting electronics, bulbs, batteries, and medications. Awareness is higher among single-family households at 78% (with 64% having used programs) than apartment/condo households (60% are aware of programs, and 50% have used programs). For those that have not used the programs, lack of awareness was the principal reason.

- Outreach: A large percentage of households (39%) feel they need more information on recycling opportunities. Need for additional information is fairly consistent among different types of recycling opportunities, with 15-20% of households indicating a need for more information about electronics recycling, managing medications, and managing household chemical wastes.

- Interest in and willingness to pay for new programs: There is a greater interest in and willingness to pay for a program to collect household chemical wastes than for a program to collect food wastes. A total of 77% of households would be likely to use a household chemical waste facility, and 65% of households are willing to pay more to use that type of facility. By comparison, 52% of households would be likely to separate food wastes from their garbage, and only 35% are willing to pay more. However, when asked more broadly about what additional recycling service, if any, they would be willing to pay a modest fee for, 40% of residents indicated they would prefer to have no new services.

Research and Analysis

Based on input from Agency visioning sessions, regional stakeholder meetings, and the results of the resident survey, Shaw identified key areas for consideration for future solid waste management policies and programs. Each of these areas has been researched and evaluated, and findings are summarized within the Plan Update report.

Review and Comment on the Draft Plan Update

A draft of the Plan Update was released for public review and comment on February 28, 2014. A public hearing to accept comments was held on March 12, 2014, and written public comments were accepted through March 28, 2014. Written comments from numerous residents and citizens groups were received during the comment period; copies of the comments received are provided in Appendix E.

The principal comment received was that the Plan Update does not specify a diversion or recycling goal, and that this presents a challenge for the Agency and its members to make continued progress with diversion efforts. The primary goals of the Agency include providing its members with cost-effective solid waste management services and promoting opportunities for waste reduction and diversion. SWANCC and its member communities have implemented numerous programs and services designed to provide value to the members and divert waste from disposal, and these programs have been highly successful. The recommendations presented in the Plan Update are reflective of the goals of the Agency, and several recommendations are intended to promote increased diversion of waste. Though a specific diversion goal stated as a percentage of overall waste generation has not been specified, many goals are established in this Plan Update that have the potential to increase diversion in a manner that is consistent with the mission and objectives of SWANCC.

1.4 Summary of Recommendations

Based on the public input received and the research completed in development of the 2014 Solid Waste Management Plan Update, a total of 22 recommendations have been developed. The recommendations reflect a balance between the Agency's objectives, including promoting waste reduction and providing innovative and sustainable programs, and financial considerations, including fiscal limitations of local governments and residents' willingness to pay for programs.

Recommendations have been divided into three focus areas: Recycling/Disposal, Education/Outreach, and Administrative/Organizational. Implementation timeframes and responsibilities are identified for each recommendation as well. To focus Agency activities over the next five-year planning period, the following recommendations have been identified by the Executive Committee and Board of Directors as key priorities:

- *RD.12 – It is recommended that SWANCC continue to aggregate member residential waste for transfer and disposal in accordance with the terms of the Project Use Agreements entered into with all members that are in effect into 2032.*

  The operating contract for the Glenview Transfer Station expires April 30, 2015. Evaluating the Agency's asset and re-bidding (or renewal) of this contract has the potential to reduce the cost to SWANCC members. Comments from Board members indicate a desire to leverage the Glenview Transfer Station contract to assist in reducing their collection costs (non-SWANCC costs), which can amount to as much as 75% of their total solid waste management costs.

- *RD.4 - It is recommended that SWANCC develop a local household chemical waste management solution. SWANCC should determine whether an Agency-developed*

permanent facility or mobile collections through partnership with the IEPA and other units of government or private companies is the preferred method of providing this service and pursue implementation of the preferred option.

The common theme included in nearly all comments on the plan has been to provide a convenient solution to household chemical waste (HCW). The survey conducted as part of the plan indicated a majority of residents would pay more on their refuse bill to have this service.

- *RD.2 - It is recommended that SWANCC develop individual model ordinances for consideration by member communities that would provide for the following:*
  - *Require multi-family property owners to provide access to recycling services for its tenants for consideration by member communities.*
  - *Require licensed waste haulers to actively offer recycling service to all non-residential customers and to report data on waste and recycling quantities collected annually within the community.*
  - *Mandate all non-residential generators to recycle.*
  - *Require construction and demolition debris recycling from building projects, including deconstruction and building material reuse from demolition/renovation projects.*

  Behind HCW, waste diversion for the multi-family and commercial sectors was the next most common theme. Additional effort is necessary to provide valid metrics for measuring waste diversion from these sectors.

- *E.1 - It is recommended that SWANCC discuss opportunities to provide targeted outreach within individual member communities, such as those portions of communities with lower residential recycling participation. To the extent that an opportunity is identified, SWANCC can work with the individual members to develop a plan to provide targeted outreach to these residential groups.*

  All of the education recommendations should carry virtually equal weight. With that said, the recommendation to provide targeted outreach regarding waste reduction strategies may be most effective from a performance standpoint as well as the cost perspective.

- *A.1 - It is recommended that SWANCC conduct periodic resident surveys to gauge attitudes about solid waste and recycling. It is recommended that surveys be conducted twice during each five-year planning period: approximately midway through the period and during the preparation of each update.*

  A.2 - It is recommended that SWANCC update its solid waste management plan every five years.

  The SWMP Plan Update has been invaluable in engaging the Board of Directors, the Executive Committee, and the public to develop long-term, sustainable, and cost-effective solutions to solid waste management issues. The resident survey and future surveys will allow for the Agency's performance to be measured through the term of the Project Use Agreements.

1.5 Plan Update Report Organization

The remainder of this Plan Update report includes the following sections:

Section 2 Waste Stream Characteristics

Section 3 Summary of the Existing Solid Waste System

Section 4 Waste Industry Practices and Trends

Section 5 Analysis of Future Waste Management Options

Section 6 Recommendations

SECTION 2
WASTE STREAM CHARACTERISTICS

2.1 Introduction

This section of the 2014 Plan Update provides updated information on demographics and waste generation within the SWANCC service area. The SWANCC Solid Waste Management Plan was first developed in 1989-1990 and included a Needs Assessment to quantify the amount of waste generated in the SWANCC member communities and assess how the waste was managed (e.g., disposed, recycled, composted, etc.). The 1989 Needs Assessment considered residential waste, construction/demolition waste and commercial/industrial waste.

Subsequent to the adoption of the SWANCC Plan in 1991, the Agency has focused primarily on the residential waste generated by its member communities. The Agency maintains an extensive historical database of residential waste quantities, but does not track annual quantities of construction/demolition waste or commercial waste generated within the service area. As a result, other sources of data were researched to provide information on those waste streams for the 2014 Plan Update.

2.2 Service Area Demographics

Projections of population, households and employment for the SWANCC service area for the 20-year period 2010 to 2030 were developed using published forecasts from the Chicago Metropolitan Agency for Planning (CMAP). CMAP is the regional planning body which succeeded the Northeastern Illinois Planning Commission[1]. The projections are summarized in Table 2.1. A comparison of projected future growth versus historical growth is provided in Figure 2.1

Over the 20-year period beginning in 2010, the population of the member communities is projected to grow from 762,252 to 820,528, an increase of 7.6 percent. The number of households is projected to increase by 8.7 percent and employment by 14.3 percent. Figure 2.1 indicates that, based on Census data, growth in population and households flattened between 2000 and 2010 (population in Cook County as a whole actually decreased during those years). The CMAP 2030 forecasts result in a projected rate of population and household growth that is generally lower than observed from 1980 to 2000, though greater than the flattening from 2000 to 2010.

All of the member communities of SWANCC deliver residential waste that is collected under residential hauling contracts to SWANCC's Glenview Transfer Station. In addition, the Glenview Transfer Station accepts some commercial waste quantities delivered by third-party customers. In the discussion of waste quantities which follows, it should be noted, however, that the number of households served under residential hauling contracts is lower than the total number of households in the SWANCC communities according to the Census data. The reason for this is

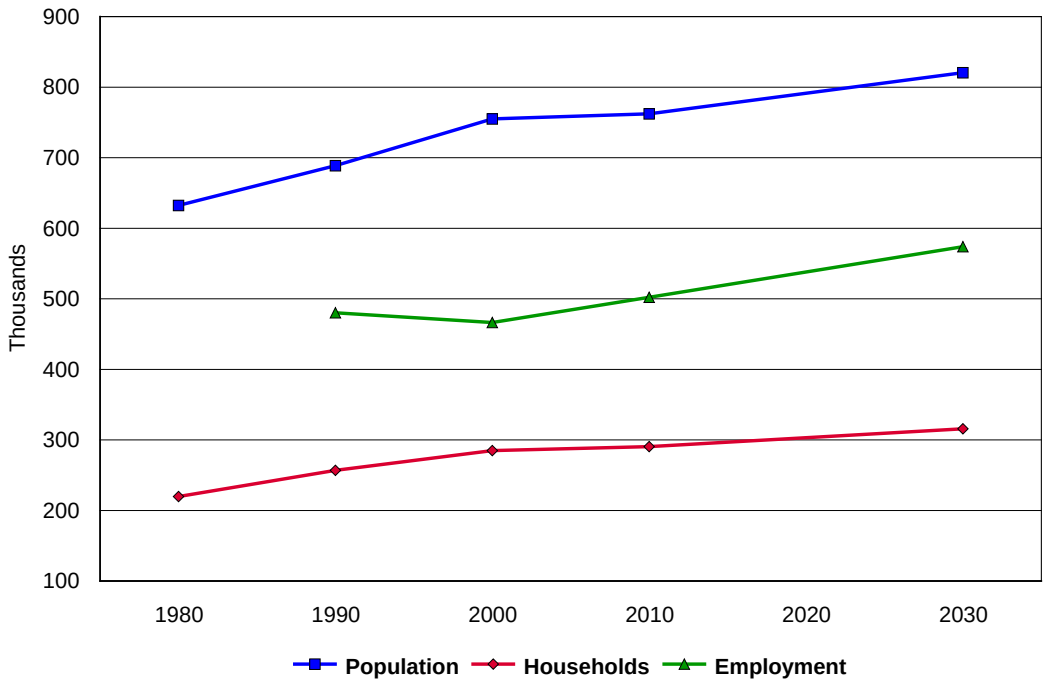
[1] The forecasts utilized were *Northeastern Illinois Planning Commission 2030 Forecasts of Population, Households and Employment by County and Municipality*, September 27, 2006. CMAP subsequently developed an alternate set of projections for the period 2010-2040; however, the data for municipalities was an aggregation of quarter section data, and the quarter section subzones did not match municipal boundaries. For instance, based on aggregation of quarter section data, CMAP estimated the 2010 population of Niles at 39,813; the 2010 Census population for Niles was 29,803.

that residential hauling contracts typically serve single-family households in structures of up to 4 units, though this varies by community. Multi-family households (in structures of more than 5 units) are generally not served under residential hauling contracts.

TABLE 2.1. DEMOGRAPHIC PROJECTIONS (2010-2030)

	Population		Households		Employment	
Member Community	2010	2030	2010	2030	2010	2030
Arlington Heights	75,101	82,441	30,919	33,415	59,371	61,594
Barrington	10,327	10,429	3,909	4,001	9,652	11,085
Buffalo Grove	41,496	45,258	16,206	16,903	20,223	23,090
Elk Grove	33,127	36,948	13,307	14,030	73,405	97,974
Evanston	74,486	80,224	30,047	30,796	42,667	42,681
Glencoe	8,723	8,957	3,013	3,140	2,135	2,328
Glenview	44,692	54,368	16,783	20,914	30,938	46,687
Hoffman Estates	51,895	55,931	18,132	20,510	24,652	33,716
Inverness	7,399	8,039	2,706	2,795	1,603	1,607
Kenilworth	2,513	2,383	800	816	411	417
Lincolnwood	12,590	13,332	4,341	4,715	13,420	14,063
Morton Grove	23,270	28,113	8,630	11,128	14,738	14,787
Mount Prospect	54,167	58,049	20,564	22,835	19,266	21,005
Niles	29,803	32,881	11,906	12,329	27,520	27,819
Palatine	68,557	72,365	26,876	28,782	24,096	24,741
Park Ridge	37,480	36,620	14,118	14,763	21,193	22,227
Prospect Heights	16,256	16,099	6,114	6,480	4,640	5,638
Rolling Meadows	24,099	26,351	8,939	10,286	24,875	28,214
Skokie	64,784	65,523	23,531	23,411	40,830	43,581
South Barrington	4,565	4,657	1,445	1,513	2,408	4,219
Wheeling	37,648	41,816	14,461	17,180	30,881	33,042
Wilmette	27,087	28,263	9,742	10,817	9,534	9,537
Winnetka	12,187	11,491	4,102	4,233	3,862	3,997
Total	762,252	820,538	290,591	315,791	502,320	574,049
Increase		7.6%		8.7%		14.3%
Annual Change		0.4%		0.4%		0.7%
Persons Per Household	2.62	2.60				

Source:
1. U.S. Census and CMAP, *Northeastern Illinois Planning Commission 2030 Forecasts of Population, Households and Employment by County and Municipality*, September 27, 2006.
2. Population and households for 2010 are Census data; 2030 projections are CMAP/NIPC estimates.
3. Employment data for 2010 and 2030 are CMAP/NIPC estimates.



Source:
1. Population and households (1980/1990/2010), U.S. Census.
2. Population and households (2030 forecast), CMAP/NIPC.
3. Employment (all years), CMAP/NIPC estimates..

FIGURE 2.1

2.3 Waste Quantities

Residential Waste Generation

As noted earlier, SWANCC maintains a historical database of residential waste collected by member communities and delivered to the Glenview Transfer Station. SWANCC also tracks residential curbside recycling quantities by member, though not landscape waste. Residential waste quantities for the last two fiscal years are presented in Table 2.2.

Because SWANCC does not track landscape waste quantities, other solid waste planning documents in the Chicago metropolitan area were reviewed to obtain estimates of landscape waste generation. Data from the Solid Waste Agency of Lake County (SWALCO) indicate that landscape waste in Lake County is generated at a rate of 0.62 pounds per person per day[2]. The

[2] SWALCO, *2009 Solid Waste Management Plan Update for Lake County, Illinois*, 2010. Solid waste planning documents were also reviewed for McHenry County and Will County. Each of these jurisdictions has a mandatory hauler reporting ordinance, under which survey data is collected annually on waste quantities. For this study, we have used SWALCO data because it is demographically similar to SWANCC and because Shaw previously reviewed SWALCO's survey data in detail as part of SWALCO's 2009 Plan Update.

rate for SWALCO was used to estimate SWANCC residential landscape waste quantities, which are shown at the bottom of Table 2.2.

TABLE 2.2. SWANCC RESIDENTIAL WASTE QUANTITIES

Municipality	Contract Households	FY2012 (tons)				FY2013 (tons)			
		Disposed	Recycled	Generated	Diversion	Disposed	Recycled	Generated	Diversion
Arlington Heights	31,609	24,525	8,106	32,631	24.8%	21,503	7,872	29,375	26.8%
Barrington	3,300	3,269	1,648	4,917	33.5%	3,134	1,545	4,679	33.0%
Buffalo Grove	14,891	16,077	7,377	23,454	31.5%	15,018	5,310	20,328	26.1%
Elk Grove	13,941	12,695	4,167	16,862	24.7%	11,355	4,023	15,377	26.2%
Evanston	14,800	15,225	7,019	22,245	31.6%	14,439	6,831	21,270	32.1%
Glencoe	3,176	3,212	1,789	5,001	35.8%	2,979	1,769	4,748	37.3%
Glenview	16,692	10,873	5,354	16,227	33.0%	10,722	5,115	15,838	32.3%
Hoffman Estates	14,113	13,250	5,634	18,884	29.8%	12,427	5,299	17,727	29.9%
Inverness	2,856	2,772	1,360	4,132	32.9%	2,537	1,351	3,888	34.7%
Kenilworth	862	2,047	161	2,208	7.3%	1,916	227	2,143	10.6%
Lincolnwood	4,263	4,655	1,379	6,034	22.9%	4,686	1,314	6,000	21.9%
Morton Grove	8,849	7,771	2,849	10,620	26.8%	7,747	2,778	10,525	26.4%
Mount Prospect	22,014	21,928	6,315	28,243	22.4%	20,434	5,928	26,362	22.5%
Niles	9,809	8,023	2,307	10,330	22.3%	7,652	2,354	10,005	23.5%
Palatine	26,591	24,775	7,395	32,170	23.0%	23,711	7,242	30,954	23.4%
Park Ridge	14,446	12,404	5,369	17,773	30.2%	11,743	5,310	17,053	31.1%
Prospect Heights	6,352	7,027	1,182	8,209	14.4%	7,609	1,103	8,712	12.7%
Rolling Meadows	9,495	7,825	2,549	10,374	24.6%	8,682	2,406	11,088	21.7%
Skokie	15,667	17,092	5,586	22,678	24.6%	16,970	5,439	22,410	24.3%
South Barrington	1,407	1,647	617	2,264	27.2%	1,676	585	2,262	25.9%
Wheeling	9,040	8,274	2,300	10,574	21.7%	7,985	2,155	10,139	21.3%
Wilmette	8,717	8,925	4,470	13,395	33.4%	8,491	4,222	12,713	33.2%
Winnetka	4,307	7,274	3,085	10,360	29.8%	6,496	2,763	9,259	29.8%
Total	257,197	241,566	88,019	329,584	26.7%	229,911	82,942	312,853	26.5%
Landscape Waste			76,247				76,247		
Adjusted Total		241,566	164,265	405,831	40.5 %	229,911	159,189	389,100	40.9 %

Source:
1. Disposal and recycling quantities from SWANCC records.
2. Landscape waste estimated based on generation rate of 0.62 pounds per capita per day using data from SWALCO, *2009 Solid Waste Management Plan Update for Lake County*, Illinois, 2010

For the purpose of forecasting future quantities, per capita waste generation rates[3] were estimated using the waste quantities and number of homes served from Table 2.2, and the average household size data from Table 2.1.

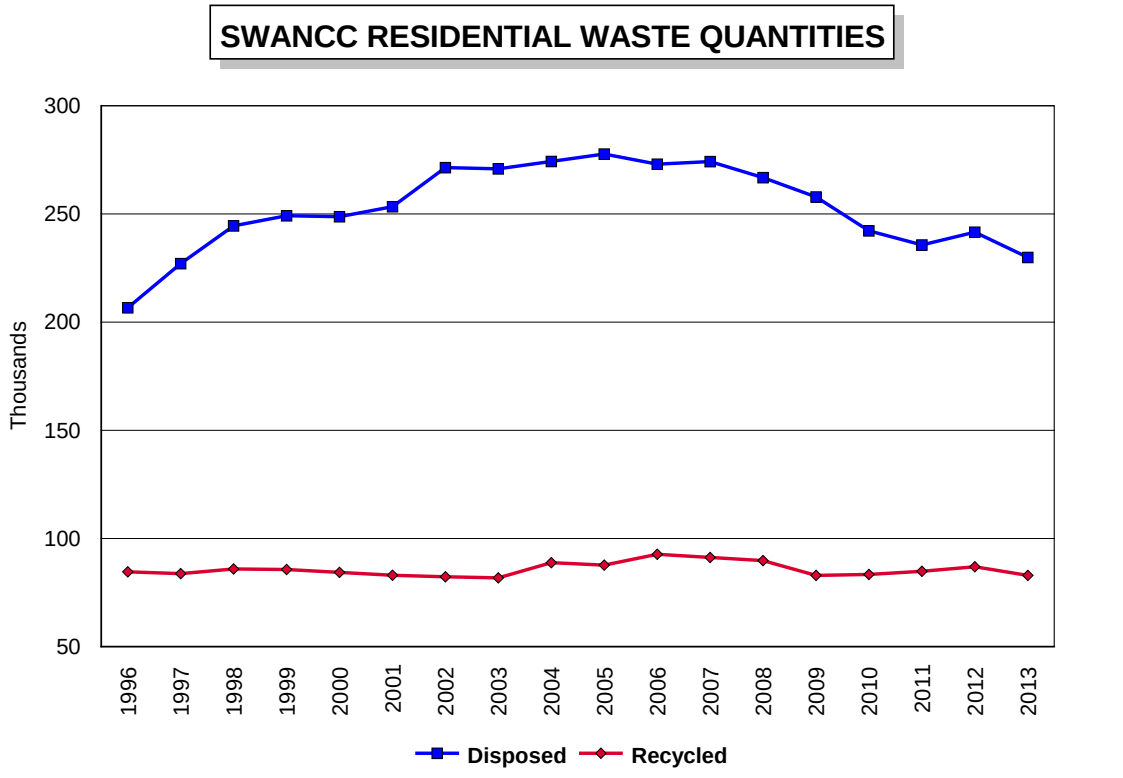
Residential Waste Generation Rates

FY2012 = (405,831 tons x 2000 lbs/ton) / (257,197 homes x 2.62 persons/hh x 365 days/year)
= 3.30 pounds/capita/day (pcd)
= 1.96 pcd (disposed) + 1.34 pcd (diverted)

[3] Waste generated = waste disposed plus waste diverted (recycled or composted).

FY2013= (389,100 tons x 2000 lbs/ton) / (257,197 homes x 2.62 persons/hh x 365 days/year)
= 3.16 pounds/capita/day (pcd)
= 1.87 pcd (disposed) + 1.29 pcd (diverted)

Additional historical data on residential waste disposal and recycling quantities is provided in Figure 2.2. Disposal quantities grew from 1996 until 2005. Beginning in 2006 and continuing until 2013, member waste deliveries decreased, likely due to the housing crisis, the Great Recession, and the continuing economic downturn. Waste deliveries in 2013 are approximately 20 percent below the peak in 2005. The decrease in member tonnage appeared to flatten beginning in 2010, and quantities rebounded in 2012, but 2013 had another decrease in tonnage. This trend in disposal quantities has occurred throughout the nation as will be discussed in a subsequent section. Recycling quantities have generally been more stable but were also impacted by the economy. Recycling tonnages in 2013 are down about 6 percent from 2005.



Notes:
1. Disposal = member community waste deliveries to Glenview Transfer Station.
2. Recycled = member community recycling tonnage (does not include landscape waste.
3. Years are SWANCC Fiscal Year periods.

FIGURE 2.2

Commercial Waste Generation

The commercial waste category consists of waste generated by businesses and institutions within the service area. Commercial waste also includes industrial lunchroom and office waste, but excludes special waste (industrial process waste) generated by manufacturing operations.

Commercial waste generators typically contract with private haulers for refuse collection service. Historically, municipalities in SWANCC have not assumed responsibility for commercial waste collection, although 9 members have implemented commercial waste franchises, under which a single hauler collects refuse from most commercial establishments in those jurisdictions.

Obtaining estimates of commercial waste for each member community by surveying the private haulers directly is challenging because commercial waste is typically collected by several private haulers in each community (whereas residential waste is collected by a single hauler). Moreover, private haulers may cross municipal boundaries on their collection routes, making it difficult for them to provide separate estimates of commercial waste quantities by municipality.

Some counties (Kane, Lake, McHenry, Will) have established ordinances that require haulers to submit information on quantities of waste collected for recycling and disposal[4]; however, commercial waste quantities are reported on an aggregate basis for the county and not at the municipal level. An on-going review of the data collected pursuant to these ordinances has indicated that surveyed waste quantities can vary substantially from year to year, which may be due to inconsistent reporting or non-responsiveness to the surveys. This is in contrast to the residential waste quantities delivered by SWANCC communities to the Glenview Transfer Station, which are tracked continuously by SWANCC staff. SWANCC does not track commercial waste quantities, however.

In order to estimate commercial waste quantities for SWANCC, a comprehensive investigation of landfill disposal tonnages for the Chicago metropolitan area (inclusive of the SWANCC service area) was performed (refer to Appendix D). Landfills are required to report annual disposal tonnages to the Illinois Environmental Protection Agency (or equivalent regulatory bodies in neighboring states), and since they are equipped with scales and typically pay local and state surcharges based on the tonnage accepted, the data reported by landfills is judged to be an accurate measure of disposal quantities.

Based on the analysis of landfill data, it is estimated that the SWANCC service area disposed of 6.1 pcd of municipal solid waste in FY2012, and 6.0 pcd of municipal solid waste in FY2013[5]. Note that this includes residential waste as well as commercial waste and construction/demolition (C/D) waste. As a result, the residential disposal rates discussed previously must be subtracted to derive a commercial waste disposal rate:

Combined Commercial Waste and C/D Waste (Disposed)

FY2012	=	6.1 pcd - 1.96 pcd	=	4.14 pcd
FY2013	=	6.0 pcd - 1.87 pcd	=	4.13 pcd

These rates must be further adjusted to remove the C/D component. The landfill disposal data reported to the IEPA does not contain a breakdown of how much of the total incoming waste is C/D debris. Therefore, we used C/D disposal rates contained in the SWALCO Plan Update, which reported calculated C/D disposal as ranging from 0.95 to 1.08 pcd; for this study, an

[4] Cook County has adopted a similar ordinance, which is not yet enacted. Quarterly data reporting under the Cook County ordinance is expected to begin in October 2014, covering the period of July through September 2014.

[5] IEPA landfill data is reported on a calendar year basis; calendar year 2011 would generally correspond with SWANCC FY2012, and calendar year 2012 would generally correspond with SWANCC FY2013.

average value of 1.02 pcd was used. Subtracting this value from combined commercial and C/D waste yields the following estimate of commercial disposal rates:

Commercial Waste Disposed

FY2012 = 4.14 pcd - 1.02 pcd = 3.12 pcd

FY2013 = 4.13 pcd - 1.02 pcd = 3.11 pcd

Note that these values represent the per capita quantity of commercial waste disposed. To estimate the commercial waste generation rate, the amounts of commercial waste recycled must be taken into account. Again, estimates from the most recent SWALCO Plan Update were used, which ranged from 1.51 to 1.78 pcd. For this study, an average value of 1.65 pcd was used. This average recycling rate was added to the commercial disposal rate to yield a commercial waste generation rate:

Commercial Waste Generated

FY2012 = 3.12 pcd + 1.65 pcd = 4.77 pcd

FY2013 = 3.11 pcd + 1.65 pcd = 4.76 pcd

Construction/Demolition Waste Generation

Disposal rates for C/D waste were calculated previously. Data from the latest SWALCO Plan Update was used to estimate C/D recycling quantities, which ranged from 0.73 to 0.86 pcd. For this study, an average value of 0.80 pcd was used. This average recycling rate was added to the C/D disposal rate to yield a C/D waste generation rate:

Construction/Demolition Waste Generated

FY2012 = 1.02 pcd + 0.80 pcd = 1.82 pcd

FY2013 = 1.02 pcd + 0.80 pcd = 1.82 pcd

Summary Waste Generation

Total municipal solid waste generation rates for FY2012 and FY2013 are summarized in Table 2.3. The generation rates from SWANCC's 1989 Solid Waste Needs Assessment are also presented for comparison.

TABLE 2.3 WASTE GENERATION RATES

Waste Stream	1989	FY2012	FY2013
Residential	4.1 pcd	3.30 pcd	3.16 pcd
Commercial	6.4 pcd	4.77 pcd	4.76 pcd
Construction/Demolition	0.72 pcd	1.82 pcd	1.82 pcd
Total	11.22 pcd	9.89 pcd	9.74 pcd

Source:
1. 1988 data from SWANCC, *Solid Waste Needs Assessment*, 1989.

Current estimates of total waste generation are about 12-15 percent lower than in 1989. Residential and commercial waste generation rates are lower than in 1989, while construction/demolition waste generation rates are higher. There are a number of factors which may account for this difference.

1. First, residential generation rates for the 1989 Solid Waste Needs Assessment were developed primarily by surveying SWANCC members for information on residential waste quantities. At that time, the Glenview Transfer Station was not in operation. Member communities and/or their haulers reported solid waste quantities on a cubic yard basis (landfill and transfer station tipping fees in 1989 were typically charged on a cubic yard basis; only subsequently have solid waste facilities installed scales and assessed tipping fees on a tonnage basis). Because of this, densities had to be assumed to convert the cubic yard data to a tonnage estimate. The development of the Glenview Transfer Station now allows residential waste to be tracked annually on a tonnage basis.

   Further, the landfill ban on landscape waste had not gone into effect when the 1989 Needs Assessment Report was prepared. As a result, landscape waste was still being collected with trash. Although landscape waste is still collected today, quantities may have been reduced as some residents have transitioned to mulching lawn mowers and/or backyard composting, a source reduction practice encouraged in SWANCC's 1991 Solid Waste Management Plan.

2. Survey instruments were also used to collect information on commercial waste in 1988 and data again was generally provided on a cubic yard basis. Although information on commercial waste quantities is also currently collected by surveys (SWALCO, McHenry County and Will County all have annual surveys of commercial waste), as noted above solid waste facilities such as landfills and transfer stations are now equipped with scales and survey data is reported on a tonnage basis.

3. Another important consideration is the current state of the economy and the prolonged economic downturn. As was noted previously, member community deliveries of residential waste to the Glenview Transfer Station have declined approximately 20 percent since their peak in 2005. The comprehensive landfill data contained in Appendix D show that total per capita waste disposal quantities (including residential, commercial and C/D waste) declined from 7.9 pcd in 2006 to 6.0 pcd in 2012, a decrease of 32 percent.

4. Finally, the estimate of construction/demolition waste in the 1989 Needs Assessment was based on a literature survey because C/D waste was not separately tracked at the time. Subsequently, there has been greater effort to tracking this waste by some jurisdictions and as a result, more current and local data is available.

Projections of future waste quantities by sector are shown in Table 2.4, utilizing the per capita diversion, disposal and generation rates developed in this section. The projections are based on the FY2013 per capita rates and have not been adjusted to include any future growth in per capita waste generation as the economy improves. As a result, growth in tonnages are due to population growth alone. For residential waste, a subcategory estimate of member waste delivered to the Glenview Transfer Station is shown; as noted earlier, some residents of SWANCC live in multi-family households that are not served under member community hauling contracts.

TABLE 2.4. WASTE PROJECTIONS

Waste Stream	Per Capita Rate (pcd)	2014	2019	2024	2029	2034
Residential						
Diverted	1.29	182,198	185,628	189,059	192,489	195,233
Disposed	1.87	264,116	269,089	274,062	279,035	283,013
Generated	3.16	446,313	454,717	463,120	471,524	478,246
Est. Glenview TS		233,478	237,874	242,270	246,667	250,183
Commercial						
Diverted	1.65	233,043	237,431	241,819	246,207	249,717
Disposed	3.11	439,252	447,522	455,792	464,063	470,679
Generated	4.76	672,295	684,953	697,611	710,270	720,396
Construction/Demolition						
Diverted	0.80	112,991	115,118	117,246	119,373	121,075
Disposed	1.02	144,063	146,776	149,488	152,201	154,371
Generated	1.82	257,054	261,894	266,734	271,574	275,446
Total						
Diverted	3.74	528,232	538,178	548,123	558,069	566,026
Disposed	6.00	847,431	863,386	879,342	895,298	908,063
Generated	9.74	1,375,662	1,401,564	1,427,465	1,453,367	1,474,088
Diversion (%)		38%	38%	38%	38%	38%
Population Estimate		773,909	788,481	803,052	817,624	829,281

Notes:
1. Estimated GTS = estimated member community tonnage delivered to Glenview Transfer Station based on proportion of residents served by member residential hauling contracts to total population in SWANCC (88.4 percent).

2.4 Waste Composition

The Illinois Recycling Association and Illinois Department of Commerce and Economic Opportunity commissioned a study in 2008 to evaluate the quantity and composition of waste in the State of Illinois. As a part of that study, samples of residential and commercial waste were sorted at landfills and transfer stations to identify the material components in waste that is disposed. Summary composition data on residential and commercial waste are provided in Table 2.5.

TABLE 2.5 WASTE COMPOSITION		
	Sector	
Material	Residential	Commercial
Paper	**21.9%**	**27.5%**
Newspaper	4.0%	1.6%
Corrugated	5.2%	16.1%
Other Paper	12.7%	9.8%
Plastic	**13.9%**	**13.4%**
#1-#7 Containers	4.5%	3.2%
Plastic Film	3.5%	4.8%
Other Plastic	5.9%	5.4%
Glass	**3.9%**	**2.3%**
Metal	**5.0%**	**4.4%**
Aluminum Cans	0.6%	0.3%
Tin Cans	1.1%	0.8%
Other Metal	3.3%	3.3%
Organics	**25.5%**	**17.7%**
Yard Waste	3.7%	2.7%
Food Scraps	14.5%	11.7%
Other Organic	7.3%	3.3%
Inorganics	**3.4%**	**2.5%**
Computers/Electronics	1.3%	1.4%
Appliances	0.0%	0.1%
Tires	0.1%	0.3%
Other Inorganics	2.0%	0.7%
Textiles	**11.3%**	**6.5%**
Household Hazardous Waste	**0.5%**	**0.5%**
Construction/Demolition	**14.5%**	**25.2%**
Wood	8.3%	14.4%
Other	6.2%	10.8%
Total	99.9%	100.0%

Source:
1. CDM, *Illinois Commodity/Waste Generation and Characterization Study*, May 22, 2009.

These data suggest that food waste and other organics, construction/demolition waste, and textiles are among the larger components of the overall waste which is disposed. These waste materials are discussed in subsequent sections of this report.

SECTION 3
SUMMARY OF THE EXISTING SOLID WASTE SYSTEM

Solid waste services within SWANCC member communities are currently provided by a combination of public and private service providers. Solid waste management in the region includes collection of waste, recycling, and landscape waste materials and the processing or disposal of those materials at recycling facilities, compost facilities, or landfills. This section describes the existing solid waste system serving residential and commercial/non-residential generators within the region and the disposal market that is available to accept materials from the region.

3.1 Residential Sector

Residential waste, or household waste, is generated from residents residing in single-family homes (those that include only one dwelling unit) and multi-family properties (those that include two or more dwelling units). Though the types of waste that are generated in single-family and multi-family residences is generally similar in nature, there are differences in the manner in which waste and recyclables are collected and managed from these sources.

Single-Family Residential Collection Services

Within SWANCC member communities, single-family homes are provided waste, recycling, and landscape waste collection service by either municipal collection crews or by private companies operating under contract to the municipality. Though specific services and program details vary by community, collection services generally consist of the following:

- Weekly collection of waste at the curb or in the alley using either the residents' own containers or wheeled carts (typically 64-gallons or 96-gallons in size) provided by the community or the contracted waste hauler. Some communities limit the quantity of waste that may be set out or require a refuse sticker to be purchased for waste exceeding a base quantity.

- Weekly collection of an unlimited quantity of recyclables at the curb or in the alley using wheeled carts[6] (typically 64-gallons or 96-gallons in size) provided by the community or the contracted recycling hauler.

- Weekly collection of landscape wastes[7], generally during the months of March through November. Landscape wastes typically must be set out in the residents' own containers or in Kraft paper bags and often require a landscape waste sticker to be purchased for each bag or container.

- Collection of additional materials on an as-needed basis. These materials include white goods/appliances that need to be processed to remove refrigerants or switches prior to disposal (such as refrigerators, freezers, ranges, water heaters, and air conditioners), bulky items (such as furniture and mattresses), and small quantities of construction and

[6] The Village of Niles currently uses 18-gallon recycling bins for collection.

[7] The Village of Skokie does not offer landscape waste collection to its residents. Residents are instead instructed to leave grass clippings on the lawn, compost landscape wastes at home, or deliver materials to a composting facility.

demolition wastes from home remodeling and repair projects. Depending on the community, there may be a limitation on the quantity of additional items set out, a per-item fee assessed for the removal of white goods or bulky items, and a special pick-up may need to be requested from the hauler or the community.

All waste from single-family residences in SWANCC member communities is required to be delivered to a SWANCC-designated transfer station[8]. Recyclables and landscape wastes are delivered to appropriate facilities for processing.

The resident opinion survey conducted during the development of this Plan Update indicated a very high level of satisfaction with current waste and recycling services, with 99% of single-family homes satisfied with waste services and 98% satisfied with recycling services.

Multi-Family Residential Collection Services

Multi-family residential collection services are provided in a number of ways, varying by community and by the number of units included in the property. Smaller multi-family properties are often provided collection services under municipal residential collection contracts with single-family properties and receive the same collection services previously described; the limit for the multi-family units that are served under those residential service contracts varies by community and may be properties with up to two, three, or four units.

Larger multi-family properties that are not provided collection services through a community's residential collection contract are served in one of two ways:

- Collection as part of a commercial collection franchise. A number of SWANCC member communities have established exclusive commercial collection franchises, whereby a single service provider collects all commercial waste throughout the community. Commercial franchises typically also serve multi-family properties that are not provided service through the residential contract. Commercial franchises often provide a base level of recycling service (for example, one 96-gallon wheeled cart collected weekly) at no additional cost. Larger recycling containers or more frequent collection of recyclables is provided upon request at the rates established in the franchise agreement.

- Individual contracts with a licensed service provider. Multi-family properties in communities that have not implemented a commercial collection franchise individually contract with a community-licensed hauler of their choice. Recycling service is typically an optional service through these contracts, and many multi-family properties do not select the service. Recycling is typically priced separately from the cost for waste collection service for multi-family properties, differing from single-family properties which receive bundled or all-inclusive pricing for both waste and recycling services.

The size of collection containers and frequency of collection will depend on available storage space for containers. Larger multi-family properties will often utilize centralized collection containers (such as dumpsters or compactors) to collect waste and may require containers to be emptied two or more times during the week, while smaller multi-family properties may utilize individual containers for each unit and require containers to be emptied on a weekly basis, similar to single-family collection.

[8] The majority of residential waste is delivered to the Glenview Transfer Station, with the exception of residential waste from Elk Grove Village which is delivered to the Groot Elk Grove Transfer Station.

While all multi-family properties have waste collection service, recycling collection services are not always provided at multi-family properties. There may be several reasons for this, including:

- Lack of space for recycling containers;
- Lack of willingness of the property owner to pay for recycling service;
- Low interest from tenants in having access to recycling services; or
- Concerns about contamination of recycling containers with waste if residents do not follow program guidelines.

Some SWANCC communities require multi-family properties to provide recycling collection service; Arlington Heights has implemented an ordinance that requires multi-family properties to file a recycling plan documenting how service is provided and annually inspects properties for compliance (refer to Section 5.1 for more details). The majority of communities, however, leave the option of recycling service at multi-family properties to the property owner.

The resident opinion survey indicated a somewhat lower level of satisfaction with waste and recycling services among residents of multi-family properties than single-family properties, particularly those who reside in larger properties with five or more units. For these residents, 11% are dissatisfied with waste services and 13% are dissatisfied with recycling services; the survey did not request residents to identify the reasons they are dissatisfied with their current services.

Specialty Recycling Drop-Off Programs

In addition to collection services provided for residential wastes, residents have access to a number of specialty recycling drop-off programs designed and sponsored by SWANCC for specific materials. These materials include the following:

- Electronic wastes: Four drop-off sites are available to residents in member communities to drop off electronic wastes that have been banned from disposal in landfills, including computers, computer monitors, printers, televisions, computer peripherals, and a number of other electronic wastes. SWANCC also sponsors a number of one-day drop-off events throughout the year for electronic wastes.
- Medications and sharps: Twenty-three drop-off sites are available to residents in member communities to drop off unused or expired over-the-counter and prescription medications (other than controlled substances) and sharps.
- Fluorescent bulbs: Twenty-seven drop-off sites are available to residents in member communities to drop off compact fluorescent light bulbs.
- Batteries: Twenty-nine drop-off sites are available to residents in member communities to drop off household alkaline and rechargeable batteries.
- Mercury thermometers and switches: Ten drop-off sites are available to residents in member communities to drop off mercury thermometers and switches.

- Holiday lights: Twenty-five drop-off sites are available to residents in member communities to drop off holiday lights and extension cords for recycling. Most sites are available for a limited period during the year, with the greatest availability during December and January.

For each of these programs, SWANCC has contracted with private service providers to provide collection containers, transportation of collected materials, and proper management of the materials through recycling or disposal. Member communities provide space and staff to conduct collection activities on a voluntary basis and work with SWANCC and the contracted service provider to determine container sizing and collection frequencies. All program costs are paid by SWANCC through a portion of the tipping fee charged at the Glenview Transfer Station.

Residents frequently contact SWANCC or its member communities about disposal options for household cleaners and chemicals. Residents are directed to deliver household chemical wastes to a permanent collection site or hold the material until a local one-day collection event is held. There are currently four permanent collection sites sponsored by the IEPA for household chemical wastes in Illinois, located in Chicago, Gurnee, Naperville, and Rockford. One-day collection events are also sponsored by the IEPA and are held periodically and in varying locations annually. Based on the resident survey, approximately 39% of residents have previously delivered household chemical wastes to a drop-off site.

In addition to the programs and services identified above, SWANCC maintains its *Green Pages: Reuse and Recycling Directory* and publishes it on its website to provide residents with a number of drop-off options to enable reuse, recycling, or proper disposal for a range of additional materials.

3.2 Commercial/Non-Residential Sector

Non-residential generators such as commercial businesses and institutions (universities, hospitals, etc.) have greater variability in the types and quantities of waste that are produced and the space available to store waste until collection than residential generators. There is a wide range of collection container sizes that may be utilized, from smaller wheeled carts (like those used for residential waste collection) to large dumpsters or compactors. Collection frequencies may also vary, ranging from once per week to daily.

The majority of SWANCC member communities utilize an open market system to manage waste from the commercial sector, with businesses selecting their preferred waste and recycling service providers[9] on an individual basis. Waste haulers are generally not required to offer or provide recycling services to businesses from which they collect waste, and commercial sector recycling is generally not monitored or tracked by the local community. As an alternative to the open market commercial system, several SWANCC member communities[10] have enacted exclusive commercial collection franchises, contracting with a single company to collect waste and recyclables from all businesses in the community. Through the commercial franchises, businesses continue to select the container size and collection frequency they desire for waste and recycling services (recycling services are not mandatory under the commercial franchises).

[9] Businesses may be restricted to utilizing only haulers licensed to provide service within the community.

[10] Members with exclusive commercial collection franchises include Barrington, Evanston, Hoffman Estates, Mount Prospect, Niles, Prospect Heights, Skokie, Wheeling, and Wilmette.

Commercial franchise agreements also typically provide for a base level of recycling service provided at no additional cost to each customer; this will typically be a 96-gallon wheeled cart with weekly collection. A higher level of service (larger container and/or more frequent collection) is available for an additional cost.

Non-residential waste may be delivered to a number of transfer stations operating within or near the SWANCC region at the discretion of the hauler. Non-residential waste is not obligated to be delivered to the Glenview Transfer Station by any member community.

3.3 Current Disposal Market

SWANCC member communities rely on a number of facilities to manage their waste. The majority of waste collected within SWANCC member communities is delivered to transfer stations prior to being hauled to more distant regional landfills for disposal. Through the Project Use Agreements entered into by each member community with SWANCC, residential waste collected by municipal crews or by private haulers through municipal contracts (including single-family and some multi-family waste) is committed to be delivered to the Glenview Transfer Station. Other multi-family waste and non-residential waste may be delivered to any of a number of transfer stations within or near the SWANCC region. Additional permitted and regulated facilities that may receive materials from SWANCC member communities include landscape waste transfer stations and construction and demolition debris recycling facilities. Permitted facilities operating in the region are shown on Figure 3.1. In addition to these permitted facilities, recyclable materials are delivered to a number of recycling facilities and scrap yards throughout the region.

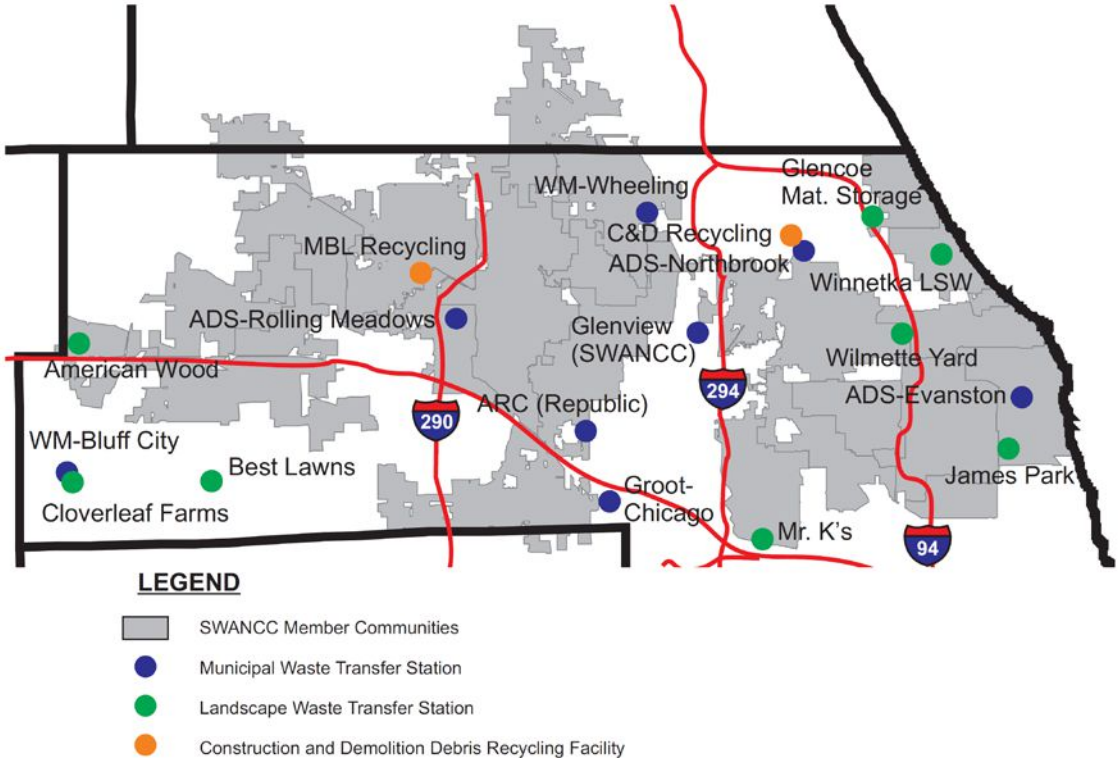


FIGURE 3.1 PERMITTED SOLID WASTE FACILITIES IN NORTHERN COOK COUNTY

Through the use of transfer stations, multiple loads from local collection vehicles can be consolidated into a single transfer truck for transport to a regional landfill. Waste from the Glenview Transfer Station is currently hauled to the Winnebago Landfill in Rockford for disposal. A number of additional landfills in northern Illinois, southern Wisconsin, northwestern Indiana, and southwestern Michigan serve the Chicago metropolitan area and may receive waste from transfer stations in the SWANCC region, as shown on Figure 3.2[11].

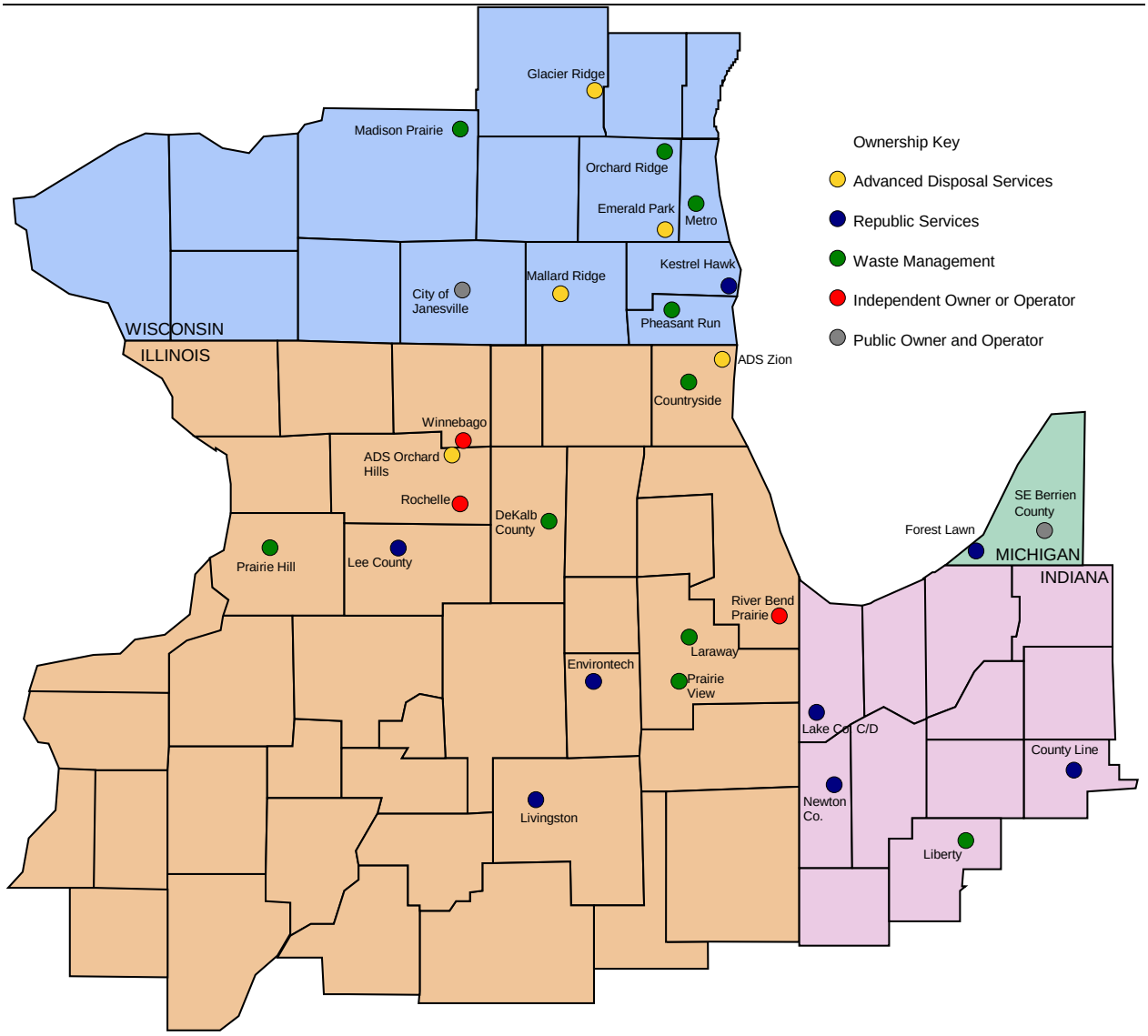


FIGURE 3.2 REGIONAL LANDFILLS SERVING THE CHICAGO METROPOLITAN AREA

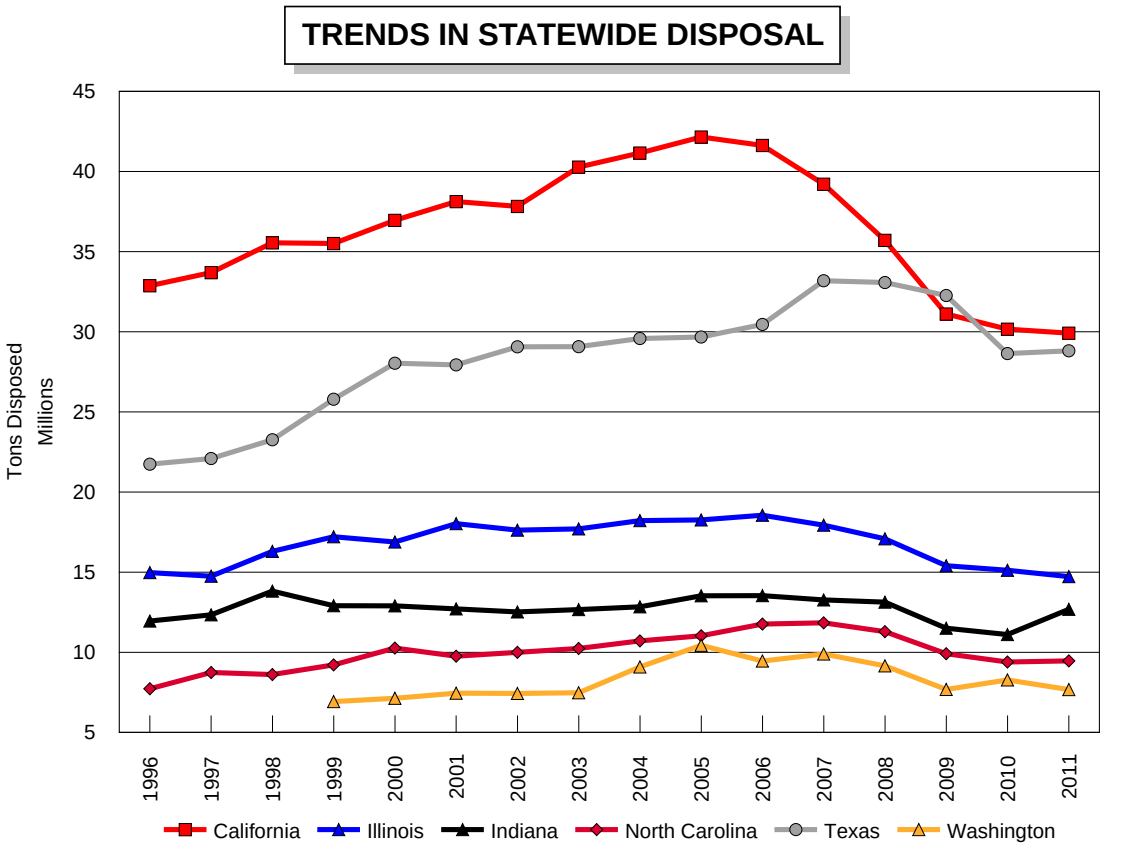
[11] Several of these facilities may be unavailable to receive waste from the Glenview Transfer Station. The Countryside Landfill, River Bend Prairie Landfill, and Environtech Landfill have limited remaining capacity. The Prairie View Landfill and DeKalb County Landfill have restrictions on their service areas and cannot accept waste from Cook County, including SWANCC. The Laraway Landfill primarily accepts special wastes (not municipal wastes). Landfills in Wisconsin, though historically receiving a large quantity of waste from Illinois, are now not economically accessible to much of the region due to an increase in state-imposed fees.

SECTION 4
WASTE INDUSTRY PRACTICES AND TRENDS

As a component of the 2014 Plan Update, SWANCC requested a review of emerging trends in the solid waste industry to provide additional background information in considering future options. This section provides a summary analysis of the major trends identified.

4.1 Economic Conditions have Impacted Waste Quantities

As was discussed in Section 2, member community waste deliveries to the Glenview Transfer Station have declined by 20 percent since their peak in 2005. This trend has occurred throughout the United States as indicated in Figure 4.1.



Source: Published annual reports of state environmental regulatory agencies.

FIGURE 4.1

During periods of economic growth, waste quantities increase, often at a faster rate than population growth. Most states show a consistent upward trend from 1996 up until about 2006 or 2007, after which they declined due to the housing crisis, Great Recession and prolonged economic downturn. Waste disposal quantities appear to have leveled off beginning in 2010, perhaps an indication of an improving economy. Though the primary cause for the recent drop in waste quantities has been the economy, there are secondary factors that may have an impact on waste quantities, including:

- Increased diversion from landfill disposal due to implementation of cart-based recycling collection, recycling of select materials such as asphalt shingles, and disposal bans on electronic wastes;

- Changes in the composition of products to utilize fewer materials or lighter materials (referred to as lightweighting);

- Reductions in packaging for consumer goods; and

- Increased reuse of packaging and shipping materials.

From a planning standpoint, the implication of this trend in disposal quantities is that government jurisdictions including SWANCC have to carefully evaluate capital investments and other fixed costs in considering future solid waste programs[12]. SWANCC is fortunate in that its debt is scheduled to be retired in 2015.

4.2 Focus on Organic Waste and Construction/Demolition Waste

As discussed in Section 2.3 and depicted in Figure 4.2, organics and construction/demolition waste are two of the largest components of the disposed waste stream[13]. This has led many jurisdictions across the U.S. to consider programs to recycle and divert organic materials and construction/demolition waste.

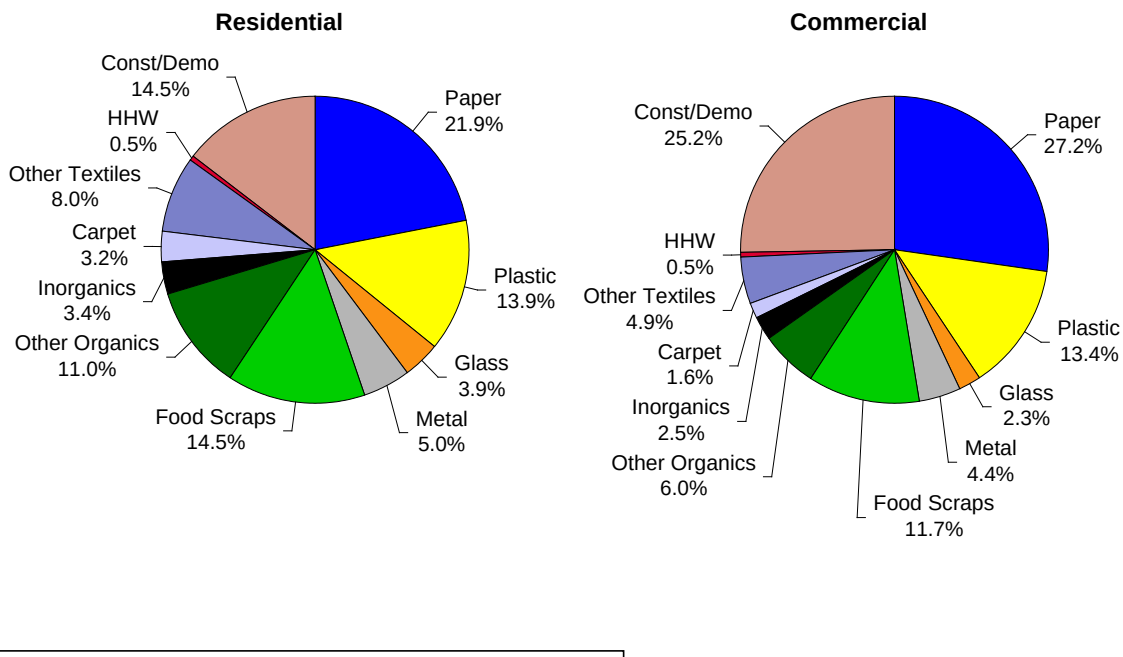
In Illinois, landscape waste has been banned from landfills since 1990 and collected landscape waste is either composted or land applied. SWANCC accepts landscape waste at the Glenview Transfer Station, which is subsequently transported to a compost facility.

More recently, legislation has been passed to encourage and/or facilitate the composting of food scrap. In 2009, PA 096-0418 was passed to exempt facilities that compost food scraps and certain other organic wastes from having to obtain local siting approval under Section 39.2 of the Illinois Environmental Protection Act. Food scrap compost facilities must secure a permit from the Illinois Environmental Protection Agency.

Though this legislative change has facilitated the ability of composting facilities to accept food scraps, there are challenges that remain. First, many regional composting facilities do not accept material during winter months (generally between December and March) because landscape wastes are not being generated or collected. This restricts the outlets available for food scraps that continue to be generated over this period. Second, odors continue to be a challenge with composting facilities, particularly in urban environments. One local composting facility in Waukegan, Illinois has been prohibited from taking food scrap because of odor complaints. Odor problems have also been reported in Seattle, Washington and Portland, Oregon as well as other areas of the country.

[12] As tonnage declines, the cost per ton associated with fixed costs increases.

[13] The disposed waste stream refers to that portion that is currently landfilled, excluding any materials that are separated for recycling or composting prior to disposal.



Source:
1. CDM, *Illinois Commodity/Waste Generation and Characterization Study*, 2009.

FIGURE 4.2

Construction/demolition waste is another large component of the overall waste stream. Similar to food scrap, legislative changes were made in Illinois to encourage the recycling of construction/demolition waste. Section 22.38 of the Illinois Environmental Protection Act provides that general construction/demolition debris processing facilities located in Cook County and adjacent counties are exempt from having to obtain local siting approval, provided they meet certain location requirements and recover at least 75 percent of the incoming construction/demolition materials. This has led to the development of a number of privately-owned processing facilities, including two that are located in the SWANCC service area. Generally, construction/demolition recycling capacity has been developed by the private sector in Illinois; government involvement has focused more on policy, and some counties have adopted ordinances requiring the recycling of construction/demolition materials.

4.3 Zero Waste

A number of jurisdictions, particularly on the West Coast but also in other areas of the country, have adopted “zero waste” policies as their future strategic initiatives. The definition of zero waste varies from jurisdiction to jurisdiction and does not necessarily mean all waste will be diverted; rather the concept envisions high diversion goals of 60 percent or more.

SWANCC has always been a leader in the development of recycling programs. Member communities were early adopters of curbside recycling, and in 2014 nearly all members will have transitioned to cart-based recycling systems. SWANCC also sponsors programs for

specialty materials including electronic wastes, medications, fluorescent bulbs, batteries, mercury thermometers and holiday lights, and conducts extensive education and outreach activities. Based on the analysis in Section 2, member communities have reached the 40 percent diversion goal established in the 1991 Solid Waste Management Plan.

The mission statement identified in Section 1 was given extensive attention during the visioning process and represents a balanced, practical goal of providing innovative and sustainable services to member communities, while also providing cost-competitive and stable rates. Monthly residential rates in the SWANCC communities (including trash, recycling and landscape waste) range from $19 to $23 per household per month; some member communities with sticker programs for landscape waste have even lower base monthly costs. In comparison, monthly rates for communities on the West Coast are higher even for the lowest level of service (one 32-gallon container), and as much as five times higher for 96-gallon service (see Figure 4.3).

The City of Seattle, which is recognized as having an aggressive recycling program and high diversion goals, reported that its single-family households recycled an average of 63 pounds per month in 2012. By comparison, SWANCC's single-family households recycled an average of 62 pounds per month in FY2013, and many individual member communities of SWANCC have greater monthly recycling setouts.

Increasingly, it is becoming clear that jurisdictions on the West Coast are incurring significantly higher costs in the pursuit of zero waste programs:

- The City of San Jose's FY2012-13 Annual Report on City Government Performance[14] indicated that operating expenditures for recycling and garbage services have increased 85 percent over the last 10 years, which the Environmental Services Department attributed to program enhancements designed to meet the City's Green Vision goals.

- The City of San Francisco increased monthly residential rates by 22 percent between 2012 and 2013.

- The City of Seattle has increased monthly residential costs by 78 percent over the period 2006 to 2013.

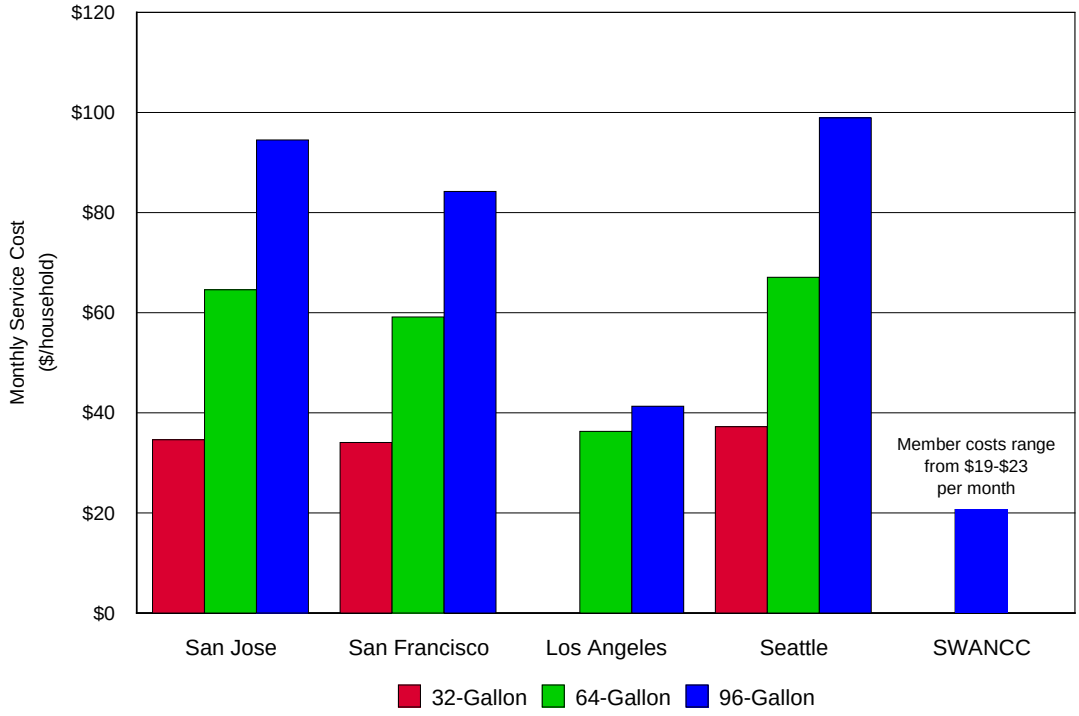
The private sector has also indicated concerns about the costs associated with increasing diversion, citing fluctuating recycling commodity pricing as one challenge to securing returns on the sizable investments being made in recycling infrastructure[15]. Continued investment in recycling infrastructure and pursuit of higher diversion levels may place upward pressure on collection rates.

The cost impacts associated with pursuit of high diversion goals and zero waste policies must be considered in the context of SWANCC's objectives of providing high levels of service and promoting waste reduction while maintaining cost-competitive and stable rates. These objectives mirror resident opinions as well, as evidenced by the results of the resident survey; residents are interested in additional options to reduce waste disposal, but if those options would increase their costs then they prefer to maintain their current services and current rates.

[14] City of San Jose, City Auditor, Service Efforts and Accomplishments Report 2012-13, Annual Report on City Government Performance, December, 2013.

[15] Waste 360, Does Recycling Pay?, December 31, 2013. Wall Street Journal, Waste Management Giant Moving Away from Garbage Startups, January 2, 2014.

COMPARISON OF MONTHLY RESIDENTIAL COLLECTION COSTS



Notes:
1. SWANCC member communities are typically provided 96-gallon waste collection service or unlimited service, making their service level most similar to 96-gallon service in other communities.

FIGURE 4.3

SECTION 5
ANALYSIS OF FUTURE WASTE MANAGEMENT OPTIONS

This section of the 2014 Plan Update provides an analysis of a number of future waste management options identified during the planning process.

5.1 Residential Recycling

Single-Family Residential Recycling

The single-family portion of the residential sector (which also typically includes small multi-family properties with 2-4 units for purposes of waste and recycling collection services) incorporates approximately 75% of the households within the SWANCC member communities. This portion of the residential sector has well-established, highly successful recycling programs, with service provided at the curb or in the alley using large wheeled carts and accepting a wide range of materials. Nearly all households report satisfaction with their current recycling service, based on the results of the resident survey.

Based on the data presented in Section 2, single-family and small multi-family households recycled about 645-685 pounds per household per year in FY2012 and FY2013, representing an average recycling rate (excluding landscape waste) of 27%. This compares favorably to household recycling quantities in high-diversion communities such as Portland and Seattle (701 pounds and 757 pounds per household per year in 2012, respectively[16]).

To optimize the use of existing collection and processing infrastructure for recyclables and increase recycling performance by single-family and small multi-family households, additional education and outreach is suggested. This can be done by:

- Developing a plan to provide targeted outreach to portions of member communities that have lower recycling participation. Outreach can be performed by SWANCC or individual member communities, or as a shared effort. To identify areas to target, SWANCC can work with member communities to conduct drive-by assessments of the community to quantify participation based on the number of recycling containers set out for collection.

- Developing a region-wide outreach campaign to engage residents in waste reduction through reuse, recycling, composting and toxicity reduction. The campaign would be developed by SWANCC and implemented in partnership with its member communities. Such a campaign can include developing a slogan and logo to brand the campaign, advertisements, educational materials, presentations, and promotional items. The campaign can be deployed through a variety of media, including community newsletters and mailings, newspaper advertisements or inserts, promotional materials at local festivals, and web postings.

Education and outreach strategies can be developed and implemented by SWANCC staff. Costs that may be incurred include printing, advertising, mailing, and promotional item

[16] City of Portland Bureau of Planning and Sustainability: Solid Waste & Recycling, Residential Curbside Collection Service Rate Study, June 2013. Seattle Public Utilities, 3rd Quarter 2013 Recycling Programs report, November 13, 2013.

expenses. SWANCC may consider investigating options to apply for grant funding to offset a portion of these costs.

In addition, SWANCC member communities are encouraged to continue to explore alternative pricing strategies for waste and recycling collection services, including offering volume-based rates for different sizes of waste containers. Implementation of volume-based rates, for example, will result in cost reductions for residents choosing smaller waste container sizes. This was a recommendation contained in the 1991 Plan which has not been widely implemented in the region.

Multi-Family Residential Recycling

Multi-family properties with more than four units represent approximately 25% of the households within the SWANCC member communities. Data is not currently collected from this portion of the residential sector to determine the current participation in recycling programs or the recycling rate within multi-family complexes. Based on input received at the regional stakeholder meetings and the lower level of satisfaction with recycling services reported through the resident survey compared to those in single-family households, it is expected that recycling participation and performance at larger multi-family properties is less than at single-family and small multi-family properties.

Even with widespread implementation of recycling services at multi-family properties, recycling quantities are typically lower than at single-family properties. For example, Seattle, Washington provides recycling service to all single-family and multi-family properties and has banned disposal of recyclables in the trash since 2006. In Seattle, recycling quantities collected from multi-family households average less than 30 pounds per household per month compared to more than 60 pounds per household per month collected from single-family households[17], indicating that the potential recovery from multi-family households is approximately 50% less than the recovery achieved by single-family households.

Based on the data presented in Section 2, single-family residential recycling programs in SWANCC communities currently set out an average of 665 pounds of recyclables per household in FY2012 and FY2013 for an average of 85,480 tons collected annually. If all multi-family households recycled and had a set-out rate of 333 pounds per household per year (half the set-out rate in single-family households) and there are an estimated 70,000 multi-family households within SWANCC's member communities, potential recycling recovery from multi-family properties is projected to be 11,655 tons per year; a portion of this is likely being collected currently.

Options that may be considered to enhance multi-family recycling include:

- Ordinance requiring service to be provided by property owners: Individual member communities may consider implementing an ordinance requiring that all multi-family property owners offer recycling services to tenants. Such an ordinance has been in place in Arlington Heights since 1996. Annual surveying and inspection of all properties is performed to ensure compliance with the ordinance; currently, of the 158 multi-family properties in Arlington Heights, only one property is not in compliance. The approximate level of effort to enforce the ordinance is equivalent to 50% of one summer intern.

[17] Seattle Public Utilities, 3rd Quarter 2013 Recycling Programs report, November 13, 2013.

SWANCC can assist member communities to implement this option by drafting a model ordinance for consideration.

- Incorporate multi-family properties into single-family residential contracts: Individual member communities that do not have a commercial franchise incorporating multi-family properties may consider including waste and recycling collection service to multi-family properties in the single-family residential contract. This option could be implemented in one of two ways:

  1) Multi-family properties that can be adequately served under the same terms as single-family and smaller multi-family properties can request to be provided service under the residential contract. This option is currently in place in Glenview, for example, where multi-family properties of three or more units can apply to opt-in to the residential service if each unit of the property can set waste and recycling out for collection individually. Each unit is then charged the contracted household rate for service.

  2) Communities can include large multi-family properties in the collection contract. This option will require additional investigation prior to procuring a service provider to identify the properties that are to be included and the levels of service (container size and collection frequency) that are currently provided to secure accurate pricing for the contract. As an example, Elk Grove Village includes 19 multi-family properties with nearly 3,500 units in its residential collection contract, with varying levels of service provided for each property.

Specialty Recycling Programs

SWANCC has implemented a number of specialty recycling programs to serve residents in its member communities, as described in Section 3. Based on the resident opinion survey, a majority of residents are aware of these programs and have utilized them. However, 27% of residents surveyed indicated they were unaware of the programs, and 42% indicated they have not utilized the programs. Additionally, when asked what recycling programs residents feel they need more information about, more than one-third of residents felt there was a need for more information about SWANCC's programs for electronics, medications and sharps, and fluorescent bulbs as well as general information about managing household chemical wastes and what materials are recyclable.

SWANCC partners with its member communities to provide drop-off locations for specialty programs. SWANCC's website currently provides a comprehensive listing of the drop-off locations that are available, and many member communities hosting drop-off locations have made that available on their websites as well. However, the resident survey indicated that only 15% of residents seek information on recycling opportunities on the internet, while 43% of residents get information from community newsletters. To cost-effectively increase resident awareness of programs, it is recommended that the programs be promoted through regular articles or postings from SWANCC in community newsletters.

5.2 Non-Residential Recycling

Throughout the majority of the SWANCC member communities, non-residential recycling is secured through arrangements directly between individual businesses and their selected service

provider. Because of the large number of businesses and the proprietary nature of private contracts, monitoring and tracking participation and performance of non-residential recycling activities is challenging. SWANCC currently does not collect recycling data from non-residential generators.

Several SWANCC member communities, including Barrington, Evanston, Hoffman Estates, Mount Prospect, Niles, Prospect Heights, Skokie, Wheeling, Wilmette, have implemented exclusive commercial collection franchises that govern waste and recycling services to all commercial generators within the community. Participation in recycling remains voluntary under the commercial franchises, though several of these contracts provide a minimum level of recycling to all customers at no added cost to incentivize businesses to recycle. Purported benefits of commercial franchises include cost stabilization and/or savings because of efficiencies in collecting wastes, providing for more cost-effective provision of both waste and recycling collection services than may have been offered prior to implementation of the franchise. The franchise agreements typically require reporting of waste and recycling quantities; to the extent that data is collected by the member communities, it is recommended that SWANCC obtain and compile this data to track non-residential waste and recycling trends within these communities. This data can then be utilized to refine commercial waste disposal and diversion rates during the development of future plan updates.

Additional options that may be considered to increase diversion in the non-residential sector include the following:

- Hauler licensing requirements: Individual member communities may consider requiring licensed haulers to actively offer recycling service to all customers in the community. In addition, haulers could be required to provide education and outreach to customers about the benefits of recycling and opportunities to reduce waste disposal quantities. Annual reporting of key parameters such as the number of accounts served and waste and recycling quantities collected in the preceding year can also be considered as prerequisites for renewal of the hauler's license. Under this option, participation in recycling would remain voluntary for businesses. Implementation would require modification of hauler licensing ordinances; sample ordinance language could be drafted by SWANCC to assist members in amending their existing ordinance. This option could be implemented by each member community at minimal cost and impact on operations.

- Mandatory commercial recycling: To further increase participation in recycling by the non-residential sector, individual member communities may consider implementing an ordinance requiring all businesses to contract for recycling services. Similar ordinances have been implemented in the City of Chicago, Kane County and Peoria County. This option would require greater effort and expense by the member community to ensure compliance with the ordinance compared to the previous option; however, with enforcement, it would be expected to result in greater recycling within the non-residential sector than a voluntary option. To facilitate implementation, a model ordinance could be drafted by SWANCC for consideration by its members.

- Education and outreach to non-residential generators: SWANCC has typically focused its education and outreach efforts on residential programs and services. However, SWANCC could assist member communities to increase non-residential recycling participation and performance and provide consistent messaging across the member communities by developing a region-wide outreach campaign to educate businesses on the opportunities for and benefits of waste reduction and serve as an additional resource

to implement waste reduction strategies. This option could likely be implemented with SWANCC's existing staff, resulting in minimal (if any) increase in costs.

- Tracking of local ordinances that may require increased data reporting: If individual member communities pursue ordinances for hauler licensing or mandatory recycling, SWANCC should obtain and track data that is reported to the community in compliance with the ordinances. Additionally, if ordinances are enacted by other units of government such as Cook County which require data reporting, SWANCC should also obtain and track this data.

5.3 Textile Recycling

During the regional stakeholder meetings, residents identified an interest in and a need for options to recycle clothing and other textiles that are not suitable for reuse or donation. SWANCC's *Green Pages: Reuse and Recycling Directory* identifies a number of donation and reuse outlets for textiles, as well as companies that accept textiles for recycling. According to the *Illinois Commodity/Waste Generation and Characterization Study* completed in 2009, approximately 8% of landfilled residential waste in urban areas consists of clothing and other textiles (excluding carpet) (refer also to Figure 4.3 of this Plan report). Within the SWANCC region, based on the annual waste tonnage delivered to the Glenview Transfer Station, this would equate to approximately 19,000 tons of potentially recoverable textiles generated annually.

Recently, other county agencies in the Chicago area have contracted with textile recycling companies to provide drop-off containers and collection service for textiles. These contracts include a revenue component for the contracting agency, paying a fee for each pound of textiles received. Examples of these contracts include:

- Solid Waste Agency of Lake County (SWALCO): SWALCO entered into a contract with Chicago Textile Recycling effective November 1, 2013 to provide collection and recycling of clothing, shoes, and other household textiles at no cost to SWALCO throughout Lake County. SWALCO will work with municipalities and other potential host sites to identify collection locations. SWALCO will receive payment of $0.18 per pound of clothing and textiles collected and $0.67 per pound of shoes collected under the contract.

- Will County Forest Preserve District: The District entered into a contract with U'SAgain, LLC to provide collection containers and at least once per week collection of textiles in 2011. U'SAgain provides drop-boxes at no cost to the District in 19 forest preserves throughout Will County, and the District receives $0.03 per pound of material collected. In 2012, the District collected more than 44,000 pounds of textiles through this program.

These contracts may serve as a model for SWANCC to provide this additional specialty recycling service to its member communities at no direct cost and with the possibility of generating revenue from the materials collected. Such a program is consistent with the other specialty programs SWANCC currently provides for select materials and with the Agency's objectives of providing innovative and sustainable services desired by members and providing services in niche areas that are not met by the private sector.

It is recommended that SWANCC discuss the option of providing region-wide textile recycling in partnership with its member communities. If members are interested in providing collection sites for such a program, SWANCC should develop a Request for Proposals to secure service provider proposals.

5.4 Construction/Demolition Debris Management

Based on the waste generation estimates presented in Section 2, the SWANCC region generates approximately 257,000 tons of construction/demolition (C/D) debris annually. C/D debris may be delivered to municipal waste transfer stations and landfills for disposal, or it may be delivered to C/D recycling facilities for processing to recover recyclable portions of the waste stream.

The private sector currently operates two C/D recycling facilities in the SWANCC region: MBL Recycling in Palatine, and C&D Recycling in Northbrook. Additional private sector C/D recycling facilities are operating in other areas of Cook County and DuPage County which may serve the SWANCC region as well.

SWANCC and its member communities do not provide collection and processing for C/D debris. While the Glenview Transfer Station does accept some third-party waste, which may include C/D debris, there is no commitment from member communities or haulers to deliver C/D waste to the facility. The Glenview Transfer Station therefore competes with other transfer stations and C/D recycling facilities for material. C/D recycling facility operators, by contrast, typically also provide collection services for C/D material, ensuring a flow of material into their facilities.

The Glenview Transfer Station is a large facility, and it could conceivably provide space to conduct either manual or mechanical sorting of C/D debris. However, use of either manual or mechanical sorting would entail increased labor, and mechanical sorting would also require additional capital investment in sorting equipment. Some costs may be recovered through avoided disposal or revenue on recovered materials, but outlets for recovered materials would have to be identified. A detailed evaluation of C/D recycling within the Glenview Transfer Station would have to be performed to determine whether it could be technically and economically feasible. Prevailing tipping fees at area C/D recycling facilities range from $45-52 per ton, which is less than the current tipping fee at the Glenview Transfer Station.

Given that the private sector has developed infrastructure to provide C/D recycling capacity within the region, the prevailing tipping fees for C/D debris at existing recycling facilities, and the need for SWANCC to compete within the open market to secure tonnage for a C/D recycling operation, it is recommended that SWANCC and its member communities continue to rely on the private sector to develop and operate C/D recycling facilities. This is consistent with the Agency's objectives and the practice in place in other area jurisdictions as well.

To increase recycling of C/D debris, individual member communities may instead consider implementing ordinances requiring that construction and demolition projects submit C/D reuse and recycling plans as part of their local permitting process and commit to diverting a percentage of the waste from the project. Ordinances requiring contractors to divert project waste from landfill disposal and provide documentation of diversion quantities have been implemented in the City of Chicago (50% diversion required) and Lake County (75% diversion required). Penalties for failing to comply with the ordinance include fines, and in the City of Chicago occupancy permits or future building and demolition permits may be withheld if fines

are not paid. To facilitate implementation, a model ordinance requiring C/D recycling from building projects could be drafted by SWANCC for consideration by its members.

5.5 Organics Management

According to the *Illinois Commodity/Waste Generation and Characterization Study* completed in 2009, approximately 14.5% of landfilled residential waste in urban areas consists of food scraps (refer also to Figure 4.3 of this Plan report). Within the SWANCC region, based on the annual waste tonnage delivered to the Glenview Transfer Station, this would equate to approximately 33,000 tons of potentially recoverable food waste generated annually by residents. An additional 51,000 tons of food scraps are estimated to be disposed by the non-residential sector. Approximately 76,000 tons of landscape waste is estimated to be generated annually by SWANCC communities; most SWANCC member communities currently provide separate collection of landscape waste from residential properties because landscape waste is banned from landfill disposal. In total, 160,000 tons of organic wastes are estimated to require management in the SWANCC region annually.

The Glenview Transfer Station accepts landscape waste for transfer to compost facilities. This material is generally from third-party customers and not member communities, which are not obligated to deliver landscape waste under their project use agreements with SWANCC. Landscape waste quantities delivered to the Glenview Transfer Station have declined over the past four years.

There is currently a significant level of interest nationally in diverting organic wastes, including food scraps, from landfill disposal. SWANCC has taken an active role in organics management, including

- Conducting composting workshops with homeowners interested in diverting food scraps from disposal to educate them on design and management methods for at-home/backyard composting. It is recommended that SWANCC continue to offer these workshops based on resident demand.

- Coordinating a residential curbside organics (food scrap and landscape waste) collection pilot in Barrington in 2010. SWANCC worked with Barrington and its contracted hauler, Groot Industries, to conduct outreach to homes in the pilot area prior to, during, and after the pilot to educate them on the pilot program and the benefits of food scrap diversion as well as to gauge resident attitudes and opinions about the program. More information on the Barrington pilot program is provided later in this section.

- Leading the establishment of the Illinois Food Scrap Coalition (IFSC), which includes representatives from many government, county and not-for-profit groups, as well as universities, commercial generators, private haulers and composters. Additionally, there is support from state and federal regulatory agencies such as Illinois Department of Commerce and Economic Opportunity (DCEO), IEPA, and U.S. EPA Region 5 and state professional associations including Solid Waste Association of North America, Illinois Recycling Association, and Illinois Counties Solid Waste Management Association. The IFSC will collaborate on the completion of research into the needs and opportunities for food scrap composting collection and processing in Illinois; hold forums to gather input from key stakeholders; develop recommendations for policy, infrastructure, and definition

changes that will facilitate food scrap programs; and secure funding to complete these activities. The IFSC will work to present its recommendations to the Solid Waste Reduction and Management Task Force. It is recommended that SWANCC continue to actively engage in the IFSC.

To divert organics from a larger portion of the population, infrastructure to provide collection as well as processing is required. Collection and processing infrastructure is well-established regionally for landscape wastes, as they have been banned from landfill disposal since 1990. Current efforts to provide collection and processing of food scraps are seeking to utilize much of the same infrastructure as is currently relied upon for landscape wastes. However, there are challenges:

- Collection of food scraps from residential properties is costly. Collection may be accomplished by mixing food scraps with landscape waste during the 8 to 9 months of the year when landscape wastes are collected. However, cost-effective collection options during winter months when landscape waste is not generated or collected have not been identified. In western Cook County, Oak Park has implemented a subscription program for year-round organics collection at a cost of $14 per household per month. Proposals to provide collection of organics in Highland Park and Gurnee (both in Lake County) have indicated costs of $10-12 per household per month for every-other-week organics collection during winter months; Highland Park's proposal provided collection of food scraps mixed with landscape waste at no additional cost during landscape waste collection months, while Gurnee's proposal would have resulted in a $3.50 per household per month cost increase to incorporate food scraps with landscape waste and reduced garbage collection to every other week. Seattle's organics collection program has current monthly household costs ranging from $5.15 for a 13-gallon can to $9.90 for a 96-gallon cart[18], in line with the costs quoted locally.

- Collection quantities from residential sources are also small. Barrington's pilot collection program netted only 1.9 pounds of food scraps per household per week. In 2012, the City of Highland Park conducted a 4-month organics collection pilot, with recovery averaging 4.4 pounds of food scraps per household per week. In Seattle, where food scraps have been collected with landscape waste since 2005 and residents are required to subscribe to organics collection service, average organics waste set-out quantities per household have increased by 28 pounds per household per month (6.5 pounds per household per week) since food scraps were incorporated into the collection program[19]. Small quantities, particularly during winter months when they are not combined with landscape wastes, cannot be collected efficiently or cost-effectively.

- Collection of food scraps for an increased cost is not supported by residents, based on the resident survey. When asked if they were interested in a program to separate food scraps for composting, 52% of residents said they would be likely to participate, but only 35% of residents were willing to pay an additional cost of $3-7 per month to participate. Based on the rates cited above, costs may be even greater than those quoted in the survey, which may further reduce resident interest.

[18] Seattle Public Utilities, Rates - Food and Yard Waste Cart, obtained from website (http://www.seattle.gov/util/MyServices/FoodYard/HouseResidents/Rates/index.htm).

[19] Seattle Public Utilities, 4th Quarter 2012 Organics Report, January 31, 2013.

- Collection of food scraps from commercial generators who have larger quantities of material may be more feasible, but this is not part of SWANCC's typical customer base.

- There are few facilities that are permitted to accept food scraps in the region, and many of these are located a significant distance from the SWANCC region resulting in increased transportation costs to deliver organic wastes. Existing facilities include Midwest Organics in Wauconda (Lake County), Willow Ranch Compost Facility in Romeoville (Will County), Harbor View Compost Facility in Chicago (Cook County), and Compost Supply in Sheridan (LaSalle County).

Windrow Composting

Existing organics processing facilities in the area produce compost using windrow technologies[20], which is generally a lower cost and low technology composting technology. However, windrow composting of food scraps has resulted in odor issues at a number of facilities; locally, odors from operations at NuEarth Organics in Waukegan resulted in violations being issued at the facility and food scrap being prohibited from the facility. Odor problems have also developed with higher technology covered and aerated windrow operations in Portland, Seattle, and other areas.

Tipping fees at existing local facilities show some variability. Willow Ranch and Harbor View charge $45 per ton of delivered organic wastes. These costs are similar to costs in other communities; for example, the City of Seattle, Washington has contracted with two compost facilities to provide transportation and processing of its residential organic wastes for a cost of $45-50 per ton. Midwest Organics Recycling charges a lower rate of $10 per cubic yard for contaminant-free food scrap, equating to an estimated $13.33 per ton assuming a density of food scrap of 1,500 pounds per cubic yard.

In-Vessel Composting

In-vessel composting options[21] provide greater control of the composting process than can be achieved with windrow composting, though they may incur a higher development and operating cost compared to composting in windrows when done on a large scale. One community-scale in-vessel composting operation is currently known to operate, owned by the City of Hutchinson, Minnesota. The facility accepts landscape waste and food waste from residents and businesses, as well as mixed loads of organics from Hutchinson's curbside residential organics collection program[22]. The facility began operating in 2001; development costs were approximately $3.6 million, of which $1.6 million was funded by a state grant and an additional $1 million was contributed by the local county, significantly reducing the City's capital expense. Tipping fees at the facility for source-separated food scraps range from $15 to $30 per ton depending on quantity and quality of the material (smaller quantities and/or customers delivering material with greater contamination are charged a rate at the higher end of the range); food scraps constitute approximately 10% of incoming material at the facility. Landscape wastes are

[20] Windrows are long piles of organic matter, typically uncovered, that are periodically turned to maintain temperature and moisture ranges suitable for composting.

[21] In-vessel composting may occur in specially-designed buildings, containers, or other vessels. Temperature and moisture are monitored and controlled in the vessels, and finished compost is typically achieved in a shorter period of time compared to windrow composting.

[22] Material from Hutchinson's residential program is not charged a tipping fee as the facility is owned by the City.

accepted at a somewhat lower rate and represent approximately 90% of incoming material at the facility. Operating costs at the facility are estimated to be $32-40 per ton; costs are offset by revenue from the sale of finished compost in addition to tipping fees on incoming material.

In-vessel composting is more commonly utilized to manage organics from institutions such as schools, universities and medical facilities. In-vessel systems are modular and can produce compost in a short period of time, supporting their use by generators on-site. SWANCC should encourage generators to investigate on-site options utilizing in-vessel composting technologies and can provide assistance to institutions and businesses evaluating this option by identifying technology vendors.

Anaerobic Digestion

An additional method that may be used to process organic wastes is anaerobic digestion (AD). AD is the natural decomposition of waste in an oxygen-starved environment, and the process results in outputs in the form of energy and digestate. AD facilities require significant capital investment and often operate with a higher cost than current windrow composting or landfill fees.

Table 5.1 provides a summary of capital cost, operating cost, and tipping fee ranges for AD facilities based on a literature review. Tipping fee estimates are reported net of revenue from energy sales and represent the rate that customers would be projected to pay to deliver organics to the facility.

TABLE 5.1. CAPITAL AND OPERATING COST RANGES FOR ANAEROBIC DIGESTION FACILITIES

Study	Capital Cost	Annual Operating Cost	Estimated Tipping Fees
City of Chicago, IL	$1-79 million	Not reported	$75-173/ton
City of Madison, WI	$14.3-22.1 million	$1.5-2.5 million	$41.70-82.71/ton
Dane County, WI	$20.4 million	Not reported	$52/ton (break-even)
HDR Engineering	$250-700/annual design ton	$60-200/ton	$70-200/ton
Renewable Waste Intelligence	$600/annual design ton	$40-150/ton	Not reported

Sources:
1. City of Chicago, IL: Shaw Environmental, Inc., *Feasibility Study: Anaerobic Digestion in Inactive Material Storage Silos*, October 2007. Based on survey of AD facilities in Canada and Europe, where technology is widely used.
2. City of Madison, WI: Organic Waste Systems, *Anaerobic Digester Feasibility Study: Executive Summary*, September 2012.
3. Dane County, WI: AECOM and RW Beck, *Food Waste Digester Phase I Feasibility Report*, July 2011. The break-even tip fee was calculated to be the minimum tip fee required to provide a positive net present value of the facility over a 20-year period.
4. HDR Engineering: *Economics of Anaerobic Digestion for Various Types of Food Waste, Co-Collected Organics, Animal Manure and Seasonal Wastes*, May 30, 2012.
5. Renewable Waste Intelligence: *Business Analysis of Anaerobic Digestion in the USA*, March 2013.

Given the high investment capital and resulting high tipping fee for AD, and the lack of a committed flow of organic waste from its member communities to support operation of an AD facility, Agency development of an AD facility is not recommended at this time. SWANCC should reevaluate development status of AD facilities in the U.S. and their associated costs during the next plan update.

5.6 Household Chemical Waste Management

One of the most common inquiries SWANCC receives is about management options for household chemicals. Residents are directed to deliver unused household chemicals to one of the four permanent drop-off sites sponsored by IEPA in Illinois, located in Chicago, Gurnee, Naperville, and Rockford, or to hold chemicals until a one-day collection event is available in the area. The number of IEPA-sponsored one-day collection events varies annually based on available funding; in recent years, funding has been limited and fewer one-day events have been held.

Permanent collection sites are sponsored by IEPA, with IEPA covering costs for transportation and disposal of collected chemicals. Facility development and annual operating expenses (excluding disposal) are the responsibility of the facility. Capital and operating costs associated with the development of the three permanent facilities operating in the Chicago area are summarized in Table 5.2.

TABLE 5.2. CAPITAL AND OPERATING COSTS FOR STATE-SPONSORED HOUSEHOLD CHEMICAL WASTE FACILITIES

Facility	Capital Costs	Annual Operating Costs
Chicago	$3,800,000 (constructed in 2006)	$180,000 (excluding disposal)
Gurnee (SWALCO)	$1,500,000 (constructed in 2002)	$245,000 (SWALCO estimates disposal costs are approx. $400,000)
Naperville	$1,185,000 (projected cost of new facility currently under construction)	$180,000 (excluding disposal)

Sources:
1. Patrick Engineering, Inc., Household Hazardous Waste Facility Feasibility Study for Peoria County, December 2009.
2. Solid Waste Agency of Lake County (SWALCO), personal communication, October 2013.
3. Naperville Sun, “New Recycling Facility Plans Moving Ahead”, December 15, 2013.

In addition to the state-sponsored permanent facilities, Peoria Disposal Company has proposed to develop a permanent collection facility near Peoria. Peoria Disposal Company preliminarily estimates that the facility will cost $1,250,000 to construct and will have an annual expense of approximately $450,000, inclusive of disposal and depreciation (assuming 150,000 pounds of household chemicals are accepted).

To meet local needs for convenient access to drop-off options for unused household chemicals, options SWANCC may consider include:

- Development and operation of a permanent collection facility. As an initial location, the Glenview Transfer Station should be evaluated to determine whether a portion of the transfer station could feasibly be utilized for the collection and storage of household chemicals. If so, development costs are expected to be reduced compared to other permanent facilities cited in Table 5.2 by incorporating the chemical waste facility into an existing building. Other industrial properties within the region may also be considered for development of a stand-alone facility. Operation of the facility, including transportation and disposal of collected materials, is recommended to be contracted to a private operator. A permanent facility would be required to secure local siting approval and state environmental permits prior to being developed[23].

  Based on SWALCO's annual operating costs and estimated disposal costs, and assuming similar quantities of material are received at SWANCC's facility, annual operating expenses may be approximately $645,000. Assuming a capital investment of $1,000,000 for facility development, an additional $82,000 per year of debt expense may be incurred[24], for a total annual expense of $727,000. For cost transparency and funding sustainability, the facility may be funded through an annual charge to member communities that is proportional to the population of the communities; at an estimated annual expense of $727,000, this would equate to a charge of less than $1 per person per year.

- Partnership with SWALCO to provide mobile collection events in SWANCC member communities. SWALCO currently conducts mobile collection events throughout Lake County in addition to operating the permanent site in Gurnee. SWANCC should discuss a possible partnership with SWALCO to host mobile collections in SWANCC member communities and/or at the Glenview Transfer Station and evaluate the cost and liability considerations associated with such an arrangement. If this arrangement is feasible, an Intergovernmental Agreement between SWANCC and SWALCO establishing service parameters and cost sharing would be recommended.

  It is anticipated that this option could be implemented within the next year with no capital expenditure required. This option reduces SWANCC's capital expenses as well as operating expenses (because disposal of materials from SWALCO's collections is paid by IEPA) for household chemical waste management compared to a permanent facility and would not require local siting approval or permits to be secured. However, it would provide a lower level of service to SWANCC members than a permanent facility.

The resident survey questioned respondents about their likeliness to deliver household chemicals to a local collection facility, if one was available. A large majority of residents (77%) indicated they would be likely to deliver household chemicals to a local facility, and 65% of residents indicated they would be likely to use a local facility even with an increase in waste service costs of up to $1.00 per household per month (the cost projected above of less than $1.00 per person per year is significantly less than the rate cited in the survey).

[23] Local siting approval would be waived if the facility was sponsored by IEPA. It is unknown at this time whether IEPA would consider sponsoring an additional permanent facility; however, given the availability of three other permanent facilities in the Chicago metropolitan area, it seems unlikely that another facility in the region would be sponsored at this time.

[24] Assuming capital costs are amortized over 20 years at a rate of 5%.

Based on resident interest indicated by the survey as well as the frequency of calls to SWANCC inquiring about management of household chemicals, SWANCC should determine whether a permanent facility or mobile collections through partnership with SWALCO or other units of government or private companies are preferred and pursue implementation of the preferred option. Provision of household chemical waste collection to its members is consistent with SWANCC's objective of providing services that are not being met by the private sector and supports the Agency's mission of facilitating environmentally sound solid waste management practices.

5.7 Regional Collection

Currently, member communities of SWANCC direct their residential waste to the Glenview Transfer Station. Operation of the transfer station and disposal of the waste is contracted to a private company (Groot), and waste is currently disposed at the Winnebago Landfill. By pooling their waste, member communities have a larger quantity of waste with which to secure favorable pricing in the private sector disposal market, which is tonnage driven.

Joint-contracting of residential solid waste collection, in which multiple communities would combine to procure collection services, is another option which would seek to build on cooperative purchasing power. For the 2014 Plan Update, preliminary research was performed to identify jurisdictions that jointly procure collection services. In general, joint-procurement of collection services is relatively uncommon. Summary information on several case studies is provided below.

Southeastern Oakland County Resource Recovery Authority, Michigan. SOCCRA is a solid waste authority in the Detroit-metropolitan area that was formed in 1954. The Authority consists of 12 member municipalities with a population of approximately 250,000 and approximately 113,000 households. Historically, the Authority contracted for transfer and disposal services only. In 2005, SOCCRA conducted a competitive procurement process for waste collection, transfer and disposal services, under which vendors could propose to provide collection services, transfer and disposal services, or all services. Member communities had to enter into new project-use agreements with SOCCRA because the prior agreements were expiring or would expire during the term of the new waste services contracts; the new project-use agreements also had to incorporate the Authority's right to contract for collection services.

SOCCRA reached consensus with the member communities on the collection services to be provided (previously, each community contracted individually for collection services). The RFP requested pricing on a town-by town basis. Collection contracts were negotiated and awarded to three vendors: one hauler was awarded 8 communities, the second hauler was awarded 3 communities, and the third hauler was awarded a single community. The collection agreements were executed by SOCCRA and the haulers (though in other joint-procurements individual contracts may be executed between participating municipalities and the haulers). A separate transfer and disposal contract was awarded to a fourth vendor. The contracts have an initial term of 10 years, with an option to renew for a second 10-year term.

A post-award analysis[25] of the new contracts indicated that total savings (amounting to $2,700,000 annually) to the member communities were an average of 16 percent versus prior

[25] GBB, Saving 15% and Beating High Fuel Collection Costs: 1 Contract is Better than 12, Presentation at Wastecon 2010.

costs (savings to individual communities ranged from 10 to 24 percent). However, the cost reduction due to jointly-procuring collection services was approximately 4 percent[26].

Mid-Michigan Waste Authority, Michigan. MMWA was formed in 1991. Initially comprised of 12 communities, membership has grown to include 35 communities in the Saginaw area including townships and municipalities (approximately 73,000 households)

The Authority contracts for a number of services on behalf of its members, including collection, processing of curbside recyclables, composting, and disposal. All contracts have concurrent terms. The Authority first began contracting for collection services in 1995. The current collection contract was executed in 2005 and has a term of 10 years. Because the initial collection contract dates to 1995, an evaluation of savings due to joint-collection was not available.

Central Contra Costa Solid Waste Authority, California. CCCSWA is a consortium of 6 communities located east of Oakland, California (approximately 82,000 households). The member communities unofficially banded together in 1990 in response to high landfill disposal rates that were being charged to individual communities (estimated by CCCSWA staff at approximately $90 per ton). The communities initially considered developing a transfer station and rail hauling their waste to more distant landfills, but ultimately decided to jointly contract for disposal capacity at local landfills, which secured better pricing of approximately $40 per ton.

The adoption of California's mandatory diversion law (AB939) required the communities to implement more advanced recycling programs. CCCSWA was formed in 1994-1995 as a joint-powers authority, with the primary goal of jointly contracting for solid waste and recyclables collection services.

The first collection contracts were issued in 1996 after a competitive procurement process and were awarded to two haulers: one for collection and processing of recyclables and one for collection and disposal of solid waste. Under these two franchise agreements, services were provided to single-family and multi-family households and to commercial accounts. The collection agreements were executed between CCCSWA and the two haulers.

CCCSWCA tracks historical residential collection rates on an annual basis. A review of the historical data indicates that monthly residential costs (including collection and disposal) decreased by about 20 percent on average in 1994, corresponding to the joint-procurement of disposal capacity noted above.

According to the CCCSWA tracking, a further reduction in monthly rates of 30 percent was obtained in 1996, corresponding to the first joint-collection contract. However, the 1996 collection agreements established volume-based pricing (based on the size of garbage carts) for the first time. Under this system, residents were offered a selection of 32-gallon cart, 64-gallon cart, or 96-gallon cart service. The rates for 64-gallon and 96-gallon service were 2 and 3 times higher, respectively, than the cost of the 32-gallon service. The reported 30 percent rate reduction was based on pricing for the lowest service level (32-gallon) compared to prior costs. CCCSWA staff estimated that 72 percent of households opted for the 32-gallon service, with the

[26] The analysis identified the following components of the cost savings: 60 percent was due to better transfer and disposal rates, 15 percent was due to improved recyclables revenue sharing, and 25 percent was due to the collection component. Therefore, one-quarter of the overall 16 percent savings (4 percent) resulted from joint procurement of collection services.

remaining 28 percent of households using a higher level of service. Considering a weighted-average monthly cost, including homes that opted for larger containers, the cost savings were lower, ranging from 4 to 11 percent.

Illinois Programs. Joint-procurement of collection services is Illinois is relatively uncommon. In 2002, the Villages of LaGrange and Lagrange Park executed a joint collection agreement. These neighboring communities were both interested in developing a variable rate, pay-per-bag system. Following the completion of the initial 5-year term, however, both communities have subsequently procured collection services on an individual basis.

A consortium of 5 municipalities in Lake County also jointly procures residential solid waste collection services (Island Lake, North Barrington, Port Barrington, Tower Lakes and Wauconda). The 5 municipalities are relatively small, ranging from 400 homes to 3,400 homes (combined, they represent approximately 8,200 homes). The communities have jointly contracted for waste collection services since 1994. Although the consortium jointly-procures hauling services, each community has a separate contract with the hauler. Because this collection arrangement was initially established in 1994, comparative pricing on pre- and post-implementation services is not available.

Discussion. Joint-procurement of collection services may potentially offer cost savings to the member communities. However, regional collection is relatively uncommon in Illinois and throughout the United States. Based on the limited case studies available, savings of 4 to 11 percent in monthly costs were obtained.

SWANCC member communities are generally large in terms of number of households, and it is not immediately clear whether collection efficiencies could be gained -- ultimately, that could only be verified through a pilot program. In terms of implementation, a number of issues would have to be further considered and evaluated, including:

- Scope of joint-collection (SWANCC-wide or regional aggregations within SWANCC service area).
- Contracting entities (SWANCC or member communities).
- Legal review of contracting authority.
- Scheduling (existing collection agreements have different termination dates).
- Service options (unified service to participating communities, or unique service to each participating community).

Further investigation of regional hauling would depend on the interest-level of member communities.

5.8 Waste Transfer and Disposal

As described in Section 3 of this Plan Update, residential waste disposed by SWANCC member communities is delivered to the Glenview Transfer Station and transferred to a regional landfill for disposal. SWANCC has executed Project Use Agreements with each of its members,

through which members have committed to delivering their residential waste to a SWANCC-designated facility for transfer and disposal into 2032.

The Glenview Transfer Station began operating in 1994, and Groot Industries has operated the facility under contract to SWANCC since operations began. The current operating contract with Groot will expire April 30, 2015. SWANCC will evaluate future operating contract considerations following completion of this Plan Update.

The Glenview Transfer Station provides a number of benefits to SWANCC's member communities, including:

- Long-term, predictable pricing for transfer and disposal services through SWANCC's contracted operation of the facility. This is a core objective of the Agency.
- More competitive disposal pricing achieved by aggregating all members' residential tonnage.
- Environmental protections for members by ensuring waste is disposed at SWANCC-authorized landfills. This is consistent with the Agency's mission to provide solid waste management practices that are environmentally sound.
- An opportunity to generate revenue to support Agency operations through serving niche markets. For example, the transfer station currently accepts asphalt shingles for recycling and landscape waste for composting and receives a credit from Groot for these materials.
- A potential location at which to develop or support future programs and services. For example, as discussed in Section 5.6, the transfer station could be suitable for development of a permanent household chemical waste collection facility.

There are currently a number of regional landfills receiving waste from the Chicago metropolitan area, as previously shown in Figure 3.2. These facilities had an aggregate remaining capacity of approximately 270,700,000 tons and received 19,350,000 tons of waste per year on average over the period 2001-2010. Based on historical average disposal rates, as of 2014 the region has an estimated 11 years of capacity available. An additional 3 years (62,000,000 tons) of disposal capacity has been sited at DeKalb County Landfill and Winnebago Landfill which is not yet permitted; assuming these facilities are fully permitted, approximately 14 years of landfill capacity are estimated to be currently available to the region. The Glenview Transfer Station provides member communities with access to this regional capacity.

5.9 Mixed Waste Processing

Mixed-waste processing is a general term, sometimes referred to as a "Dirty-MRF[27]", in which mixed solid waste is processed over a sorting line to recover recyclables. This is in contrast to the more common "Clean-MRF" which is used to process recyclables from curbside collection programs.

[27] MRF stands for Material Recycling Facility.

Mixed-waste processing facilities are uniquely-designed facilities and employ different levels of equipment to sort the waste material. Historically, lower-technology facilities used manual labor to sort waste materials on elevated conveyor lines. Higher-technology facilities employed additional automated equipment (debaggers, trommel screens, air classifiers, eddy current separators).

With the widespread adoption of cart-based recycling (in which all recyclables are commingled in a cart prior to collection), a third type of facility, known as a "Single Stream MRF", has increasingly been developed. Such facilities employ much of the automated sorting equipment used in a high-technology Dirty-MRF, which has somewhat blurred the distinction between a Dirty-MRF and Clean-MRF, but Single-Stream MRFs are still generally intended to process source separated recyclables as opposed to mixed waste.

Mixed waste processing has had a challenging operational history in the Chicago metropolitan area. The City of Chicago developed three mixed waste processing facilities in the 1990s as part of its "blue bag" recycling program. Under the blue bag program, Chicago residents would place recyclables into blue bags, which were then placed into the same cart used to collect trash. The co-collected blue bags and waste were then transported to the mixed waste processing facilities, called MRRFs, where the blue bags were removed for sorting and the waste was processed over a sorting line to recover additional recyclables. The blue bag program had a number of public perception issues, however, and around 2010 the City halted operation of the mixed waste processing operations and commenced implementation of a cart-based recycling program. The MRRFs are now used as primarily as transfer stations.

Another mixed waste processing facility was developed by a private hauler (XL Disposal) in Crestwood, Illinois, in 1989, but only operated for a few years. For both the Chicago and XL Disposal facilities, recovery of traditional commodity materials (paper, metals, glass, etc) ranged from 7 - 10 percent; a larger amount of material, ranging from approximately 15 to 25 percent of the incoming waste and consisting of trommel fines and yard waste, was also diverted. The relatively greater contribution of trommel fines versus recyclable commodities to the overall diversion rate lead proponents of curbside recycling to question the mixed waste processing technology.

Subsequently, there has been renewed interest in mixed waste processing, notably on the West Coast, as a means of achieving new diversion goals mandated by the State of California. Mixed waste processing would be employed as a supplement, not a replacement, to existing curbside recycling and other source separated recycling programs.

A national level study of MRFs prepared by Governmental Advisory Associates (GAA) was reviewed to gather additional information on mixed waste processing[28]. The following were some of the principal findings obtained from reviewing the data in the GAA study:

- There were 561 Clean-MRFs in the U.S., in 2006, as compared to 32 Dirty-MRFs. Mixed waste processing facilities are therefore much fewer in number than recycling facilities designed to process source separated recyclables.

- Of the 32 Dirty-MRFs, 20 (or 63 percent) were located in the State of California.

[28] Governmental Advisory Associates, Inc., *Materials Recycling and Processing in the United States, Yearbook and Directory, 2007-2008*, Fifth Edition, 2007. Though now becoming a little dated, this study did provide a comprehensive national overview of recycling facilities.

- Nationally, the average throughput of a Dirty-MRF was approximately 1,025 tons per day (tpd), with a range of 40 tpd to 5,000 tpd. The throughputs of Dirty-MRFs are therefore typically much larger than for Clean-MRFs, which had an average throughput of 152 tpd.

- The average diversion rate at Dirty-MRFs was calculated to be about 10 percent of incoming waste. Some facilities reported higher diversion rates of 30-40 percent, but in some cases those were for facilities that targeted commercial waste with high levels of recyclable materials and low levels of contaminant materials, or else included trommel fines, yard waste and inert materials in the diversion rate.

More recently, in July, 2012, the City of San Jose, California commenced operation of an exclusive commercial waste franchise system. The exclusive franchise system was several years in development and replaced the former non-exclusive franchise system for commercial waste collection. Under the new system, the franchise hauler (Republic Services) will collect waste from businesses using a wet/dry collection system. The dry fraction will be processed at a new single-stream recycling facility owned by Republic, and the wet fraction will be delivered to a dry fermentation anaerobic digestion facility developed by Zero Waste Energy Development Company (which opened in November, 2013). By separating dry waste materials from wet materials, the City hopes to achieve a 75 percent goal for the commercial waste stream. Notably, the processing facilities for this system were developed and are owned by private companies, and the overall system supported by the commercial franchise agreement. As this is a new program, SWANCC should monitor performance as part of future solid waste planning efforts.

5.10 Conversion Technologies

Over the past 10-15 years, a number of jurisdictions throughout the U.S. have evaluated the feasibility of developing alternative disposal facilities, termed conversion facilities, for the management of their disposed waste stream. Conversion facilities utilize thermal, chemical, and/or biological technologies to convert waste to byproducts that include energy (e.g., steam, heat, gas, or liquid fuel) and solids (e.g., ash or char).

A recent presentation regarding conversion technologies indicated that capital costs for a large-scale conversion facility are projected to range from $230-500 million, with tipping fees ranging from $120-160 per ton[29]. Numerous technology providers have sought to develop demonstration scale or commercial scale facilities; however, to date, no conversion facilities have been developed to process mixed municipal waste at a commercial scale in the U.S. The status of three facilities furthest along in the development process are summarized below.

- INEOS Bio has developed and is currently operating a waste-to-fuel facility in Indian River County, Florida. Total capital expense for development of the facility was approximately $130 million. The facility was completed in June 2012 and is designed to accept approximately 150,000 tons per year of vegetative waste (including wood and yard waste), from which it will produce an estimated 8,000,000 gallons of bioethanol. Indian River County executed a feedstock agreement with INEOS Bio to deliver 55,000 tons of vegetative waste annually at a cost of $14.40 per ton. INEOS Bio is securing additional feedstock from other sources; the tipping fee charged to other sources is

[29] SAIC, Conversion Technology Workshop with Houston-Galveston Area Council, September 13, 2013.

unknown. SWANCC should track the operation of this facility during the next five years and may consider obtaining additional information on its operations and costs during the next plan update process.

- Plasco Energy Group has developed a 110 ton per day plasma gasification demonstration facility in Ottawa, Ontario, Canada. A second, commercial facility has been proposed which would receive 330 tons of municipal waste per day, but development has not yet started due to a lack of financing. Since 2005, Plasco has raised $270 million in capital for the facility. However, in March 2013, and again in August 2013, Plasco requested extensions to deadlines to secure financing for development of the commercial facility. The current financing deadline is December 31, 2014.

  The City of Ottawa has entered into a 20-year agreement with Plasco to deliver approximately 120,000 tons of municipal waste per year to the facility when it begins operating for a tipping fee of approximately $84 per ton in the initial year of operation. It is unknown when the commercial facility would begin operating, assuming financing is secured.

- Enerkem is currently constructing a waste-to-ethanol facility in Edmonton, Alberta, Canada. The City of Edmonton has committed to delivering approximately 110,000 tons of municipal waste per year to the facility for a 25-year term at an undisclosed tipping fee. The facility is projected to produce approximately 10,000,000 gallons of ethanol annually. Capital costs associated with development of the facility are projected at $85-90 million, with an additional $40 million investment being made by the City of Edmonton for development of a pre-processing facility.

Long-term, committed waste flows are necessary to ensure economic viability of conversion facilities, and local jurisdictions may be asked to commit waste feedstock at an agreed tipping fee over an extended period of time to support financing and operation of a facility. The facilities noted above are each being developed by private companies, with local jurisdictions providing feedstock commitments. However, even with these commitments, securing financing has continued to be a challenge, as noted for the Plasco facility. Tipping fees will be dependent on capital investment and annual operating expenses, as well as projected revenue from energy and/or fuel sales. It does not appear that facilities processing mixed municipal waste would be cost-competitive with tipping fees in the current regional disposal market. SWANCC should reevaluate the status of development of conversion technologies and their associated costs during the next plan update.

SECTION 6
RECOMMENDATIONS

This section identifies the recommendations for SWANCC's 2014 Solid Waste Management Plan Update. Recommendations have been developed based on:

- The data reviewed and compiled in Sections 2 and 3;
- The analysis of industry trends presented in Section 4;
- The analysis of options presented in Section 5;
- The data obtained from the survey of a random sample of 600 SWANCC residents;
- The input from residents, waste and recycling service providers, and local citizen groups secured through the regional stakeholder meetings; and
- The input of SWANCC's Executive Committee and Board of Directors.

SWANCC has historically been a leader in waste reduction and recycling programs. Many of its member communities were among the first to implement curbside recycling, and more recently to transition to cart-based collection programs. Residential recycling programs have been successful, with member communities diverting more than 40 percent of residential waste (including curbside recyclables and landscape waste) from disposal, achieving the goal established in the 1991 Plan. The Agency has also developed a number of innovative programs promoting waste reduction and sustainability goals and providing for recycling of select materials.

As discussed in Section 4, waste disposal quantities peaked within the SWANCC region and nationally during the period 2005-2007. Waste quantities have since decreased by 20-30% or more, principally as the result of the economic downturn, and may only now be leveling off. The decrease in waste quantities is largely attributed to economic conditions because when the economy declines, consumption (and therefore disposal) declines. Other factors may also have had a lesser impact on waste quantities (e.g., cart-based recycling collection, recycling of select materials such as asphalt shingles, disposal bans, and lightweighting of products).

When waste quantities decline, the fixed costs associated with solid waste management (e.g., capital expenditures, costs to operate special programs) increase on a per ton basis because there are fewer tons over which to spread the fixed costs. Fluctuating recyclable commodity prices also pose a challenge, and private companies have indicated that they are concerned about earning a return on the significant capital required for recycling infrastructure. For these reasons, SWANCC will have to carefully consider its own investment in programs and infrastructure during the next 5-year planning period.

SWANCC and its member communities will continue to be leaders in providing a high level of waste and recycling services. In doing so, it will be important to balance the Agency's objectives of providing innovative and sustainable programs and promoting waste reduction with the fiscal constraints of local governments and willingness of residents to pay for programs. This was borne out by the resident survey, which indicated that, though residents are interested in options

for increasing waste reduction, they are also sensitive to costs and would choose to maintain their current services and rates rather than have additional services provided at an increased cost.

Recommendations of the 2014 Solid Waste Management Plan Update are presented in Table 6.1. These recommendations reflect the trends noted above and the objectives of the Agency. Recommendations have been grouped by focus areas, including Recycling/Disposal, Education/Outreach, and Administrative/Organizational. For each recommendation, the fiscal, environmental and social impacts are briefly noted. Implementation timeframes and responsibilities are also identified.

TABLE 6.1. 2014 PLAN UPDATE RECOMMENDATIONS				
Number	Recommendation	Impact	Implementation Timeframe	Implementation Responsibility
Recycling / Disposal				
RD.1	It is recommended that SWANCC discuss the option of providing region-wide textile recycling in partnership with its member communities. If members are interested in providing collection sites for such a program, SWANCC should develop a Request for Proposals to secure service provider proposals	Fiscal: Potential revenue generator for Agency. Members may have cost impacts associated with providing drop-off sites. May impact revenues and donations received by non-profit organizations or others currently providing collection/donation services. Environmental: Potential to reduce landfill disposal quantities. Social: Resident interest expressed during the planning process. Impact on existing donation centers and drop-off operations would need to be considered.	1 year	Agency: Evaluate opportunities and interest with members, procure service provider if appropriate. Members: Determine interest and desired level of participation.
RD.2	It is recommended that SWANCC develop individual model ordinances for consideration by member communities that would provide for the following: - Require multi-family property owners to provide access to recycling services for its tenants for consideration by member communities. - Require licensed waste haulers to actively offer recycling service to all non-residential customers and to report data on waste and recycling quantities collected annually within the community. - Mandate all non-residential generators to recycle. - Require construction and demolition debris recycling from building projects, including deconstruction and building material reuse from demolition/renovation projects.	Fiscal: Minimal to none for member communities to enact and enforce ordinances. Potential disposal cost savings if waste deliveries to Glenview Transfer Station are reduced. Cost to Agency to draft model ordinances. Environmental: Ordinances would result in increased waste diversion and reduce landfill disposal quantities. Social: Some property owners and businesses may oppose mandates to provide service or to recycle.	1-2 years	Agency: Develop model ordinances. Members: Consider implementation of ordinances. Enforcement of enacted ordinances.

TABLE 6.1. 2014 PLAN UPDATE RECOMMENDATIONS

Number	Recommendation	Impact	Implementation Timeframe	Implementation Responsibility
RD.3	Individual member communities are encouraged to evaluate options to incorporate recycling services, or waste and recycling services, for multi-family residential properties into their single-family residential collection contracts.	Fiscal: Potential to increase member recycling payments through Recycling Incentive Program. Environmental: Increased diversion of recyclables from landfill disposal. Social: Increases access to recycling for residents of multi-family properties.	1-2 years	Members: On an individual basis.
RD.4	It is recommended that SWANCC develop a local household chemical waste management solution. SWANCC should determine whether an Agency-developed permanent facility or mobile collections through partnership with the IEPA and other units of government or private companies is the preferred method of providing this service and pursue implementation of the preferred option.	Fiscal: Facility development and collection operations would be a cost to the Agency. Operation of an Agency-owned facility would incur additional costs for disposal of collected materials compared to partnership with an existing state-sponsored facility at which disposal costs are paid by IEPA. Environmental: Reduces toxicity of disposed waste and promotes proper management of household chemicals. Social: Resident survey and Agency/member experience indicates a need for and interest in a local option to manage household chemical wastes.	1-2 years	Agency
RD.5	It is recommended that SWANCC not pursue development of processing infrastructure to manage organic wastes. SWANCC should reevaluate development status and costs of in-vessel composting options and anaerobic digestion facilities in the U.S. during development of the next plan update.	Fiscal, Environmental, Social: None.	5 years	Agency

TABLE 6.1. 2014 PLAN UPDATE RECOMMENDATIONS

Number	Recommendation	Impact	Implementation Timeframe	Implementation Responsibility
RD.6	It is recommended that SWANCC not pursue development of an alternative disposal technology or conversion facility. SWANCC should reevaluate the status of development of conversion technologies and their costs during development of the next plan update.	Fiscal, Environmental, Social: None.	5 years	Agency
RD.7	Individual member communities are encouraged to investigate alternative pricing strategies for waste and recycling collection services, including offering volume-based rates for different container sizes.	Fiscal: Potential disposal cost savings for members if waste deliveries to Glenview Transfer Station are reduced. Environmental: May incentivize residents to recycle more to be able to utilize a smaller waste container at a lower monthly collection cost. Social: Continued effort to reduce disposal quantities and increase recycling that may be consistent with member sustainability goals/plans.	Ongoing	Members: On an individual basis.
RD.8	It is recommended that SWANCC actively engage in the Illinois Product Stewardship Council, to be established in 2014.	Fiscal: Potential to reduce Agency costs to provide specialty recycling programs if additional producer responsibility legislation is enacted. Environmental and Social: Continues to promote producer responsibility and product stewardship.	Ongoing	Agency
RD.9	It is recommended that SWANCC and its member communities continue to rely on the private sector to develop and operate construction/demolition debris recycling facilities.	Fiscal, Environmental, Social: None.	Ongoing	Private sector

TABLE 6.1. 2014 PLAN UPDATE RECOMMENDATIONS

Number	Recommendation	Impact	Implementation Timeframe	Implementation Responsibility
RD.10	It is recommended that SWANCC continue to actively engage in the Illinois Food Scrap Coalition.	Fiscal: None, Illinois Food Scrap Coalition is pursuing grant funding to support research studies. Environmental: Agency staff remains aware of developments in food scrap collection and processing, particularly in the Chicago metropolitan area. Social: None.	Ongoing	Agency
RD.11	Organic waste generators are encouraged to investigate on-site options utilizing in-vessel composting, anaerobic digestion, or other organics management technologies. It is recommended that SWANCC provide assistance to institutions and businesses evaluating this option by identifying technology vendors upon request by the generators.	Fiscal: None. Environmental: Promotes on-site composting of organic wastes, reducing landfill disposal quantities. Social: Would require consultation with and evaluation by individual members to determine if on-site composting is consistent with zoning and land use codes.	Ongoing	Agency: Assistance determined in consultation with generators. Individual generators: On an individual basis.
RD.12	It is recommended that SWANCC continue to aggregate member residential waste for transfer and disposal in accordance with the terms of the Project Use Agreements entered into with all members that are in effect into 2032.	Fiscal: Dependent on rates established following expiration of existing Glenview Transfer Station operating contract on April 30, 2015. Environmental: Provides continued liability protection through waste disposal at Agency-approved landfills. Social: None.	Ongoing	Agency: Contract for transfer and disposal service. Members: Deliver waste to designated facilities.

TABLE 6.1. 2014 PLAN UPDATE RECOMMENDATIONS

Number	Recommendation	Impact	Implementation Timeframe	Implementation Responsibility
Education / Outreach				
E.1	It is recommended that SWANCC discuss opportunities to provide targeted outreach within individual member communities, such as those portions of communities with lower residential recycling participation. To the extent that an opportunity is identified, SWANCC can work with the individual members to develop a plan to provide targeted outreach to these residential groups.	Fiscal: Potential member cost reduction with reduced landfill disposal quantities. Potential member revenue increase through Recycling Incentive Program. Potential Agency/member cost for implementation of outreach strategy. Environmental: Increased diversion of recyclables from landfill disposal. Social: Continued effort to reduce disposal quantities and increase recycling that may be consistent with member sustainability goals/plans.	1 year	Agency: Identify potential members. Develop investigation and outreach programs. Members: On an individual basis.
E.2	It is recommended that SWANCC and its members consider developing and implementing a region-wide outreach campaign to further engage residents in waste reduction strategies, including reuse, recycling, composting, and toxicity reduction.	Fiscal: Potential member cost reduction with reduced landfill disposal quantities. Potential member revenue increase through Recycling Incentive Program. Potential Agency/member cost for implementation of outreach strategy. Environmental: Increased diversion of recyclables from landfill disposal. Social: Continued effort to reduce disposal quantities and increase recycling that may be consistent with member sustainability goals/plans.	1-2 years	Agency: Develop campaign strategy and materials. Members: Promote campaign.

TABLE 6.1. 2014 PLAN UPDATE RECOMMENDATIONS

Number	Recommendation	Impact	Implementation Timeframe	Implementation Responsibility
E.3	It is recommended that SWANCC and its members consider developing and implementing a region-wide outreach campaign to further engage non-residential generators in waste reduction strategies, including reuse, recycling, composting, and toxicity reduction.	Fiscal: Potential Agency cost for implementation of outreach strategy. Environmental: Increased diversion of recyclables from landfill disposal. Social: Continued effort to reduce disposal quantities and increase recycling that may be consistent with member sustainability goals/plans.	2-3 years	Agency: Develop campaign strategy and materials. Members: Promote campaign.
E.4	It is recommended that SWANCC continue to provide its current education and outreach services for residents, community groups, and schools.	Fiscal: None, expense is included in annual Agency budget. Environmental: Promotes continued increases in waste diversion and proper management of waste and recyclable materials. Social: None.	Ongoing	Agency
E.5	It is recommended that SWANCC and its member communities continue to promote specialty recycling programs sponsored by SWANCC. Inclusion of regular articles or postings from SWANCC in community newsletters is encouraged.	Fiscal: None. Environmental: Increased diversion of materials from disposal. Social: Greater awareness of Agency programs provided through member partnerships. Resident survey indicated a need for greater awareness and community newsletters are the most common method of obtaining information.	Ongoing	Agency: Prepare promotional articles/materials. Members: Publish information in newsletters regularly.

TABLE 6.1. 2014 PLAN UPDATE RECOMMENDATIONS

Number	Recommendation	Impact	Implementation Timeframe	Implementation Responsibility
E.6	It is recommended that SWANCC continue to provide education related to backyard composting and other generator initiatives to manage organic wastes.	Fiscal: No new cost, included in annual Agency budget. Environmental: Promotes proper methods of composting at home, reducing landfill disposal quantities. Social: None.	Ongoing	Agency
Administrative / Organizational				
A.1	It is recommended that SWANCC conduct periodic resident surveys to gauge attitudes about solid waste and recycling. It is recommended that surveys be conducted twice during each five-year planning period: approximately midway through the period and during the preparation of each update.	Fiscal: Agency cost for survey firm to perform services. Environmental: None. Social: Secures resident opinions from a random sampling of the membership to gauge satisfaction with existing programs and interest in / support for proposed programs.	2-3 years, 5 years	Agency
A.2	It is recommended that SWANCC update its solid waste management plan every five years.	Fiscal: Potential Agency cost for consultant services to assist in preparing the plan update. Environmental and Social: Periodic review of programs, services, and recommendations allows Agency to anticipate and/or respond to changing conditions in solid waste management practices.	5 years	Agency
A.3	It is recommended that SWANCC annually obtain and compile data collected by individual member communities and Cook County on residential landscape waste quantities and multi-family and non-residential waste and recycling services, to the extent such data is available through licensing processes, hauler surveys, and/or franchise agreements.	Fiscal, Environmental, Social: None. Improved data collection will facilitate tracking and reporting of waste and recycling quantities and provide a basis to further refine estimates of future quantities.	Ongoing	Agency

TABLE 6.1. 2014 PLAN UPDATE RECOMMENDATIONS

Number	Recommendation	Impact	Implementation Timeframe	Implementation Responsibility
A.4	It is recommended that SWANCC continue to work in cooperation with other regional planning agencies and area counties where appropriate to evaluate and implement solid waste management programs and services.	Fiscal: Potential to reduce Agency costs to evaluate and implement programs if partnership options are identified. Environmental: None. Social: Cooperation with other planning entities may assist in building support for new programs and initiatives.	Ongoing	Agency