

2019

Solid Waste Management Plan Update For Lake County, Illinois



Plan Update Timeline

Adopted by:

Citizens Advisory Committee October 8, 2019
SWALCO Board of Directors November 14, 2019
Lake County Board December 10, 2019



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Attachments

- A Citizens Advisory Committee Members, Agendas and Attendance Sheets
- B Lake County Board Resolution Adopting the 2019 Plan Update
- C 60% Recycling Task Force Report
- D IEPA Plan Update Form



SECTION 1 INTRODUCTION

1.1 Planning Background

With the passage of the Solid Waste Planning and Recycling Act in 1988, counties were required to develop waste management plans to manage the municipal waste generated within their borders. Lake County adopted its first Solid Waste Management Plan (the “Plan”) in 1989 and has since adopted the required five-year updates in 1994, 1999, 2004, 2009, 2014 and now 2019 as represented by this document.

The Solid Waste Planning and Recycling Act allows counties to delegate the development of the solid waste management plans to a municipal joint action agency. Lake County has chosen to delegate the updating of the original 1989 Plan to the Solid Waste Agency of Lake County (SWALCO), which was formed in 1990. State law still requires Lake County to formally adopt all plan updates and amendments, even though they may be prepared by SWALCO.

From the outset of the requirement to develop a solid waste management plan Lake County has taken a regional approach to planning and implementation by working jointly with the incorporated municipalities. The 1989 Plan was prepared by the Lake County Joint Action Solid Waste Planning Agency which was formed by intergovernmental agreement and represented 31 municipalities and the County of Lake covering approximately 95% of the County’s population. That Agency eventually led to the formation of SWALCO, which became responsible for implementing the 1989 Plan and conducting future planning for all of Lake County.

The 2019 Plan Update contains new content, specifically Section 4, which contains information on developing a circular economy planning and implementation perspective in Lake County, and using greenhouse gas (GHG) modeling to better focus SWALCO’s diversion programs on materials that have greater impact on reducing GHG’s. Historically, solid waste plans have measured and reported diversion program success based on an overall recycling rate (Lake County’s current rate is 47% with an ultimate goal of 60%). With the 2019 Plan Update Lake County and SWALCO will begin to measure diversion program success using GHG reduction as a new metric. The circular economy (CE) information lays the groundwork for engaging and onboarding key stakeholders from the public and private sectors in Lake County to work together to advance a more sustainable materials management (i.e., circular economy) system in Lake County. To initiate the CE effort, SWALCO has engaged Resource Recycling Systems (RRS) to facilitate an in person workshop that will be the first step in developing strategic partnership across the waste/material value chain to help move Lake County to an even stronger circular economy for its “waste”. The CE workshop will be held in early 2020 after the Lake County Board adopts the 2019 Plan Update.

1.1.1 Scope and Applicability of the Lake County Plan

The Lake County Plan is applicable to all geographic areas of Lake County (refer to Figure 2.1 in Section 2). It is also applicable to all units of local government in Lake County regardless of their membership in SWALCO or not. The only exclusion is for units of local government, including Barrington, Buffalo Grove and Wheeling, which are members of another municipal joint action agency (SWANCC). To further clarify, if, for example, a pollution control facility was proposed



within a portion of Buffalo Grove that was within Lake County that facility would have to be consistent with the Lake County Plan not the applicable Cook County Plan.

A pollution control facility includes disposal facilities such as landfills, mass burn incinerators, alternative disposal technologies, and transfer stations that accept municipal waste. Solid waste plans have specific importance with respect to pollution control facilities that manage waste because such facilities must meet the following criterion (415 ILCS 5/39.2(a)(viii)) to be granted local siting approval (along with 8 other criteria):

If the facility is to be located in a county where the county board has adopted a solid waste management plan consistent with the planning requirements of the Local Solid Waste Disposal Act or the Solid Waste Planning and Recycling Act, the facility is consistent with that plan; for purposes of this criterion (viii), the "solid waste management plan" means the plan that is in effect as of the date the application for siting approval is filed;

Therefore, any pollution control facility proposed to be located anywhere within incorporated or unincorporated Lake County must demonstrate that it is consistent with this 2019 Plan Update in order to receive local siting approval. Recommendations and requirements applicable to pollution control facilities that may have existed in the 1989 Plan or the subsequent Plan Updates are superseded by this 2019 Plan Update.

1.1.2 Development of the 2019 Plan Update

Keeping with Lake County's tradition of preparing consensus based plan updates, a Citizens Advisory Committee (CAC) was formally appointed by the SWALCO Board of Directors on January 17, 2019. The list of the CAC members is contained in Attachment A, along with the agendas and attendance sheets from the CAC's meetings held on September 4, 2019 and September 18, 2019. At its meeting on September 18, 2019 the CAC decided it needed more revisions to the plan update before taking a final vote. Several revisions were made and a final vote was tallied via email and it was 12 members in favor and 1 member voting no (due to a disagreement with including the greenhouse gas component into the 2019 Plan Update).

Subsequent to the action taken by the CAC to approve the draft Plan Update, the SWALCO Board of Directors approved the Plan Update at its meeting on November 14, 2019. The Plan Update was then forwarded to the Lake County Board with a recommendation from SWALCO to approve it.

At the County level, the 2019 Plan Update was presented to the Lake County Public Works, Planning and Transportation Committee on November 6, 2019, and the Committee voted to recommend approval of the Plan Update to the Lake County Board. The Lake County Board approved the 2019 Plan Update on December 10, 2019 (the County Board resolution adopting the 2019 Plan Update is in Attachment B).



1.2 Organization of the 2019 Plan Update

The remainder of the 2019 Plan Update is organized as follows:

- Section 2 – Waste Generation and Management
- Section 3 – Implementation Status of the 2014 Plan Update
- Section 4 – Circular Economy and Greenhouse Gas Evaluations
- Section 5 – Recommendations for the 2020-2024 Planning Period
- Section 6 – Requirements for Pollution Control Facilities for the 2020-2024 Planning Period

Several attachments have also been included in the 2019 Plan Update:

- Attachment A – Citizens Advisory Committee Members, Agendas and Attendance Sheets
- Attachment B – Lake County Board Resolution Adopting the 2019 Plan Update
- Attachment C – 60% Recycling Task Force Report
- Attachment D – IEPA Plan Update Form



SECTION 2 WASTE GENERATION AND MANAGEMENT

2.1 Introduction

This section of the 2019 Plan Update provides updated information on demographics and waste generation and management within the SWALCO Planning area and Lake County. The Lake County Solid Waste Management Plan (the Plan) was first developed in 1989 and has subsequently been updated every 5 years (in 1994, 1999, 2004, 2009, and 2014). The 2019 Plan Update utilizes data sources similar to those used in prior studies, in order to facilitate comparison with prior plan updates. The methodology was modified for the 2014 Plan Update to be consistent with the *60% Recycling Task Force Report* completed in 2011, and this same methodology is utilized for the 2019 Plan Update. The 60% Recycling Task Force Report established disposal goals that SWALCO member communities must meet, and therefore the incorporation of the methodology utilized in that report into the Plan Update is appropriate to measure progress towards the disposal goals that have been established.

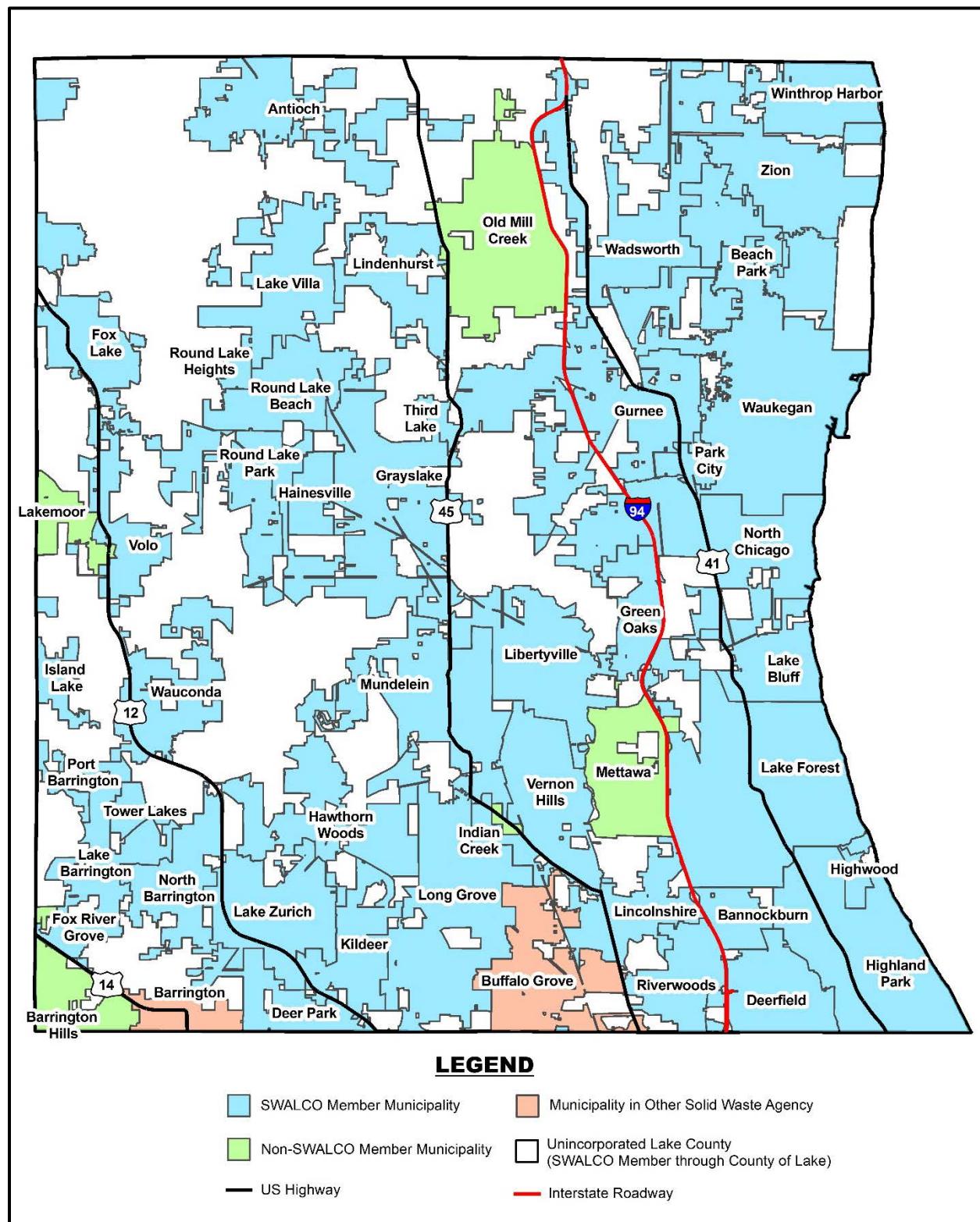
2.2 Planning Area

The Solid Waste Agency of Lake County (SWALCO) is comprised of 43 municipalities, Lake County and the Great Lakes Naval Training Center. There are six municipalities in the County that have not joined SWALCO, and three municipalities (Barrington, Buffalo Grove and Wheeling) that are members of the Solid Waste Agency of Northern Cook County (refer to Figure 2.1). These latter three municipalities lie only partially in Lake County. In addition, four of the SWALCO communities and three of the non-SWALCO communities also lie partially in other counties.

Historically, the "planning area" has consisted of the SWALCO members and non-member communities, but excluding the three municipalities that are members of SWANCC. The population within the planning area therefore tracks the County's population closely, but is somewhat lower because Barrington, Buffalo Grove and Wheeling are considered part of the SWANCC planning area. (For reference, in 2010, Barrington had 4,696 residents in the Lake County portion of its boundaries, Buffalo Grove had 27,852 residents, and Wheeling had 6 residents; combined, the Lake County portion of these communities represented about 5 percent of the County's population.)



FIGURE 2.1 LAKE COUNTY AND SWALCO PLANNING AREA



2.3 Demographics

Projections of population, households and employment for Lake County and the planning area were developed using the latest available forecasts from the Chicago Metropolitan Agency for Planning (CMAP). CMAP is the regional planning body which succeeded the Northeastern Illinois Planning Commission. Long-term forecasts developed by CMAP for 2050 are provided in Table 2.1.

TABLE 2.1 LONG-TERM DEMOGRAPHIC PROJECTIONS (2010 - 2050)

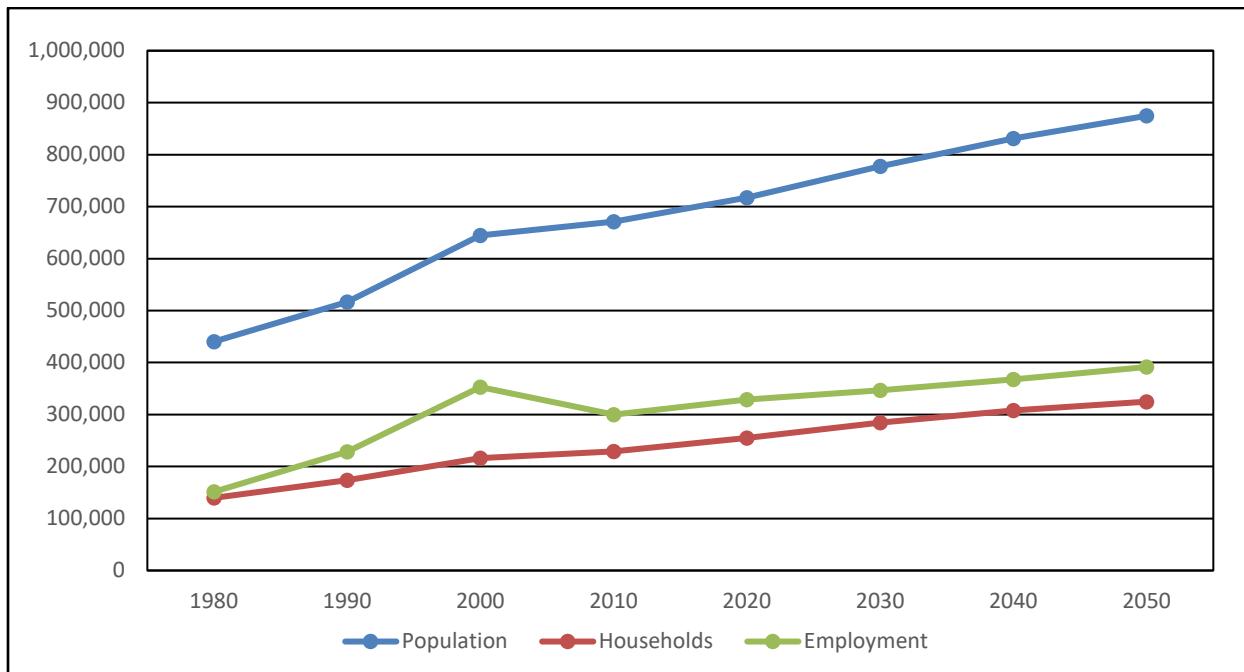
	2010	2050	Increase (Number)	Increase (%)	Annual Growth
Population					
Lake County	703,462	917,196	213,734	30.4%	0.8%
SWALCO Planning Area	670,908	874,751	203,843	30.4%	0.8%
Households					
Lake County	241,712	342,782	101,070	41.8%	0.9%
SWALCO Planning Area	229,055	324,833	95,778	41.8%	0.9%
Persons Per Household					
Lake County	2.91	2.68			
SWALCO Planning Area	2.93	2.69			
Employment					
Lake County	319,409	416,700	97,291	30.5%	0.7%
SWALCO Planning Area	300,092	391,499	91,407	30.5%	0.7%
Notes:					
1.	Source: CMAP, <i>On to 2050 Local Forecasts</i> , October 10, 2018.				
2.	2010 Population and Households are 2010 Census data. All other data (except persons per household) are CMAP estimates and projections. Persons per household calculated by dividing population by the number of households.				
3.	Projections for Lake County include only the Lake County portion of communities that lie partially in the County.				
4.	Projections for SWALCO Planning Area include only Lake County portion of communities that lie partially in the County, and exclude Barrington, Buffalo Grove and Wheeling (which are members of the Solid Waste Agency of Northern Cook County).				
5.	Population counts for the Lake County portion of communities that lie partially in the County were available in 2010 Census data, but not in 2050 CMAP data. 2050 projections for these communities were calculated by assuming that the growth rate for the Lake County portion of a community is the same as the growth rate for the entire community.				
6.	Household and employment counts for the Lake County portion of communities that lie partially in the County were not available in 2010 Census data. For those communities, households and employment were assumed to have the same proportion within Lake County as population.				



Population, households, and employment in Lake County are projected to grow by about 0.7 - 0.9 percent annually between 2010 and 2050. CMAP projects a faster rate of growth (on a percentage basis) in Kane, Kendall, McHenry and Will Counties, and a slower rate of growth in Cook and DuPage Counties, consistent with growth rates projected in the 2014 Plan Update.

Future growth in Lake County will be more moderate than the faster rates of growth experienced in the 1980 - 2000 period (refer to Figure 2.2). During that period, population grew by 1.9 percent annually, households by 2.2 percent annually, and employment by 4.3 percent annually.

FIGURE 2.2 DEMOGRAPHIC TRENDS IN LAKE COUNTY



Near-term forecasts for 2018 and the current five-year Plan Update period (2019 - 2024) based on linear interpolation between CMAP's five-year projections from 2015 to 2025 (the same data source as used for the 2050 forecast in Table 2.1) are provided in Table 2.2. These near-term forecasts are provided for the use of SWALCO staff, as well as estimating waste quantities during the five-year period. It is important to note, however, that CMAP prepares periodic estimates of population based on a range of data sources; the most recent release of these estimates¹ indicates Lake County's population has been generally flat since the 2010 Census, with an estimated population of 704,476 in 2017. Five-year CMAP projections have not been revised to reflect this flattening in population growth, and therefore Table 2.2 indicates a notably higher population than may be present in Lake County currently and through the planning period.

¹ CMAP, *Community Data Snapshot: Lake County*, June 2019 release.



TABLE 2.2 NEAR-TERM DEMOGRAPHIC PROJECTIONS (2018-2024)							
	2018	2019	2020	2021	2022	2023	2024
Population							
Lake County	732,889	742,549	752,208	758,929	765,651	772,372	779,094
SWALCO Planning Area	698,974	708,186	717,398	723,808	730,219	736,629	743,040
Households							
Lake County	261,380	265,266	269,152	272,395	275,639	278,882	282,126
SWALCO Planning Area	247,693	251,375	255,058	258,132	261,205	264,279	267,353
Persons Per Household							
Lake County	2.80	2.80	2.79	2.79	2.78	2.77	2.76
SWALCO Planning Area	2.82	2.82	2.81	2.80	2.80	2.79	2.78
Employment							
Lake County	345,436	347,881	350,327	351,959	353,592	355,224	356,857
SWALCO Planning Area	324,545	326,842	329,140	330,674	332,208	333,741	335,275
Notes:							
1. Near-term forecasts based on linear interpolation of CMAP projections for 2015, 2020, and 2025.							

2.4 Waste Generation

This section presents updated waste generation information for the SWALCO planning area. The Solid Waste Management Plan (1989) utilized a number of sources to estimate waste generation rates (i.e., pounds per person per day, pounds per employee per day), including surveys of landfills, surveys of municipalities, and published studies. Subsequent Plan Updates (1994, 1999, and 2004) modified the initial estimates by applying adjustment factors based on national-level estimates of waste generation. A comprehensive review of waste generation in Lake County was performed for the development of the 2009 Plan Update for the first time since the original Plan was prepared, again utilizing several sources including hauler and municipal surveys and published studies.

Following completion of the 2009 Plan Update, Lake County convened a task force to investigate options for increasing recycling in the County to a target rate of 60%. The task force further evaluated and quantified waste disposal from the County utilizing data reported by haulers and municipalities, similar to the approach used in the 2009 Plan Update. However, where the 2009 Plan Update had utilized additional regional disposal data to develop disposal rates, the methodology used in the *60% Recycling Task Force Report* relied solely on locally-reported data. Disposal rates in the 2014 Plan Update were developed applying a methodology consistent with Lake County's *60% Recycling Task Force Report*, and this method (as further described in this section) has been retained for the 2019 Plan Update. The following subsections detail the disposal rate calculation and identify overall waste generation rates in Lake County.



2.4.1 Disposal Rate Calculation

Following adoption of the 2009 Plan Update, SWALCO convened a task force to evaluate methods by which SWALCO and Lake County could achieve a 60% recycling rate by 2020. The *60% Recycling Task Force Report*, produced by the task force (refer to Attachment D of this Plan Update), utilized an alternative method to calculate disposal rates in Lake County as compared to the method utilized in the 2009 Plan Update. The method used in the *60% Recycling Task Force Report* was used in the 2014 Plan Update and has continued to be the method utilized to measure waste disposal in Lake County to monitor progress towards the goals established in the *60% Recycling Task Force Report*.

Annual waste disposal rates for 2014-2018 are presented in Table 2.3. The following data sources have been used to develop annual waste disposal rates:

1. Hauler data reported by residential franchises (Source "A" in Table 2.3), used to calculate residential disposal rates.
2. Landfill reported data (Source "B" in Table 2.3), used to calculate combined commercial/C&D debris disposal rates. SWALCO receives annual reports of Lake County waste disposed at the two in-County landfills, and in preparation of this Plan Update surveyed area transfer stations and licensed waste haulers to estimate the quantity of waste exported from Lake County. Based on these surveys, it is estimated that approximately 33% of the municipal waste disposed from Lake County is delivered to transfer stations either within or outside of Lake County and subsequently disposed at regional landfills outside of Lake County. This is an increase over the estimated export of 12.7% in the 2014 Plan Update due to the development of the Groot Lake Transfer Station in Round Lake Park, which began operating in 2016. Approximately two-thirds of the 33% of waste currently exported from the County for disposal comes from the Groot Lake Transfer Station. Prior to transfer station development, the majority of this tonnage was historically disposed at the Countryside Landfill. The residential franchise disposal rate (calculated from Source "A") is subtracted from the landfill reported disposal rate to calculate the combined commercial/C&D debris disposal rate. Residue tonnages (Source "C") are also added to the residential and commercial/C&D disposal rates proportional to their collected tonnage.
3. Calculated residue tonnages (Source "C" in Table 2.3), reflecting residue from the collected residential, commercial, and C&D debris recycling streams that is removed during processing and ultimately disposed. This tonnage is calculated in Table 2.6 and described further in Section 2.4.2. This is a new calculation that was not included in the *60% Recycling Task Force Report* or the 2014 Plan Update.
4. Hauler data reported under the Lake County solid waste ordinance (Source "D" in Table 2.3), used as a check against the landfill reported data. This data is not used in the calculation of Lake County disposal rates, but represents an additional source of information that is generally consistent with the other data sources relied upon.
5. Annual Lake County population based on interpolation of 2010 U.S. Census population and CMAP's 2017 population estimate for Lake County; as discussed in Section 2.3, longer-term forecasts from CMAP have projected greater growth than has been realized



in Lake County since the 2010 Census. The lower, current estimates are utilized for calculation of current disposal rates.

Following completion of the *60% Recycling Task Force Report*, in 2010 the residential disposal rate was 1.85 pounds per capita per day (pcd) and the commercial/C&D disposal rate was 2.50 pcd, for a total disposal rate of 4.35 pcd. As shown in Table 2.3, though disposal rates have fluctuated during the 2014-2018 period, increases over 2010 rates have been observed in the disposal rate in both the residential and commercial/C&D debris sectors. This is due in part to the adjustment to the calculation method to account for recycling stream residues.

TABLE 2.3 SWALCO WASTE DISPOSAL DATA (2014 - 2018)					
Data Source	2014	2015	2016	2017	2018
Tonnage Data					
A. Hauler Reported per Residential Franchise Contracts	195,050	189,282	193,179	203,996	196,525
B. Landfill Reported	595,813	586,612	547,578	588,387	584,194
1. WMI Countryside Landfill	284,433	291,929	175,900	173,872	161,292
2. ADS Zion Landfill	228,562	213,144	198,744	210,767	229,832
3. Exported to Out-of-County Landfills	82,818	81,539	172,934	203,748	193,070
C. Recycling Residue	68,094	64,380	62,646	63,640	64,999
D. Hauler Reported per County Ordinance	569,347	579,362	563,899	573,625	598,184
Disposal Rate Calculations					
Lake County Population	704,041	704,186	704,331	704,476	704,621
Residential Franchise Population	536,728	540,850	524,408	535,591	531,006
Residential Disposal Rate	2.09	2.02	2.11	2.19	2.12
Commercial/C&D Debris Disposal Rate	3.08	3.05	2.64	2.88	2.93
Total MSW Disposal Rate	5.17	5.07	4.75	5.07	5.05

The *60% Recycling Task Force Report* established goal disposal rates for the residential and commercial/C&D debris sectors. Goals were set for 2015 and 2020, utilizing 2010 rates as the base year for calculation purposes. Lake County's 2010 waste generation rate (disposal + recycling + composting) was calculated to be 8.76 pcd. If a diversion goal of 60% is achieved, then 40% of the waste generated will still require disposal. Therefore, a base year generation rate of 8.76 pcd and disposal of 40% of that amount equates to a goal disposal rate of 3.50 pcd:

$$8.76 \text{ pcd generated} \times 40\% \text{ disposed} = 3.50 \text{ pcd disposed}$$



Given that the 2010 disposal rate calculated in the *60% Recycling Task Force Report* was 4.77 pcd, a reduction factor of 0.73 (3.50 pcd / 4.77 pcd = 0.73) was applied to 2010 disposal rates to calculate 2020 goal disposal rates:

Residential	$0.73 \times 1.85 \text{ pcd} = 1.35 \text{ pcd goal (2020)}$
Commercial/C&D	$0.73 \times 2.92 \text{ pcd} = 2.13 \text{ pcd goal (2020)}$

2015 goal disposal rates were set as the midway point between 2010 and 2020 rates. Table 2.4 summarizes the goal disposal rates for the residential and commercial/C&D debris sectors for 2015 and 2020, as calculated in the *60% Recycling Task Force Report*.

TABLE 2.4 DISPOSAL RATE GOALS			
Disposal Sector	2010 (Base Year)	2015	2020
Residential	1.85	1.60	1.35
Commercial/C&D Debris	2.92	2.52	2.13
Total	4.77	4.12	3.48

Data in Table 2.3 indicates the 2015 commercial/C&D debris goal disposal rate has not been met; however, the goal disposal rate was calculated without any adjustment to account for residues in the recycling stream. As shown in Table 2.5 below, based on 2018 residential waste collection data provided by the haulers, 8 of SWALCO's member communities are either meeting the 2015 residential goal of 1.60 pcd or the 2020 residential goal of 1.35 pcd².

TABLE 2.5 SWALCO MEMBER COMMUNITY PROGRESS TOWARDS GOAL DISPOSAL RATE					
SWALCO Member	2014	2015	2016	2017	2018
Antioch	1.32	1.33	1.93	1.95	1.99
Bannockburn	3.88	1.48	2.73	1.96	1.71
Beach Park	1.41	1.84	2.09	1.86	1.97
Deer Park	2.21	2.22	2.14	2.25	2.16
Deerfield*	1.87	1.83	1.85	1.45	1.56
Fox Lake	1.03	1.10	2.21	2.25	1.96
Grayslake	1.38	1.28	1.85	2.04	1.91
Green Oaks*	2.14	1.77	1.81	1.71	1.53
Gurnee	1.30	1.21	1.85	2.04	1.90
Hainesville	2.03	2.10	2.40	2.15	2.30
Hawthorn Woods	2.38	2.36	2.30	1.81	1.84
Highland Park*	1.44	1.63	1.61	1.70	1.58
Highwood**	2.11	2.39	3.05	1.01	0.88
Island Lake	1.47	1.45	1.50	1.59	1.80
Kildeer	2.01	1.90	2.14	1.29	1.84
Lake Barrington	1.60	1.46	2.39	2.28	2.37
Lake Bluff*	1.57	1.53	1.58	1.61	1.56

² Rates in Table 2.5 are not adjusted for residue.



TABLE 2.5 SWALCO MEMBER COMMUNITY PROGRESS TOWARDS GOAL DISPOSAL RATE

SWALCO Member	2014	2015	2016	2017	2018
Lake County	2.43	2.37	2.13	2.01	1.98
Lake Forest	2.09	2.13	2.21	2.28	2.25
Lake Villa	0.87	0.82	1.69	1.64	1.73
Lake Zurich	1.83	1.83	1.88	1.54	1.93
Libertyville	1.82	1.57	1.75	1.95	1.74
Lincolnshire	2.79	2.72	2.92	3.04	2.82
Lindenhurst	1.87	1.89	2.01	2.08	2.01
Long Grove	2.29	2.27	2.23	1.85	1.82
Mundelein	1.72	1.79	1.88	2.00	1.90
North Barrington	2.71	2.17	1.93	2.18	1.89
North Chicago	2.27	2.18	2.67	2.69	2.69
Park City	2.25	2.04	2.15	1.94	2.65
Port Barrington*	1.85	1.94	2.64	1.75	1.55
Riverwoods	2.22	1.72	1.56	2.01	1.75
Round Lake*	1.65	1.48	1.53	1.65	1.60
Round Lake Beach*	1.55	1.40	1.47	1.55	1.55
Round Lake Heights	3.49	3.26	5.15	2.99	2.94
Round Lake Park	1.05	1.05	1.02	1.58	1.76
Third Lake	2.18	2.14	1.73	2.09	1.80
Tower Lakes	1.69	1.46	1.72	1.60	1.81
Vernon Hills	1.58	1.57	1.64	1.70	1.61
Wadsworth	1.98	2.03	2.20	2.47	2.80
Wauconda	2.07	1.79	1.85	1.80	1.90
Waukegan	1.96	1.77	1.91	1.94	1.89
Winthrop Harbor	1.92	2.00	2.20	2.30	2.25
Zion	2.41	2.16	2.18	2.19	2.06
Average PCD Disposal Rate	1.95	1.83	2.09	1.96	1.96
Total Tons of Waste Generated	177,634	177,396	188,071	191,752	186,865
Total Number of Households	182,095	184,549	184,306	189,926	188,300
Total Calculated Population	536,728	540,850	524,408	535,591	531,006

Notes:

1. * denotes communities meeting the 2015 residential goal disposal rate.

2. ** denotes communities meeting the 2020 residential goal disposal rate.

2.4.2 Recycling and Composting Quantities

SWALCO compiles data on recycling and composting activity from Lake County annually. Data is reported through the County's hauler licensing ordinance as well as surveys conducted by SWALCO. Table 2.6 summarizes recycling and composting quantities for the past 5 years.

Adjustments to recycling quantities are also shown in Table 2.6 based on reported or estimated residue rates. Residue consists of materials collected for recycling which are not recovered during processing and which are ultimately disposed. Residue rates applied in Table 2.6 include:



- Residential and commercial recycling stream = 14.54%, based on SWALCO recycling stream composition data at the WMRA MRF in Grayslake.
- Construction and demolition debris recycling stream = 25%, based on regulatory recycling thresholds for C&D recycling facilities
- Landscape waste composting stream residue rates are not adjusted due to a lack of data on residues from composting facilities; residue rates at compost facilities are expected to be less than at recycling facilities, with anecdotal information indicating residue rates around 5%. This adjustment will be made in the future if residue rates are obtained from the composting facilities.

TABLE 2.6 LAKE COUNTY RECYCLING AND COMPOSTING DATA (2014 - 2018)					
	2014	2015	2016	2017	2018
Residential Recycling (tons)	67,637	67,793	60,300	65,888	60,345
Commercial Recycling (tons)	245,296	221,065	197,358	192,328	198,889
Residential / Commercial Recycling Residue (tons)	(45,500)	(42,000)	(37,463)	(37,545)	(37,693)
C&D Debris Recycling (tons)	90,376	89,519	100,731	104,383	109,227
C&D Debris Recycling Residue (tons)	(22,594)	(22,380)	(25,183)	(26,096)	(27,307)
Landscape Waste Composting (tons)	93,669	111,864	114,062	107,774	111,065
Municipal Waste Diversion (tons)	428,884	425,861	409,805	406,733	414,527
Municipal Waste Diversion (%)	39%	40%	40%	38%	39%

2.4.3 Summary Waste Generation

Municipal solid waste generation tonnages and per capita rates for 2014 - 2018 are summarized in Table 2.7, based on the disposal and recycling/composting data presented previously.

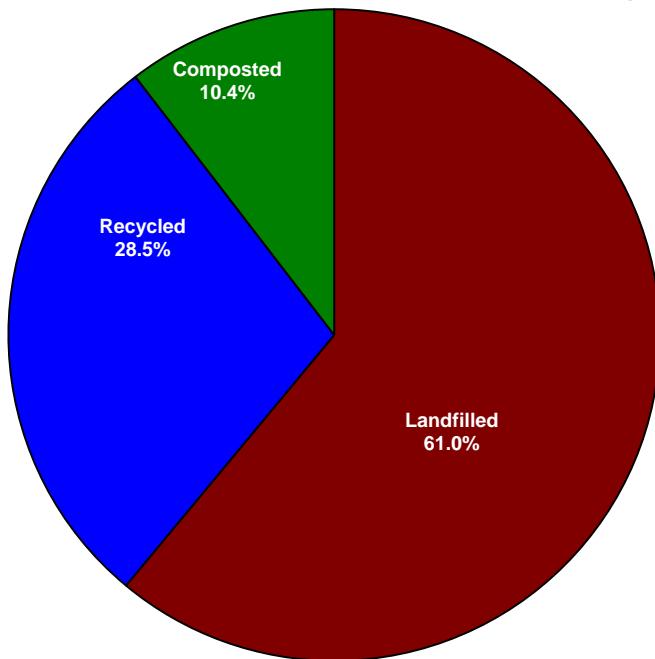
TABLE 2.7 LAKE COUNTY WASTE GENERATION (2014 - 2018)					
	2014	2015	2016	2017	2018
Waste Generation Tonnage					
Residential	262,687	257,075	253,479	269,884	256,870
Commercial/C&D Debris	736,435	707,914	652,488	681,102	695,785
Landscape	93,669	111,864	114,062	107,774	111,065
Total MSW Generation (tons)	1,092,791	1,076,853	1,020,029	1,058,760	1,063,720
Waste Generation Per Capita					
Residential	2.68	2.60	2.65	2.76	2.65
Commercial/C&D Debris	5.73	5.51	5.08	5.30	5.41
Landscape	0.73	0.87	0.89	0.84	0.86
Total MSW Generation Rate (pcd)	9.14	8.98	8.62	8.90	8.92

Based on the preceding information, Lake County is estimated to have diverted 39% of the waste generated in the County from disposal in 2018. The remaining 61% of waste was landfilled (see



Figure 2.3). More information on waste management methods and the facilities utilized is provided in Section 2.5 of this Plan Update.

FIGURE 2.3 WASTE MANAGEMENT METHODS (2018)



2.5 Waste Management Methods

2.5.1 Current Waste System

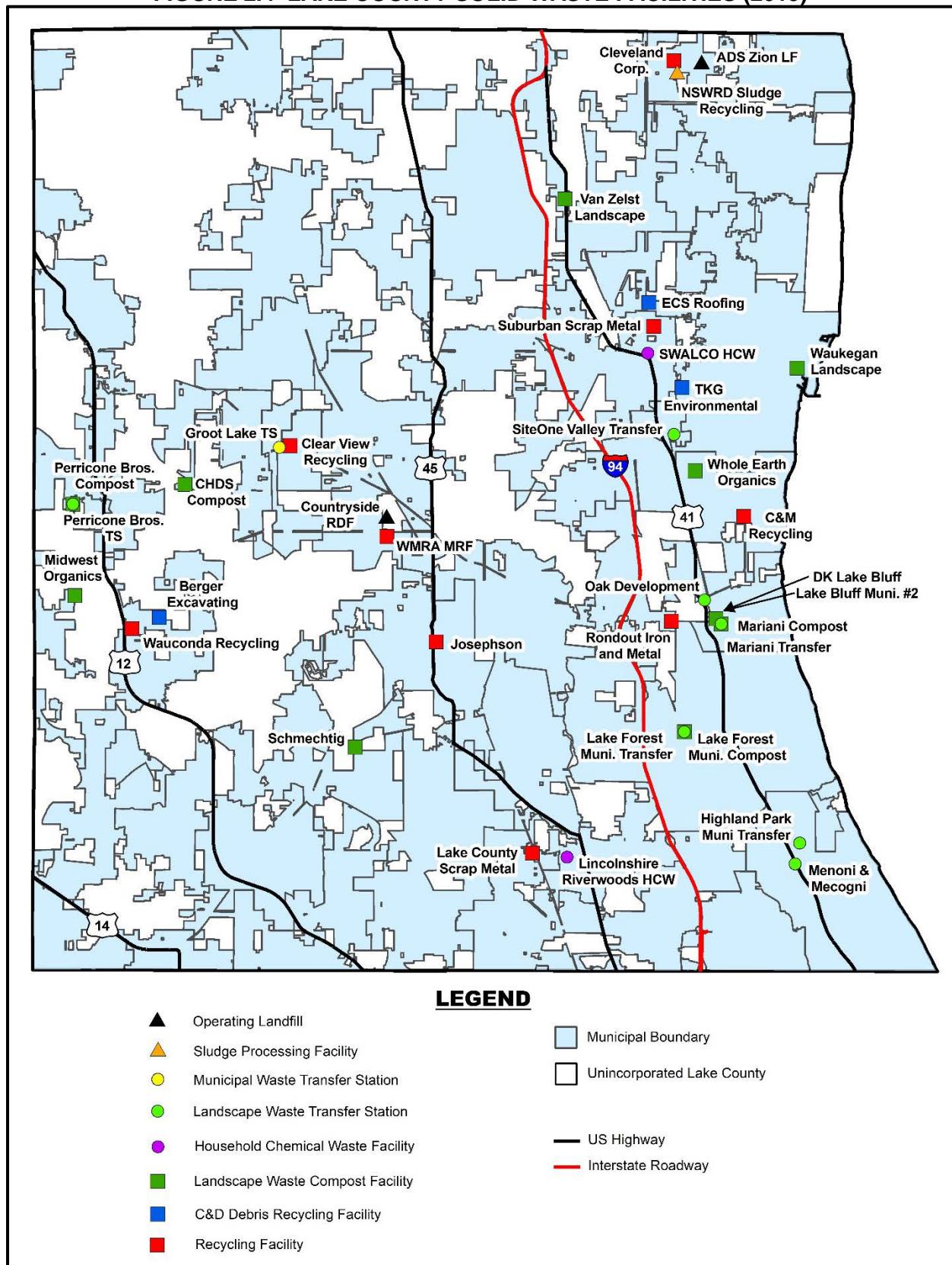
Lake County and SWALCO communities rely on a number of facilities to manage their waste (refer to Figure 2.4). The SWALCO annual recycling survey for 2018 indicated that 9 scrap yard facilities located in the County recycled approximately 117,000 tons of material. Three brokers and two large retailers accounted for an additional 30,000 tons of recyclables -- these materials were likely direct shipped to end user markets. Four construction/demolition debris processors, including only one located in Lake County, received C&D debris from the County, including C&D Recycling (now Lakeshore Recycling Systems) in Northbrook, K. Hoving (now Lakeshore Recycling Systems) in West Chicago, MBL Recycling in Palatine, and TKG Environmental in Waukegan³.

Unlike landfills and compost facilities, recycling facilities typically do not report the amount of material handled or capacity information to the IEPA or other government authorities. As a result, the survey data SWALCO receives from haulers is a necessary source of information to identify recycling outlets and quantities.

³ The Groot C&D Recycling Facility was proposed to be developed adjacent to the Groot Round Lake Park Transfer Station. Though the facility received an IEPA development permit in 2014, it has not been constructed, and it is not anticipated to be developed as of the writing of this Plan Update.



FIGURE 2.4 LAKE COUNTY SOLID WASTE FACILITIES (2019)



The SWALCO recycling survey estimated that 111,065 tons of landscape waste and food scrap was composted in 2018 at 15 active sites. Of this amount, an estimated 2,077 tons was food scrap, delivered to either Midwest Organics or Harbor View for composting. Information on these facilities is summarized in Table 2.8.

TABLE 2.8 LANDSCAPE WASTE AND FOOD SCRAP COMPOST FACILITY INFORMATION

Facility	Tons Received (2018)	
	Lake County	Total
DK Lake Bluff (Note 1)	623	623
Harbor View (Organix) (Note 2)	3,182	3,182
Joyce Farms	362	18,085
Lake Bluff Municipal #2 (Note 1)	143	143
Lake Forest (Note 1)	2,851	2,851
Mariani Landscape Design (Note 3)	444	493
Midwest Organics (Note 2)	16,655	18,506
Perricone Bros.	2,391	2,657
Quarry Compost	1,782	17,818
Schmechtig Landscape Co. (Note 3)	202	224
Thelen Sand & Gravel	69,813	93,084
Van Zelst Landscape Dev. (Note 3)	710	789
Waukegan (Note 1)	2,914	2,914
Whole Earth Organics	8,850	8,850
Willow Ranch	143	14,315
Total	111,065	184,534

Notes:

1. DK Lake Bluff, Lake Bluff Municipal, Lake Forest, and Waukegan accept landscape wastes generated in their own municipalities only.
2. Harbor View and Midwest Organics also accept food waste from Lake County; quantities of food waste are included in the reported tons received.
3. Mariani, Schmechtig, and Van Zelst do not accept landscape waste from outside/third party sources.

SWALCO has disposal capacity agreements with six landfills: Countryside Landfill, ADS Zion Landfill, Pheasant Run RDF, Livingston Landfill, Lee County Landfill, and Newton County Landfill. Capacity and throughput information on the two facilities in Lake County is provided in Table 2.9.



TABLE 2.9 LANDFILL CAPACITY INFORMATION					
Facility	Capacity (01/01/19)		Throughput (2018)		Remaining Life (Years)
	Gate Cu. Yds.	Tons	Gate Cu. Yds.	Tons	
Countryside	7,874,828	2,386,312	1,212,967	459,039	6
ADS Zion	21,489,667	6,512,020	2,442,921	786,984	9

Notes:

1. Source: IEPA Capacity Certification forms.
2. Capacities reported to IEPA in gate cubic yards and converted to tons using IEPA conversion factor of 3.3 gate cubic yards per ton.
3. Throughputs reported to IEPA in both gate cubic yards and tons.
4. Remaining life calculated based on reported gate cubic yards of capacity and gate cubic yards of throughput.

Current waste, recycling and composting tipping fees are provided below. The tipping fees are the “gate rate” in effect as of the fall 2019 but are not the rates all users pay depending on separate contract rates they may have in effect with the waste management sites.

- Landfill rates per ton: Countryside Landfill - \$92.36 per ton; Zion Landfill - \$90 per ton
- Municipal waste transfer station rates per ton: Round Lake Park TS - \$75 per ton; Wheeling TS - \$116 per ton with 1.5 ton minimum; Northbrook TS - \$137 per ton with 0.5 ton minimum; Crystal Lake TS - \$110 per ton; and SWANCC TS - \$75.20 per ton with 0.25 ton minimum
- C & D transfer station rates per ton: Northbrook facility - \$77 per ton
- Recycling rates per ton: Grayslake Material Recovery Facility - \$65.20 per ton for mixed residential recyclables, \$59.62 per ton for commercial recyclables, and \$23.95 for cardboard
- Composting rates per cubic yard: Midwest Organics Recycling - \$20 per cubic yard for grass and leaves and \$11 per cubic yard for food scraps; Thelen Sand and Gravel - \$15 per cubic yard for brush and \$13 per cubic yard for grass

2.5.2 Waste Management Strategies to Reach 60% Recycling

The *60% Recycling Task Force Report* identified several recommendations to be implemented by member communities to achieve the disposal rate goals presented in Table 2.4 by 2015 and 2020. The original intent of the *60% Recycling Task Force Report* was if these goals were not met, municipalities not reaching the goals would be required to enact certain mandatory ordinances. The recycling recommendations in Section 5 of this Plan Update address the new timeline for meeting the 60% goal, which has been extended from 2020 to 2030.

Table 2.10 below provides a brief summary of the recommendations implemented by member communities to date (refer to Attachment C for all of the recommendations contained in the *60% Recycling Task Force Report* and to SWALCO’s website for the most recent community implementation status at www.swalco.org/196/Status-of-SWALCO-Member-Implementation).



**TABLE 2.10 SWALCO MEMBER IMPLEMENTATION STATUS THROUGH 2018:
60% RECYCLING TASK FORCE REPORT RECOMMENDATIONS**

SWALCO Member	Municipal Franchise	Recycling Carts	Cart Upgrade Option	Volume Based (PAYT) Option	Multi-Family Ordinance or Franchise	Commercial Franchise	Construction & Demolition Debris Ordinance	E-Scrap Collections	Hosts Textile Collections	Pharmaceuticals Collection	Co-Collection of Food Scrap with Yard Waste
Antioch	X	X	X	X				X	X	X	
Bannockburn	X	X	X	X		X		X	X		X
Beach Park	X	X	X	X				X			
Deer Park	X	X	X	X				X			X
Deerfield	X	X			X	X	X			X	
Fox Lake	X	X			X				X	X	X
Grayslake	X	X	X	X	X	X	X	X	X	X	X
Green Oaks	X	X		X				X			
Gurnee	X	X	X	X	X	X			X		X
Hainesville	X	X	X	X				X	X		
Hawthorn Woods	X	X	X	X						X	X
Highland Park	X	X	X	X	X	X	X	X	X	X	X
Highwood	X	X	X	X	X	X		X	X		X
Island Lake	X	X									X
Kildeer	X	X	X	X	Study					X	X
Lake Barrington	X	X	X					X	X		X
Lake Bluff	X	X	X	X	X	Study	X	X	X	X	X
Lake Forest	Municipal	X						X	X	X	
Lake Villa	X	X	X	X							
Lake Zurich	X	X	X	X	Study				X	X	
Libertyville	X	X		X	X			X	X	X	
Lincolnshire	X	X	X	X							X
Lindenhurst	X	X		X	Study				X	X	
Long Grove	X	X	X	X							
Mundelein	X	X	X	X	X			X	X	X	X
Navy (Forest City Housing)	X	X			X						
North Barrington	X	X		X						X	X
North Chicago	X	X	X					X			
Park City	X	X		X				X			
Port Barrington	X	X	X					X			X
Riverwoods	X	X	X	X		X	X				X
Round Lake	X	X		X					X	X	
Round Lake Beach	X	X	X	X	Study	X	X	X	X	X	X
Round Lake Heights	X	X		X							X
Round Lake Park	X	X		X				X	X	X	
Third Lake	X	X			Study						X
Tower Lakes	X	X									X
Vernon Hills	X	X		X	X			X	X	X	
Volo	X	X		X	Study			X	X		X
Wadsworth	Licensed	X							X		
Wauconda	X	X						X	X	X	



**TABLE 2.10 SWALCO MEMBER IMPLEMENTATION STATUS THROUGH 2018:
60% RECYCLING TASK FORCE REPORT RECOMMENDATIONS**

SWALCO Member	Municipal Franchise	Recycling Carts	Cart Upgrade Option	Volume Based (PAYT) Option	Multi-Family Ordinance or Franchise	Commercial Franchise	Construction & Demolition Debris Ordinance	E-Scrap Collections	Hosts Textile Collections	Pharmaceuticals Collection	Co-Collection of Food Scrap with Yard Waste
Waukegan	X	X		X				X	X	X	
Winthrop Harbor	X	X		X				X		X	
Zion	X	X	X				X	X	X	X	
Lake County	Subscription	X		X			X	X	X	X	

Notes:

1. "X" denotes that the option/service is provided in the member community.
2. Under Commercial Franchise, "Study" denotes that the community has implemented an ordinance to complete the 3-year study required by 65 ILCS 5/11-19-1 prior to implementing a commercial franchise.

A summary of 2018 waste disposal and diversion performance in SWALCO member communities is provided in Table 2.11 below. Diversion in Lake County (including recycling and yard waste/food waste for composting) shows variation from community to community, ranging from approximately 15% to 48%. On a household basis, residential recycling ranges from 282 pounds per household per year to 1,263 pounds per household per year.

TABLE 2.11 2018 RESIDENTIAL WASTE DATA

	Homes Served	Recycling (tons)	Yard Waste (Note 1) (tons)	Disposed (tons)	Generated (tons)	Diversion (%)	Avg. Lbs/Home/Year Recycled
Antioch	4,279	1,425	809	4,412	6,646	33.6%	666
Bannockburn*	216	125	1	182	307	40.9%	1,156
Beach Park	4,450	627	248	4,666	5,542	15.8%	282
Deerfield	982	379	234	1,167	1,780	34.4%	772
Deer Park*	5,767	2,276	287	5,467	8,030	31.9%	789
Fox Lake*	3,912	1,154	553	3,753	5,460	31.3%	590
Grayslake*	6,674	2,056	1,147	6,318	9,521	33.6%	616
Green Oaks	1,135	717	191	988	1,895	47.9%	1,263
Gurnee*	9,250	2,669	1,571	8,678	12,918	32.8%	577
Hainesville	943	358	104	1,126	1,588	29.1%	759
Hawthorn Woods*	2,690	1,117	421	2,823	4,361	35.3%	830
Highland Park*	9,383	4,093	772	6,949	11,815	41.2%	873
Highwood*	2,291	506	204	965	1,675	42.4%	442
Island Lake*	3,071	981	606	2,555	4,141	38.3%	639
Kildeer*	1,313	569	87	1,369	2,026	32.4%	867
Lake Barrington*	2,140	616	292	2,002	2,910	31.2%	575
Lake Bluff*	2,120	716	482	1,716	2,913	41.1%	675
Lake Forest	6,462	2,941	1,203	6,989	11,132	37.2%	910



TABLE 2.11 2018 RESIDENTIAL WASTE DATA

	Homes Served	Recycling (tons)	Yard Waste (Note 1) (tons)	Disposed (tons)	Generated (tons)	Diversion (%)	Avg. Lbs/Home/Year Recycled
Lake Villa	2,193	641	307	2,083	3,030	31.3%	584
Lake Zurich	7,383	2,362	1,235	6,248	9,846	36.5%	640
Libertyville	5,731	2,089	1,011	4,840	7,939	39.0%	729
Lincolnshire	1,637	835	107	2,031	2,973	31.7%	1,020
Lindenhurst	4,718	1,475	543	4,871	6,889	29.3%	625
Long Grove	2,503	1,044	271	2,658	3,973	33.1%	835
Mundelein*	8,809	3,060	1,931	8,877	13,869	36.0%	695
Navy Housing	1,008	467	0	795	1,262	37.0%	927
North Barrington*	1,110	481	205	1,044	1,730	39.7%	867
North Chicago	2,886	515	282	4,526	5,323	15.0%	357
Park City	305	142	63	473	678	30.1%	929
Port Barrington*	523	169	146	409	725	43.5%	648
Riverwoods*	1,232	472	36	1,096	1,604	31.7%	766
Round Lake	5,093	1,487	712	4,835	7,035	31.3%	584
Round Lake Beach	7,605	2,212	1,059	7,193	10,465	31.3%	582
Round Lake Heights	420	183	108	842	1,133	25.7%	871
Round Lake Park*	2,910	738	71	2,360	3,170	25.5%	507
Third Lake	409	115	55	375	546	31.2%	564
Tower Lakes*	432	167	137	415	719	42.3%	774
Vernon Hills	7,568	2,463	449	5,864	8,776	33.2%	651
Volo*	1,297	571	113	1,925	2,608	26.2%	880
Wadsworth	1148	471	0	1,298	1,769	26.6%	821
Wauconda	3,394	981	466	3,190	4,637	31.2%	578
Waukegan	18,452	5,439	817	22,244	28,501	22.0%	590
Winthrop Harbor	1,806	556	655	1,769	2,979	40.6%	615
Zion	6,614	1,103	408	8,847	10,359	14.6%	334
Ela Township	1,385	503	201	1552	2,256	31.2%	727
Lake Villa Township	2,436	712	341	2314	3,367	31.3%	584
Warren Township	5,486	1,597	930	5192	7,719	32.7%	582
Unincorporated Areas	13,940	3,895	697	14,574	19,166	24.0%	559
Total	187,511	60,270	22,566	186,869	269,705	30.7%	643

Notes:

1. * denotes communities where food scraps are co-collected with yard waste and included in yard waste tons in this table.

2.5.3 Commercial Waste Franchises

A total of 7 SWALCO member communities have implemented commercial franchises. Under the commercial franchise agreements, non-residential properties within the community are provided waste and recycling collection service by a single hauler. All commercial franchise contracts provide a base level of recycling service at no added cost, increasing business access to recycling. Of the 7 SWALCO members with commercial franchise agreements, only 2 were effective at the start of 2014 (Highland Park and Highwood); the remainder commenced collection



services between 2015 and 2017. Annual collection information for these communities is provided in Table 2.12.

TABLE 2.12 COMMERCIAL WASTE FRANCHISE DATA (2014-2018)						
Community	Material	2014	2015	2016	2017	2018
Bannockburn	Waste (tons)	NA	392	1,555	1,706	1,496
	Recycling (tons)	NA	47	213	227	201
	Recycling Rate	NA	10.6%	12.1%	11.7%	11.8%
	Participation Rate	NA	83.3%	76.5%	90.0%	92.2%
Deerfield	Waste (tons)	NA	NA	5,696	6,405	5,825
	Recycling (tons)	NA	NA	886	904	1,005
	Recycling Rate	NA	12.3%	13.5%	12.4%	14.7%
	Participation Rate	NA	54.0%	49.8%	54.5%	54.9%
Grayslake	Waste (tons)	NA	NA	4,189	4,371	4,494
	Recycling (tons)	NA	NA	484	495	507
	Recycling Rate	NA	9.3%	10.4%	10.2%	10.1%
	Participation Rate	NA	47.6%	48.0%	48.3%	47.7%
Gurnee	Waste (tons)	NA	NA	12,676	12,109	11,294
	Recycling (tons)	NA	NA	1,721	1,703	1,847
	Recycling Rate	NA	15.0%	12.0%	12.3%	14.1%
	Participation Rate	NA	38.0%	38.4%	42.8%	46.4%
Highland Park	Waste (tons)	7,629	7,268	8,829	9,492	8,545
	Recycling (tons)	1,424	1,261	1,720	1,758	1,607
	Recycling Rate	15.7%	14.8%	16.3%	15.6%	15.8%
	Participation Rate	70.0%	71.0%	76.9%	75.4%	76.3%
Highwood	Waste (tons)	NA	NA	2,132	1,924	1,676
	Recycling (tons)	NA	NA	97	109	110
	Recycling Rate	NA	NA	4.4%	5.4%	6.2%
	Participation Rate	NA	NA	47.9%	50.5%	52.2%
Libertyville	Waste (tons)	NA	NA	NA	13,113	12,800
	Recycling (tons)	NA	NA	NA	1,249	1,335
	Recycling Rate	NA	8.3%	8.6%	8.7%	9.4%
	Participation Rate	NA	36.5%	37.1%	38.3%	40.5%

Notes:

1. Participation Rate represents the percentage of commercial waste franchise accounts participating in recycling.
2. Bannockburn's commercial waste franchise was implemented October 2015; 2015 data therefore represents a partial year.
3. Highwood's commercial waste franchise was in place prior to 2016, but data is not available for 2014 or 2015.

Illinois state law requires that a community seeking to establish a commercial waste franchise for the first time complete a series of advance steps and meet certain conditions prior to implementation. An initial step is to complete a 3-year study phase during which private haulers operating within the community submit data every 6 months documenting the number of waste



and recycling accounts served. At the end of the study period, a community may only move forward with future steps for a commercial waste franchise if fewer than 50% of the non-residential customers in the community are subscribed to recycling collection service. As of this 2019 Plan Update, 7 SWALCO member communities have commenced the 3-year study phase (Kildeer, Lake Bluff, Lake Zurich, Lindenhurst, Round Lake Beach, Third Lake, and Volo) as identified in Table 2.10. Further information on the status of implementation of a commercial waste franchise in these communities will be included in future Plan Updates.

2.5.4 SWALCO's Diversion Programs Collection Data

In addition to the traditional waste, recycling, and composting collection programs previously quantified, SWALCO also provides collection programs for household hazardous waste (HHW), pharmaceuticals, clothing and textiles, shoes, and electronic wastes. Table 2.13 summarizes the quantity of materials collected through these programs from 2014-2018.

TABLE 2.13 SWALCO DIVERSION PROGRAMS COLLECTION DATA					
Diversion Program	2014	2015	2016	2017	2018
HHW (55-gallon drums)	1,758	1,542	2,112	1,863	1,545
Pharmaceuticals (pounds)	-	11,068	10,928	13,068	12,780
Clothing & Textiles (pounds)	83,750	182,540	200,999	256,136	310,784
Shoes (pounds)	30,740	40,656	19,560	44,631	48,496
E-waste (pounds)	4,861,459	3,725,231	3,672,398	3,828,416	3,065,168
Total (excluding HHW)	4,975,949	3,959,495	3,903,885	4,142,251	3,437,228

2.6 Waste Composition

The Illinois Recycling Association (IRA) and Illinois Department of Commerce and Economic Opportunity (DCEO) commissioned a study, the *Illinois Commodity/Waste Generation and Characterization Study*, in 2008 of waste generation and composition in Illinois. The study was updated in 2015. As part of the IRA/DCEO studies, samples of waste from each of the two landfills in Lake County were sorted into constituent components.

The results of the updated 2015 composition study are summarized in Table 2.14. Generally, it appears that the composition of waste disposed in Lake County is similar to waste disposed from urban areas more generally and throughout the state as a whole. Differences are noted in material categories such as paper and organics, which are less prevalent in Lake County landfill disposal than in overall urban county sites and landfills statewide. Additionally, inorganics and construction and demolition wastes are noted to be more prevalent in Lake County's landfill tonnage⁴.

⁴ Inorganic wastes more prevalent in Lake County landfills include household bulky items and batteries. Construction and demolition wastes more prevalent include roofing materials. The prevalence of roofing and other C&D materials may be reduced since the 2015 study was completed as a result of the opening of the ECS Roofing Professionals shingle transfer facility and TKG Environmental Services Group C&D processing facility.



TABLE 2.14 COMPOSITION OF LANDFILLED WASTE (BY WEIGHT, 2015)			
Material	Lake County Landfills	Urban County Average	Illinois Average
Paper	15.5%	23.0%	23.3%
Newspaper	0.7%	1.8%	1.9%
Corrugated	7.1%	9.5%	9.1%
Other Paper	7.7%	11.7%	12.3%
Plastic	17.1%	16.1%	16.2%
#1 - #7 Containers	2.2%	3.7%	3.9%
Plastic Film	11.4%	7.8%	7.9%
Other Plastic	3.6%	4.6%	4.4%
Glass	2.1%	3.7%	3.5%
Metal	2.9%	4.0%	4.2%
Aluminum Cans	0.3%	0.5%	0.5%
Tin Cans	0.4%	0.7%	0.9%
Other Metal	2.3%	2.8%	2.8%
Organics	24.9%	28.3%	27.9%
Yard Waste	3.3%	3.6%	3.1%
Food Scraps	12.5%	17.7%	18.0%
Other Organic	9.1%	7.0%	6.8%
Inorganics	8.8%	3.9%	4.1%
Computers/Electronics	0.1%	0.8%	0.8%
Appliances	2.0%	0.4%	0.4%
Tires	0.0%	0.1%	0.2%
Other Inorganic	6.8%	2.6%	2.7%
Textiles	6.6%	4.7%	5.1%
HHW	0.1%	0.7%	0.6%
Construction/Demolition	21.9%	15.7%	15.2%
Wood	6.7%	7.8%	8.0%
Other	15.3%	7.9%	7.2%
Total	100.0%	100.1%	100.1%
# Samples	8	202	263

Source:

1. CDM Smith, *Illinois Commodity/Waste Generation and Characterization Study Update*, March 30, 2015.

Table 2.15 shows a comparison of the results of the 2015 composition study versus the 2008 study and a prior study conducted at Lake County landfills in 1993. The 1993 study sorted waste materials into 27 categories, whereas the 2008 and 2015 studies sorted waste materials into 79 categories.



TABLE 2.15 WASTE COMPOSITION AT LAKE COUNTY LANDFILLS (BY WEIGHT)

Material	1993 Study	2008 Study	2015 Study
Newsprint	8.4%	2.0%	0.7%
High-Grade Paper	2.0%	3.2%	0.4%
Other Recyclable Paper	11.4%	4.3%	4.2%
Other Paper	8.9%	5.9%	3.0%
Corrugated	10.6%	6.3%	7.1%
Glass Containers	4.7%	2.2%	2.1%
HDPE Containers	1.0%	0.7%	0.4%
PET Bottles	0.4%	1.4%	0.6%
PVC Containers	0.1%	0.8%	0.8%
Polystyrene	0.8%	0.7%	0.4%
Polyethylene Film	4.0%	5.3%	11.4%
Other Plastic	4.4%	10.6%	3.6%
Aluminum Cans	0.9%	0.4%	0.3%
Tin and Bi-Metal	1.5%	1.1%	0.4%
Other Aluminum	0.3%	1.5%	0.3%
Other Ferrous	3.2%	1.8%	1.7%
Other Non-Ferrous	0.5%	0.4%	0.2%
Wood	3.7%	13.3%	6.7%
Textiles, Rubber, Leather	4.7%	10.5%	6.6%
Disposable Diapers	3.1%	2.0%	1.4%
Food Waste	13.2%	8.9%	12.5%
Grass Clippings	0.3%	1.1%	0.4%
Other Landscape Waste	3.1%	2.5%	2.9%
Fines	2.8%	0.0%	5.4%
Household Batteries	0.1%	0.1%	4.3%
Other	6.0%	13.1%	22.0%
Total	100.1%	100.0%	100.0%
# Samples	90	27	8

Source:

1. CDM Smith, *Illinois Commodity/Waste Generation and Characterization Study Update*, March 30, 2015. Data are for samples of waste sorted at Lake County landfills.
2. CDM, *Illinois Commodity/Waste Generation and Characterization Study*, May 22, 2009. Data are for samples of waste sorted at Lake County landfills.
3. CDM, *Final Report of Municipal Solid Waste Characterization Study for Solid Waste Agency of Lake County*, November 2, 1993.

The 1993 study included two categories ("other combustibles" and "other non-combustibles") that were combined and reported as "other" in Table 2.15. Material components in the 2008 and 2015 studies which did not readily correspond to the components in the 1993 study were assigned to the "other" category in Table 2.15 -- this explains why "other" materials are twice as large or more in the 2008 and 2015 studies.



Because a larger number of samples were sorted in the 1993 study, some care must be taken in comparing the results of the studies. Further, the 1993 study conducted sorts over three seasons versus a single season for the 2008 and 2015 studies. Nonetheless, it would appear that commonly recycled materials such as newsprint, corrugated, aluminum cans, tin cans and glass containers are less prevalent in the 2008 and 2015 landfilled waste, suggesting that these materials are being removed by recycling programs in Lake County.



SECTION 3

IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE

The 2014 Plan Update was adopted by the Lake County Board on October 14, 2014 and for the past five years has provided policy guidance for the County's numerous solid waste management programs. As part of the planning process it is important to review the progress made in implementing the recommendations contained in the previous Plan Updates, and this section provides such a review of the 2014 Plan Update recommendations.

3.1 Implementation Status

Table 3.1 contains a listing of the recommendations contained in the 2014 Plan Update with respect to the following major plan components:

- Public Information and Education
- Source Reduction and Reuse
- Recycling
- Organics Management
- Household Chemical Waste (HCW) Management
- Landfilling
- Solid Waste Transfer
- Alternative Technologies
- Organization and Administration
- Legislative Initiatives
- Host Community Benefit Agreements

For each recommendation from the 2014 Plan Update information has been provided as to whether the recommendation was implemented or not during the past five years, including additional comments and data for many of the recommendations.

Program highlights over the past five years include:

- Food scrap diversion programs have been implemented in the residential, commercial and institutional sectors. In 2016 SWALCO members began to add food scrap programs to their residential landscape programs (commonly referred to as "ride along" programs), most at no additional cost. In 2017 Highwood and Lake Bluff became the first municipalities in Illinois to include food scrap collection as part of the base service that all residents are provided. North Barrington also has a year-round program that approximately 15% of the households have opted into and pay extra for year-round food scrap collection. As of 2019, 20 municipalities in Lake County provide either a ride along program for food scraps or year-round collection. Also, in 2016, two food scrap drop-off locations were implemented in Grayslake and Lake Barrington, with Grayslake's site being the first in the State.



Commercial food scrap programs have been implemented with the assistance of a consultant (Bright Beat) in Highland Park, Grayslake and Libertyville, with approximately a dozen restaurants initiating food scrap collection programs.

Institutional food scrap programs have also been implemented at the Lake County Jail (August 2018) and three Lake County schools (spring 2019). The Jail's program is diverting nearly 50% of the material from landfilling and is saving the County money.

- In 2015 the Lake County Prescription Drug Take Back program was established in partnership with the Lake County Sheriff and the Lake County Underage Drinking and Drug Prevention Task Force. Prior to that, in 2014 SWALCO worked with Senator Link to enact legislation (P. A. 98-0857) to clarify that SWALCO's Household Chemical Waste facility could legally store and transport controlled substances. SWALCO also worked closely with State's Attorney Mike Nerheim to gain the DEA's approval of SWALCO's program in 2015. In 2018, 26 local law enforcement agencies from Lake County collected and then transported to SWALCO's HCW facility 12,780 pounds of pharmaceuticals, with nearly 41 pounds being controlled substances with a street value of approximately \$645,000.
- SWALCO's electronics program continued to be one of the largest programs in the State but was nearly shut down in 2016 due to problems with the State law that left many local governments covering the costs of the collection programs. In 2015 SWALCO spent over \$200,000 to keep the program running, an amount that was not sustainable for the Agency and led to the decision in 2016 to terminate the program. That decision was reversed when over a dozen of SWALCO's members provided additional funding to keep the program running. SWALCO then worked diligently over the next two years to amend the State law, which resulted in the new Consumer Electronics Recycling Act being enacted in 2017. Since operating under the new law beginning in calendar year 2018, the program has been running smoothly with annual costs to the Agency under \$1,000 per year.
- SWALCO's HCW program, which is partially funded by the Illinois Environmental Protection Agency (IEPA), was put under a program cost cap of \$350,000 per State fiscal year beginning June 1, 2018. Prior to that time the IEPA had never placed a cap on the disposal costs for the materials collected in the program (SWALCO pays for the collection events and its facility, the IEPA covers the cost of shipping and managing the HCW). SWALCO remained under its cap last State fiscal year, and must continue to closely monitor its HCW program costs
- SWALCO's clothing, textiles and shoe programs grew tremendously over the past five years with the clothing and textile collections growing nearly fourfold from 83,750 pounds in 2014 to 310,784 pounds in 2018. Shoe collection increased significantly as well from 30,740 pounds in 2014 to 48,496 pounds in 2018. In 2019 Lake County has 34 permanent clothing and textile collection boxes at 30 sites, and over 60 year-round shoe collection locations and numerous other seasonal collection locations.
- SWALCO's public education efforts continued to grow utilizing its revamped website and growing social media presence with approximately 5,700 people signed up for SWALCO's news releases, 1,350 Facebook followers, and 745 Twitter followers. In 2018 SWALCO updated its recycling guidelines as part of a statewide task force on reducing recycling



contamination and disseminated the new guidelines to its members on America Recycles Day in November 2018.

- SWALCO continued its commitment to State legislation and worked on several Extended Producer Responsibility bills for carpet, paint and electronics (electronics is the only legislation that was enacted to date). SWALCO was also active in legislation regarding municipal franchising authority, food scrap composting, market development for compost, and development of a Statewide solid waste management plan.

TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
Public Information and Education		
P1	<p>Identify new and support ongoing activities of SWALCO's public information and education programs to encourage waste reduction, reuse, recycling and recovery/re-buy (buying recycled products) and sustainability practices through SWALCO's websites and other publications, as well as community organizations such as PTA/PTO's, park districts, libraries, church, corporate and other community groups. The importance of buying recycled products should be emphasized when possible as this creates markets for additional materials and diverts these materials from final disposal. Continue to utilize the RecycleFirstTrashLast education campaign and marketing tools to increase recycling in Lake County (see Attachment E for a copy of the Campaign Plan and Timeline).</p>	<p>Implementation ongoing. SWALCO continued to support its members with education resources and develop new ways to communicate with residents, including more extensive use of social media.</p> <p><u>Education Initiatives:</u> SWALCO helped form and co-chair the Task Force on Reducing Recycling Contamination and developed new, more simplified recycling guidelines (including a Spanish version). The next goal of the Task Force is to collaborate with IEPA to develop a new robust website that will be a resource for residents statewide. In addition, staff continued to develop related FAQs for the website. SWALCO has developed composting guidelines for both the residential and commercial sectors as part of its landscape "ride-along" program and its commercial sector food scrap outreach program. As a founding member of the Illinois Food Scrap Coalition, SWALCO is working to develop statewide composting guidelines and a more detailed IEPA website, similar to the Task Force efforts described above.</p> <p>SWALCO, working with Lake County Communications, developed three videos in 2016 (pharm program, composting program/site, curbside recycling), one in 2017 (how to food scrap compost) and two in 2018 (food scrap program and HCW program).</p> <p><u>Education Outreach:</u> Unveiled new website in 2016. Data analytics for 2018 show 138,650 visits, 459,483 page views and 4,378 returning visitors. Utilized social media: Facebook (1,000 followers), Twitter (400 followers), Tumblr, Google+,</p>



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
		Instagram. Engaged with schools, PTA/PTO's, park districts, libraries, churches, corporate offices and other community groups. Activities included: Recycle-O-Ramas, education displays, Earth Day events, and Reuse-A-Shoe program. Gave formal and informal presentations regarding SWALCO resources and info on a variety of topics to groups and organizations throughout the region, reaching people of all ages. Partnered with member communities for community events or other programs or projects.
P2	Continue to provide in-house marketing support to help publicize SWALCO technical programs, such as the household chemical waste collections and other recycling & reuse programs. Identify new marketing opportunities or avenues.	<p>Implementation ongoing. Utilized GovDelivery to notify residents about special events such as HCW events; Compost Bin, Rain Barrel, and Native Plant Sale; and others. Number of contacts in GovDelivery is approximately 5,500. Also utilized social media for advertising technical programs.</p> <p><u>Education collateral:</u></p> <ul style="list-style-type: none"> Revised recycling guidelines. Developed various handouts: bookmarks, brochures, flyers and other publications. Supported members by providing content and articles for newsletters, website, etc. Added member community dedicated links to all members' web landing page on SWALCO's webpage. Expanded SWALCO's webpage to include Ride Along Program information.
P3	Continue to encourage SWALCO members to design, evaluate and distribute information for residents regarding various solid waste management issues, and to inform SWALCO of waste-related and environmental activities within their communities. Assist member communities in their efforts by acting as a resource and providing information and educational assistance. Support community events and local organizations by attending local events and/or providing materials regarding SWALCO's various programs and other environmental initiatives.	<p>Implementation ongoing. SWALCO continued to utilize personal contact (phone calls, emails, in-person meetings) with member communities and organizations within those communities to encourage support of information distribution. SWALCO maintains a database of member community website contacts.</p> <p>Member communities assisted in promoting SWALCO events. Member communities used various outreach methods: social media, website and community newsletters. SWALCO members hosted special events and continued to be good partners: 8 hosted household chemical events, 6 hosted business sector</p>



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
		electronic events, and approximately 6 hosted Recycle-O-Rama events over the past 5 years. Additionally, SWALCO staff attended/contributed to approximately 15-20 member community events each year.
P4	Ask and encourage SWALCO members to advertise SWALCO events and programs on their websites, community newsletters, e-list bulletin announcements as well as other technologies and approaches to help provide information to their residents. Request that members provide a point of contact for assisting SWALCO's Public Information Officer and that this point of contact information be kept up-to-date.	<p>Implementation ongoing. SWALCO has maintained a point of contact with its member communities to assist with communication efforts. Continued to ask our Board members and communities to keep us apprised of noteworthy events and happenings so we could share on our website and social media.</p> <p>Approximately 20 member communities have worked with SWALCO to develop a comprehensive member page on SWALCO's website that includes information on the hauling program, recycling options and SWALCO programs.</p>
P5	Develop partnerships with the business community, waste haulers, institutions, service and professional organizations, and governmental entities to expand the outreach potential for focused educational efforts.	<p>Implementation ongoing. SWALCO facilitated recycling guideline updates with the haulers as part of the statewide Task Force discussed under P1.</p> <p>Expanded network of municipal based environmental / sustainability commissions organizations and assistance.</p> <p>Assisted the business community to expand food waste programs and collection in commercial franchise areas.</p> <p>Worked with Health Department on Pharmaceutical education. SWALCO's Reuse-A-Shoe program has numerous participants from the business community and even some waste haulers act as year-round Reuse-A-Shoe collection sites (this program has been a great way to do more outreach throughout the region). Partners shared information on other SWALCO programs and efforts, along with other resources within their organizations which further promoted the Agency. SWALCO developed new relationships through its Reuse-A-Shoe program. Additionally, the expansion of the Clothing and Textile Collection Program allowed SWALCO to work with other local businesses and organizations. SWALCO continued to have and develop</p>



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
		partnerships with schools throughout the County.
P6	Continue to support and evaluate school education outreach efforts that meet Illinois Learning Standards, such as the Lake County Earth Flag Program, the Earth Flag Everyday supplemental program, the educational website, subsidized performances by environmental educators, and in-class presentations. Develop or locate resource materials that will assist schools in implementing source separated organics collection programs and on-site composting operations.	Implementation ongoing. School education efforts transitioned and incorporated more social marketing aspects with less focus on in-school lesson plans and assemblies. Interest is guiding students, faculty and administration in engagement, on-site involvement, and expansion of program services. Coordinated with Regional Office of Education to provide resources for hauling contract management. Continued to provide education for main school newsletter. Served as a conduit for providing links and resources to teachers. In addition to Earth Flag programs and Reuse-A-Shoe, schools can now participate in the Clothing and Textile Collection program and a new program for Food Waste Diversion working with administration, teachers, parents, staff, and students (now have four schools in Lake County with food scrap diversion programs).
P7	Identify and utilize applicable public and school education resources to develop customized activities for Lake County.	Implementation ongoing. Diversity throughout Lake County has required customized education assistance. Continued to collect information and resources to share with the K-12 schools.
P8	Continue to evaluate the communication efforts (e.g., SWALCO branding, RecycleFirstTrashLast (RFTL), advertising and other promotional efforts) to determine their effectiveness and evaluate the communication efforts on a yearly basis. Consider new communication techniques and continue to build relationships within Lake County to assist in reaching education and outreach goals.	Implementation ongoing. Partnerships and programs continued to grow, and SWALCO's visibility continued to increase. Expanded Spanish collateral. Utilized RFTL to work towards 60% goal but need to evaluate in future. With movement focusing on reuse and repair and the other Rs, will consider incorporating these in the future. RFTL focused on Recycling. New Rs: Rethink, Refuse, Reduce, Reuse & Repair, Recycle, Recover (buy recycled) Rot and Reimagine.
P9	Continue to embrace and incorporate new information technologies in SWALCO's promotional efforts (e.g., websites, email services, etc.) and evaluate the development of a mobile phone application that can be used to help residents find the location of facilities that will accept a wide range of hard to recycle or reuse items (and link to the "How do I recycle this" page on SWALCO's website).	Implementation ongoing. SWALCO has explored mobile applications, though due to cost and limitations of current known apps have not pursued to date. SWALCO's website update included a platform that is mobile-friendly and we have encouraged all members to promote the SWALCO website. As identified above, social media and GIS mapping is used to help residents to locate sites around the region.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
P10	Continue to collaborate with the EduCycle Center in Grayslake, as well as other related organizations.	Implementation ongoing. EduCycle Center attendance has tapered over the last few years as has Waste Management, Inc.'s support for the Center. Some tours have been given though over the last 5 years, including those led by SWALCO staff.
P11	Investigate opportunities for public outreach at special events (e.g. Lake County Fair). Participate in member community events such as Community Days, Open Houses and other special events.	Implementation ongoing. SWALCO provided its members hands-on support at dozens of community events; services included: event planning, design, options for recycling, etc. In addition, SWALCO staff attended numerous events for public outreach opportunities (info booths and speaking).
P12	Act as a resource and provide technical assistance during emergency events and interruptions of service (e.g. floods, garbage strikes, post-tornado debris management).	Implementation ongoing. SWALCO assisted efforts by both providing and sharing information during the floods of 2017. Assisted and supported municipalities and County on clean-up options, etc. In addition to SWALCO info, the Agency shared information and resources from a variety of other helpful sources, including LDOT and other organizations.
P13	Develop and continue to update guidelines for proper separation of landscape waste for composting and recyclables for recycling, targeted at residential households. The goal is to reduce the contaminants that must be managed by compost facilities and recycling centers.	Implemented. Developed new compost and recycling guidelines as previously discussed. Continued to update, adapt, revise and offer additional, related information and resources, such as our FAQs and our Where Do I Recycle This Guide on the website.
Source Reduction and Reuse		
SR1	Continue to promote the implementation of pay as you throw (PAYT) programs for the residential sector to provide an economic incentive for residents to reduce the amount of waste they generate through source reduction and reuse opportunities.	Implemented. SWALCO served as a resource to its members during hauling contracts and continued to try and provide PAYT options to residents. 31 out of 43 members include some form of PAYT in their hauling contracts.
SR2	Continue the implementation of SWALCO's Clothing and Textile Collection Program and Reuse-A-Shoe program that currently includes 13 collection locations with bins for clothing/shoes and over 29 collection locations for shoes only. The majority of the material collected is reused.	Implemented. Both programs continued to expand and grow. Now have approximately 34 permanent clothing bin locations at 30 sites and approximately 60 permanent shoe locations in addition to over 20 seasonal shoe collections/locations. Member communities and other SWALCO partners continued to help promote and grow the program. See Table 2.13 which shows the growth of the program from 114,490 pounds in 2014 to 359,280



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
		pounds in 2018. Additionally, collected clothing and shoes at special events, month or week-long drives (or longer) and rummage sales, including houseware and goods in addition to clothing and shoes.
SR3	Investigate the feasibility of incorporating a reuse component to SWALCO's Household Chemical Waste program where items that are still useful could be donated or given away instead of disposed.	Implementation ongoing. Investigated the Simple Sorting model for reusing household chemical waste. This model requires weighing every item before sending for reuse. This type of system is not feasible with current operations. Effective in 2019, IEPA is setting a cap on disposal costs for household chemical waste. Based on historical costs SWALCO is receiving \$350,000 for disposal. It may become necessary to explore other options of reuse models if cost differential fluctuates.
SR4	Develop educational materials and website content related to source reduction tips for residents and information on reuse of household items, furniture, clothing, construction materials, etc.	Implementation ongoing. Provided specific educational materials focused on shoe and clothing programs. Where Do I Recycle This Guide on website continues to be updated and incorporates information on how to reuse, recycle and donate a variety of items and materials.
Recycling		
R1	Maintain and expand collection of data on recycling activity in Lake County. Identify significant recycling data points that reflect changes in recycling activity in Lake County and develop programming that fosters increased diversion of recyclable materials.	Implementation ongoing. Data collection continued to expand as SWALCO's programs expanded. Data collection in the commercial sector expanded as 7 SWALCO members initiated the 3-year recycling participation rate study required by Illinois law. Continued to track the per capita per day disposal rate goals for each member. Added data collection on the pharmaceuticals collection program that began in 2017. Track pounds of pharmaceuticals collected by participating police departments and total pounds and street value of controlled substances destroyed.
R2	Incorporate the 60% Recycling Task Force Report into the 2014 Plan Update (see Attachment D) and continue to expand recycling programs as recommended in the Task Force Report to achieve a 60% recycling goal by 2020 (current estimated municipal waste recycling rate is 48%, see Figure 2.3). Lake County and each	Implementation ongoing. Recycling Task Force Report was incorporated into the 2014 Plan Update and recommendations continued to be implemented. Three additional communities (Lake Bluff, Lindenhurst and Round Lake Beach) are in position to implement a commercial franchise,



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	<p>municipality will decide which recommendations from the Report to implement based on local needs and input. The 60% goal in the Report is significantly greater than the 25% goal in the Illinois Solid Waste Planning and Recycling Act, and is a goal that Lake County and its municipalities have voluntarily chosen to attain.</p>	<p>with four more still in the middle of the required 3-year study (Kildeer, Volo, Lake Zurich and Third Lake).</p> <p>Seven communities have C&D recycling ordinances. 20 communities have food scrap collection programs during the 8-month landscape waste season, with three having year-round programs (Highwood, Lake Bluff and North Barrington). Continued to grow the clothing, textile and Reuse-A-Shoe programs.</p> <p>Continued the Business Concierge Program for electronics and hosted several events each year for businesses and schools which are not covered by the State law for residential electronics.</p> <p>Expanded residential electronics collection program, now have 26 members with programs (drop off or curb).</p>
R3	<p>Continue to support area recyclers in activities that expand their capabilities of diverting marketable materials from landfills when feasible.</p>	<p>Implementation ongoing. Since the 2014 Plan Update recyclable commodity markets have experienced dramatic price decreases and one of the longest downward trends in commodity pricing in recent history. Further complicating the markets was the changing waste stream. SWALCO has worked closely with the MRF to address these issues on a local level. One of the efforts included updating the residential recycling guidelines. SWALCO's education messaging has focused on recycling rather than disposal. Material outlets are searchable on the website and Staff directs phone inquiries to available outlets.</p>
R4	<p>Continue to maintain and enforce the Lake County Solid Waste Hauling and Recycling Ordinance and if necessary, recommend changes be made to the Ordinance by the Lake County Board.</p>	<p>Implemented. The Lake County Solid Waste Hauling and Recycling Ordinance was amended in November 2017. The minor amendments to Section 50.03(F) enhanced the waste and recycling data collection by requiring that haulers indicate which facilities they use for disposal and recycling, and to Section 50.04(B) streamlined the permit application process for construction and demolition debris recycling compliance monitoring.</p>



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
R5	Encourage all SWALCO members and Lake County townships to establish volume- based pricing (i.e., programs that provide incentives to reduce the amount of waste disposed) as an option.	Implemented. Two more SWALCO members (Deer Park and Volo) established volume-based pricing options in their residential hauling contracts. A total of 31 SWALCO members have a PAYT option in their residential contracts.
R6	Encourage all SWALCO members and Lake County townships to implement cart-based recycling programs within their residential areas.	Implemented. All 43 SWALCO municipal members have implemented cart-based recycling programs. In addition, three townships (Warren, Ela and Lake Villa) with franchises have carts for recycling in the unincorporated area. County ordinance requires that households have curbside recycling service in the unincorporated areas and haulers are strongly encouraged to use carts instead of smaller bins. Haulers changing to automated trucks has helped movement towards carts.
R7	Assist SWALCO members and Lake County townships in franchising residential, multi-family and/or commercial collection services as a means to control costs, increase recycling, reduce the amount of greenhouse gases associated with collection services, and enhance community sustainability efforts.	Implemented. Assisted approximately 20 members over the last five years with hauler procurement services, including RFP development, pre-bid meeting facilitation, results analysis and contract negotiations. Assisted 7 SWALCO members enact ordinances to implement a commercial franchise that begins with a 3-year study of recycling participation rates. Assisted three townships (Avon, Fremont and Shields) with the hauler procurement process after having successfully passed referendums in 2018.
R8	Continue to encourage all SWALCO members to adopt the model commercial and multi-family refuse and recycling enclosure ordinance.	Not implemented. Continued to leave enclosure ordinances up to the municipal members.
R9	Identify and assist SWALCO members whose residential, commercial and/or multi-family recycling programs are underperforming or can be further optimized; conduct program evaluations and develop recommendations for improving programs. This may require SWALCO's Recycling Coordinator and Public Information Officer working together to enhance the recycling program and the marketing of the program.	Implementation ongoing. Commercial recycling participation rates in non-franchise municipalities continued to lag behind that of the 7 municipalities with commercial franchises. Non-franchised municipalities conducting the 3-year study have ranged from 23% to 58% participation while the franchise towns range from 40% to 92% (average is close to 50%). Staff continued to work with the commercial franchise communities to increase recycling and food scrap participation and continue to hold quarterly hauler meetings in Highland Park. Approximately 60 businesses (one-on-one in-person approach used in



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
		<p>Grayslake, Libertyville, Gurnee and Highland Park) have added recycling programs in the past 5 years due to the efforts of SWALCO staff, member staff/sustainability organizations, and the hauler. In 2018 began a formal food scrap outreach program to restaurants in Highland Park and Grayslake (utilizing the consultant Bright Beat) that resulted in 6 restaurants beginning food scrap collection programs and nearly a dozen businesses adding recycling.</p> <p>Residential recycling focus has been on reducing contamination, and has included revised recycling guidelines, social media information and a recycling cart tagging program in Round Lake Beach in 2018. More member hauling contracts now include provisions for cart tagging programs.</p>
R10	<p>Depending on availability of funds and agency priorities, continue to further the development of source reduction programs, special event and public area recycling programs, plastic bag recycling programs, compost bin distributions and residential electronics collections.</p>	<p>Implementation ongoing. Continued to offer the use of clear stream recycling containers to members for special events. Continued to provide plastic film and bag recycling information on website. Also worked with Senator Link and introduced bill to tax plastic and paper bags in 2018. Continued to partner with the Lake County Forest Preserve and hold an annual composter and rain barrel sale and average 300 compost bin sales a year. Continued to involve the haulers more in managing e-scrap, with four haulers now working with SWALCO's electronics recycler under the Illinois Consumer Electronics Recycling Act.</p>
R11	<p>Continue to maintain a Capacity Agreement with a qualified recycling firm (currently Waste Management Recycle America L.L.C.) to assure that sufficient capacity is available to SWALCO members, and that SWALCO members and Lake County townships that direct material to the facility are eligible to receive a Per Ton Payment for their recyclables per the terms of the existing Intermediate Processing Facility Capacity Agreement (effective January 1, 2009 for a three year term with two, 2-year renewal options).</p>	<p>Implemented. The Capacity Agreement with WMI was extended on January 19, 2017 through December 31, 2019. WMI has notified SWALCO that it does not intend to extend the Agreement under the current terms. Instead, it intends to use the facility as a transfer facility for recyclables and will no longer use it for processing once it completes construction on a new MRF in Hodgkins, Illinois. SWALCO and SWANCC hired a consultant to study MRF costs and how they relate to residential hauling costs and expect that study to be completed in the summer of 2019.</p>



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
R12	Encourage SWALCO members and Lake County townships to enter into a Per Ton Payment Intergovernmental Agreement with SWALCO in order to be eligible to receive payment (Per Ton Payment) for their recyclables per the terms of the existing Capacity Agreement.	Implemented. The majority of the members (only 6 take their recyclables to other MRFs in the region) and unincorporated areas direct materials to meet the terms of the Capacity Agreement with WMI.
R13	Encourage the development of general construction or demolition (C&D) debris recycling facilities as permitted by Section 22.38 of the Illinois Environmental Protection Act. With the enactment of Public Act 96-0611, general C&D debris recycling facilities can be located in Lake County, without having to obtain local siting approval in accordance with Section 39.2 of the Illinois Environmental Protection Act, and instead will be regulated by applicable zoning requirements. As a result, SWALCO developed zoning guidelines for such facilities that address the location, design, operation and closure of such facilities, which are available for members to consider incorporating into their local zoning ordinances. Any proposed general C&D debris recycling facility must enter into Host Community Benefit Agreements with SWALCO and the governing body with jurisdiction over the proposed facility prior to filing a siting application or zoning application, whichever is applicable. The Host Community Benefit Agreements with SWALCO and the governing body must, at a minimum, contain provisions for: 1) a guarantee of access to capacity at the facility for general C&D material generated in Lake County, 2) environmental safeguards, and 3) payment of host fees.	Implemented. There is one C&D recycling facility in Lake County, the TKG Environmental Services facility located in Waukegan. The facility was moved by the same owner from Zion to its current location. Groot permitted a C&D recycling facility several years ago in Round Lake Park, but to date have yet to move ahead with construction.
R14	Encourage SWALCO members to adopt a C&D recycling ordinance that would require the implementation of a recycling program at new construction and/or demolition sites within their communities.	Not implemented. No new SWALCO members have enacted C&D recycling ordinances in the past 5 years.
R15	Consider the development of a formal zero waste plan as part of the next Plan Update in 2019 and form a zero-waste task force to assist with development of the zero waste plan component of the 2019 Plan Update.	Implemented. Hired consultant (RRS) in 2018 to perform gap analysis on SWALCO's diversion programs compared to other programs in the country and to provide recommendations to move towards a circular



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
		economy. This analysis and information will be incorporated into the 2019 Plan Update.
R16	Continue to support the concept of Product Stewardship (the act of minimizing the environmental and social impacts of a product throughout all lifecycle stages and recognizing that producers have the greatest ability to minimize adverse impacts), and support Extended Producer Responsibility (a mandatory, legislative approach to product stewardship that extends the producer's responsibility to the post-consumer management of the product) legislation that will increase the reuse and recycling of products, and encourage more design for the environment and for recyclability by producers. To further this recommendation, SWALCO should become a member of the newly formed Illinois Product Stewardship Council, formed in partnership with the Product Stewardship Institute (which SWALCO is currently a member of).	Implementation ongoing. Introduced or worked on EPR legislation for electronics, carpet and pharmaceuticals/sharps in the past 5 years. Successful in amending the Illinois electronics law in 2017 to provide a convenience standard and defined allocation of costs for the program. SWALCO is an active member of the Illinois Product Stewardship Council.
Organics Management		
OM1	Encourage the development of programs to increase the collection and composting of residential and commercial organic material (such as landscape waste, food scrap and livestock waste) by working to implement the recommendations in the 60% Recycling Task Force Report.	<p>Implemented. Beginning in 2016 SWALCO member communities began adding curbside (Ride Along) food scrap collection services as part of the regular landscape waste collection program. In 2017 two members, Highwood and Lake Bluff, became the first municipalities in the State to offer year-round landscape waste/food scraps collection as part of the base services. North Barrington also has about 15% of its homes participating in year-round collection on an opt-in basis. By 2019, 20 SWALCO members have the Ride Along option or year-round collection.</p> <p>Beginning in 2018 SWALCO and its members Highland Park and Grayslake hired a consultant (Bright Beat) and initiated an outreach program to enroll food related businesses in food scrap collection programs. This program has been expanded to Libertyville in 2019. To date 6 restaurants have started food scrap collection programs and another dozen started up recycling programs.</p>



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
		<p>Implemented food scrap collection program at the Lake County Jail August 2018 and it is diverting over 50% of the waste, nearly 9 tons of food scraps per month.</p> <p>Assisted a large business in Lake County in 2018 establish a food scrap collection program for one of its lunchrooms. Continued to promote compost bin sales and backyard composting, educate people about how to, and why to, compost.</p> <p>In 2019, with grant assistance from North Shore Gas and consulting services from Seven Generations Ahead, implemented food scrap collection programs at 3 Lake County schools.</p>
OM2	Monitor landscape waste collection and composting costs and determine if SWALCO needs to take any action to better control and/or reduce the costs associated with both collecting and managing the material.	<p>Implemented. SWALCO continued to monitor landscape waste collection and composting costs through the municipal contracting process. To date costs have not risen higher than inflation so no action by SWALCO was warranted.</p>
OM3	Evaluate the infrastructure for transporting and managing food scraps generated in Lake County, and work cooperatively with the private sector to promote/encourage adequate infrastructure is in place.	<p>Implemented. SWALCO, with assistance from the Lake County Health Department, tracks the number of permitted landscape waste facilities along with those permitted to accept food scraps. SWALCO assisted in the enactment of legislation in 2017 that allowed for a landscape waste transfer station in Lake County (Oak Development) to transfer food scraps pursuant to an experimental permit. The largest compost facility in the County, Midwest Organics Recycling, is permitted to accept food scraps and accepted nearly 2,000 tons of food scraps in 2018.</p>
OM4	Encourage SWALCO members to implement residential food scrap programs as part of their hauling contracts or licensing requirements. One such program that can be implemented at little or no additional cost is the “ride along for free” program where residents are allowed to commingle food scraps with landscape waste as part of the regular landscape waste collection program offered by the hauler.	<p>Implemented. See response to OM.1</p> <p>SWALCO continued to work with and support members, residential groups and neighborhoods, local Go Green groups from the community and others who want to move food waste diversion forward in their towns by offering assistance and/or presentations.</p>



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
OM5	SWALCO should assist SWALCO members in obtaining costs estimates, as part of the procurement process for a new hauling contract or extension, for a year-round three cart collection system that will provide year-round collection for: refuse recyclables and organics. Members can then decide whether to expand their collection programs to include organics, year-round.	Implementation ongoing. Assisted several members in obtaining cost estimates for year-round organics collection. Three members have such programs as referenced earlier. Continued to include in request for proposals cost estimates for year round organics collection whenever a member was interested.
OM6	Continue to be a member of and support the Illinois Food Scrap Coalition (of which SWALCO is a founding member). Utilize the restaurant toolkit and the "We Compost" recognition program developed by the Coalition to inform Lake County businesses and institutions about food scrap composting opportunities and how to get recognized for those efforts.	Implemented. Continued to be an active member in Illinois Food Scrap Coalition, with the Executive Director acting as the first Chair of the IFSC, and continuing on as a board member. Advocated for Ride Along communities to be able to receive "We Compost" recognition from the IFSC, which they all did.
OM7	Add information to the SWALCO website on how to reduce food waste and not produce so much food scrap in the first place.	Implemented. The website includes composting guideline informant for the 20 members with food scrap collection programs. Links are provided to entities such as the Illinois Food Scrap Coalition. Information and resources on methods to reduce, reuse and recycle organics, have been included in presentations and provided to groups. SWALCO is an active member of the Wasted Food Solutions group since 2016, working to reduce food waste at the source, feed people in need, and ultimately compost what is left over.
Household Chemical Waste (HCW) Management		
H1	Continue operating a Household Chemical Waste Collection Program consisting of both public drop-off and mobile collection events operating on a year-round basis.	Implemented. Household Chemical Waste Collection program consists of 1 permanent facility, with 23 public drop-offs, and 5 mobile events held each year. Several SWALCO members provided feedback on rotating the mobile events around to more communities. Potential that we may flex to more sites in the future. Updated the HCW online registration software that is easier for residents to use and provides greater opportunity for event reminders and for residents to reschedule or cancel.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
		In 2017 established the Lake County Prescription Drug Take Back program in conjunction with the Lake County Sheriff and the Lake County Underage Drinking and Drug Prevention Task Force. Held 5 to 6 collection events per year that 26 local law enforcement agencies participated in. See Table 2.13 for data on the HCW and Prescription Drug programs.
H2	Renew the existing Intergovernmental Agreement with the Illinois Environmental Protection Agency when its term expires (April 2017). Explore modifying the Agreement to allow for SWALCO to assume ownership of the waste oil entering the Program.	Implemented. Renewed the Intergovernmental Agreement with IEPA in 2017 for a 5-year term. For the first time the IEPA required a cap on the disposal costs of \$350,000 per State fiscal year (the three other HCW sites in Illinois also have caps related to historical costs). Researched the waste oil issue and decided not to modify the Agreement to take ownership of the used oil due to low market values.
H3	Encourage and support SWALCO members in the establishment of supplemental HCW programs such as waste oil collection programs (i.e. Lake Zurich and Lake Barrington Programs), and fluorescent lamp collection centers (i.e. Highland Park, Riverwoods and Third Lake Programs).	Implementation ongoing. No new members established programs over the past 5 years. SWALCO has held approximately 5 latex paint recycling events since 2018 at various recycling events in the County.
H4	Maintain a listing of environmental contractors and disposal programs (i.e. IEPA's laboratory waste collection program) to use as a referral for business, institutions and school districts.	Implemented. An environmental contractors list is maintained on the website and staff refers this information to interested businesses and schools.
H5	Consider offering SWALCO's assistance in conducting one-day collection events for neighboring Illinois counties as another potential revenue source.	Not implemented. There has been no exploration into partnering with neighboring counties due to a lack of staff time and resources.
Landfilling		
L1	Maintain existing contracts and/or negotiate new contract provisions with the six SWALCO designated sanitary landfills serving Lake County (Countryside Landfill, Pheasant Run Landfill, Zion Landfill, Livingston Landfill, Lee County Landfill and Newton County Landfill) to provide for privately-owned-and-operated landfill disposal capacity for Lake County's waste	Implemented. SWALCO has maintained all the contracts with the SWALCO designated landfills. SWALCO attempted to enter into an agreement with Groot/Waste Connections in 2016 to designate the Round Lake Park Transfer Station as a SWALCO designated facility but the agreement was never finalized.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	requiring disposal. Such capacity guarantee should provide capacity for a portion of Lake County's waste for as long as the landfill has permitted capacity and remains an open site per the appropriate state regulations. SWALCO will consider expanding the list of landfills (located outside of Lake County) deemed to be serving Lake County if the owner of the landfill proposed for inclusion first negotiates a host agreement with SWALCO. The host agreement must provide for a capacity guarantee and payment of a host fee for each ton of Lake County waste taken to the landfill.	
L2	Continue to implement source reduction, reuse, recycling, and composting programs to reduce dependence on landfilling.	Implementation ongoing. See the responses to the relevant plan recommendations in this section.
L3	If one or both of the two existing landfills in Lake County (Zion Landfill and Countryside Landfill) propose an expansion onto property that is directly adjoining or within 250 feet of an existing portion of the permitted footprint of the landfill (horizontal) and/ or on top of (vertical expansion) the existing landfill's permitted airspace, and the proposed expansion meets the requirements of Recommendation A.1, the proposed expansion will be considered consistent with the Plan.	No new landfill expansions were proposed in Lake County in the past 5 years.
L4	With less than 14 years of permitted landfill capacity in Lake County, a new landfill would be considered as a local solution to managing Lake County's waste. If the proposed new landfill meets the applicable requirements of the Lake County Solid Waste Management Plan (Recommendations L.5 and L.6) it will be considered consistent with the Plan.	No new landfills were proposed in Lake County in the past 5 years.
L5	SWALCO and the siting authority (the unit of local government with siting jurisdiction in accordance with Section 39.2 of the Illinois Environmental Protection Act) will continue using the three guidelines that were outlined in the 1989 Plan for evaluating landfilling technology. These guidelines are: utilize proven technology; minimize emissions; and avoid large economic risks. SWALCO's and the siting authority's determination on	No new landfills or landfill expansions were proposed in Lake County in the past 5 years.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	<p>whether the proposed facility is consistent with the Lake County Solid Waste Management Plan will be based, in part, on the applicant addressing the following questions in the plan consistency (siting criterion number 8 of Section 39.2 of the Act) portion of the siting application:</p> <ul style="list-style-type: none"> • Facility Requirements - What types of facilities are required as part of the technology? How many facilities are needed and of what size, including both site acreage and disposal capacity (in tons per day)? • Siting - What are the facility siting requirements? Does a suitable site exist within the County? • Economics - What are the capital, operation, and maintenance costs associated with the technology? What are the probable revenues and life cycle costs? What are the estimated tipping fees per ton and how do the estimated fees compare to current tipping fees for disposal of Lake County waste? • Technical Feasibility - Is the technology proven for a portion or all of the waste generated for disposal in Lake County? Can it provide reliable long-term management of the targeted waste stream? • Ability to Implement - Can the technology be successfully engineered? What are the potential obstacles to implementation and how will these obstacles be addressed? Can it be implemented in time to serve its intended purpose? • Environmental Impacts - What are the environmental impacts of the technology on the air, water, and land of Lake County and its surrounding neighbors? Do the air, land and water pollution control technologies proposed at the facility meet the most stringent standards under applicable state of Illinois and/or federal law? • Permitting - What federal, state and/or local permits will be necessary for the facility to be developed and operated? 	



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	<ul style="list-style-type: none"> • Safety Issues - What safety concerns for the worker and general public are associated with the facility and can they be adequately addressed? • Health Risk Assessment - What are the health risks and benefits associated with the technology? • Financing - How will the facility be financed and can financing be arranged? • Life Cycle Assessment - What are the life cycle environmental impacts of the proposed disposal technology compared to the current disposal system in Lake County, using the following life cycle parameters – net annual energy consumption, sulfur oxides emissions, nitrogen oxides emissions and carbon dioxide emissions? 	
L6	Any proposed new landfill facility must meet the requirements of Recommendation A.1 (Host Community Benefit Agreements).	No new landfills were proposed in Lake County in the past 5 years.
L7	Encourage existing and new landfill owners to design and implement landfill technologies to extend life expectancy, reduce long term toxicity and conserve resources when possible and environmentally appropriate.	Not implemented.
L8	Encourage existing and new landfill owners to design and implement landfill gas collection and management systems that capture and utilize the maximum amount of landfill gas for energy recovery as opposed to direct flaring of some or all of the landfill gas.	Implementation ongoing. SWALCO continues to enforce the 2012 Gas Management Agreement with WMI at the Countryside LF. This agreement requires 24 hour monitoring of hydrogen sulfide emissions.
Solid Waste Transfer		
T1	Solid waste transfer stations, if developed in accordance with the applicable requirements of the Lake County Solid Waste Management Plan (Recommendations T.2 through T.7), will be considered consistent with the Plan. These recommendations (T.1 through T.7) are not applicable to landscape waste transfer stations or general construction and demolition debris recycling facilities as permitted under Section 22.38 of the Illinois Environmental Protection Act, but are applicable to any transfer station that	No new transfer stations were proposed in Lake County in the past 5 years.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	meets the definition of a pollution control facility under the Act.	
T2	A transfer station site should be large enough to provide for a facility large enough to safely and efficiently manage the anticipated volume of waste, adequate buffering and screening, stormwater management, and safe traffic flow. If the site is proposed for additional functions, including but not limited to, vehicle and equipment storage, vehicle maintenance, office space, processing of recyclables, or processing of waste into a fuel it must be demonstrated that the site is large enough for all proposed functions.	No new transfer stations were proposed in Lake County in the past 5 years.
T3	Transfer station operations - related to the unloading of refuse, recyclables and landscape waste, temporary storage of the materials on the tipping floor, and the loading of transfer trailers - must be located within a portion of the transfer station that can be completely enclosed. (This does not require the transfer station to keep its incoming and outgoing doors closed during operations unless proximity to a Federal Aviation Administration (FAA) regulated airport requires that doors open and close with the acceptance of waste. This does prohibit the development of a three sided and/or an open top structure as a transfer station in Lake County.) Developers are strongly encouraged to incorporate: 1) material recovery at the transfer station to capture materials of value in the municipal waste prior to loading for landfill disposal, and 2) green/sustainable building principles into the design and operation of the facility and the overall site.	No new transfer stations were proposed in Lake County in the past 5 years.
T4	Transfer station developers must include in the design and operation of the facility: 1) the transfer of recyclables, landscape waste and food scraps within 24 hours of acceptance at the facility (with the exception of waste loaded into trailers and stored inside the transfer station prior to delivery to the landfill, compost site or recycler, and extreme weather or emergency situations that make this requirement infeasible), 2) a negative air	No new transfer stations were proposed in Lake County in the past 5 years.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	<p>pressure system within the enclosed portion of the transfer station and filtering of the exhaust air before it is emitted outside the facility, 3) operating hours that are no greater than 17 hours during weekdays, 8 hours during Saturdays and closed on Sundays (hours can only be extended by the siting authority due to storms, strikes or other one-time events), 4) high performance doors that will automatically open and close as vehicles enter and leave and that allow for the facility to keep its doors closed during operating hours, if so determined by the siting authority. Transfer station developers are encouraged to evaluate the processing of the solid waste into a renewable resource that could be transported to off-site markets.</p>	
T5	<p>SWALCO and the siting authority (the unit of local government with siting jurisdiction in accordance with Section 39.2 of the Illinois Environmental Protection Act) will continue using the three guidelines that were outlined in the 1989 Plan for evaluating transfer station technology. These guidelines are: utilize proven technology; minimize emissions; and avoid large economic risks. SWALCO's and the siting authority's determination on whether the proposed facility is consistent with the Lake County Solid Waste Management Plan will be based, in part, on the applicant addressing the following questions in the plan consistency (siting criterion number 8 of Section 39.2 of the Act) portion of the siting application:</p> <ul style="list-style-type: none"> • Facility Requirements - What type of facilities are required as part of the technology? How many facilities are needed and of what size, including both site acreage and disposal capacity (in tons per day)? • Siting - What are the facility siting requirements? Does a suitable site exist within the County? • Economics - What are the capital, operation, and maintenance costs associated with the technology? What are the probable revenues and life cycle costs? What are the estimated tipping fees per ton and how do the estimated 	<p>No new transfer stations were proposed in Lake County in the past 5 years.</p>



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	<p>fees compare to current tipping fees for disposal of Lake County waste?</p> <ul style="list-style-type: none"> • Technical Feasibility - Is the technology proven for a portion or all of the waste generated for disposal in Lake County? Can it provide reliable long-term management of the targeted waste stream? • Ability to Implement - Can the technology be successfully engineered? What are the potential obstacles to implementation and how will these obstacles be addressed? Can it be implemented in time to serve its intended purpose? • Environmental Impacts - What are the environmental impacts of the technology on the air, water, and land of Lake County and its surrounding neighbors? Do the air, land and water pollution control technologies proposed at the facility meet the most stringent standards under applicable state of Illinois and/or federal law? • Permitting - What federal, state and/or local permits will be necessary for the facility to be developed and operated? • Safety Issues - What safety concerns for the worker and general public are associated with the facility and can they be adequately addressed? • Health Risk Assessment - What are the health risks and benefits associated with the technology? • Financing - How will the facility be financed and can financing be arranged? • Life Cycle Assessment - What are the life cycle environmental impacts of the proposed transfer and disposal system compared to the current and projected disposal system in Lake County, using the following life cycle parameters – net annual energy consumption, sulfur oxides emissions, nitrogen oxides emissions and carbon dioxide emissions? 	
T6	Any proposed transfer station facility must meet the requirements of Recommendation A.1 (Host Community Benefit Agreements).	No new transfer stations were proposed in Lake County in the past 5 years.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
T7	Any proposed transfer station facility that intends to export waste outside of Lake County must transport the waste to a SWALCO-designated landfill in accordance with Recommendation L.1.	No new transfer stations were proposed in Lake County in the past 5 years.
Alternative Technologies		
AT1	With less than 14 years of permitted landfill capacity in Lake County, alternative technologies, which are limited to technologies that convert waste to energy through biological conversion (i.e., anaerobic digestion technologies, not including mass burn incineration or thermal or chemical conversion such as gasification), should be considered as a local and sustainable solution to managing Lake County's waste. If the proposed alternative technology facility meets the applicable requirements of the Lake County Solid Waste Management Plan (Recommendations AT.2 and AT.3) and it is 500 tons per day or less in design capacity (based on 365 days per year) it will be considered consistent with the Plan.	No new alternative technology facilities were proposed in Lake County in the past 5 years.
AT2	SWALCO and the siting authority (the unit of local government with siting jurisdiction in accordance with Section 39.2 of the Illinois Environmental Protection Act) will continue using the three guidelines that were outlined in the 1989 Plan for evaluating alternative technologies. These guidelines are: utilize proven technology; minimize emissions; and avoid large economic risks. SWALCO's and the siting authority's determination on whether the proposed facility is consistent with the Lake County Solid Waste Management Plan will be based, in part, on the applicant addressing the following questions in the plan consistency (siting criterion number 8 of Section 39.2 of the Act) portion of the siting application: Facility Requirements - What type of facilities are required as part of the technology? How many facilities are needed and of what size, including both site acreage and disposal capacity (in tons per day)? Siting - What are the facility siting requirements? Does a suitable site exist within the County?	No new alternative technology facilities were proposed in Lake County in the past 5 years.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	<p>Economics - What are the capital, operation, and maintenance costs associated with the technology? What are the probable revenues and life cycle costs? What are the estimated tipping fees per ton and how do the estimated fees compare to current tipping fees for the disposal of Lake County waste?</p> <p>Technical Feasibility - Is the technology proven for all or a portion of the waste generated for disposal in Lake County? Can it provide reliable long-term management of the targeted waste stream?</p> <p>Ability to Implement - Can the technology be successfully engineered? What are the potential obstacles to implementation and how will these obstacles be addressed? Can it be implemented in time to serve its intended purpose?</p> <p>Environmental Impacts - What are the environmental impacts of the technology on the air, water, and land of Lake County and its surrounding neighbors? Do the air, land and water pollution control technologies proposed at the facility meet the most current applicable state of Illinois and/or federal regulations for new facilities including the Maximum Achievable Control Technology (MACT) standards and anticipated regulatory changes that may be still pending final approvals?</p> <p>Permitting - What federal, state and/or local permits will be necessary for the facility to be developed and operated?</p> <p>Safety Issues - What safety concerns for the worker and general public are associated with the facility and can they be adequately addressed?</p> <p>Health Risk Assessment - What are the health risks and benefits associated with the technology?</p> <p>Financing - How will the facility be financed and can financing be arranged?</p> <p>Life Cycle Assessment - What are the life cycle environmental impacts of the proposed disposal technology compared to the current disposal system in Lake County, using the following life cycle parameters – net annual energy consumption, sulfur oxides emissions, nitrogen oxides emissions and carbon dioxide emissions?</p>	



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
AT3	Any proposed alternative technology facility must meet the requirements of Recommendation A.1 (Host Community Benefit Agreements).	No new alternative technology facilities were proposed in Lake County in the past 5 years.
Organization and Administration		
O1	Continue the coordinated county wide approach to the management and disposal of all nonhazardous waste generated within Lake County, including the management of recyclable and recoverable materials. Place increased emphasis on non-residential waste, including commercial, industrial waste and construction and demolition debris.	Implementation ongoing. See the responses to the other recommendations.
O2	SWALCO should continue providing centralized management of the plan implementation process and other municipalities currently not SWALCO members should be encouraged to join SWALCO.	Implemented. SWALCO continues to provide centralized management of plan implementation in Lake County. No new members have been added in the past 5 years.
O3	SWALCO members should assume responsibility for: (i) adopting necessary waste management ordinances, (ii) providing administrative and operational funding for SWALCO as determined by SWALCO Board of Directors and (iii) using the waste management and disposal system established by SWALCO.	Implemented. SWALCO members continue to pay the required Operations and Maintenance Fee of \$1.25 per household per year. This funding covers about 25% of the Agency's operating costs.
O4	The SWALCO Board of Directors shall provide for professional staff and resources necessary to undertake all programs to implement the Solid Waste Plan. As programs are altered, it may be necessary to adjust staffing levels to implement program changes.	Implemented.
O5	Maintain the designation of one or more Materials Recovery Facility(ies) (MRF) as an official component of Lake County's waste management system and encourage all members and non-members to utilize the MRF or MRFs for recoverables collected within their municipal boundaries; continue to establish and designate other components of the waste management system as appropriate.	Implemented. The WMI MRF in Grayslake has been the designated MRF for SWALCO members for the past 5 years. Only six of the 43 municipal members do not direct their recyclables to the Grayslake MRF.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
O6	Obtain input from the public in the development of solid waste policies, such as from a citizens advisory group. Prior to adopting the next update to the Lake County Solid Waste Management Plan establish a new citizens advisory committee (CAC) to help in the preparation of a draft plan update for review and approval by the SWALCO Board of Directors and the Lake County Board.	Implemented. The SWALCO board appointed a 23 member citizens advisory committee at its January 2019 meeting to assist with the 2019 Plan Update.
Finance and Ownership		
F1	Monitor operations of the six sanitary landfills currently under agreement with SWALCO for the provision of a given amount of privately-owned-and-operated landfill disposal capacity, secured by contract/agreement. Retain, as a long-term option, the public ownership of recycling, composting and/or final disposal facilities to meet the waste/material management needs of Lake County.	Not implemented. The capacity guarantees with both in-county landfills have expired. It is expected that the next host agreement with the proposed expansion of the Zion LF will include a capacity guarantee provision.
F2	Examine and where determined appropriate, pursue all reasonably available sources of interim and long-term funding for implementing programs and facilities recommended in the Plan Update.	Implementation ongoing.
F3	SWALCO and Lake County should monitor and apply to federal, state and private sources for grants and loans to be used for capital assistance when such funding is consistent with the goals of the Plan.	Implementation ongoing. Continued to monitor federal, and state sources of grants. State has not offered a grant program in the past 5 years.
F4	SWALCO members and non-members should be encouraged to consider other available sources of assistance grants and funds to finance and operate local recycling projects.	Implementation ongoing. Several member communities (Highland Park, Grayslake, Libertyville and Round Lake Beach) have received grants for AmeriCorps interns in 2018/2019. Several interns worked directly with SWALCO on recycling and food scrap programs.
Legislative Initiatives		
I1	Utilize the SWALCO Legislative Committee to develop an annual Legislative Policy for approval by the Board of Directors. SWALCO's legislative efforts should be coordinated with Lake County and other	Implemented. Each year for the past 5 years the Legislative Committee developed an annual Legislative Policy which was subsequently approved by the SWALCO Board of Directors. Significant legislative



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	entities. The Legislative Policy should be consistent with the Lake County Solid Waste Management Plan as updated and amended.	efforts included electronics legislation being enacted along with work on plastic bag and carpet recycling bills in 2019.
Host Community Benefit Agreements		
A1	<p>Prior to filing a siting application, pursuant to Section 39.2 of the Illinois Environmental Protection Act, for a new pollution control facility or for an expansion or significant modification to an existing pollution control facility, the applicant shall first enter into Host Community Benefit Agreements with the following units of local government: 1) the governing body with jurisdiction over the proposed facility, 2) SWALCO and 3) Lake County. In addition, the applicant may enter into additional Host Community Benefit Agreements with other appropriate units of local government, as determined by the applicant. In the event the applicant represents an existing pollution control facility with existing Host Community Benefit Agreements, the applicant shall amend each existing Host Community Agreement with each respective party prior to filing the siting application with the governing body.</p> <p>The new and/or amended Host Community Benefit Agreements must, at a minimum, contain provisions for: 1) a guarantee of access to capacity at the facility for Lake County's unincorporated and incorporated solid waste, 2) environmental safeguards, and 3) payment of host benefit fees.</p> <p>As part of the host agreement negotiations with all applicable units of local government and prior to the approval or disapproval of the host agreements, the developer must demonstrate, using a SWALCO approved life cycle assessment model, that its proposed disposal option is superior to the current system for at least three of the four parameters (net annual energy consumption, sulfur oxides emissions, nitrogen oxides emissions and carbon dioxide emissions), one of which must be carbon dioxide emissions. The life cycle assessment results and all input data must be provided to all interested parties and presented in a public</p>	No new or expanded pollution control facility siting applications were filed in Lake County in the past 5 years.



TABLE 3.1 IMPLEMENTATION STATUS OF THE 2014 PLAN UPDATE RECOMMENDATIONS

ID	Recommendation	Status of Implementation
	<p>meeting hosted by the governing authority with jurisdiction for siting, and both SWALCO and Lake County representatives will be invited to the same public meeting (the intent is to have one public meeting that all units of local government that must approve host agreements would attend jointly). The life cycle assessment results must be made available to SWALCO (and posted on SWALCO's website) and other interested parties at least 30 days prior to the public meeting in order to provide interested parties time to evaluate and comment on the results.</p> <p>All reasonable and necessary costs, including but not limited to legal fees and consulting fees, associated with the development of Host Community Benefit Agreements, and the evaluation of the life cycle assessment model and data shall be paid for by the developer to the affected units of local government. The developer will be required to establish an escrow account or multiple escrow accounts that the units of local government can draw on to pay for their reasonable and necessary costs. The amount of the escrow account or accounts shall be equal to the amount of the reasonable and necessary costs and funded as necessary to cover such costs. This is consistent with the provision in Section 39.2 of the Illinois Environmental Protection Act which authorizes units of local government to charge applicants pursuing siting approval for a pollution control facility a fee to cover the reasonable and necessary costs incurred by the unit of local government in the siting review process.</p>	



SECTION 4

CIRCULAR ECONOMY AND GREENHOUSE GAS EVALUATIONS

4.1 Introduction

Historically waste management was viewed in a linear fashion – produce the product, use the product and then landfill it when done. Since the first Lake County Solid Waste Management Plan was adopted in 1989, SWALCO and Lake County have made tremendous progress in diverting recyclables and landscape waste/food scraps from final disposal. The County's efforts were prompted by the State of Illinois' legal requirement to develop a plan designed to ultimately achieve a 25% recycling rate which we have met, and due to Lake County's goal to be a leader in sustainable waste management programs.

The 2019 Plan Update includes this new section in an effort to shift the thinking in Lake County to a circular economy (CE) approach to waste management, and to evaluate our programs not just on a diversion rate, but to include reducing greenhouse gas (GHG) in the evaluation process as well. SWALCO hired a consultant, Resource Recycling Systems (RRS), to complete two reports that are included in this section: Circular Economy Resource Management Report, and Greenhouse Gas Report. Both reports contain recommendations or conclusions that have been incorporated into Section 5 of the Plan Update and form the basis for a new approach to waste management and a new way to measure the County's success (i.e., reducing GHG).

The reports were important to developing the key policy recommendations contained in Section 5, but they are background documents only. The CE report provides background on what a circular economy is and a gap analysis comparing SWALCO's 2018 program data to six best practices areas: 1) collection, 2) processing, 3) end markets, 4) education and outreach, 5) supporting policies, and 6) public private partnerships. The analysis demonstrated that SWALCO has strong programs in collection and processing but needs more focus on education and outreach, and public private partnerships. The GHG report utilized USEPA's Waste Reduction Model (WARM) to measure the current benefit of SWALCO's programs versus a modeled scenario where SWALCO develops programs to recycle an additional 38,679 tons per year of the top priority materials identified in the WARM model (aluminum cans, steel cans, corrugated containers and food scraps), and source reduces an additional 10,069 tons per year of food scraps. Based on the WARM model output, achieving the modeled scenario would reduce GHG emissions by over 123,364 metric tons of carbon equivalent approximately equal to the GHG produced by 26,248 vehicles driven for a year.



4.2 CIRCULAR ECONOMY

What is Circular Economy?

The circular economy is a model for moving beyond traditional 'take-make-waste' industrial processes which result in significant landfilling of valuable materials that could be recycled to make new products. Benefits of circular, closed-loop thinking are realized at the scale of the local economy. RRS has identified measurable benefits to include waste and carbon emission reduction, job creation, and more sustainable land use practices that conserve landfill space for those materials that don't have recovery options.

The UK-based Waste and Resources Action Programme (WRAP) provides a useful benchmark that RRS utilizes for putting circular economy principles into practice. WRAP provides practical examples of the circular economy as defined by the Ellen MacArthur Foundation. According to WRAP, the circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them while in use, then recover and regenerate products and materials at the end of each service life.¹

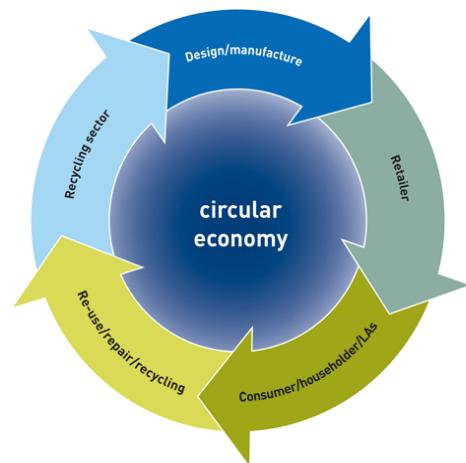


Figure 4.1: WRAP Circular Economy

As a well-established regional materials management planning body, SWALCO is uniquely positioned in the transition to a circular economy to enable, lead, and involve key stakeholders from across the public and private sectors. Instead of throwing materials away to landfills, an improved distributed system of resource management, nutrient flows, recycling and reverse logistics makes the return, sorting, and reuse of products possible. Valuable materials stay in use. It's not in the best interest to continue to support a linear approach of take, make, and dispose. A circular approach will improve resource efficiency, reduce greenhouse gas emissions, and drive local job creation and economic growth.

Assessing SWALCO's recycling system to assist the circular economy provides a roadmap and poised forward thinking plan to align system and help push/enable transition. Planning for circular economy resource management links the upstream, midstream, and downstream stages of a product's lifecycle. Figure 4.2 shows the relationship of key actors and interests that form the basis for working relationships.

¹ Wrap. 2017. Available at <http://www.wrap.org.uk/about-us/about/wrap-and-circular-economy>



Figure 4.2: Circular Economy Shared Interests Call for Collaboration

Working together, communities achieve critical mass of valuable materials to attract end users for materials and reduce material hauling and process costs. Brands and retailers are incenting production and use of post-consumer content in various ways.

SWALCO sees the need and has targets to conserve resources and protect the environment. The Chicago Metropolitan Agency for Planning (CMAP) estimated Lake County population at 704,476 in 2017. Assuming the population growth rate will remain flat as observed from 2010 (census) to 2017 and disposal rate holds flat at 5.08 pcd, SWALCO will not see a decrease in disposal tonnages. The waste management sector, working in partnership with municipalities and end markets users, has the expertise to maximize material recovery, value creation, and ensure the region resilience to resources of the future. Innovative solid waste management is a driver for the circular economy. To make this effort work, cross-sector collaboration, partnerships, planning, investment, and communication need to occur on a regional scale. SWALCO is well organized to achieve the regional cooperation that is required for circular economy benefits to be realized.

Current recycling practices should be enhanced to meet 2020 targets by updating processing and collection to recycle the evolved ton of consumer packaging in both residential and commercial streams. Materials such as organics are generated in large amounts and can be recovered, managed and consumed locally – independent of export markets and commodity prices. Local economies can develop around reuse and repair with the critical mass available needed to sustain this marketplace. Solutions for the management of post-consumer paper and packaging are better coordinated through the planning environment enabled through SWALCO. Industrial waste flows and access to C&D recycling infrastructure can generate niche markets for more homogeneous waste streams and recovery opportunities.

Each of SWALCO's plan updates build upon the current management system by taking an objective look at past progress and systematically planning for advancement. SWALCO is poised to go beyond recycling and recovery basics towards a more sustainable waste and resource management system. The foundation for taking advantage of circular economy principles through solid waste planning begins with measuring a community's uptake of recycling best practices.

Economic Opportunity for SWALCO Planning Region

RRS estimated the economic impact of a circular economy program in Lake County by analyzing data on current waste and recycling streams and performing a recycling best practices gap analysis. Table 4.1 estimates landfill, recycling, composting and generation for one year. Based on disposal RRS estimates that 269,415 tons are potentially recoverable materials.

Table 4.1: Baseline Material Management Data for Job Impact Analysis

	TONS
Landfilled (Commercial, Residential, Industrial)	649,193
Recycled (Commercial, Residential, Industrial)	303,462
Composted (Commercial, Residential, Industrial)	111,065
Generated (Commercial, Residential, Industrial)	1,063,720
Opportunity (Focus material currently being disposed)	269,415

Using the five-year average market value of recyclable commodities, RRS estimates that the annual value of focus materials currently being disposed is \$30,982,736. The five-year average is used to illustrate what the value of material has been over time to justify an investment in recovery infrastructure. It is important to note there has been extreme volatility for the last two years as China exited the marketplace. Thus, average market value does not represent a reliable return for the MRF industry. However, as domestic marketplaces develop to replace China, this value represents the opportunity that can be potentially recovered as markets stabilize. Table 4.2 displays the commodity value breakdown. Table 4.3 displays the total annual opportunity costs.

Table 4.2: Commodity Value Chart for Disposed Focus Material Currently in Landfill

FOCUS MATERIAL	\$/POUND REGIONAL AVERAGE (1 YEAR)	\$/TON	TONS/YEAR DISPOSED	MARKET VALUE DISPOSED
Aluminum Cans (Sorted, Baled \$/lb)	\$0.68	\$1,353.80	5,398	\$7,287,665
Glass (Mixed)	(\$0.01)	(\$23.14)	10,846	(\$250,285)
Paper (Soft Mixed Paper)	\$0.02	\$31.88	25,935	\$824,534
Paper (OCC)	\$0.05	\$105.63	59,763	\$6,295,396
Plastics (PET price)*	\$0.14	\$271.80	48,060	\$13,026,769
Steel Cans (Sorted, Loose Price)	\$0.08	\$150.94	10,582	\$1,633,439
Organics	\$0.01	\$20.00	108,560	\$2,165,217
TOTAL			237,023	\$30,982,736

*For conservative estimates used PET pricing which is the lowest market plastic commodity price.

Table 4.3: Opportunity Costs

	COST
Avoided cost of focus material disposal	\$12,123,679
Market/commodity value of disposed focus material	\$30,982,736
TOTAL Annual Opportunity	\$43,106,415

*Estimated per SWALCO MSW Tipping Fee at \$45 per ton.

Each ton of material that is recycled or re-used as opposed to being landfilled has the potential to create new jobs in the County, region, and state. RRS estimates that there is the potential to create 1,518 jobs from increased recovery and recycling. These are direct job impacts and do not include the indirect or induced impacts of increased recovery. The job impacts are spread out over the recycling, reuse, and recovery value chain and are not necessarily located in Lake County or even in the state. Table 4.4 displays the estimated job creating impacts.

For every green job directly created in the collection, processing, and manufacturing related to the recovery of focus materials, an equal or greater number of jobs are indirectly generated in the businesses that supply goods and services to the recycling sector or induced through typical consumer behaviors of these workers. A conservative estimate forecasts that the recovery of the currently disposed focus materials will yield an additional 1,518 jobs through indirect and the induced effects.

Table 4.4: Added Jobs per Commodity

FOCUS MATERIAL	COLLECTION & PROCESSING JOBS GAINED	MANUFACTURING JOBS GAINED	TOTAL RECYCLING JOBS	LESS DISPOSAL JOBS	TOTAL JOBS ADDED
Aluminum Cans	17	84	101	-3	98
Glass (Mixed)	35	75	110	-6	104
Paper (Mixed Paper)	73	83	156	-13	143
Paper (OCC)	193	219	412	-35	377
Paper (Newsprint)	11	12	23	-2	21
Plastics (PET & PE)	155	436	591	-28	563
Steel Cans	35	39	74	-6	68
Food Waste & Mixed Organics	207	-	207	-63	144
TOTAL	727	947	1,674	-156	1,518

Note: Multiplier effect (an equal or greater number) can be added to this total.

Source: Tellus Institute report: More Jobs, Less Pollution: Growing the Recycling Economy in the U.S., 2011.

Uptake of Best Practices

Scope:

There are a series of interconnected strategies and stakeholders that must work together to achieve a high functioning responsible resource management system. To provide a fact-based analysis to inform customized circular economy recommendations for the County, RRS benchmarked a snapshot year (2018) of SWALCO data to our database of national best practices. RRS identifies collection, processing, end markets, policy, education, and financing partnerships as the six “key” areas of best management practices that must be integrated for system success. The six ‘key’ areas are:

- **Collection:** This key area includes the process of moving materials from their point of generation to a consolidation or processing facility. Collection includes hauling companies as well as drop-off networks.
- **Processing:** The facilities and techniques for processing materials disposed, recycled, or composted in the County. Processing facilities includes landfills, MRFs, and transfer stations as well as compost facilities, electronics waste recyclers, and other facilities.

- **End Markets:** The infrastructure available to purchase processed commodities. Some end markets will do secondary processing prior to using the commodities while other will use the recycled commodities directly as inputs in remanufacturing. End market products can range from compost for local farmers use to fuel products and plastic pellets for recycled content products.
- **Education and Outreach:** The existing programs, tools, marketing channels, and materials used to promote recycling, composting, and waste reduction in the County.
- **Supporting Policies:** Municipal and county codes, fees and ordinances as well as state-level laws or initiatives that support increased value capture and landfill diversion.
- **Public Private Partnerships:** Agreements and financing approaches that leverage the human resources and financial capital of the private sector to assist local governments with recycling system and infrastructure projects.

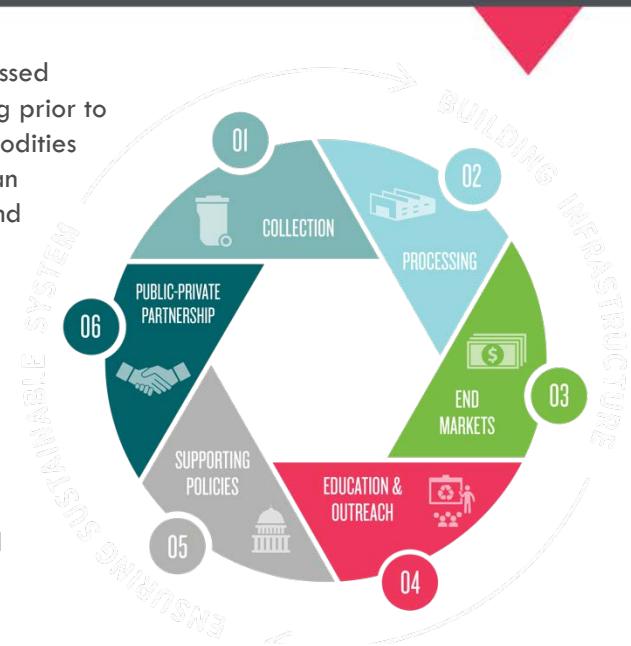


Figure 4.3: Six Areas of Best Practices

It is important to note reuse, repair, and re-manufacture of household goods is necessary for progression towards a circular economy. The six key areas assessed did not include reuse due to lack of data regarding reuse collection and coverage of inventories, thus this key area does not have a relative uptake measurement. As such reuse is outside of the scope for uptake measurement in this report.

For each of the recycling system key areas highlighted above, RRS' developed a gap analysis survey to measure the relative uptake of identified recycling best practices across the SWALCO region. A set of recycling best practices has been identified by RRS in collaboration with the AMERIPEN recovery workgroup and continually updated through work with Beyond 34 and other regions of the US. Both the recycling best practices and the RRS gap analysis protocol were updated and then adapted to SWALCO requirements. RRS benchmarked current programs against these best practices to measure the uptake and identify opportunities in the region. Measuring the uptake of recycling best practices moves beyond infrastructure and facility needs to look at the system holistically. This measurement for successful recovery and recycling helps create a road map to achieve regional recovery goals and identify opportunities for short and long-term solid waste and regional economic development planning.

Results:

As a result, recycling best practice gaps were identified that are opportunities for targeted investment to improve recovery, recycling market development, and partnerships. Figure 4.4 summarizes SWALCO's uptake measurement for the six best practice areas.

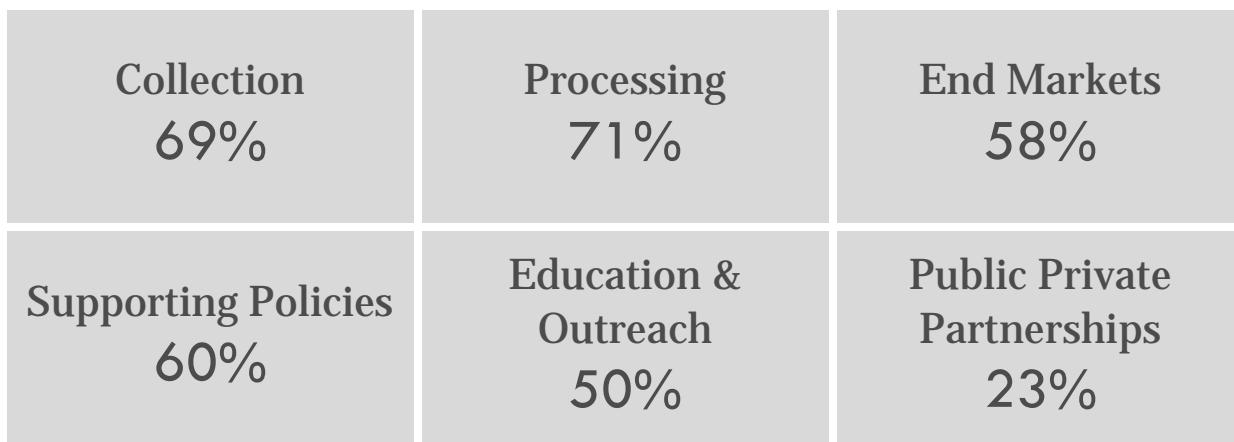


Figure 4.4: Best Practice Uptake Measurement Score

Lower value scores signal an opportunity in that key area to prioritize programs and investment to achieve higher adoption of recycling best practices that should in turn produce circular economy benefits. Figure 4.5 shows the general trend for percentage uptake of recycling best practices by a varied set of communities across the country. The data shows us that as communities adopt a higher percentage of recycling best practices, their reported pounds per household recycled trends higher. While the gap analysis survey results provide an opportunity to post an overall score, we need to understand the relative values of this exercise. High performing communities typically score in the 60% to 70% range with outliers on either side of that.

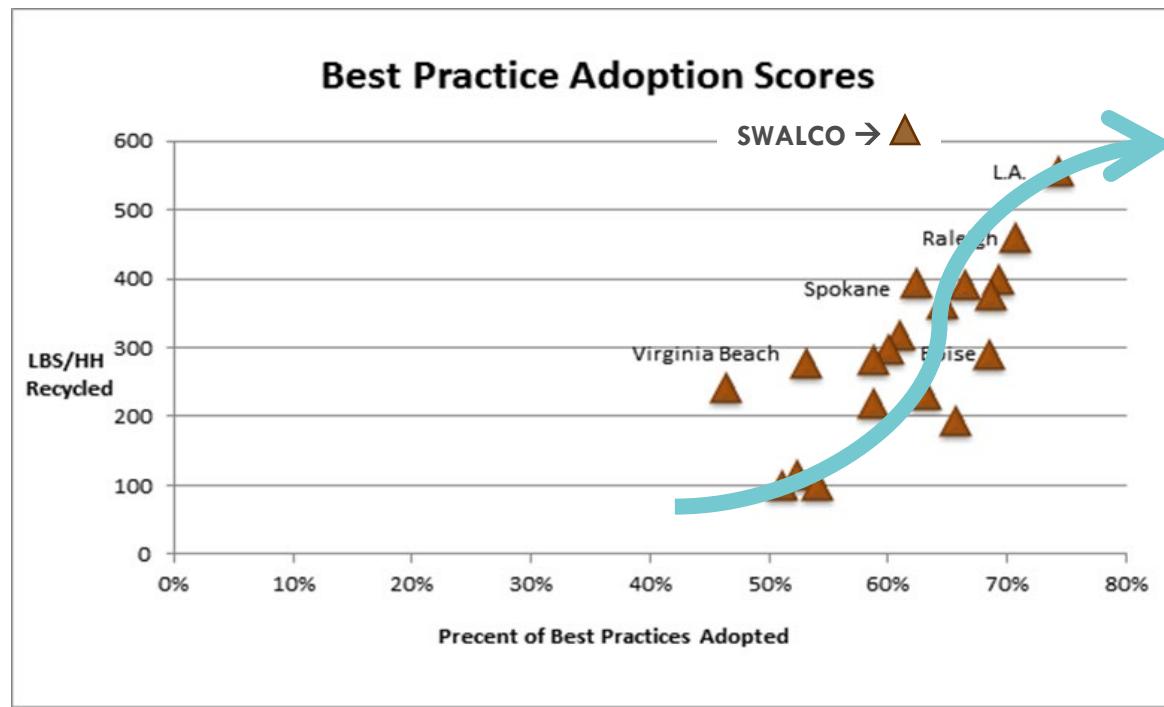
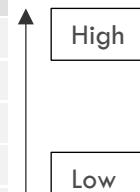


Figure 4.5: Best Practice Adoption Scores

The uptake measurement for each of the recycling key areas are discussed in the following section in more detail. Each key area has several components of best practices which are aggregated for the relative uptake score. Harvey Balls are utilized to represent uptake scores for each of the best practices measured. Relative uptake ranges from 0 to 100%. The individual best practice scores below provide a guide for the gap analysis results, help to identify opportunities, and will serve as a baseline to measure against in the years to come.

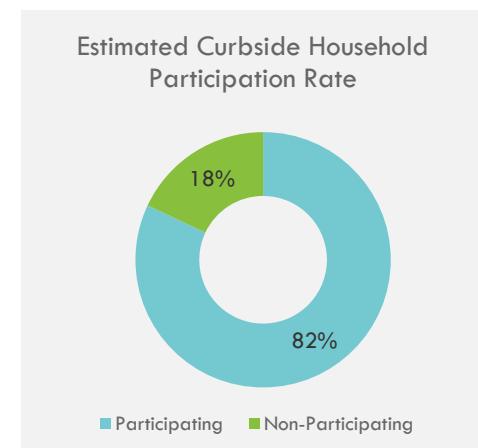
Best Practice Uptake Scale	
●	100%
○	75%
○	50%
○	25%
○	0%



COLLECTION

Every household and business in a community needs easy access to recycling through curbside collection, commercial collection, and/or drop-off site locations. Recycling should be just as convenient as waste disposal. RRS staff collected data from SWALCO on haulers in the County to analyze the current access to collection and evaluated the current collection compared to best practices for similar communities.

Overall uptake of Collection Best Practices measures 69%.



Uptake	Best Practice	Findings
○	Multi-family programming (ordinance or other avenue to encourage access to recycling)	Policy and program development are best practices. One community member, Grayslake, ordinance specifically identifies 8 unit plus language for haulers to service. Lake County's Solid Waste Hauling and Recycling Ordinance requires haulers to offer collection to single-family homes. Franchise agreements are used by 8 community members in their residential hauling franchise. Optimal programs also collaborate with zoning and planning departments to require stipulations for multi-family building plans to accommodate diversion receptacles. Convenience, buy-in and participation factor into program development. The uptake demonstrates opportunities in this area.
○	Commercial programming (ordinance or other avenue to encourage access to recycling)	Franchise contracts provide a base level of recycling service at no added cost. Seven communities have commercial franchises and 6 more are conducting a 3-year study of recycling participation rates. The participation rate of commercial sector is low. In this area, there are opportunities to work with the commercial sector to give greater access.
○	Away from home collection	Away from home recycling reinforces a recycling ethic and provides a way to recycle while on the go. The uptake level demonstrates opportunities in this area.
●	Adoption of rolling carts for recycling collection	Carts demonstrate a high yield for recovery of recyclables. The 43 community members and Great Lakes Naval Training Center have carts; in unincorporated areas carts are encouraged.
●	Adoption of single stream	Well-managed single stream recycling with good monitoring is considered best practice. MRF processing of curbside materials in a single stream.
●	Adoption of curbside collection programs for recycling	Lake County's Solid Waste Hauling and Recycling Ordinance requires haulers to offer collection. The 43 community members, Great Lakes Naval Training Center and Lake County (unincorporated) have curbside recycling service.

●	Weekly collection of recyclables	Communities attaining high recycling rates provide weekly collection. Curbside recycling is collected weekly. 43 community members, Great Lakes Naval Training Center and Lake County (unincorporated). Franchises, license requirements, and Lake County's Solid Waste Hauling and Recycling Ordinance sets minimum requirements for collection in the unincorporated areas.
●	High capacity vehicles used for efficient service and collection	High capacity vehicles influence transport efficiency, cost and environmental impacts. One company uses CNG vehicles and has a fueling station.
●	Automated vehicles used to service rolling carts	Curbside collection vehicles are fully automated.
●	Direct MRF access for curbside collection trucks	Success in transporting materials for recycling depends on collection and recovery facilities being relatively near. Grayslake MRF is centrally located and most community members direct haul materials.
●	Transfer station access for curbside collection trucks further from MRF site	Transportation costs often determine the practicality of recycling. Haulers have access to transfer stations.
●	C&D ordinance in place to encourage recovery/diversion	Lake County's Solid Waste Hauling and Recycling Ordinance requires 75% diversion of all C&D generated by Covered Projects – unincorporated areas + 5 community members have adopted similar policy language.
●	Yard waste programming	A three-cart system (garbage, recycling, food/yard waste) is best practice for a high-yield community. Most community members have yard waste collection service. Additionally, the county has 15 active sites.
●	Residential food scrap collection programs	Food scrap collection service is growing. Uptake measurement demonstrates opportunities as almost half of the community members have residential service during the 8-month landscape waste season. Two municipalities have year-round programs.
●	Commercial food scrap collection programs	Ongoing outreach in Grayslake, Libertyville, Highland Park has resulted in 10 commercial food scrap collections and a potential of 13 additional. Ongoing food scrap with the county correctional facility and Great Lakes Naval Training Center. Ample opportunities of awareness, expansion, and program development in the commercial sector.

Review of collection best practices reveal that SWALCO is hitting the mark in many areas and is actively working on the areas where there are opportunities for additional uptake – such as commercial recycling, and food scrap diversion through the continued adoption of ordinances and/or franchises in a growing number of SWALCO communities. The biggest opportunity for collection is education and outreach. Each of the opportunities listed below requires an element of community based social marketing outreach to change behaviors to utilize the collection infrastructure SWALCO's interventions developed.

Collection Opportunities:

1. Encourage additional community adoption of commercial franchise and/or recycling ordinance provisions with a focus on multi-family, C&D, and food scrap recovery. Further investment is needed in outreach to target multi-family property managers for participation and expansion of away from home recycling (P3 opportunity).
2. Engage franchise communities to increase recovery from commercial generators with a voluntary program that provides incentives and recognition for private sector participation. Include traditional recyclables and food scrap in the program scope. Further investment is needed in a communications plan to launch the program and illustrate municipal collection for today's ton of modern packaging material.
3. Encourage additional community adoption of C&D ordinance policy language.

4. Further investment in outreach that links recycling behaviors to greenhouse gas reduction and economic benefits from applying circular economy principles.
5. Single stream needs to be cleaner. Households have to do a better job of sorting items headed to the MRF. Communication needs to be consistent, simple, and accurate. Haulers, communities, and SWALCO need to use the same terminology and message.
6. Grow food scrap collection programs by dedicating more resources to educate commercial and residential sectors.

PROCESSING:

The material collected from residential and commercial generators needs to be sorted, baled and prepared for sale to end markets. It is crucial for SWALCO to have material recovery facility (MRF) capacity, transfer stations and drop off facilities optimally located in a hub and spoke model, and to plan for the MRF technology upgrades required to sort the current ton of post-consumer residential and commercial materials available for recycling today. Processing capacity, contracts, facility location, and delivery infrastructure are key factors to be optimized through cross-sector collaboration to gain critical mass material streams from commercial, industrial, and residential generators in the SWALCO region.

Overall uptake of Processing Best Practices measures 71%.

Uptake	Best Practice	Findings
●	Access to MSW transfer to landfill	Economic considerations especially economies of scale, is a best practice. Access to transfer stations serve as a link for a collection program and final disposal facility in Lake County. Lake County currently has 1 waste transfer station in Round Lake Park.
●	Access to MSW direct haul to landfill	SWALCO maintains existing contracts with 2 in-county landfills and 4 out-of-county landfills for a total of 6 to provide disposal capacity.
○	MRF has the capacity and flexibility to process additional materials	Best practice is MRFs continuing to improve the ability of the sorting methodology and performance standards. Grayslake MRF has aging equipment and is at a crossroads to upgrade or build new. The lines are slower and flexibility to add additional materials to recycling the changing waste stream is limited. The uptake demonstrates opportunities for SWALCO.
●	MRF/Transfer Station within 10 miles	SWALCO's infrastructure for MRF/Transfer Station meets current needs.
○	MRF residue below 10%	Residual rates are an indicator of the success of the sorting systems and the recycling collection programs. Best practices demonstrate less than 10% residue which minimizes contamination costs and helps ensure high quality bales for market. SWALCO's residue rate is higher than 10%, reported by Grayslake MRF, and SWALCO is working closely with MRF to address these issues.
●	Processing contract in place for delivered curbside tonnage	SWALCO maintains a Capacity Agreement with a qualified recycling firm (Grayslake MRF, owned by Waste Management, Inc.) to assure enough capacity is available. SWALCO encourages members and townships to enter into a Per Ton Payment Intergovernmental Agreement with SWALCO.
●	Multiple MRFs available for processing if needed	SWALCO's recyclables currently go to four MRFs; one in Lake County and the remaining three in Cook County.

The infrastructure for the transfer and disposal of municipal solid waste (MSW) is strong in the County. The infrastructure available to consolidate, transfer, and process recyclables and landscape waste in or around the



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County is also strong. SWALCO's recycling system relies on a negotiated contract with an MRF owner/operator. The contract controls what materials are acceptable and how they are separated and marketed. Municipal members are somewhat sheltered from the market volatility because of SWALCO's Processing Facility Capacity Agreement, franchising model, and contract assistance; however, the MRF is completely vulnerable to market volatility. The Capacity Agreement expires the end of 2019. As the Processing Facility Capacity Agreement is set to expire, there is an immediate need to review options and determine direction for 2020 and beyond. With the "evolving ton", a term being used to describe the shift in the overall composition of the municipal solid waste stream over the past 20 years, the MRF's ability to process the current composition of consumer packaging is limited by facility size and technology. SWALCO and Solid Waste Association of Northern Cook County are conducting a regional MRF analysis. The analysis could pose additional opportunities.

Processing Opportunities:

- Encourage processing competition. Begin the process with a pre-RFP Request for Information and market sounding to open up the marketplace. Given the large tonnage generated and managed by SWALCO and community members, the agency has a good deal of leverage to exercise over how recyclables are processed.
- Better understand the residual composition to determine inbound marketable material that is not being captured.
- Think about the possibility of a residual MRF or plastics recovery facility (PRF) to recover value from the residual stream, including low weight but marketable packaging formats.
- Engage processors in SWALCO's Circular Economy vision as potential partners with regards to planning to capture the value in the evolving waste stream.

END MARKETS

Over \$30 million worth of focus materials are disposed each year in Lake County at a cost of over \$10 million. Recycling and recovery of all recyclables currently being landfilled has the potential to create 1,517 new green jobs, and an equal number of indirect jobs.

A healthy network of domestic markets for the material found in the recycling cart - primarily paper, plastic, aluminum, and glass - is essential. Recycling markets, specifically post-consumer recycled product manufacturers, are hungry for certain types of feedstock and currently seek regular, stable supplies of feedstock to site and build facilities. The success of local and regional end markets for recyclable material collected leads to a sustainable circular economy that ultimately allows material to remain in product value chains, minimizing leakage and loss to landfill.

Overall uptake of End Markets Best Practices measures 58%.

Uptake	Best Practice	Findings
●	Contracted haulers to achieve optimal material recovery	SWALCO's Processing Facility Capacity Agreement and community member hauler contracts assure recyclables are not landfilled or burned.
○	Commodity destination knowledge	SWALCO's Processing Facility Capacity Agreement does not control markets for materials. Assurances are with the MRF that commodities are marketed.



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○	Additional materials to recover either in MRF residue or other collection loops	MRF at capacity for materials and aging technologies are not able to handle the changing waste stream. The next level of material recovery (cartons, paper cups, flexible packaging, etc.) is limited at the MRF thus limiting the system for future material recovery.
○	Augment MRF collection with direct bale and shipment	Direct bale and marketing fill a gap when MRFs are not capturing all the materials. Rural communities benefit greatly when this alternative method of handling materials is used. SWALCO's communities rely on MRF to bale and directly market traditional recyclables. Some commercial retailers bale and market own cardboard.
●	# of SS MRFs in Region (3+)	Several options are within range for handling the recyclables, and to offer competition as needed. Lake County has 4+ SS MRFs in the Region.
○	Options and access to local market	SWALCO's staff and member knowledge of local markets are not clearly defined because of dependency on MRF. Opportunities to work with recycling markets to ensure more accessible recycling opportunities.

The gap analysis shows strength, organization, and scale with an active network of contracted haulers delivering to a regional MRF. There is sufficient MRF infrastructure available in the region for backup residential processing, and MRF competition for recovery of commercial tonnage. With these strengths providing a good foundation, there is room for SWALCO to create a robust local economy that uses the existing resources to innovate and develop a community for the circular economy.

There is opportunity for SWALCO to pivot, leveraging public resources and incentives to catalyze development of domestic end markets. Supporting growth of recovered materials markets and post-consumer recycled (PCR) content products presents a clear path forward to building a more sustainable economy. A local fund could be established to promote economic development and attract manufacturing using materials currently going to landfill. The funds made available would support recycling, composting, anaerobic digestion, source reduction, and beneficial use/reuse. Another opportunity to capture value currently landfilled is to attract investment and create jobs by developing a sustainable business park. A variety of complementary businesses, entrepreneurs, and startups that need access to raw materials could tap into these reclaimed or converted materials, incorporating them into their production processes or transforming them into entirely new products. These parks have tremendous potential for preserving open space, establishing a center for innovation, and both producing and using renewable energy to power operations, which would save money on electricity costs and further protect air and water resources.

End Market Opportunities:

- Collaborate with government departments (economic development, resource recovery management, planning departments, office of sustainability, etc.) to lay a framework for strategic coordination to attract end-market development. Integrate with forms of financial assistance available to support businesses (grants, tax incentives, etc.).
- Launch an end market development program to build a network of partners to create economic value through collaboration, research, innovation and application. This program would serve to find solutions to increase diversion; to nurture and develop waste-to-product projects and ideas.
- Enhance by-product synergies and/or waste exchanges.
- Establish a Recycling Economic Development Fund to set aside funds to support recycling, composting, anaerobic digestion, source reduction, and beneficial use/reuse.
- Stimulate creation of sustainable business park(s) that use the most prevalent categories of packaging in the waste stream for product feedstocks.

- Pursue minimum recycled content legislation at state and federal levels.

SUPPORTING POLICIES

In order to reach high landfill diversion goals, policies will be needed to ensure sustainable management of material is the standard practice throughout the community, not just the best practice. A variety of policies can be explored by SWALCO that have contributed to success in other regions in the US and around the world, and include rural areas.

Overall uptake of Policy Best Practices measures 60%.

Uptake	Best Practice	Findings
●	Mandatory Recycling Ordinance	Mandatory recycling ordinances demonstrate a high yield for recovering recyclables. Lake County's Solid Waste Hauling and Recycling Ordinance requires haulers to provide recycling services to residential customers and to offer recycling services to the commercial customers. Franchise agreements bundle recycling and trash services. Community enforcement and ordinances vary.
●	Multi-family Recycling Ordinance	The uptake demonstrates opportunities for multi-family policy. One community member, Grayslake, ordinance identifies 8 unit plus policy language. Lake County's Solid Waste Hauling and Recycling Ordinance requires haulers to offer service.
●	Enforcement of recycling	Lake County's Solid Waste Hauling and Recycling Ordinance describes enforcement and penalties for violations. Community enforcement varies.
○	Mandatory recycling legislation in place to require the collection of cardboard, plastic bottles, or aluminum cans etc.	Material specific policies help establish the market for recycled goods. There are opportunities for SWALCO to explore.
●	Landfill ban for certain materials is in place	State of Illinois has material specific bans (landscape waste, tires, lead-acid batteries, white goods, used oil, electronic products, and mercury thermostats). Landfill disposal is relatively inexpensive placing waste minimization and recycling at an economic disadvantage compared to disposal. Material specific landfill bans on the most valuable commodities successful when paired with mandatory recycling.
●	Pay-As-You-Throw Program	Lake County's Solid Waste Hauling and Recycling Ordinance requires haulers to offer volume-based billing options. A good number of communities have PAYT, but it is uncertain if the price differential is incentivizing.
●	Transparent MRF contracting that includes a clear processing fee, revenue share arrangement	MRF Processing Facility Capacity Agreement includes revenue share agreement.
●	Franchise agreement in place for collection services	41 community members use franchise agreements, 1 community public hauls, and 1 community licenses. In unincorporated Lake County 3 townships adopted franchises. Commercial franchise agreements are growing.
●	Tax based funding for community recycling services and infrastructure	5 communities absorb recycling services in property taxes. SWALCO's programs have several funding mechanisms in place: landfill contract fee, export waste fee, host community fee, recycling revenue, and user fee.
●	Fee based funding for community recycling services and infrastructure	Member communities vary in handling their fees to the residents. SWALCO's programs have several funding mechanisms in place: landfill contract fee, export waste fee, host community fee, recycling revenue, and user fee.

 **Recycling fee separate from disposal on monthly utility bill or tax statement**

Some homeowners are aware of the cost for service while some are not. Various methods implemented across the communities.

Through the planning process SWALCO has designed a range of interventions pushing high quality recycling. Policy interventions supporting the system include:

- Setting a recycling target of 60% by 2020.
- Supporting state legislation of C&D facilities to divert 75%, as well as other state legislation.
- Maintaining a zero floor Capacity Agreement with MRF to pay community members for their recyclables based on actual value or blended value of recyclables. Recycling material contracts to deliver better value and encourage investment in domestic reprocessing.
- Setting goal disposal rates for the residential and commercial/C&D sectors.

The SWALCO region has strong requirements around the provision of residential recycling services through universal adoption of residential franchise agreements that are part of community recycling programs. A growth area is policy relative to commercial and multi-family recycling. More and more communities are adopting commercial franchises to address this area, and some communities include multi-family recycling as part of their residential franchise agreements. The franchise does not require mandatory recycling but creates a requirement for the hauler to offer this service. In the case of the residential franchise, trash and recycling services are bundled so the resident is paying for the service whether or not they use it. In the commercial sector haulers have to offer the service, typically for an added charge except in the 7 communities with commercial franchises, cost for a certain level of recycling is included in the waste service charge.

Supporting Policy Opportunities:

- Fiscal measures such as taxes, penalties, and charges will help incentivize or disincentivize behavior. Additionally, financial support is needed to foster innovation and new markets.
- To support the design and application of a circular economy, convene and engage stakeholders to share ownership, identify regulatory barriers, and develop the best policy interventions.
- Urban planning, asset management and public procurement relate to the design, use and flow of materials as well as to each other. Help transition to a circular economy by engaging these stakeholders. Adopt in-house circular economy principles for SWALCO such as sourcing renewable energy, purchasing low emission vehicles, etc. Expect the same from all suppliers.
- Continue to support product stewardship initiatives.
- Issue material specific mandates requiring the collection of specific recyclable material (e.g., the low hanging fruit) from the commercial sector – old corrugated cardboard (OCC), aluminum cans, plastic bottles etc.
- Stimulate additional uptake of commercial franchises and multi-family recycling through policy mechanisms to ensure access is available.
- Include material reuse in the annual solid waste data reporting requirements for community partners and commercial entities (thrift stores, upcycle design, architectural salvage, building material reuse depots, etc.).
- Create a SWALCO requirement for communities to provide a transparent overview of trash fees vs. recycling fees on monthly utility bills or annual tax statements to clearly show residents the true costs of recycling.
- Landfill bans for most valuable recyclable commodities paired with mandatory recycling legislation help establish markets.



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EDUCATION AND OUTREACH

With updated infrastructure in place, citizens and business will need to become engaged on how to handle material in their home and at work. Recycling systems must be continually evaluated and adapted as material composition and technologies change. Simple, easy to understand information needs to be put in front of residents and employees across Lake County communities through up-to-date websites, cart tags, social media, mail outs and public meeting forums to improve MRF infeed and end market uptake. This will increase supply of good quality material, decrease MRF labor and residual landfill costs, and avoid materials taking the long way to landfill. Education is powerful, but citizens are not the only ones that need educated. SWALCO will need to continue to educate front line staff (haulers and those answering phones) and elected officials to ensure informed decisions and achievement of recycling targets.

Overall uptake of Education Best Practices measures 50%.

Uptake	Best Practice	Findings
●	Website with educational materials	SWALCO has a website that meets best practices for delivering education to viewers. Education collateral is developed.
○	Keep America Beautiful (or similar) programs utilized	Opportunity to engage. Go Green Communities are taking off. Find out what Lake County communities are participating and adjust score accordingly.
●	The Recycling Partnership (TRP) available resources used	Industry stakeholders have available resources for municipal use. SWALCO worked with Curbside Value Partnership in 2012 and continues to utilize toolkits developed. CVP transitioned to TRP in 2014.
○	Recycle Rewards/Recycle Bank resident incentive programs in place	Incentive-based programs reward recycling participation and build good recycling habits. For these systems demographics is the most important factor. SWALCO is not participating in this type of program.
○	Using Recycle Coach, ReCollect or similar app resource to interface with residents	SWALCO has search engine function for materials on website. Utilizing an app could provide more interface with residents. The uptake measurement demonstrates the opportunity is available.
○	Annual Education spend greater than \$1/HH	Ideally communities will have a dedicated recycling education budget. Public education is important to encourage recycling, identify end of life management options, provide clear information as to what can be recycled, etc. SWALCO has limited funding to allocate towards education. With part-time resources SWALCO is doing excellent but there is opportunity for greater impacts if resources were available.

SWALCO is doing the foundational elements well when it comes to education. Website information is up to date, informative, and accurate. School programs continue to utilize the Earth Flag program which has been active since 1993. The greatest barrier is lack of funding to support a full-time education/outreach specialist. Additional funding would allow for investment in innovation and cross-sector collaboration as far as recycling education. Messaging, resident access to community information, delivery methods, and branding all need to be considered as SWALCO moves into a circular economy mindset.

Education and Outreach Opportunities:

- Implement community based social marketing to address environmental issues resident's need to change their behavior. Community based social marketing uses a variety of tools to achieve behavior change, such as removing barriers, providing incentives and prompts to encourage people to change their behavior, getting people to commit to new behavior, and normalizing the new behavior (McKenzie-Mohr, 1999).
- Raise awareness of circular economy and opportunities.



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- Convene, facilitate, and spur collaboration between public and private stakeholders. Convening and partnering with stakeholders can help achieve greater scale and shared ownership.
- Focus education campaigns on the top waste management hierarchy strategies: prevention, reuse, remanufacture. Adopt a circular economy principle hierarchy.
- Develop and promote a food scrap prevention strategy.
- Research available “app” options with Recycle Coach or ReCollect or other similar services to keep your residents digitally connected to community recycling program information, schedules, special events, reminders, and promotions.
- Increase budget for education to allow for a full-time education/outreach specialist.
- Improve cross-sector collaboration around recycling education. Engage like-minded organizations to promote your recycling message. This could be local environmental NGO's or private businesses that want to partner to promote SWALCOs sustainability educational efforts

PUBLIC PRIVATE PARTNERSHIPS (3P)

Recycling market development opportunities are often realized through partnerships with state department of commerce tools and resources. In addition to developing incentives and grants, industry funding is increasingly available to assist in recycling system improvement. These partnerships can be found through industry collaborations such as the Closed Loop Partners, the Foodservice Packaging Institute, Carton Council, and Materials Recovery for the Future. Funding is provided through industry grant programs. The vehicle for these program funds is owner/operator agreements with MRFs, composting facilities upgrades and expansions, marketing and educational campaigns, etc.

A growing segment of retailers, consumer brands and manufacturers in the packaging value chain realize that voluntary, industry-led partnerships with local government services are critical to getting packaging materials back to make new sustainable products. The economic, environmental and societal benefits of public/private partnerships are becoming more apparent, measurable and accessible. The Lake County business community, state and regional economic development entities, and SWALCO will need to work together closely to find success.

Overall uptake of Public-Private Partnerships measures 23%

Uptake	Best Practice	Findings
●	State Grant Funding Available	Recycling state grants are not available. However, there are resources available on a state level. Market development and commerce assistance is available such as tax incentives, utility incentives, etc. These are available for any company, even recyclers, to utilize.
●	Partnered with Other Municipalities on Grant Projects	SWALCO has resources available for member communities. There is opportunity to partner with member communities to assist or work together on projects. This is a resource area SWALCO has explored on a very limited basis.
●	Utilizes Industry Partnerships	SWALCO is very familiar and has utilized resources from one industry partner. More examples and resources are available, such as, Carton Council, Food Service Packaging Institute, etc.
●	Utilizes TRP Grant Program	SWALCO utilizes the user tool kits but has not applied for grant funding or other resources.
●	Utilizes Closed Loop Fund Resources	Conversation and discussions around funding for Closed Loop Fund. To date no collaborations.
●	Regional Economic Development Tools Available	No movement but it is available.



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A key aspect of circular economy is identifying regional stakeholders and working in collaboration through enhanced formal partnerships. Working with the right partners at the table is an opportunity to collaborate for system change. Stakeholders share what their needs are, learn about cross-sector synergies that optimize recycling system efficiencies, and develop a roadmap for shared responsibility.

There is tremendous opportunity for best practice uptake in the Public-Private Partnership (P3) area. P3 opportunities exist for co-investment, business development incentives, work force development, industrial recruitment, recycling industry collaborative projects, public affairs, and many other initiatives related to recycling and the circular economy.

Public-Private Partnership Opportunities:

- Partner development with the IL Department of Commerce and Economic Opportunity.
- Partner development with Lake County Partners and other similar economic development organizations.
- Industry grant program access and opportunity assessment.
- Chicagoland partnership opportunities (public and private entities) – SWANCC, Cook County and surrounding region.
- State Recycling Organization (SRO) engagement and leadership.
- National Recycling Coalition (NRC) engagement and leadership.

A key aspect of circular economy is identifying regional stakeholders and working in collaboration through enhanced formal partnerships. Working with the right partners at the table is an opportunity to collaborate for system change. Stakeholders share what their needs are, learn about cross-sector synergies that optimize recycling system efficiencies, and develop a roadmap for shared responsibility. Circular economy is not an additional objective, its breaking down the silos that have been built around residential and commercial generation sectors to build a cohesive framework that collectively increases resource recovery. It is supportive.

Recommendations

Building the results of the recycling gap analysis into the solid waste management plan will enable SWALCO to align programming with circular economy principles. Moving towards circularity requires an immediate intervention to address the processing gap. It also requires creating new partnerships that leverage private sector resources on shared objectives to increase recovery of marketable recyclables and realize the benefits of the circular economy – local jobs, a lower carbon footprint, and conservation of landfill for only those materials that have no next life potential. The necessary interventions are described in the following recommendations.

The recommendations have been prioritized and presented in a logical sequence of steps. Implementation is expected to increase recovery quantity and quality, facilitating growth in the recycling industry and PCR manufacturing that results in measurable, positive economic and environmental impacts at the scale of the local economy.

1. Processing

- a. Open up competition for processing by immediately beginning the process to issue a Request for Information (RFI) that stimulates broad participation in a pre-procurement market sounding event. Engage MRFs, secondary processors and end markets in SWALCO's interest in implementing circular economy principles through public-private partnership to optimize material inclusion and recycle the current ton of recyclables. The RFI responses and event will gauge interest and create an open marketplace of ideas for new processing capacity to achieve stated SWALCO goals.
- b. Investigate the opportunity in the RFI to develop a regional secondary MRF or PRF in the Chicagoland region – possibly located in Lake County. This facility would process materials currently found in MRF residuals and potentially prepare materials from multiple MRFs for product manufacturing. These recycling activities may in turn increase the amount recovered from the collected material stream and decrease residue totals by 10% through better management of the residual stream. This could be an alternate tactic to simplify the design of the primary MRF which targets the top tier high volume material, passing the smaller variable packaging stream for secondary processing. It could also be explored in the RFI and market sounding.

2. Leveraging Industry Partnerships/Education/Data Clearinghouse

- a. Building from SWALCO's organizational strength, develop a Circular Economy (CE) Partners program that creates a network for expanded regional planning through cross-sector collaboration to improve material recovery. SWALCO has the potential to become a national benchmark for other communities seeking to more sustainably manage materials. A planning priority would be to develop a focused action plan for expanding commercial sector participation. The CE Partners program is needed to incent, recognize and reward commercial entities – residential and commercial property management companies, recycling service providers, NGOs, hospitals, schools, and business leaders – for voluntarily partnering with SWALCO on shared 'sustainable community' objectives. Program elements should include a forum for information exchange and a clearinghouse to consolidate data on locally available, commercially generated materials. The data clearinghouse will be critical to attract recycling sector investment to process those materials into recycled content products.
- b. Implement community-based social marketing to identify behaviors that residents need to change to improve the environmental impacts of their actions and choices. Create targeted campaigns to engage franchise communities, community adoption of franchises, expand food scrap collection, and communicate what is recyclable in single stream.

3. Prevention/Reuse/Remanufacture

- a. With an eye toward increased food scrap diversion in the commercial sector, SWALCO should develop a food scrap recovery incentive program as part of the formal CE Partners program organization to encourage restaurants and other food scrap generators to adopt food scrap collection service. Meaningful incentives could be tax based and/or SWALCO recognition like a 'green restaurant' program where registered participants receive a display logo for their store that becomes a sustainability status symbol, driving business with like-minded customers.
- b. Launch a remanufacturing institute to grow the sector.
- c. Enhance byproduct synergies with a waste exchange such as a Waste Re-Use Alliance Network.

4. End Market Development

- a. Develop a Demand Champion Procurement Campaign: Recycled product end markets need customers to take root and thrive. The policy commitment among all members of SWALCO's circular material recovery value chain – public and private sector - needs to source more post-

consumer recycled (PCR) content products in procurement, intentionally moving from using less material to use less 'new' material. The carbon benefits and economic benefits of PCR products are significant, and demand champions are critical to stimulating the economic benefits associated with recycling the SWALCO planning area's potentially large consolidated supply of recycled feedstock. This requires procurement policies that optimize for quality, cost and PCR. Public agencies that oversee any infrastructure projects (roads, parks, drainage, etc.) along with hospitals, Fortune 500 and small businesses, retailers, and foodservice procure large quantities of materials that should be PCR content wherever cost and performance are on par with virgin. CE Partners program participants should also be incented to make this commitment.

- b. Collaborate with government departments (economic development, resource recovery management, planning departments, office of sustainability, etc.) to lay a framework for strategic coordination to attract end market development. Integrate with current forms of financial assistance available or create new incentives to support businesses (grants, tax incentives, etc.). One possibility is to launch an end market development program within the CE Partners program to create economic value through collaboration, research, innovation and application. This program would serve to find solutions to increase diversion and where waste-to-product projects and ideas can be nurtured and developed.
- c. Another option is to develop a 'center for recycling markets innovation' similar to what has been established in Pennsylvania and a few other states. The center could serve as a foundational hub for a 'sustainable business park'; these are coming online in western Michigan and other regions. The recycling markets innovation center can serve as a business accelerator, be developed as a test facility, and/or serve as a center for entrepreneurship and recycling fund development. This type of project could draw funding/partnership from the University community and private foundations.

5. Fiscal Measures and Financial Support

- a. Fiscal measures such as taxes, penalties, recycling processing fees, and landfill tip fees that promote sustainable land use and landfill diversion should be evaluated to incent the desired behavior change. Additionally, creating a task group to inventory, explore and leverage P3 financial support vehicles will accelerate innovation, new market development and realization of the economic opportunity quantified in this report.
- b. Educate SWALCO communities to benefits of recycling, true costs of recycling (full cost analysis), and suggest standard operating procedures.

4.3 GREENHOUSE GAS

Many people believe that throwing food scraps and paper products into a landfill is harmless because they biodegrade. However, most people are surprised to learn that when these materials break down in a landfill, they become powerful contributors to greenhouse gas emissions. Compostable materials such as food scraps and paper decompose anaerobically (without oxygen) in a landfill, producing methane (CH_4) which has 23-71 times greater heat trapping capabilities than carbon dioxide. In fact, landfills accounted for approximately 16.4 percent of total U.S. anthropogenic methane (CH_4) emissions in 2017, the third largest contribution of any CH_4 source in the United States².

Gases that trap heat in the atmosphere are called greenhouse gases. The main greenhouse gases are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. Each gas's effect on the climate depends on how much is in the atmosphere, how long they stay in the atmosphere, and how strongly they impact the atmosphere. Disposal and treatment of materials results in greenhouse gas emissions from collection, transport, landfill disposal, manufacture, etc.

The most common way to measure climate impact of waste management is to state the impact in carbon equivalents. Since waste reduction results in the reduction of several types of greenhouse gases, the conversion to a standard carbon equivalent (CO_2E) measurement allow for a total quantification of the impact. It also provides a standard language for people to compare these actions to others such as transportation and energy conservation efforts. A carbon equivalent CO_2E is simply the amount of CO_2 that would have the same global warming potential as the waste reduction impacts, when measured over a specified timescale. The international reporting standard for CO_2 emissions is metric tons, so carbon dioxide amounts may be reported as MTCO_2E , metric tons of carbon equivalent.

In 2018, SWALCO generated 1,063,720 tons of MSW from the residential and commercial sectors, landfilled 61% (649,193 tons), recycled 29% (303,462 tons), and composted 10% (111,065 tons). If SWALCO maximized recycling and reuse and applied the principles of circular economy, it can contribute to reduction of greenhouse gas emissions. Altering waste management practices to avoid landfilling waste can reduce greenhouse gas emissions, keep dollars in the local economy, create new green jobs, and improve the community quality of life. When you take into account the full lifecycle of the products we use every day and the increased energy needed to make replacement products from virgin, raw materials, the actual impact of all this waste grows significantly.

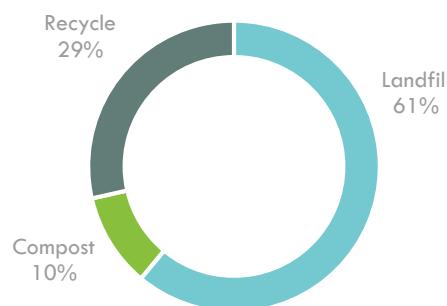


Figure 4.6 SWALCO Managed MSW

To better understand the greenhouse gas (GHG) impacts of waste management activities to identify emission reduction opportunities RRS quantified the current and potential GHG impacts of material management.

² "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017". USEPA. EPA 430-R-19-001.

WARM MODEL OVERVIEW

While there are many models emerging to calculate greenhouse gas reductions, the most recognized and standard model is the EPA's WARM model. Produced by US EPA, the Waste Reduction Model (WARM) was designed to help solid waste planners, municipal leaders, and other stakeholder organizations track and report greenhouse gas emissions reductions. It is a database tool that helps decision makers predict the strategies that most reduce GHG emissions. The WARM model calculates GHG emission across six waste management modalities (source reduction, recycling, composting, anaerobic digestion, combustion, and landfilling). Modeling different combinations of waste management practices sees which approach leads to the least GHG entering the atmosphere.

WARM factors both upstream and downstream GHG costs into its equations, consistent with life-cycle approach to measuring environmental impacts. (See Appendix A for additional WARM background, limitations, and proxies.) This is why source reduction is a powerful strategy because it does away with upstream environmental costs entirely. Not every management practice is effective for every material, and different materials are associated with higher or lower GHG emissions. To take these differences into account WARM algorithms included data on 54 distinct waste materials.

RRS used the WARM model to calculate a material-specific comparison of baseline waste management practices (CY 2018) to alternative waste management scenarios to determine greatest GHG benefits.

Measurement

The WARM tool generates GHG emissions in terms of three metrics. This report shows the metric tons of carbon dioxide equivalent (MTCO₂E), which describes the global-warming potential of all common greenhouse gases as an equivalent of carbon dioxide. Negative values indicate GHG savings and positive values indicate increasing emissions. In 2018, compared to landfilling the material, recycling and organics service programs reduced emission by over 600,000 MTCO₂E, as shown in Table 4.5.

Table 4.5 Estimated GHG Emission Reductions CY 2018

MATERIAL	2018 CURRENT DIVERSION (MTCO ₂ E)
Mixed Metals	(15,673)
Mixed Plastics	(22,117)
Glass	(4,694)
Fibers	(591,615)
Mixed Recyclables	(770)
Organics	24,300
Misc Inorganics	17,473
C&D	(27,040)
MTCO₂E Emissions	(620,137)

Note: WARM is only effective for modeling life-cycle GHG emissions of various waste-management processes. Table 4.5 consolidates material categories.



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With 61% of the material being landfilled there is significant opportunity to divert more material. RRS modeled a number of alternative system scenarios which demonstrated various levels of GHG savings. The magnitude of the reduction in GHG emissions per material depends on both the quantity of material diverted and the material itself. Each material has a different GHG emission reduction potential based on how readily it degrades the landfill, how far it travels to market, and other factors. Being sensitive to political and technological infrastructure RRS recommends setting conservative targets for alternative system scenarios. A scenario using conservative modeling applies best management practices across material streams demonstrating under-performing recovery rates. The outcome is tangible realistic recovery goal estimations as shown in Table 4.6. By implementing additional best practices, SWALCO's residents and businesses can increase material diversion and reduce GHG emissions. Table 4.6 lists current diversion tonnages for underperforming targeted materials, potential recovered tonnages, and modeled diversion tonnages. These tonnages were used in WARM to model the potential GHG emissions of these additional diverted materials.

Table 4.6 Estimated Recovered Tons

MATERIAL	2018 CURRENT DIVERSION (tons)	POTENTIAL RECOVERY TONNAGE (tons)	MODELED DIVERSION SCENARIO (tons)
Aluminum cans	799	1,167	1,966
Steel cans	4,012	5,283	9,295
Corrugated Containers	117,451	14,250	131,701
Food Scraps	4,030	17,980	22,010
Total	126,292	38,679	164,972

Additional GHG emissions could be avoided if materials are reduced at the source before entering the waste stream to be managed. ReFED³ reports consumer education measured in the United Kingdom and elsewhere demonstrate reduced impacts on consumer food waste. Love Food Hate Waste is a national consumer awareness campaign launched by Waste and Resources Action Programme (WRAP). After six months of launching this campaign in six Boroughs of West London Waste Authority, a 14% avoidable food waste reduction was tracked.⁴ While there is minimal tracking in the U.S regarding consumer education campaigns, King County, WA and Honolulu County, HI implemented pilot programs testing messages and tools to reduce food waste. Those respective campaigns measured 28% and 19.6% reduction⁵. Applying the minimal measured impact of 14% to SWALCO's food scrap generation could reduce 10,069 tons of food scraps from the waste stream and net GHG emission savings. Table 4.7 shows the source reduction of food scraps modeled in WARM.

³ <https://www.refed.com/solutions/consumer-education-campaigns/>

⁴ "The Impact of Love Food Hate Waste".

http://www.wrap.org.uk/sites/files/wrap/West%20London%20LFHW%20Impact%20case%20study_0.pdf

⁵ "Toolkit Implementation Guide for the Food: Too Good to Waste Pilot". July 2013. West Coast Climate and Materials Management Forum. https://westcoastclimateforum.com/sites/westcoastclimateforum/files/related_documents/02_ToolKit_Implementation_Guide_for_the_Good_Too_Good_to_Waste_Pilot.pdf

Table 4.7 Estimated Source Reduced Tons

Material	POTENTIAL AND MODELED REDUCTION (tons)
Food Scraps	10,069

The modeled assumptions in alternative waste management scenarios could set SWALCO on a path to achieve 20% greater GHG benefit. Alternative waste management practices measure a total change in GHG emissions of -743,501 MTCO₂E. For perspective this is equivalent to:



Table 4.8 Estimated GHG Emission Reductions Potential

	MODELED DIVERSION (MTCO ₂ E)
Mixed Metals	(36,005)
Mixed Plastics	(22,117)
Glass	(4,694)
Fibers	(639,433)
Mixed Recyclables	(770)
Organics	(30,916)
Misc Inorganics	17,473
C&D	(27,040)
MTCO₂E Emissions	(743,501)

Figure 4.7 compares the current GHG emissions to the potential for the estimated recovered tonnage. One of the greatest opportunities for GHG savings is alternative strategies for food scraps. Cardboard, aluminum cans and steel cans also demonstrate great GHG savings.

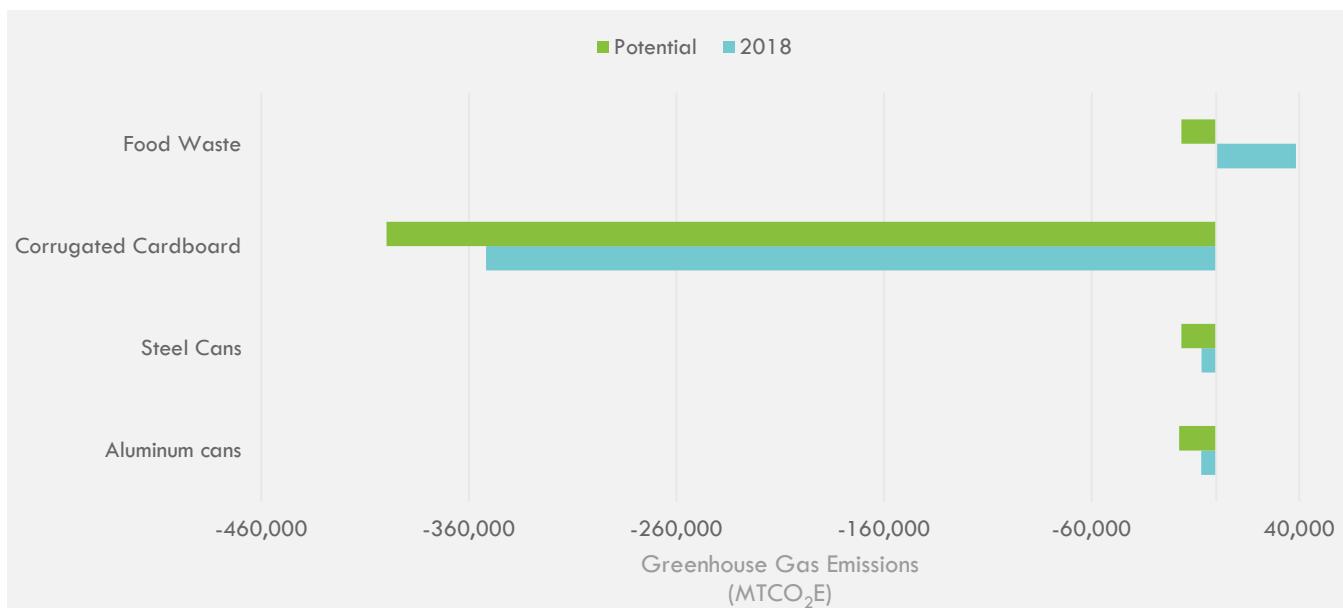


Figure 4.7 Comparison of GHG Benefits by Material

There is potential for even greater GHG emission reduction in the C&D material categories, specifically, carpet. Alternative scenarios are not included in the model since recovery potential scenario data is more difficult to model and requires more analysis not included in the scope of this report.

Conclusions

GHG accounting allows for a consistent approach to calculating and reporting impacts to reduce GHG emissions. The magnitude of the reduction in GHG emissions per material depends on both the quantity of material diverted and the material itself. Each material has a different GHG emission reduction potential based on how readily it degrades the landfill, how far it travels to market, and other factors. As a baseline (2018) SWALCO's waste management system avoided more than 620,137 MTCO₂E. Looking toward the future and aiming to further reduce GHG emissions by 20% SWALCO needs to continue to increase diversion to help reduce emissions. A goal of 1% reduction in waste generation and an additional 3% recovery will help achieve an additional 123,364 MTCO₂E emission reduction. This equates to diverting 38,679 additional tons of aluminum cans, steel cans, corrugated containers, food scraps and reducing food scraps at the source by 10,069 tons. By concentrating on enhancing the source reduction, recycling and composting practices, GHG emission reductions can be achieved.

Appendix A U.S. EPA WARM Model

BACKGROUND

EPA determined that the best way to conduct such a comparative analysis is a streamlined application of a life-cycle assessment (LCA). A full LCA is an analytical framework for understanding the material inputs, energy inputs and environmental releases associated with manufacturing, using, transporting and disposing of a given material. A full LCA generally consists of four parts: (1) goal definition and scoping; (2) an inventory of the materials and energy used during all stages in the life of a product or process, and an inventory of environmental releases throughout the product life cycle; (3) an impact assessment that examines potential and actual human health effects related to the use of resources and environmental releases; and (4) an assessment of the change that is needed to bring about environmental improvements in the product or processes.

WARM does not provide a full LCA, as EPA wanted the tool to be transparent, easy to access and use, and focused on providing decision-makers with information on climate change impacts, namely GHG and energy implications. WARM's streamlined LCA is limited to an inventory of GHG emissions and sinks and energy impacts. This study did not assess human health impacts, or air, water or other environmental impacts that do not have a direct bearing on climate change. WARM also simplifies the calculation of emissions from points in the life cycle that occur before a material reaches end of life.

The streamlined LCA used in WARM depends on accurately assessing the GHG and energy implications of relevant life-cycle stages. The GHG implications associated with materials differ depending on raw material extraction requirements and how the materials are manufactured and disposed of at end of life. WARM evaluates the GHG emissions associated with materials management based on analysis of three main factors: (1) GHG emissions throughout the life cycle of the material (including the chosen end-of-life management option); (2) the extent to which carbon sinks are affected by manufacturing, recycling and disposing of the material; and (3) the extent to which the management option recovers energy that can be used to replace electric utility energy, thus reducing electric utility emissions.

The life cycle of a material or product includes the following primary life-cycle stages: (1) extraction and processing of raw materials; (2) manufacture of products; (3) transportation of materials and products to markets; (4) use by consumers; and (5) end-of-life management. GHGs are emitted from (1) the pre-consumer stages of raw materials acquisition and manufacturing, and (2) the post-consumer stage of end-of-life management.

WARM does not include emissions from the use phase of a product's life, since use does not have an effect on the waste management emissions of a product. Since the design and results of WARM include the difference between the baseline and the alternative waste management scenarios that show the GHG savings from different treatment options, emissions from the use phase are the same in both the baseline and alternative scenarios; therefore, emissions from the use phase are excluded and all tables and analyses in this report use a "waste generation" reference point.

Materials management decisions can reduce GHGs by affecting one or more of the following:

- Energy consumption (specifically combustion of fossil fuels) and the resulting GHG emissions associated with material extraction, manufacturing, transporting, using, and end-of-life management of the material or product.
- Non-energy-related manufacturing emissions, such as the carbon dioxide (CO₂) released when limestone used in steel manufacturing is converted to lime, or the perfluorocarbons (PFCs) generated during the aluminum smelting process.
- Methane (CH₄) emissions from decomposition of organic materials in landfills.



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- CO₂ and nitrous oxide (N₂O) emissions from waste combustion.
- Carbon sequestration and storage, which refer to natural or manmade processes that remove carbon from the atmosphere and store it for long periods or permanently.

WARM assesses the GHG emission implications of recycling from the point of waste generation (i.e., starting at the point when the material is collected for recycling) through the point where the recycled material or product has been manufactured into a new product for use. This includes all of the GHG emissions associated with collecting, transporting, processing and recycling or manufacturing the recycled material into a new product for use. To account for the emissions associated with virgin manufacture, WARM calculates a “recycled input credit” by assuming that the recycled material avoids—or offsets—the upstream GHG emissions associated with producing the same amount of material from virgin inputs.

The net GHG emission reductions from recycling of each material are expressed for recycling in absolute terms, and are not values relative to another waste management option, although they must be used comparatively, as all WARM emission factors must be. They are expressed in terms of short tons of waste input (i.e., tons of waste prior to processing) and result in the GHG Reductions from using recycled Inputs Instead of virgin Inputs. The recycling results are reported in terms of GHG emissions per short ton of material collected for recycling. Thus, the emission factors incorporate assumptions on loss of material through collection, sorting and remanufacturing. There is uncertainty in the loss rates: some materials recovery facilities and manufacturing processes may recover or use recycled materials more or less efficiently than as estimated here.

The net GHG emission are based on the current management strategy currently utilized by SWALCO, which includes: 1) recycling; 2) landfill disposal; and 3) composting and also take into consideration source reduction, energy impacts and forest carbon storage. The net emissions for each material category is based on the estimate for individual material classifications included in the WARM and the results show either positive net GHG emission or negative net GHG emissions (reductions) summed for all management strategies for a specific material type.

The WARM model was last updated March 2016 and recognizes 54 material types.

LIMITATIONS

Although, WARM is the most widely peer-reviewed and accepted model, it is considered to have several flaws. The WARM Model is useful for comparing internal scenarios for different approaches to a comprehensive waste management approach. It is less useful for examining the fate of individual waste streams (e.g. OCC, organics etc.). In addition, the system boundaries for organics are drawn to include processing, but no presumption about end-market use is made. This means that in the case of a comparison between thermal combustion of organics for electricity generation and composting, credit would be given for low carbon power generation but not for carbon sequestration or displacement of conventional fertilizer use, both of which are well-documented benefits for composting. This disproportionately and unfairly favors incineration of organics and yard wastes. In addition, there is also no consideration to the emission of other criteria pollutants that accompany the incineration of MSW.

The West Coast Climate and Materials Management Forum is an EPA-convened collaboration of state, local, and tribal governments that develop ways to institutionalize sustainable materials management practices. The purpose is to identify and share effective greenhouse gas emission reduction strategies that also improve the way communities' source, use, and recover materials. The goal is to demonstrate effective ways for communities to reduce greenhouse gas emissions throughout the life cycle of materials. The Forum evaluated EPA's WARM tool and stated that although it remains one of the best options available for state and local governments to estimate the emissions reduction potential of prevention,

recycling, and composting (relative to incineration and landfilling), WARM is not without limitations. Some of the key limitations identified when using the model include:

- WARM currently has no capacity to calculate reuse separate from source reduction. The source reduction management option assumes materials not manufactured.
- WARM focuses on materials, not products, which leaves out some significant pieces of the solid waste stream.
- In addition, WARM users face the challenge of reconciling their own materials category definitions with those the model employs – WARM's assumed composition of “mixed recyclables” or “mixed plastics” for example may vary from your community's mixture. WARM's categories for mixed paper and corrugated cardboard remain ambiguous since there are many materials with different emissions impacts that would fall into these categories in varying ratios.
- The lack of “upstream” (or production-related) emissions for food limits WARM's utility for evaluating food scrap prevention projects.
- The current new version of WARM includes a more comprehensive analysis of composting yard and food scrap than it has in the past. First, the calculation of landfill emissions from organics is based on a first-order decay rate to better measure when emissions are generated. Previous versions of the model only calculated the lifetime methane yield. In addition, landfill gas capture systems are modeled with a time element, assuming systems are phased in at landfills. With these two new elements, the model is able to estimate the amount of methane being generated at a particular time and the amount of methane being captured at that time. This new calculation methodology most affects food scrap and grass. The emission factors for branches, which degrade at a very slow rate, changed very little. The new emission factor takes into account the higher soil carbon sequestration capacity for compost-improved soil as well as the GHG emissions involved in composting machinery and transportation. However, the updated model still does not include an emission factor for other compostable materials, like non-recyclable paper. WARM also does not include GHG emissions or emissions reductions associated with other co-benefits associated with the use of compost, such as water conservation and changes in fertilizer use. WARM also does not differentiate between the potential for varying emissions from compost sites themselves as a function of technology (e.g., anaerobic vs. aerobic composting, or centralized vs. home composting).
- Currently, WARM is not intended as an inventory or accounting tool. It is not sufficiently precise and it is not easily connected to other inventory protocols.
- WARM does not currently break emissions and emissions reductions into the years in which they actually occur. Rather, WARM rolls all future emissions and emissions reductions into a single number.

DATA INPUTS

WARM version 14 recognizes 54 material categories, so some of the 79 material categories identified in the Illinois Commodity/Waste Generation and Characterization Study Update (March 2015) are not represented in the WARM model. Proxies were used for these materials and pathways not in the WARM model. A proxy is a material not in WARM but similar to a material in WARM. Material physical properties do not necessarily indicate that life-cycle energy use and greenhouse gas emissions are the same. Where possible RRS used USEPA's list of acceptable proxies. For proxies not on the acceptable list, RRS consulted with USEPA about the suitability of a proxy and aggregated material types into WARM material types. The below table lists the material and WARM proxy materials used in the model.

Table 4.A.1 WARM Proxies

Material	WARM Proxy
Boxboard	Mixed Paper
Other Paper	Mixed Paper
Cartons, Aseptic and Polycoated	Office Paper
#3-7 Other – All Other Rigid Plastic Products	Mixed Plastics
Other Rigid Plastic Products	Mixed Plastics
Commercial & Industrial Film	Mixed Plastics
Other Plastic	Mixed Plastics
Other Aluminum	Aluminum Cans
Other Ferrous	Steel Cans
Other Non-Ferrous	Aluminum Ingot
Other Metal	Mixed Metals
Bottom Fines & Dirt	Mixed MSW
Diapers	Mixed MSW
Other Organic	Mixed Organics
Televisions	Personal Computers
Electronic Equipment	Personal Computers
White Goods – Refrigerated	Mixed Metals
White Goods – Not refrigerated	Mixed Metals
Lead-acid Batteries	Mixed Recyclables
Other Household Batteries	Mixed Recyclables
Household Bulky Items	Mixed MSW
Fluorescent Lights/Ballasts	Mixed Recyclables
Carpet Padding	Carpet
Clothing	Mixed Recyclables
Other Textiles	Mixed Recyclables
HHW	Mixed Recyclables
Wood Pallets	Dimensional Lumber
Painted Wood	Mixed MSW
Treated Wood	Wood Flooring
Asphalt Paving	Asphalt Concrete
Rock & Other Aggregates	Concrete
Other Roofing	Asphalt Shingles
Plastic C&D Materials	PVC
Ceramics/Porcelain	Clay Bricks
Other C&D	Fiberglass insulation

After aligning the material categories to WARM material categories, RRS applied current recycling, composting and landfill tonnages and overlaid waste, recycling, and composting composition profiles. Table 4.A.2 demonstrates the WARM material inputs for the current year model.

Table 4.A.2 CY 2018 Materials Managed

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	TOTAL	Percent Recovered within Category	Percent of Total
Aluminum Cans	799	3,475	-	-	4,274	18.70%	0.40%
Aluminum Ingot	113	1,893	-	-	2,005	5.62%	0.19%
Steel Cans	4,012	10,667	-	-	14,679	27.33%	1.38%
Copper Wire	-	-	-	-	-	0.00%	0.00%
Glass	17,721	10,198	-	-	27,918	63.47%	2.62%
HDPE	2,824	5,504	-	-	8,328	33.91%	0.78%
LDPE	-	39,841	-	-	39,841	0.00%	3.75%
PET	3,403	3,566	-	-	6,969	48.84%	0.66%
LLDPE	-	-	-	-	-	0.00%	0.00%
PP	-	-	-	-	-	0.00%	0.00%
PS	-	2,286	-	-	2,286	0.00%	0.21%
PVC	-	-	-	-	-	0.00%	0.00%
PLA	-	-	-	-	-	0.00%	0.00%
Corrugated Containers	117,451	62,475	-	-	179,926	65.28%	16.91%
Magazines / Third-class mail	1,226	3,717	-	-	4,944	24.81%	0.46%
Newspaper	24,045	3,074	-	-	27,118	88.67%	2.55%
Office Paper	19,719	3,407	-	-	23,125	85.27%	2.17%
Phonebooks	-	-	-	-	-	0.00%	0.00%
Textbooks	-	-	-	-	-	0.00%	0.00%
Dimensional Lumber	4,189	13,498	-	-	17,687	23.68%	1.66%
Medium-density Fiberboard	10,205	26,663	-	-	36,867	27.68%	3.47%
Food Waste (non-meat) ¹	-	-	-	-	-	0.00%	0.00%
Food Waste (meat only) ¹	-	-	-	-	-	0.00%	0.00%
Beef	-	-	-	-	-	0.00%	0.00%
Poultry	-	-	-	-	-	0.00%	0.00%
Grains	-	-	-	-	-	0.00%	0.00%
Bread	-	-	-	-	-	0.00%	0.00%
Fruits and Vegetables	-	-	-	-	-	0.00%	0.00%
Dairy Products	-	-	-	-	-	0.00%	0.00%
Yard Trimmings	-	20,084	-	107,035	127,119	84.20%	11.95%
Grass	-	-	-	-	-	0.00%	0.00%
Leaves	-	-	-	-	-	0.00%	0.00%
Branches	-	-	-	-	-	0.00%	0.00%
Mixed Paper (general)	-	-	-	-	-	0.00%	0.00%
Mixed Paper (primarily residential)	4,028	10,357	-	-	14,385	28.00%	1.35%

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	TOTAL	Percent Recovered within Category	Percent of Total
Mixed Paper (primarily from offices)	14,871	11,658	-	-	26,529	56.06%	2.49%
Mixed Metals	193	9,971	-	-	10,164	1.90%	0.96%
Mixed Plastics	18,330	91,348	-	-	109,678	16.71%	10.31%
Mixed Recyclables	816	36,528	-	-	37,344	2.19%	3.51%
Food Waste	-	71,919	-	4,030	75,949	5.31%	7.14%
Mixed Organics	-	25,558	-	-	25,558	0.00%	2.40%
Mixed MSW	-	60,305	-	-	60,305	0.00%	5.67%
Carpet	-	18,329	-	-	18,329	0.00%	1.72%
Personal Computers	1,533	326	-	-	1,858	82.48%	0.17%
Clay Bricks	-	-	-	-	-	0.00%	0.00%
Concrete	1,921	6,912	-	-	8,833	21.75%	0.83%
Fly Ash	-	-	-	-	-	0.00%	0.00%
Tires	-	-	-	-	-	0.00%	0.00%
Asphalt Concrete	-	-	-	-	-	0.00%	0.00%
Asphalt Shingles	55,999	95,079	-	-	151,078	37.07%	14.20%
Drywall	63	560	-	-	623	10.11%	0.06%
Fiberglass Insulation	-	-	-	-	-	0.00%	0.00%
Vinyl Flooring	-	-	-	-	-	0.00%	0.00%
Wood Flooring	-	-	-	-	-	0.00%	0.00%
TOTAL	303,461	649,194	-	111,065	1,063,720		100.00%

*C&D materials aggregated as Asphalt Shingles due to lack of WARM proxies.

In determining CY 2018 materials managed for the baseline the following was assumed:

- Total residential recycled and composted from 2018 SWALCO data (hauler reports and processing data). SWALCO collects aggregated data from haulers and facilities annually on waste managed.
- Applied Countryside Landfill waste characterization conducted for the Illinois Commodity/Waste Generation and Characterization Study Update (March 2015) to 2018 landfilled tons to get tonnages for individual materials.
- Applied the Material Composition Used to Calculate Per Ton Payment from WMRA Agreement Amendment to calculate the tonnages of specific curbside recycling materials.
- Assumed recovered C&D tons had same composition as landfilled C&D.
- Residential generation includes all 2018 residential recycling data (which includes organics recovery) plus 2018 residential landfilled data.
- Commercial generation used similar process, except tonnages of individual recyclable materials were based on average of other commercial recycling compositions.
 - 2014 Generator-Based Characterization of Commercial Sector Disposal and Diversion in California, CalRecycle.
 - Composition of Commingled Recyclables Before and After Processing, OR DEQ.
 - MRWMD Recycling WCS, SCS Engineers.
- List assumptions used by WARM model (default responses to questions underneath the tonnage inputs).
- Some material categories are not represented in the model. In such cases WARM factors were applied to similar non-WARM materials.

Modeling

Table 4.A.3 shows the estimated net greenhouse gas emissions in metric tons of CO₂ (MTCO₂E) resulting from modeled waste management programs compared to CY 2018 waste management methods. It is estimated that waste management methods reduced greenhouse gas emissions by about 743,501 MTCO₂E.

Table 4.A.3 Summary of Alternative Waste Management Emission Estimates:

Material	2018 Waste Management Total GHG Emissions (MTCO ₂ E)	Alternative Scenario Total GHG Emissions (MTCO ₂ E)	Total Incremental GHG Emissions (MTCO ₂ E)
Aluminum Cans	(7,209)	(17,860)	(10,651)
Aluminum Ingot	(772)	(772)	0
Steel Cans	(7,055)	(16,736)	(9,681)
Glass	(4,694)	(4,694)	0
HDPE	(2,342)	(2,342)	0
LDPE	807	807	0
PET	(3,730)	(3,730)	0
PS	46	46	0
Corrugated Containers	(351,848)	(399,666)	(47,817)
Magazines/third-class mail	(5,228)	(5,228)	0
Newspaper	(68,601)	(68,601)	0
Office Paper	(52,228)	(52,228)	0
Dimensional Lumber	(23,981)	(23,981)	0
Medium-density Fiberboard	(48,790)	(48,790)	0
Yard Trimmings	(19,272)	(19,272)	0
Mixed Paper (primarily residential)	(13,549)	(13,549)	0
Mixed Paper (primarily from offices)	(51,371)	(51,371)	0
Mixed Metals	(637)	(637)	0
Mixed Plastics	(16,898)	(16,898)	0
Mixed Recyclables	(770)	(770)	0
Food Waste	38,359	(16,856)	(55,215)
Mixed Organics	5,212	5,212	0
Mixed MSW	20,933	20,933	0
Carpet	371	371	0
Personal Computers	(3,831)	(3,831)	0
Concrete	125	125	0
Asphalt Shingles	(3,151)	(3,151)	0
Drywall	(32)	(32)	0
Total Emissions	(620,137)	(743,501)	(123,364)



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SECTION 5

RECOMMENDATIONS FOR THE 2020-2024 PLANNING PERIOD

5.1 Introduction

This Section of the 2019 Plan Update contains the policy recommendations approved by the Citizens Advisory Committee (CAC), the SWALCO Board of Directors and the Lake County Board. It should be noted that many of the recommendations from the 2014 Plan Update are still included in this Plan Update. Section 4 of the Plan Update introduced the concepts of pursuing a circular economy approach to waste/material management and prioritizing diversion programs based on materials (e.g., metal, food scraps) that have a greater impact on reducing greenhouse gases. The recommendations from the circular economy portion of Section 4 and the findings of the WARM analysis have been incorporated into several of the following plan recommendations.

The recommendations in Section 5.2 have been organized according to the following planning categories:

- Public Information and Education
- Source Reduction and Reuse
- Circular Economy and Greenhouse Gas (new section, not in 2014 Plan Update)
- Recycling
- Organics Management
- Household Chemical Waste (HCW) Management
- Organization and Administration
- Finance and Ownership
- Legislative Initiatives

5.2 Planning Recommendations for 2020-2024

The following recommendations represent the key elements of the 2019 Plan Update and are organized by the planning categories listed above. Section 6 contains the requirements applicable to pollution control facilities requiring siting per Section 39.2 of the Illinois Environmental Protection Act (415 ILCS 5/39.2).

5.2.1 Public Information and Education

P.1 Identify new and support ongoing activities of SWALCO's public information and education programs to encourage waste reduction, reuse, recycling and recovery/re-buy (buying recycled products) and sustainability practices through SWALCO's websites and other publications, as well as community organizations such as PTA/PTO's, Go Green groups, park districts, libraries, church, corporate and other community groups. The importance of buying recycled products should be emphasized when possible as this creates markets for additional materials and diverts these materials from final disposal.

P.2 Develop both general and detailed information on proper recycling and composting for both residents and businesses in order to minimize contamination. Utilize the



Recyclebycity platform on the SWALCO website to provide the detailed information on proper recycling and composting, and work with SWALCO member communities to inform residents about the information on the SWALCO website. Work with the material recovery facilities and compost facilities utilized by SWALCO members to keep the recycling and composting guidelines updated as changes in the market may occur.

- Specific goal - increase the number of website visits to SWALCO's website in 2020 by 10% over 2019 website visits.

P.3 Continue to work with SWALCO members and their haulers to implement recycling and/or composting cart inspection and tagging programs. Cart tagging programs must include a comprehensive public education effort to inform residents about proper recycling and/or composting and to alert them to the cart tagging program itself.

P.4 Continue to provide in-house marketing support to help publicize SWALCO technical programs, such as the household chemical waste collections and recycling programs. Identify new marketing opportunities or avenues.

P.5 Explore opportunities to hire interns to assist with public information and education.

P.6 Continue to encourage SWALCO members to design, evaluate and distribute information for residents regarding various solid waste management issues, and to inform SWALCO of waste-related and environmental activities within their communities. Assist member communities in their efforts by acting as a resource and providing information and educational assistance.

P.7 Support community events and local organizations by attending local events and/or providing materials regarding SWALCO's various programs and other environmental initiatives.

P.8 Ask and encourage SWALCO members to advertise SWALCO events and programs on their websites, community newsletters, elist bulletin announcements as well as other technologies and approaches to help provide information to their residents. Request that members provide a point of contact for assisting SWALCO's Public Information Officer and that this point of contact information be kept up-to-date. Continue to encourage SWALCO members to link to and utilize SWALCO's website that includes a dedicated page for each municipal member.

- Specific goal – by the end of 2020 have all 43 municipal members provide a link on their websites linking back to their dedicated page on SWALCO's website.

P.9 Utilize the 2020 Recycling Optimization Workshop (to be facilitated by RRS) and ultimate development of a Circular Economy Partners program to develop and strengthen partnerships with the business community, waste haulers, institutions, service and professional organizations, and governmental entities to expand the outreach potential for focused educational efforts.

P.10 Continue to support and evaluate school education outreach efforts that meet Illinois Learning Standards, such as the Lake County Earth Flag Program, the Earth Flag Everyday supplemental program, the educational website, subsidized performances by environmental educators, and in-class presentations. Develop or locate resource materials that will assist schools in implementing source separated organics collection programs and on-site composting operations.

P.11 Identify and utilize applicable public and school education resources to develop customized activities for Lake County.



- P.12 Continue to evaluate the communication efforts (e.g., SWALCO branding, advertising and other promotional efforts) to determine their effectiveness and evaluate the communication efforts on a yearly basis. Consider new communication techniques and continue to build relationships within Lake County to assist in reaching education and outreach goals.
- P.13 Continue to embrace and incorporate new information technologies in SWALCO's promotional efforts (e.g., websites, email services, etc.) and evaluate the development of a mobile phone application that can be used to help residents find the location of facilities that will accept a wide range of hard to recycle or reuse items (and link to the "How do I recycle this" page on SWALCO's website).
- P.14 Continue to collaborate with the EduCycle Center in Grayslake, as well as other related organizations.
- P.15 Investigate opportunities for public outreach at special events (e.g. Lake County Fair). Participate in member community events such as Community Days, Open Houses and other special events.
- P.16 Act as a resource and provide technical assistance during emergency events and interruptions of service (e.g. floods, garbage strikes, post-tornado debris management).

5.2.2 Source Reduction and Reuse

- SR.1 Continue to promote the implementation of pay as you throw (PAYT) programs for the residential sector to provide an economic incentive for residents to reduce the amount of waste they generate through source reduction and reuse opportunities.
- SR.2 Continue the implementation of SWALCO's clothing and shoe collection program that currently includes 28 collection locations with bins for clothing/shoes and over 60 collection locations for shoes only. The majority of the material collected is reused. Continue to explore adding in a curbside collection option for clothing and shoes.
- SR.3 Investigate the feasibility of incorporating a reuse component to SWALCO's Household Chemical Waste program where items that are still useful could be donated or given away instead of disposed.
- SR.4 Develop educational materials and website content related to source reduction tips for residents and information on reuse of household items, furniture, clothing, construction materials, etc.
- SR.5 Evaluate expanding the existing clothing and shoe program by adding in "hard goods" such as sporting equipment, small appliances, kid's toys and games, kitchen ware, books/records/tapes/software, and knick-knacks.
- SR.6 Coordinate with other entities in Lake County to host a Repair Fair by 2021 that will include workshops and information on how to repair a range of household products.
- SR.7 Develop a best practices guide on source reduction and reuse targeted at the residential sector by 2021. Included in the guide should be a listing of known reuse businesses/organizations in Lake County.



5.2.3 Circular Economy and Greenhouse Gas

- CE.1 Continue to include an assessment of Lake County's circular economy status (including a program gap analysis) and the impact of its waste management programs on greenhouse gas (GHG) production in future five-year plan updates.
- CE.2 Convene the Circular Economy Recycling Optimization Workshop shortly after the 2019 Plan Update is adopted by the Lake County Board, and ultimately work to establish a Circular Economy Partners program focused on achieving the short term source reduction and recycling goals outlined in the GHG subsection of Section 4 (source reducing food scrap generation by 10,147 tons per year and recovering an additional 38,968 tons per year of the focus materials to further reduce GHG emissions by 20%).
- CE.3 Partner with economic development organizations in Lake County (Lake County Partners and other municipal economic development specialists) to establish a framework to increase reuse, recycling and composting related jobs in Lake County by growing the circular economy in Lake County and the Chicago region.
- CE.3 Focus on end market development for both recyclables and compost and join the Demand Champion Procurement Campaign along with other members of the Circular Economy Partners. SWALCO should support legislative efforts to require minimum recycled content in consumer packaging and products at the state and federal levels to create demand for post-consumer recyclables.
- CE.4 Continue to review the Best Practices recommendations offered by Resource Recycling Systems (RRS) in the circular economy subsection of Section 4 during the 2020-2024 planning period.

5.2.4 Recycling

- R.1 Maintain and expand collection of data on recycling activity in Lake County. Identify significant recycling data points that reflect changes in recycling activity in Lake County and develop programming that fosters increased diversion of recyclable materials.
- R.2 Continue to incorporate the 60% Recycling Task Force Report into the 2019 Plan Update (see Attachment C) and continue to expand recycling programs as recommended in the Task Force Report to achieve a 60% recycling goal (current estimated municipal waste recycling rate is 39%, see Figure 2.3) and the target pounds per capita per day (pcd) goals of 1.35 pcd for residential waste and 2.13 pcd for commercial waste (see Tables 2.4 and 2.5) by 2030. Lake County and each municipality will decide which recommendations from the Report to implement based on local needs and input.
- R.3 Continue to support area recyclers in activities that expand their capabilities of diverting marketable materials from landfills when feasible. More specifically given the findings of Section 4 and the WARM model, work with local scrap yards to expand metal recycling programs throughout Lake County by providing greater access (possibly conduct one day collection events) and education.
- R.4 Continue to maintain and enforce the Lake County Solid Waste Hauling and Recycling Ordinance and if necessary, recommend changes be made to the Ordinance by the Lake County Board.



R.5 Encourage all SWALCO members and Lake County townships to establish volume-based pricing (i.e., programs that provide incentives to reduce the amount of waste disposed) as an option.

R.6 Encourage all SWALCO members and Lake County townships to implement cart-based recycling programs within their residential areas.

R.7 Assist SWALCO members and Lake County townships in franchising residential, multi-family and/or commercial collection services as a means to control costs, increase recycling, reduce the amount of greenhouse gases associated with collection services, and enhance community sustainability efforts.

- Specific goal – implement three new commercial franchises during the 2020-2024 planning period.

R.8 Continue to encourage all SWALCO members to adopt the model commercial and multi-family refuse and recycling enclosure ordinance.

R.9 Identify and assist SWALCO members whose residential, commercial and/or multi-family recycling programs are underperforming or can be further optimized; conduct program evaluations and develop recommendations for improving programs. This may require SWALCO's Recycling Coordinator and Public Information Officer working together to enhance the recycling program and the marketing of the program.

R.10 Depending on availability of funds and agency priorities, continue to further the development of source reduction programs, special event and public area recycling programs, plastic bag recycling programs, compost bin distributions and residential electronics collections.

R.11 Continue to maintain a Capacity Agreement with a qualified recycling firm (currently Waste Management Recycle America L.L.C.) to assure that sufficient capacity, at a competitive price, is available to Lake County, and that SWALCO members and Lake County townships that direct material to the facility are eligible to receive a Per Ton Payment for their recyclables based on terms similar to the existing Intermediate Processing Facility Capacity Agreement. However, depending on the findings of the Material Recycling Facility study due to be presented to the SWALCO Board of Directors in the fall of 2019, SWALCO may decide to pursue another approach to procuring and arranging for capacity to process the recyclables generated by Lake County's residents, businesses and institutions.

R.12 Encourage SWALCO members and Lake County townships to enter into a Per Ton Payment Intergovernmental Agreement with SWALCO in order to be eligible to receive payment (Per Ton Payment) for their recyclables per the terms of the existing Capacity Agreement.

R.13 Encourage the development of general construction or demolition (C&D) debris recycling facilities as permitted by Section 22.38 of the Illinois Environmental Protection Act. With the enactment of Public Act 96-0611, general C&D debris recycling facilities can be located in Lake County, without having to obtain local siting approval in accordance with Section 39.2 of the Illinois Environmental Protection Act, and instead will be regulated by applicable zoning requirements. As a result, SWALCO developed zoning guidelines for



such facilities that address the location, design, operation and closure of such facilities, which are available for members to consider incorporating into their local zoning ordinances. Any proposed general C&D debris recycling facility must enter into Host Community Benefit Agreements with SWALCO and the governing body with jurisdiction over the proposed facility prior to filing a siting application or zoning application, whichever is applicable. The Host Community Benefit Agreements with SWALCO and the governing body must, at a minimum, contain provisions for: 1) a guarantee of access to capacity at the facility for general C&D material generated in Lake County, 2) environmental safeguards, and 3) payment of host fees.

R.14 Encourage SWALCO members to adopt a C&D recycling ordinance that would require the implementation of a recycling program at new construction and/or demolition sites within their communities.

- Specific goal – implement at least 5 new municipal C&D recycling ordinances during the 2020-2024 planning period.

R.15 Continue to support the concept of Product Stewardship (the act of minimizing the environmental and social impacts of a product throughout all lifecycle stages and recognizing that producers have the greatest ability to minimize adverse impacts), and support Extended Producer Responsibility (a mandatory, legislative approach to product stewardship that extends the producer's responsibility to the post-consumer management of the product) legislation that will increase the reuse and recycling of products, and encourage more design for the environment and for recyclability by producers. To further this recommendation, SWALCO should continue to be a member of the Illinois Product Stewardship Council, formed in partnership with the Product Stewardship Institute (which SWALCO is currently a member of).

5.2.5 Organics Management

OM.1 Encourage the development of programs to increase the collection and composting of residential and commercial organic material (such as landscape waste, food scrap and livestock waste) by working to implement the recommendations in the 60% Recycling Task Force Report and the 2019 Plan Update.

OM.2 Monitor landscape waste collection and composting costs and determine if SWALCO needs to take any action to better control and/or reduce the costs associated with both collecting and managing the material. Work cooperatively with the private sector to promote/encourage adequate infrastructure is in place.

OM.3 Encourage SWALCO members to implement residential food scrap programs as part of their hauling contracts or licensing requirements. One such program that can be implemented at little or no additional cost is the “ride along for free” program where residents are allowed to commingle food scraps with landscape waste as part of the regular landscape waste collection program offered by the hauler.

- Specific goal – increase the number of municipal ride along programs from 20 to 30 during the 2020-2024 planning period

OM.4 Continue to assist SWALCO members in obtaining costs estimates, as part of the procurement process for a new hauling contract or extension, for a year-round three cart



collection system that will provide year-round collection for: refuse recyclables and organics. Members can then decide whether to expand their collection programs to include organics, year-round.

- OM.5 Continue to assist SWALCO members both with and without commercial franchises to expand food scrap collection programs, and in future commercial franchise hauling contracts expand the level of service options by increasing the number of container sizes offered and collection frequency.
- OM.6 Continue to be a member of and support the Illinois Food Scrap Coalition (of which SWALCO is a founding member). Utilize the restaurant toolkit and the "We Compost" recognition program developed by the Coalition to inform Lake County businesses and institutions about food scrap composting opportunities and how to get recognized for those efforts.
- OM.7 Add information to the SWALCO website on how to reduce food waste and not produce so much food scrap in the first place. Also include information on food recovery programs in Lake County.
- OM.8 Coordinate with Lake County's Department of Transportation, Public Works Department, Forest Preserve, SWALCO municipal members and local compost site owners to develop procurement requirements/bid specifications requiring the use of compost in appropriate applications.

5.2.6 Household Chemical Waste (HCW) Management

- H.1 Continue operating a Household Chemical Waste Collection Program consisting of both public drop-off and mobile collection events operating on a year-round basis.
- H.2 Renew the existing Intergovernmental Agreement with the Illinois Environmental Protection Agency when its term expires (April 2022). Continue to work with the IEPA to establish a fair and adequate annual cap on program costs covered by the IEPA, currently the cap is \$368,000.
- H.3 Evaluate the current operation of the satellite collection location at Lincolnshire-Riverwoods Fire Protection District in Lincolnshire, IL to determine whether to continue operating the drop off program or not.
- H.4 Maintain a listing of environmental contractors and disposal programs (i.e. IEPA's laboratory waste collection program) to use as a referral for business, institutions and school districts.

5.2.7 Organization and Administration

- O.1 Continue the coordinated county wide approach to the management and disposal of all nonhazardous waste generated within Lake County, including the management of recyclable and recoverable materials. Place increased emphasis on non-residential waste, including commercial, industrial waste and construction and demolition debris, and in particular the materials highlighted in the WARM model analysis (metal, plastic, mixed paper and organics).



- O.2 SWALCO should continue providing centralized management of the plan implementation process and other municipalities currently not SWALCO members should be encouraged to join SWALCO.
- O.3 SWALCO members should assume responsibility for: (i) adopting necessary waste management ordinances, (ii) providing administrative and operational funding for SWALCO as determined by SWALCO Board of Directors and (iii) using the waste management and disposal system established by SWALCO.
- O.4 The SWALCO Board of Directors shall provide for professional staff and resources necessary to undertake all programs to implement the Solid Waste Plan. As programs are altered, it may be necessary to adjust staffing levels to implement program changes.
- O.5 Maintain the designation of one or more Materials Recovery Facility(ies) (MRF) as an official component of Lake County's waste management system and encourage all members and non-members to utilize the MRF or MRFs for recyclables collected within their municipal boundaries; continue to establish and designate other components of the waste management system as appropriate.
- O.6 Obtain input from the public in the development of solid waste policies, such as from a citizens advisory group. Prior to adopting the next update to the Lake County Solid Waste Management Plan establish a citizens advisory committee (CAC) to help in the preparation of a draft plan update for review and approval by the SWALCO Board of Directors and the Lake County Board.

5.2.8 Finance and Ownership

- F.1 Monitor operations of the six sanitary landfills currently under agreement with SWALCO for the provision of a given amount of privately-owned-and-operated landfill disposal capacity, secured by contract/agreement. Retain, as a long-term option, the public ownership of recycling, composting and/or final disposal facilities to meet the waste/material management needs of Lake County.
- F.2 Examine and where determined appropriate, pursue all reasonably available sources of interim and long-term funding for implementing programs and facilities recommended in the Plan Update.
- F.3 SWALCO and Lake County should monitor and apply to federal, state and private sources for grants and loans to be used for capital assistance when such funding is consistent with the goals of the Plan.
- F.4 SWALCO members and non-members should be encouraged to consider other available sources of assistance grants and funds to finance and operate local recycling projects.

5.2.9 Legislative Initiatives

- I.1 Utilize the SWALCO Legislative Committee to develop an annual Legislative Policy for approval by the Board of Directors. SWALCO's legislative efforts should be coordinated with Lake County and other entities. The Legislative Policy should be consistent with the Lake County Solid Waste Management Plan as updated and amended.



SECTION 6

REQUIREMENTS FOR POLLUTION CONTROL FACILITIES FOR THE 2020-2024 PLANNING PERIOD

6.1 Introduction

A pollution control facility includes disposal facilities such as landfills, mass burn incinerators, alternative disposal technologies, and transfer stations that accept municipal waste. Solid waste plans have specific importance with respect to pollution control facilities that manage waste because such facilities must meet the following criterion (415 ILCS 5/39.2(a)(viii)) to be granted local siting approval (along with 8 other criteria):

If the facility is to be located in a county where the county board has adopted a solid waste management plan consistent with the planning requirements of the Local Solid Waste Disposal Act or the Solid Waste Planning and Recycling Act, the facility is consistent with that plan; for purposes of this criterion (viii), the “solid waste management plan” means the plan that is in effect as of the date the application for siting approval is filed;

Therefore, any pollution control facility proposed to be located anywhere within incorporated or unincorporated Lake County must demonstrate that it is consistent with this section of the 2019 Plan Update in order to receive local siting approval. Recommendations and requirements applicable to pollution control facilities that may have existed in the 1989 Plan or the subsequent Plan Updates are superseded by this 2019 Plan Update.

With respect to final disposal requirements the list of acceptable facilities remains the same as the 2014 Plan Update: landfills, transfer stations and facilities that biologically treat waste are permitted but mass burn incineration, and thermal or chemical conversion facilities such as gasification are not permitted.

6.2 Pollution Control Facility Requirements for 2020-2024

The following are the requirements applicable to landfills, solid waste transfer stations, and alternative technology facilities proposed to be located in Lake County. There are specific requirements for each type of pollution control facility listed in the remainder of this section. In addition, the following requirement is applicable to all pollution control facilities.

- SWALCO and the siting authority (the unit of local government with siting jurisdiction in accordance with Section 39.2 of the Illinois Environmental Protection Act) will continue using the three guidelines that were outlined in the 1989 Plan for evaluating landfilling technology. These guidelines are: utilize proven technology; minimize emissions; and avoid large economic risks. SWALCO's and the siting authority's determination on whether the proposed facility is consistent with the Lake County Solid Waste Management Plan will be based, in part, on the applicant addressing the following questions in the plan consistency (siting criterion number 8 of Section 39.2 of the Act) portion of the siting application:



- **Facility Requirements** – what types of facilities are required as part of the technology? How many facilities are needed and of what size, including both site acreage and disposal capacity (in tons per day)?
- **Siting** - What are the facility siting requirements? Does a suitable site exist within the County?
- **Economics** -What are the capital, operation, and maintenance costs associated with the technology? What are the estimated tipping fees per ton and how do the estimated fees compare to current tipping fees for disposal of Lake County waste?
- **Technical Feasibility** - Is the technology proven for a portion or all of the waste generated for disposal in Lake County? Can it provide reliable long-term management of the targeted waste stream?
- **Ability to Implement** - Can the technology be successfully engineered? What are the potential obstacles to implementation and how will these obstacles be addressed? Can it be implemented in time to serve its intended purpose?
- **Environmental Impacts** - What are the environmental impacts of the technology on the air, water, and land of Lake County and its surrounding neighbors? Do the air, land and water pollution control technologies proposed at the facility meet the most stringent standards under applicable state of Illinois and/or federal law?
- **Permitting** - What federal, state and/or local permits will be necessary for the facility to be developed and operated?
- **Safety Issues** - What safety concerns for the worker and general public are associated with the facility and can they be adequately addressed?
- **Health Risk Assessment** - What are the health risks and benefits associated with the technology?
- **Financing** – How will the facility be financed and can financing be arranged?

6.2.1 Landfilling

- L.1 Maintain existing contracts and/or negotiate new contract provisions with the six SWALCO designated sanitary landfills serving Lake County (Countryside Landfill, Pheasant Run Landfill, Zion Landfill, Livingston Landfill, Lee County Landfill and Newton County Landfill) to provide for privately-owned-and-operated landfill disposal capacity for Lake County's waste requiring disposal. Such capacity guarantee should provide capacity for a portion of Lake County's waste for as long as the landfill has permitted capacity and remains an open site per the appropriate state regulations. SWALCO will consider expanding the list of landfills (located outside of Lake County) deemed to be serving Lake County if the owner of the landfill proposed for inclusion first negotiates a host agreement with SWALCO. The host agreement must provide for a capacity guarantee and payment of a host fee for each ton of Lake County waste taken to the landfill.
- L.2 Continue to implement source reduction, reuse, recycling, and composting programs to reduce dependence on landfilling.
- L.3 If one or both of the two existing landfills in Lake County (Zion Landfill and Countryside Landfill) propose an expansion onto property that is directly adjoining or within 250 feet of an existing portion of the permitted footprint of the landfill (horizontal) and/ or on top of (vertical expansion) the existing landfill's permitted airspace, and the proposed expansion meets the requirements of Section 6.2.4 regarding Host Community Benefit Agreements, the proposed expansion will be considered consistent with the Plan.



- L.4 With less than nine years of permitted landfill capacity in Lake County, a new landfill would be considered as a local solution to managing Lake County's waste. If the proposed new landfill meets the applicable requirements of the Lake County Solid Waste Management Plan (Requirements L.4 and L.5) it will be considered consistent with the Plan.
- L.5 Any proposed new landfill facility must meet the requirements of Section 6.2.4 regarding Host Community Benefit Agreements.
- L.6 Encourage existing and new landfill owners to design and implement landfill technologies to extend life expectancy, reduce long term toxicity and conserve resources when possible and environmentally appropriate.
- L.7 Encourage existing and new landfill owners to design and implement landfill gas collection and management systems that capture and utilize the maximum amount of landfill gas for energy recovery as opposed to direct flaring of some or all of the landfill gas.

6.2.2 Solid Waste Transfer

- T.1 Solid waste transfer stations, if developed in accordance with the applicable requirements of the Lake County Solid Waste Management Plan (Requirements T.2 through T.6), will be considered consistent with the Plan. These requirements (T.1 through T.6) are not applicable to landscape waste transfer stations or general construction and demolition debris recycling facilities as permitted under Section 22.38 of the Illinois Environmental Protection Act, but are applicable to any transfer station that meets the definition of a pollution control facility under the Act.
- T.2 A transfer station site should be large enough to provide for a facility large enough to safely and efficiently manage the anticipated volume of waste, adequate buffering and screening, stormwater management, and safe traffic flow. If the site is proposed for additional functions, including but not limited to, vehicle and equipment storage, vehicle maintenance, office space, processing of recyclables, or processing of waste into a fuel it must be demonstrated that the site is large enough for all proposed functions.
- T.3 Transfer station operations - related to the unloading of refuse, recyclables and landscape waste, temporary storage of the materials on the tipping floor, and the loading of transfer trailers - must be located within a portion of the transfer station that can be completely enclosed. (This does not require the transfer station to keep its incoming and outgoing doors closed during operations unless proximity to a Federal Aviation Administration (FAA) regulated airport requires that doors open and close with the acceptance of waste. This does prohibit the development of a three sided and/or an open top structure as a transfer station in Lake County.) Developers are strongly encouraged to incorporate: 1) material recovery at the transfer station to capture materials of value in the municipal waste prior to loading for landfill disposal, and 2) green/sustainable building principles into the design and operation of the facility and the overall site, including obtaining Leadership in Energy and Environment Design (LEED) certification for the facility.
- T.4 Transfer station developers must include in the design and operation of the facility: 1) the transfer of recyclables, landscape waste and food scraps within 24 hours of acceptance at the facility (with the exception of waste loaded into trailers and stored inside the transfer station prior to delivery to the landfill, compost site or recycler, and extreme weather or emergency situations that make this requirement infeasible), 2) a negative air pressure



system within the enclosed portion of the transfer station and filtering of the exhaust air before it is emitted outside the facility, 3) operating hours that are no greater than 17 hours during weekdays, 8 hours during Saturdays and closed on Sundays (hours can only be extended by the siting authority due to storms, strikes or other one-time events), 4) high performance doors that will automatically open and close as vehicles enter and leave and that allow for the facility to keep its doors closed during operating hours, if so determined by the siting authority. Transfer station developers are encouraged to evaluate the processing of the solid waste into a renewable resource that could be transported to off-site markets.

- T.5 Any proposed transfer station facility must meet the requirements of Section 6.2.4 regarding Host Community Benefit Agreements.
- T.6 Any proposed transfer station facility that intends to export waste outside of Lake County must transport the waste to a SWALCO-designated landfill in accordance with requirement L.1 under Section 6.2.1.

6.2.3 Alternative Technologies

- AT.1 With less than nine years of permitted landfill capacity in Lake County, alternative technologies, which are limited to technologies that convert waste to energy through biological conversion (i.e., anaerobic digestion technologies, not including mass burn incineration or thermal or chemical conversion such as gasification), should be considered as a local and sustainable solution to managing Lake County's waste. If the proposed alternative technology facility meets the applicable requirements of the Lake County Solid Waste Management Plan (Requirements AT.1 and AT.2) and it is 500 tons per day or less in design capacity (based on 365 days per year) it will be considered consistent with the Plan.
- AT.2 Any proposed alternative technology facility must meet the requirements of Section 6.2.4 regarding Host Community Benefit Agreements.

6.2.4 Host Community Benefit Agreements

- A.1 Prior to filing a siting application, pursuant to Section 39.2 of the Illinois Environmental Protection Act, for a new pollution control facility or for an expansion or significant modification to an existing pollution control facility, the applicant shall first enter into Host Community Benefit Agreements (defined as any type of legal agreement entered into or assumed by the applicant and any other person or legal entity) with the following units of local government: 1) the governing body with jurisdiction over the proposed facility, 2) SWALCO and 3) Lake County. In addition, the applicant may enter into additional Host Community Benefit Agreements with other appropriate units of local government, as determined by the applicant. In the event the applicant represents an existing pollution control facility with existing Host Community Benefit Agreements, the applicant shall amend each existing Host Community Agreement with each respective party prior to filing the siting application with the governing body.

The new and/or amended Host Community Benefit Agreements must, at a minimum, contain provisions for: 1) a guarantee of access to capacity at the facility for Lake County's unincorporated and incorporated solid waste, 2) environmental safeguards, and 3) payment of host benefit fees.



Section 6
Requirements for Pollution Control Facilities for the 2020-2024 Planning Period

As part of the host agreement negotiations with all applicable units of local government and prior to the approval or disapproval of the host agreements, the developer must demonstrate, using a SWALCO approved life cycle assessment model, that its proposed disposal option is superior to the current system for at least three of the four parameters (net annual energy consumption, sulfur oxides emissions, nitrogen oxides emissions and carbon dioxide emissions), one of which must be carbon dioxide emissions. The life cycle assessment results and all input data must be provided to all interested parties and presented in a public meeting hosted by the governing authority with jurisdiction for siting, and both SWALCO and Lake County representatives will be invited to the same public meeting (the intent is to have one public meeting that all units of local government that must approve host agreements would attend jointly). The life cycle assessment results must be made available to SWALCO (and posted on SWALCO's website) and other interested parties at least 30 days prior to the public meeting in order to provide interested parties time to evaluate and comment on the results. The requirement to conduct a life cycle assessment is not applicable to either a new landfill or landfill expansion and is therefore not required for a new landfill or landfill expansion.

All reasonable and necessary costs, including but not limited to legal fees and consulting fees, associated with the development of Host Community Benefit Agreements, and the evaluation of the life cycle assessment model and data shall be paid for by the developer to the affected units of local government. The developer will be required to establish an escrow account or multiple escrow accounts that the units of local government can draw on to pay for their reasonable and necessary costs. The amount of the escrow account or accounts shall be equal to the amount of the reasonable and necessary costs and funded as necessary to cover such costs. This is consistent with the provision in Section 39.2 of the Illinois Environmental Protection Act which authorizes units of local government to charge applicants pursuing siting approval for a pollution control facility a fee to cover the reasonable and necessary costs incurred by the unit of local government in the siting review process.



Attachment A
Citizens Advisory Committee Members,
Agendas and Attendance Sheets



LAKE COUNTY CITIZENS ADVISORY COMMITTEE

2019 Solid Waste Management Plan Update

<u>Member's Name</u>	<u>Affiliation</u>
1. Don Anderson	Private Citizen, Deerfield Sustainability Comm.
2. Krista Barkley-Braun	Lake County, Planning, Building & Development
3. Larry Blacik	Private Citizen
4. Mike Brink	WMI, hauler group
5. Josh Connell	Lakeshore Recycling Services
6. Evan Craig	Midwest Sustainability Group
7. Frank Flammini	Private Citizen
8. Michael Flood	Flood Brothers Disposal
9. Mandi Florip	Lake County Municipal League
10. Drew Irvin	Village of Lake Bluff, Village Manager
11. Alan Josephsen	Alan Josephsen Co., Inc.
12. Barbara Klipp	Midwest Sustainability Group
13. Ted Krueger/Andy Klink	Midwest Organics
14. Josh Molnar	Groot Industries
15. Leisa Niemotka	Village of Beach Park
16. Dan Otzelberger	Advanced Disposal, landfill group
17. Tim Petersen	Lakes Disposal Services
18. Bob Pfister	Advanced Disposal, hauling group
19. Doug Reed	Private Citizen, Sustain Libertyville Comm.
20. Steve Schweinsberg	Prairieland Disposal
21. Brad Stenzel	WMI, landfill group
22. Jessica Vealitzek	Lake County Board Member

SWALCO/Lake County Citizens Advisory Committee

2019 Solid Waste Management Plan Update

Meeting Agenda

6:30 p.m., September 4, 2019
Central Permit Facility, 2nd Floor Conference Room
500 W. Winchester Road, Libertyville, IL

- 1) Introductions
- 2) Roles of major plan development participants
 - a) SWALCO
 - b) CAC
 - c) Lake County
- 3) Review Sections of the Draft 2019 Plan Update
 - a) Section 2 – Waste Generation and Management
 - b) Section 3 – Implementation Status of the 2014 Plan Update
 - c) Section 4 – Circular Economy and Greenhouse Gas
- 4) Proposed timeline for approving Plan Update
 - a) CAC vote at September 18, 2019 meeting
 - b) SWALCO Board vote at October 17, 2019 meeting
 - c) Lake County Board
 - i) Public Works, Planning, and Transportation Committee vote at November 6, 2019 meeting
 - ii) County Board vote at November or December 2019 meeting
- 5) Public comment
- 6) Next Meeting, September 18, 6:30 p.m.
- 7) Adjourn

LAKE COUNTY CITIZENS ADVISORY COMMITTEE

2019 Solid Waste Management Plan Update

Sign-In Sheet

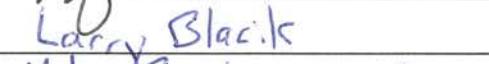
September 4, 2019 Meeting

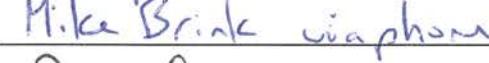
Member's Name

1. Don Anderson
2. Krista Barkley-Braun
3. Larry Blacik
4. Mike Brink
5. Josh Connell
6. Evan Craig
7. Frank Flammini
8. Michael Flood
9. Mandi Florip
10. Drew Irvin
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14. Josh Molnar
15. Leisa Niemotka
16. Dan Oztelberger
17. Tim Petersen
18. Bob Pfister
19. Doug Reed
20. Steve Schweinsberg
21. Brad Stenzel
22. Jessica Vealitzek

Signature

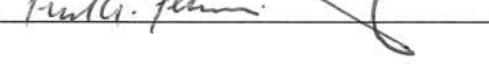

Larry Blacik

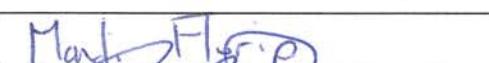

Mike Brink via phone

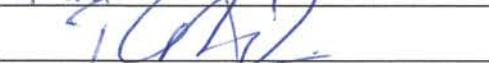

Jason Connell


Evan Craig


Mandi Florip


Barbara Klipp


Dan Oztelberger


Ted Krueger/Andy Klink


Bob Pfister


Doug Reed


Steve Schweinsberg


Brad Stenzel


Jessica Vealitzek

SWALCO/Lake County Citizens Advisory Committee

2019 Solid Waste Management Plan Update

Meeting Agenda

6:30 p.m., September 18, 2019
Central Permit Facility, 2nd Floor Conference Room
500 W. Winchester Road, Libertyville, IL

- 1) Introductions
- 2) Review Section 5 of the Draft 2019 Plan Update
- 3) Next Steps
- 4) Adjourn

LAKE COUNTY CITIZENS ADVISORY COMMITTEE

2019 Solid Waste Management Plan Update

Sign-In Sheet

September 18, 2019 Meeting

Member's Name

1. Don Anderson
2. Krista Barkley-Braun
3. Larry Blacik
4. Mike Brink
5. Josh Connell
6. Evan Craig
7. Frank Flammini
8. Michael Flood
9. Mandi Florip
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15. Leisa Niemotka
16. Dan Otzelberger
17. Tim Petersen
18. Bob Pfister
19. Doug Reed
20. Steve Schweinsberg
21. Brad Stenzel
22. Jessica Vealitzek

Signature

DR Anderson
Krista Braun
Larry Blacik
Mike Brink
Josh Connell
Evan Craig
Frank Flammini
Michael Flood
Mandi Florip
Drew Irvin
Alan Josephsen
Barbara Klipp
Ted Krueger/Andy Klink
Josh Molnar
Leisa Niemotka
Dan Otzelberger
Tim Petersen
Bob Pfister
Doug Reed
Steve Schweinsberg
Brad Stenzel
Jessica Vealitzek

Attachment B
Lake County Board Resolution
Adopting the 2019 Plan Update





Lake County Illinois

Certified Copy

resolution: 19-1951

File Number: 19-1951

Resolution adopting the 2019 Solid Waste Management Plan Update (Plan Update) for Lake County, Illinois, as approved and recommended by the Solid Waste Agency of Lake County (SWALCO).

RESOLUTION

WHEREAS, in 1988, the Lake County Board delegated the Lake County Joint Action Solid Waste Planning Agency with the responsibility of preparing a comprehensive waste management plan for the County; and

WHEREAS, the Lake County Solid Waste Management Plan ("Plan") prepared by the Joint Planning Agency was first adopted by the Lake County Board in September 1989; and

WHEREAS, pursuant to the Illinois Solid Waste Planning and Recycling Act (415 ILCS 12/1 et seq) the Plan is to be updated every five years; and

WHEREAS, the Solid Waste Agency of Lake County (SWALCO) is now charged with the responsibility of preparing updates to the Plan; and

WHEREAS, SWALCO has developed and approved updates as required, with said updates reviewed and adopted by the Lake County Board in 1994, 1999, 2004, 2009 and 2014; and

WHEREAS, SWALCO has forwarded the 2019 Solid Waste Management Plan Update for consideration and adoption by the County Board.

NOW, THEREFORE, BE IT RESOLVED, by this County Board of Lake County, Illinois, that the proposed 2019 Solid Waste Management Plan Update for Lake County, IL, attached hereto and incorporated herein, is hereby adopted.

DATED at Waukegan, Illinois, on December 10, 2019.

I, Robin M. O'Connor, in and for said Lake County, Illinois, in the State aforesaid, and keeper of the records and files thereof, as provided by statute, do hereby certify that this is a true copy of resolution No. 19-1951, passed by the Lake County Board on 12/10/2019.

Attest:

Robin M. O'Connor

Robin M. O'Connor

DEC 11 2019

Date Certified

Attachment C
60% Recycling Task Force Report





SOLID WASTE AGENCY OF LAKE COUNTY, IL

SOLID WASTE AGENCY OF LAKE COUNTY, IL

60% RECYCLING TASK FORCE REPORT (FINAL)

December 15, 2011

Executive Summary

The 60% Recycling Task Force was appointed by the Lake County Board and SWALCO Board of Directors in June 2010. The Task Force was comprised of 27 members representing a wide range of stakeholders. The Task Force held 12 meetings beginning in June 2010 and ending in October 2011, which resulted in the development of 36 recommendations that were approved by the Task Force at its final meeting in October 2011. The recommendations range from enhancing existing programs to mandatory programs if voluntary programs do not reach the diversion targets in the Task Force Report.

The 36 recommendations are grouped into three sectors: 1) residential (20 recommendations), 2) commercial (14 recommendations) and 3) construction and demolition (C&D) debris (2 recommendations). During the planning process the Task Force also agreed that while tracking the waste/material diverted from final disposal (the recycling rate) was important, the primary metric for judging the success of Lake County's diversion programs should be the pounds per capita per day (PCD) of waste disposed or the disposal rate. In 2010, the average pounds per day of waste disposed of by each resident in Lake County was 4.8 pounds. The goals set by the Task Force are to reduce this to 4.12 PCD in 2015 and 3.48 PCD in 2020, or in effect reduce the waste disposed to 40% of what is generated.

One of the primary barriers to reaching the disposal goal is the need to change the mindset of people from "waste management" to "material or resource management". Once people have a better understanding of the importance and benefits of recycling and composting they will likely participate more effectively if provided convenient programs. This need for education was discussed at length by the Task Force and led to the formation of an Education Subcommittee which helped develop the education and public outreach strategy contained in Section 4 of the Report. A second barrier is having a plan of action for achieving a 60% diversion of material/waste from final disposal, which has been addressed by this Report. Now the focus will shift to the implementation of the recommendations which will take a concerted effort by residents, businesses, the waste management and recycling/composting industry, and units of local government in Lake County.

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SECTION 1

INTRODUCTION

1.1 PLANNING BACKGROUND

Lake County has been a leader in proactively planning for and managing the materials and waste generated by its residents, businesses and institutions evidenced by the fact that Lake County adopted the first solid waste management plain in Illinois in 1989 and subsequently adopted the first 20 year update to its plan in 2009 (under Illinois law, county-wide plans must be reviewed and updated every five years). With the formation of the Solid Waste Agency of Lake County (SWALCO) in 1991, municipal and county governments joined together to provide a countywide approach to managing Lake County's materials and waste. This cooperative approach has led to significant progress being made in diverting materials from the final disposal into more productive uses, with Lake County achieving a 39% recycling rate in 2010. But this is not enough, Lake County must continue to expand its material diversion programs and minimize its reliance on final disposal.

Many communities across the United States are developing plans that target much higher diversion goals, realizing that more can be done to recover the valuable materials in our material/waste stream, to foster job creation, and reduce environmental impacts. Some communities even go as far as to set goals of "zero waste" wherein all "wastes" are viewed as potential resources that have higher and better uses such as being reused or re-incorporated into the economic mainstream as commodities as opposed to wastes. SWALCO and Lake County are committed to the philosophy of zero waste, but recognize that significant barriers still exist to achieving higher diversion goals. A primary barrier is changing the mindset of people from "waste management" to "material management" or "resource management". In this report you will note that the term "material" is often used in place of or along with the term "waste". Another primary barrier is the need for an articulated vision or plan which draws on the involvement and commitment of all the key stakeholders, including waste generators, units of local government and the private material/waste management industry. The goal of this Task Force Report is to begin the process of reducing and ultimately eliminating these two barriers.

As noted earlier, SWALCO and Lake County recently prepared and adopted, respectively, the 2009 Solid Waste Management Plan for Lake County, Illinois. The Plan Update contains numerous recommendations, including Recycling Recommendation R.3 which reads as follows:

Convene a task force by July 1, 2010 to investigate, evaluate and develop recommendations on how SWALCO and Lake County can realistically achieve a 60% recycling rate by 2020. The task force members shall include members of the Citizens Advisory Committee and other members selected and approved by both SWALCO and Lake County. The Task Force shall complete its investigation, and prepare and approve a final report by March 1, 2011. SWALCO will be responsible for coordinating the meetings and preparing the final report.

This recommendation has been addressed although the deadline for approving the final report was not met due to the complexity of the issue and the need to take the time to let the planning process work.

1.2 ORGANIZATION OF THE TASK FORCE REPORT

The remainder of this Task Force Report is organized as follows:

- Section 2—Planning Approach
- Section 3—Task Force Recommendations
- Section 4—Education and Public Outreach Strategy
- Section 5—Implementation of the Task Force Report

There are three attachments to this Report:

1. Attachment A lists the members of the Task Force.
2. Attachment B provides the minutes for the 12 meetings held by the Task Force.
3. Attachment C contains a PowerPoint developed by the Education Subcommittee summarizing its deliberations.

SECTION 2

PLANNING APPROACH

2.1 THREE SECTOR APPROACH

The three primary material/waste generation sectors tracked by SWALCO through its data collection efforts are:

- Residential (typically single family housing up to 4 unit multi-family);
- Commercial (includes all non-hazardous and non-special waste from typical commercial, industrial and institutional sources, and multi-family housing larger than 4 units); and
- Construction & Demolition Debris (material and waste placed in large roll-off containers, not including compactors which are part of commercial sector material/waste).

SWALCO has excellent sources of data for its residential sector due to the franchises held by most of SWALCO's municipal members, which require that the haulers provide accurate data on waste, recyclables and landscape waste collected in a given town. SWALCO and Lake County also license companies in Lake County that provide material/waste collection services and as part of the licensing requirements these companies must provide SWALCO with data on the waste and recyclables collected from the three sectors listed above. This data is relied upon to estimate the commercial and C&D debris sectors waste and recycling rates, but admittedly, this data source is not as accurate as the residential data collected from the municipal franchises.

It is also quite common for companies involved in material/waste collection to organize their businesses along the same three sectors. The collection of residential waste under franchises is much different than collecting waste from non-franchised commercial businesses or offering roll-off services for new construction, renovations, and demolitions. As a result, business lines are typically set up along these three sectors. Many companies specialize in roll-off services exclusively, with Lake County having approximately 41 companies offering roll-off services and 7 companies offering material/waste collection services to the residential and commercial sectors.

Given that SWALCO's data and the business lines of material/waste collection companies are aligned with these three sectors it seemed appropriate to split the planning process along these same three sectors. You will note that in Section 3 of this report that the Task Force developed separate recommendations for each of these sectors, with the goal of achieving a 60% diversion rate in each sector.

2.2 RECYCLING GOALS VS DISPOSAL GOALS

The Illinois Solid Waste Planning and Recycling Act requires counties to design programs to recycle 25% of the waste generated, which is considered a goal and not a requirement. Unlike other states that have penalties associated with not achieving a certain recycling rate (typically much higher than Illinois'), Illinois only requests that counties compile their data and report it to the Illinois Environmental Protection Agency on an annual basis. This data collection effort varies from county to county; much like the computation of recycling rates vary from state to state. Even the term "recycling" can be misunderstood. Does it include composting? Source reduction? Reuse? The end result is that recycling rates have become less meaningful as an accurate metric of a program's success, and for comparison purposes.

This has lead many countries in Europe and most recently the State of New York to use a different benchmark for recycling/diversion programs - the amount of waste disposed. Instead of going through the time-consuming and difficult process of tracking all the recycling, composting, reuse, and source reduction (which is not easily tracked), the focus is on reducing the amount of waste disposed and setting goals based on disposal rates, which are far easier to track from a data gathering and accuracy standpoint than material diversion. For example, New York has set a goal of reducing its pounds per person per day disposed from 4.1 pounds in 2008 to 0.6 pounds by 2030. Using the disposal metric also allows for taking credit for reuse and source reduction activities which are nearly impossible to track and take credit for under current recycling data collection efforts.

During the planning process the Task Force decided that while SWALCO should continue to make its best effort to track recycling rates (which for Lake County includes recycling and composting), the ultimate measure of the County's success should be reducing the amount of material/waste collected for final disposal. Section 2.3 contains a more detailed explanation of the data used to calculate the disposal goals for Lake County.

2.3 RECYCLING AND DISPOSAL GOALS

As discussed earlier, SWALCO collects recycling and disposal data from several different sources. Recycling data is collected from haulers, composting sites, recycling facilities, scrap yards and other known entities involved in recycling. Disposal and recycling data is collected from haulers in accordance with the Lake County Solid Waste Hauling and Recycling Ordinance on a countywide basis. More specific data on residential collection programs, including data on the amount of municipal waste, recyclables and landscape waste collected, is obtained from the haulers in accordance with franchise contracts maintained by most SWALCO members. Finally, the two in-county landfills (Zion Landfill and Countryside Landfill) provide SWALCO with annual estimates of the amount of waste disposed from Lake County and also out-of-county sources.

Combining this data and using it for useful metrics is a fairly complicated process. For this report the hauler data reported for residential franchises was used to develop the residential disposal goals. The landfill reported data was used (the data reported in accordance with the Lake County ordinance was used as a check on the landfill related data) to develop the commercial/C&D debris (combined) disposal goals. Table 1 shows the disposal data from these three sources for 2010, which is the base year for the disposal goals. Table 2 contains the disposal goals for 2015 and 2020 in pounds per capita per day (pcd) for the residential, and commercial/C&D debris sectors. These goals are quite relevant because if they aren't met by the individual members for residential disposal, and countywide for the commercial/C&D debris disposal, the mandatory recommendations in Section 3 of this Report must then be implemented.

Table 1. SWALCO Waste Disposal Data for 2010

<u>Data Source</u>	<u>2010 Tons</u>	<u>2010 pcd</u>
A. Hauler Reported per County Ordinance		
1. Residential Waste Disposed	218,507	
2. Commercial Waste Disposed	206,498	
3. C&D Debris Disposed	152,066	
	Total	577,071
		4.49
B. Hauler Reported per Residential Franchise Contracts		
1. Residential (for SWALCO franchise towns only)	158,457	1.85
C. Landfill Reported (all sectors combined)		
1. WMI Countryside Landfill	314,559	
2. Veolia Zion Landfill	220,352	
3. Exported to Out of County Landfills	77,810	
	Total	612,720
		4.77
Notes:		
1. pcd means pounds per capita per day.		
2. 2010 Census data (703,462 Lake County population) was used to compute pcd for data sources A and C.		
3. Population used to calculate pcd for data source B was 468,681 which only includes the population estimated to be served by SWALCO members with residential franchises.		

As discussed earlier, the Task Force decided that instead of tracking the diversion goal of 60% that the County should instead focus on tracking and achieving a disposal goal of 40% of the material/waste generated. The following paragraphs describe the process used to develop the 40% disposal goals in Table 2.

Table 2. Disposal Goals for 2015 and 2020			
<u>Disposal Sector</u>	<u>2010 Base Year (PCD)</u>	<u>2015 Goal (PCD)</u>	<u>2020 Goal (PCD)</u>
Residential	1.85	1.60	1.35
Commercial/C&D Debris	2.92	2.52	2.13
Total	4.77	4.12	3.48

The goals developed for residential disposal and commercial/C&D debris in Table 2 are based on the overall residential/commercial/C&D debris rate of 4.77 pcd (using the landfill reported data, Source C from Table 1) and the residential rate of 1.85 pcd (using the franchise reported data, Source B from Table 1). Subtracting out the residential rate (1.85 pcd) from the overall rate (4.77 pcd) leaves a combined rate for commercial/C&D debris of 2.92 pcd.

To achieve a 60% diversion rate means that 40% of the material/waste generated is disposed. The 2010 material/waste generation rate for Lake County was 8.76 pcd (612,720 tons disposed plus 511,368 tons recycled, divided by 2010 census population of 703,462). The 2020 target for material/waste disposed is 3.5 pcd ($8.76 \times 40\%$). To develop a reduction rate factor, the 2020 disposal goal of 3.5 pcd was divided by the current overall disposal rate of 4.77 pcd resulting in a reduction rate factor of 0.73 ($3.5/4.77 = 0.73$). This reduction rate factor was then applied to the current disposal rates for residential waste (1.85×0.73) and for combined commercial/C&D debris (2.92×0.73). Table 2 shows that the ultimate disposal goals in 2020 are 1.35 pcd for residential waste and 2.13 pcd for combined commercial/C&D debris. The 2015 goals are the half way points.

SECTION 3

TASK FORCE RECOMMENDATIONS

3.1 INTRODUCTION

In June 2010 the Lake County Board and the SWALCO Board of Directors passed a joint resolution (see Attachment A) appointing a 27 member Task Force pursuant to Recommendation R.3 in the 2009 Plan Update. The Task Force included members of the Citizens Advisory Committee that helped develop the 2009 Plan Update, the five primary haulers in Lake County, two compost facilities operators, a recycling facility operator, a C&D recycling facility operator, three members from Incinerator Free Lake County, three members from Lake County (two elected officials), three members from SWALCO (two elected officials), and representatives from the Lake County Municipal League, the Lake County Chamber of Commerce and a large retailer.

The Task Force met a total of 12 times beginning in June 2010 and ending in October 2011 (see Attachment B for the minutes for the meetings). The Task Force also formed an Education Subcommittee that met a total of 4 times beginning in December 2010 and ending in May 2011. The Education Subcommittee work formed the basis of the education and public outreach strategy outlined in Section 4. The remaining subsections below contain the recommendations developed by the Task Force, and approved or accepted by the Lake County Board and the SWALCO Board of Directors, including each of the 40 municipal members of SWALCO that passed local resolutions approving or accepting the Task Force Report. The recommendations are divided along the following three planning sectors: residential, commercial and C&D debris.

3.2 RESIDENTIAL SECTOR RECOMMENDATIONS

The residential sector recommendations were developed around 8 core objectives:

- Enhance existing programs
- Expand use of franchising
- Expand access to unit based pricing or pay as you throw (PAYT)
- Implement food scraps/organics collection programs
- Enhance and expand backyard composting
- Expand multi-family recycling
- Target specific materials in the material/waste stream for recycling
- Enact mandatory ordinances if voluntary measures are not successful

For each of the following residential sector recommendations the Task Force also provided input on the implementation timeframe (short - 1 to 3 years, medium - 4 to 7 years, and long - 8 to 10 years); fiscal impact (estimated percentage increase, if any, range of increase, or other appropriate cost measure); and political feasibility (low - difficult to enact local ordinances/program - medium, and high - likely to enact local ordinances/program changes).

A. Enhance Existing Programs

1. Require all single family residences in Lake County municipalities and unincorporated areas with franchises to use recycling carts (35, 65 or 95 gallon as appropriate) and single family residences in unincorporated Lake County without franchises to use either 18 gallon recycling bins or recycling carts (35, 65 or 95 gallon as appropriate) for curbside service. Municipalities should implement the transition to carts when their current contract expires or sooner.

Implementation Timeframe: Short/Medium

Fiscal Impact: \$1.50 to \$2.50 per household per month

Political Feasibility: Medium

2. Require all haulers providing residential recycling services to provide an educational flyer to their customers regarding service options/SWALCO programs at least once every other year. Utilize other means, including municipal newsletters, websites, utility bills, reverse telephone messages, to augment the hauler provided flyer on an ongoing basis.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

3. Beginning July 1, 2012 post quarterly material (recyclables and compostables) diversion results and refuse disposal rates in pounds per capita per day (PCD) for all SWALCO members on the SWALCO website.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

B. Expand Use of Franchising

1. Lake County should pursue a geographically limited franchise pilot program in the unincorporated area to test its effectiveness for lowering costs, and increasing recycling and composting by January 1, 2013.

Implementation Timeframe: Short

Fiscal Impact: None, typically lower rates with franchise

Political Feasibility: Medium

2. In areas that are not covered by a municipal or township franchise, Lake County should amend its Solid Waste Hauling and Recycling Ordinance by July 1, 2013 to require that haulers provide recycling service and include it in the cost for service regardless of whether residents choose to recycle or not.

Implementation Timeframe: Short

Fiscal Impact: \$4 to \$6 per

household per month for those without service now

Political Feasibility: Medium

C. Expand Access to Unit Based Pricing or Pay as You Throw (PAYT)

1. All Lake County municipalities and townships (with hauling franchises) should include a PAYT option in their franchise contracts with haulers in the next contract or extension. PAYT options include: 1) a sticker based program where each can or bag set out is charged for separately, with or without a base monthly fee, 2) a graduated can option with the price increasing as the size of the refuse can increases, or 3) a limited refuse program which requires a sticker for refuse that is in excess of the limited refuse requirement.

Implementation Timeframe: Short/Medium

Fiscal Impact: None

Political Feasibility: Medium

2. SWALCO/Lake County should evaluate compliance with Lake County's Solid Waste Hauling and Recycling Ordinance which currently requires haulers to offer a PAYT option to residents residing in unincorporated Lake County and take appropriate steps to ensure compliance by May 1, 2012.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

3. Lake County should amend its Solid Waste Hauling and Recycling Ordinance, by July 1, 2012, to require that haulers offer a PAYT option, as listed in Recommendation C.1, options 2 (graduated can) or 3 (limited), to residents in unincorporated Lake County.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

D. Implement Food Scraps/Organics Collection Programs

1. Conduct a pilot residential foodscrap collection program with a SWALCO member in 2012.

Implementation Timeframe: Short

Fiscal Impact: Depends on nature of pilot, may have costs for containers and supplies

Political Feasibility: High

2. Based on the knowledge gained from the pilot program and available processing capacity; decide whether to continue to expand food scrap collection in franchise agreements. By July 2013 review both the outcome of the pilot program and the status of processing capacity and make a determination on how to proceed with food scrap collection and composting.

Implementation Timeframe: Short

Fiscal Impact: Unknown until determination made on how to proceed

Political Feasibility: Unknown until program parameters are determined

E. Enhance and Expand Backyard Composting

1. SWALCO should resume its compost bin sale program (but no longer subsidize the cost) in 2011 and annually thereafter as long as reasonable demand exists.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

2. Lake County municipalities should modify local ordinances (if necessary) to not discourage backyard composting and to allow for neighborhood garden site composting.

Implementation Timeframe: Short/Medium

Fiscal Impact: None

Political Feasibility: High

3. All Lake County municipalities and the County of Lake should provide education to residents on greenscaping (e.g., mulching grass clippings and leaves) and backyard composting.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

F. Expand Multi-Family Recycling

1. All Lake County municipalities and the County of Lake should either include multi-family units in new or extended franchise contracts and require that recycling options be included in the services provided to multi-family units or enact ordinances requiring that property owners provide on-site recycling services to their tenants. If units of local government do not have a residential or commercial franchise contract they must enact an ordinance requiring property owners to provide on-site recycling service to their tenants by July 1, 2013.

Implementation Timeframe: Short/Medium

Fiscal Impact: Monthly rates may increase substantially to cover cost of new recycling service if changes are not made to refuse related services (many businesses are able to add recycling service for little or no cost if refuse services are adjusted downward)

Political Feasibility: Medium/Low

G. Target Specific Materials in Material/Waste Stream for Recycling

1. Electronic (E)-scrap: Continue to expand SWALCO's collection infrastructure so that all residents of Lake County have a convenient year round option for managing e-scrap.

Implementation Timeframe: Short

Fiscal Impact: Minimal, varies from site to site, partially offset by SWALCO's payments to collection sites

Political Feasibility: High

2. Pursue Extended Producer Responsibility (EPR) paint legislation by 2013 to cover costs for collecting, processing and managing latex and oil-based paints on a statewide basis.

Implementation Timeframe: Short

Fiscal Impact: May end up creating revenue for SWALCO depending if collection costs are covered by the EPR legislation

Political Feasibility: Medium

3. Pursue EPR plastic bag and film legislation in the 2012 session for collecting, processing and recycling plastic bags and film.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: Medium/Low

4. Pursue EPR legislation (CA just enacted first carpet law in nation) in the 2013 or 2014 session for collecting, processing and recycling carpet and padding.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: Medium/Low

H. Enact Mandatory Ordinances if Voluntary Measures are not Successful

1. If Lake County has not achieved a disposal rate of 1.6 pounds per capita per day (pcd) for calendar year 2015, using 2010 as the base year (1.85 pcd), the SWALCO Board members, the Lake County Board and all other municipalities located primarily in Lake County shall enact mandatory recycling ordinances in 2016 requiring all residential units (single units) to recycle those items listed as recyclable per the SWALCO recycling guidelines. If a unit of local government can demonstrate it has achieved the disposal rate goal of 1.6 pcd, it shall not be required to enact a mandatory recycling ordinance.

Implementation Timeframe: Medium

Fiscal Impact: Low, related to enforcement of ordinances

Political Feasibility: Medium/Low

2. If Lake County has not achieved a disposal rate of 1.35 pcd for calendar year 2020 using 2010 as the base year, the SWALCO Board members, the Lake County Board, and all other municipalities located primarily in Lake County shall enact mandatory food scrap collection ordinances in 2021 requiring the diversion of food scraps from final disposal in a landfill. If a unit of local government can demonstrate it has achieved the disposal rate goal of 1.35 pcd, it shall not be required to enact a mandatory food scrap collection ordinance.

Implementation Timeframe: Long

Fiscal Impact: \$4 to \$6 per household per month for food scrap service, this can be reduced if other changes are made to collection frequency for refuse and/or recyclables, or other innovations are achieved through collection efficiencies

Political Feasibility: Medium-Low

3.3 COMMERCIAL SECTOR RECOMMENDATIONS

The commercial sector recommendations were developed around 7 core objectives:

- Enhance existing programs
- Assist units of local government evaluate the use of franchising
- Develop model contract for commercial sector businesses
- Expand scope of hauler licensing ordinances
- Provide material/waste audit assistance
- Expand food scrap collection program
- Enact mandatory ordinances if voluntary measures are not successful

For each of these objectives the following recommendations were approved:

A. Enhance Existing Programs

1. SWALCO should work with the local chambers of commerce, the County of Lake and the municipalities to develop and implement an award and recognition program that promotes awareness of businesses that do recycle (e.g., a window sticker indicating this store recycles), and also highlights success stories in Lake County. More specifically, SWALCO should develop a program by 2013, based on the Earth Flag program example, where local businesses that meet certain minimum recycling program standards could self-nominate for a SWALCO recognized recycling designation or status.

Implementation Timeframe: Short

Fiscal Impact: Minimal cost for stickers, awards, promotions

Political Feasibility: High

2. SWALCO should post commercial waste generation and management data on its website on a regular basis beginning in 2012. This data should include the countywide data provided by the haulers and municipal level data for those municipalities with commercial franchise agreements.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

3. As part of the business licensing process utilized by Lake County municipalities and the County of Lake, recycling should either be promoted during the licensing process or become a requirement of licensing. In the absence of a business licensing program, units of local government should consider other recycling outreach and education programs for local businesses.

Implementation Timeframe: Short

Fiscal Impact: None, if recycling is only promoted; if required, business costs may increase for recycling service if refuse service is not downsized/reduced or if such a reduction is not feasible (some businesses may already have minimal refuse service and won't be able to reduce service)

Political Feasibility: High if promotion only; Medium/Low if a requirement

B. Assists Units of Local Government Evaluate the Use of Franchising

1. SWALCO should continue to provide assistance and educational materials to municipalities in Lake County that are interested in evaluating commercial franchising.

Implementation Timeframe: Short/Medium/Long

Fiscal Impact: Potential savings to businesses

Political Feasibility: Medium

C. Develop Model Contract for Commercial Sector Businesses

1. SWALCO, with input from the haulers and business community, should develop, by October 1, 2012, a model contract for collection services provided to commercial sector businesses and institutions. The model contract should address key issues such as term of contract, renewal provisions, annual escalators, and surcharge fees. SWALCO should recommend the use of the model contract to local businesses as part of its outreach and assistance to local businesses.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

D. Expand Scope of Hauler Licensing Ordinances

1. SWALCO municipal members and other municipalities primarily located in Lake County should amend their hauler licensing ordinances, by July 1, 2013, to require that haulers offer recycling services to their commercial sector customers. Hauler licensing ordinances should be further amended to require that the hauler's offer to the business that currently don't recycle be in a written form and that the businesses be asked to respond to the hauler's offer in writing as well.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

E. Provide Waste Audit Assistance

1. SWALCO should provide, by July 1, 2012, reference materials and information on its website regarding waste audit procedures and the USEPA's WasteWise program.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

2. As requested and based on available staff time SWALCO staff should provide waste audit assistance to commercial sector businesses or institutions located in Lake County.

Implementation Timeframe: Short/Medium/Long

Fiscal Impact: None

Political Feasibility: High

3. The haulers should provide reference materials and information on their websites regarding their waste audit services by July 1, 2012. For those clients who are not recycling, the private haulers should offer to provide waste audit assistance, based on available staff, at least once every two years.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: NA, up to private sector to implement

F. Expand Food Scrap Collection

1. By July 1, 2012, SWALCO should provide reference materials and information on its website regarding the development and implementation of commercial food scrap collection programs, the location of composting sites that can accept food scraps in Lake County and counties contiguous to Lake County, and haulers that provide food scrap collection services. SWALCO should develop a food scrap collection education program targeted at the larger generators of food scrap such as grocery stores, restaurants, food processors, and institutions by January 1, 2013.

Implementation Timeframe: Short

Fiscal Impact: None

Political Feasibility: High

2. SWALCO should attempt to implement a pilot commercial food scrap collection program in 2012 to demonstrate the costs and benefits associated with separate food collection service.

Implementation Timeframe: Short

Fiscal Impact: Unknown, expected to be less than \$5,000 for containers, liners for containers, and informational brochures

Political Feasibility: High

3. SWALCO members, other municipalities primarily located in Lake County, and Lake County should amend their hauler licensing ordinances, by July 1, 2014, to require that haulers offer food scrap collection services to their commercial sector food scrap customers (e.g., grocery stores, restaurants, and food processors).

Implementation Timeframe: Short/Medium

Fiscal Impact: None for offer, actual service if accepted may increase costs but actual impact will be case specific

Political Feasibility: High

G. Enact Mandatory Ordinances if Voluntary Measures are not Successful

1. If Lake County has not achieved a combined commercial/C&D debris disposal rate of 2.52 pounds per capita per day (pcd) for calendar year 2015, using 2010 as a base year (2.92 pcd), the SWALCO Board members, the Lake County Board and all other municipalities primarily located in Lake County shall enact mandatory recycling ordinances in 2016 requiring all commercial and institutional establishments to have recycling services provided by a hauler or some other service provider or program (e.g., direct to market, broker services, use of drop-off site).

Implementation Timeframe: Medium

Fiscal Impact: May increase costs for some businesses that cannot downsize refuse service enough to pay for recycling service

Political Feasibility: Low/Medium

2. If Lake County has not achieved a combined commercial/C&D debris disposal rate of 2.13 pcd for calendar year 2020, using 2010 as a base year (2.92 pcd), the SWALCO Board members, the Lake County Board and all other municipalities primarily located in Lake County shall enact mandatory recycling ordinances in 2021 requiring all commercial and institutional establishments to recycle those items listed as recyclable per the SWALCO recycling guidelines.

Implementation Timeframe: Long

Fiscal Impact: None, unless enforcement requires additional staff

Political Feasibility: Low/Medium

3.4 C&D DEBRIS SECTOR RECOMMENDATIONS

SWALCO has taken a proactive approach to assisting with the development of more C&D recycling facilities in Lake County by working with Senator Link to enact legislation in 2009 (Public Act 96-0611), which removes such facilities from local siting approval per Section 39.2 of the Illinois Environmental Protection Act and instead requires local zoning approval and a subsequent IEPA permit. To date, Lake County has one permitted C&D recycling facility owned by American Recycling and Roll-off Systems, Inc., located in Zion. There are two other facilities located south of Lake County in Northbrook (C&D Recycling) and Palatine (MBL Recycling), and both currently accept material/waste from Lake County. The City of Chicago with its mandatory C&D recycling ordinance and the green building movement (notably the Leadership in Energy and Environmental Design or LEED green building rating system) have had a significant and positive impact on the C&D recycling industry in the Chicago metro area. Now Lake County is ready to expand its C&D recycling programs as well with the introduction of mandatory C&D recycling ordinances (Lake County currently has a mandatory ordinance for certain projects in the unincorporated areas of Lake County) as discussed below in the C&D debris sector recommendations.

A. Enact Mandatory Ordinances

1. SWALCO should develop a model C&D debris recycling ordinance, based on state law, with the input of local developers, contractors, haulers and units of local government by April 1, 2012. SWALCO members, and other municipalities in Lake County shall enact the model ordinance (with modifications as deemed necessary by the unit of local government) by January 1, 2013 and make it effective once a C&D recycling facility is located within a reasonable travel distance from the unit of local government and is competitive with the price of landfilling the material.

Implementation Timeframe: Develop model ordinance – short; Enact local ordinances – short/medium

Fiscal Impact: Minimal, goal is to have this be cost neutral or save money

Political Feasibility: High, contingent on cost impact being neutral or less than landfilling

2. Lake County should amend its C&D recycling requirements (included in the Solid Waste Hauling and Recycling Ordinance) based on the model ordinance prepared by SWALCO in Recommendation A.1, and the location and cost competitiveness of the C&D recycling infrastructure in Lake County.

Implementation Timeframe: Short

Fiscal Impact: Minimal, goal is to have this be cost neutral or save money

Political Feasibility: High, contingent on cost impact being neutral or less than landfilling

3.5 OTHER FACTORS IMPORTANT TO REACHING THE DIVERSION GOALS

In addition to the 36 recommendations described above the Task Force also discussed several “macro realities” that are applicable across all three sectors, including:

- The need for conveniently located (to reduce transportation costs which are a main cost driver in the material/waste management business) and adequately sized processing capacity for recyclable and compostable materials that can manage the increased tonnage in an economically viable manner. This includes material processing facilities (MRF) for residential, commercial and institutional recyclables (both fibers and containers); composting facilities permitted to accept not only landscape waste but other organics such as food scrap and food processing residues; and recycling facilities that can manage C&D debris in compliance with state law. Reducing the reliance on landfilling and meeting the disposal goals in this Report will require diverting hundreds of thousands of tons of material out of the landfills and into such diversion facilities. The private sector will be relied upon to develop the needed infrastructure to manage these resources.

- Related to the macro reality discussed above is the concept of encouraging the two in-county landfills to begin evaluating on-site scavenging (which will likely require a modification of their IEPA permits) of the material/waste accepted at the landfills. This ranges from a dirty-MRF located on site to sort out valuable recyclables prior to landfilling, using magnets to harvest metals from the open face of the landfill, to using dedicated drop boxes for materials such as carpeting and mattresses that would then be transported off-site to downstream recycling facilities.
- Market development is essential if Lake County is to be successful in diverting materials from the landfill. The area needing most attention is markets for finished compost as Lake County begins to divert food scraps and other organics from the landfill to composting sites. If food scrap composting is implemented county wide it will increase volumes by 50% or more above current volumes from landscape waste. Other materials that offer unique collection or marketing challenges are #6 and #7 plastics, plastic film and glass.
- Education will be essential if Lake County is to move forward and reach the disposal goals set for 2015 and 2020. Those that generate materials/waste must realize that all programs start with their participation, and they need to understand why that participation is important. In addition, their participation must be made relatively easy and convenient. Section 4 of this Report discusses the education strategy which is partly based on the concept of community-based social marketing. Community-based social marketing utilizes various “tools” (developed and tested by social science research) to foster behavior change by understanding and overcoming barriers at the community level.

SECTION 4

EDUCATION AND PUBLIC OUTREACH STRATEGY

4.1 BACKGROUND AND INTENT

An Education Subcommittee, comprised of several members of the Task Force, was formed to evaluate and discuss how to effectively communicate the need for and means of achieving a 60% diversion/recycling rate in Lake County. The Subcommittee first met in December 2010 and met several times thereafter to brainstorm and strategize possible methods and initiatives that were then presented back to the Task Force. Attachment C contains a PowerPoint that summarizes the work effort and final recommendations of the Subcommittee.

4.2 ISSUES AND CHALLENGES

The Subcommittee discussed articles, conducted research, and shared information to determine what the key issues were that needed to be addressed by an education and public outreach strategy.

The Subcommittee developed the following list of key issues:

- Convenience and hassle factor
- Access
- Education (address why recycling is important and how to participate effectively)
- Language Barriers
- Contamination
- Cost
- Perceptions

4.3 APPROACH/WHERE TO BEGIN

The most convincing and well-documented work in changing environmental behavior is through social marketing efforts that promote an idea or behavior to a target audience. After reviewing the challenges and obstacles to recycling, the Subcommittee outlined and developed several categories or groups of recyclers here in Lake County (and other regions as well).

- Hardcore
- Green
- Fair weather recyclers
- Trying but confused
- Because you make me
- Not getting the message
- Unreachable (hopeless)

Of these groups, it was agreed that Lake County would have the most success in reaching and encouraging new behaviors, and increased recycling with the: 1) fair weather recyclers, 2) trying but confused, and 3) not getting the message. These groups were also considered to be some of the larger sized population segments. The Subcommittee defined a list of probable barriers for each group and created tactical plans for each, based on the anticipated obstacles and challenges specific to each.

4.4 UNDERSTANDING THE TARGETED GROUPS

The following is a brief overview of the recycling outlook of each group and the barriers to increasing recycling activity with each group as determined by the Subcommittee.

- A. Fair Weather: Know that recycling is important; not truly important to them personally; may recycle occasionally. Key barrier is inconvenience, if easy and not too invasive will participate. Other key factors in behavior are peer pressure; financial incentive or consequence; cynical about where recycling goes. Barriers include: convenience, storage, lack of time, lack of space, pests, too few drop off sites, can't move bin to curb, access, cynical, financial and other perceptions.
- B. Trying But Confused: Try to recycle, but really don't know what to do and don't fully understand importance. Education is barrier, if given education and tools behavior would change; don't understand the program; particularly multi-family where access is challenging. Barriers include: Not sure what to recycle, not sure what to do, don't know where to get information, and financial concerns.
- C. Not getting the Message: Not recycling due to lack of education and information. Barriers exist to receiving information, including language, socio-economic, and cultural. Barriers include: language, don't understand the importance of recycling, doesn't see the big picture, not invested or committed, don't know what can be recycled, and financial concerns.

4.5 CRITICAL SUCCESS FACTORS FOR ALL GROUPS

The following are considered the critical success factors that must be addressed with each of the target groups discussed above.

- A. Target groups need to see the big picture around material/waste generation and management, and their role in it.
- B. Target groups need to understand that "waste" contains resources that can be recovered.
- C. Target groups need specific information and direction on how to recycle and divert material/waste.

4.6 SUGGESTED TACTICS AND RECOMMENDATIONS

After identifying the targeted groups and discussing the overall factors that would be critical for success the Education Subcommittee then focused on the specific tactics that would best communicate with the targeted groups and overcome the barriers to participating in Lake County's recycling programs. After discussing numerous educational tactics/programs the Subcommittee grouped the tactics into three primary programmatic areas: 1) public relations campaign, 2) electronic or web-based program (E-program), and 3) community outreach program. For each of these three primary program areas a more detailed list of recommendations was developed, as shown below.

A. Public Relations Campaign

1. Develop "umbrella campaign" and logo in an effort to brand the 60% recycling effort in Lake County
2. Develop contests and challenges to encourage participation.
3. Look further at other successful efforts nationally and internationally.
4. Issue periodic press releases and articles.
5. Develop PSAs (Public Service Announcements) and messaging through other media, including television. Focus media attention and efforts around the time of "Environmental Holidays" including Earth Day and America Recycles Day.

B. E-Program

1. Utilize, promote and direct residents and groups to the SWALCO website – much information is already there including Recycling Guidelines, Task Force Information page, What Do I Do with my Stuff: Recycle and Redirect Guide, Upcoming Electronics and HCW collections and more. Further develop web presence and information including web pages dedicated to issues such as “why recycling matters”, “top 10 reasons to recycle”; post videos on recycling operations so people can see what happens to recyclables and how they are used as feedstocks for other products; focus on a recyclable for a given month much like a “recyclable of the month”; and develop a frequently asked questions page. Additional pages should also be developed on food scrap composting, commercial sector recycling and waste audits, and C&D debris recycling.
2. Provide specific and detailed information on why it is important to recycle and the impact it has on our own community and beyond.
3. Provide promotional materials people can download view or print.
4. Make educational materials available in English and Spanish.
5. Develop a Recycling Wizard (for example, Toronto’s online “Ask the Waste Wizard”).
6. Consider developing downloadable apps for smart phones and other electronic devices.
7. Utilize You Tube and post informative and fun videos, for example, “The Life of a Can”, “Trip to the Landfill”, etc.
8. Develop social media presence – SWALCO Facebook Page and Twitter.
9. Continue to share/communicate information and ongoing updates and results online throughout process.

C. Community Outreach

1. Develop a “Recycling 101” media kit that includes:
 - a. Educational presentations (PowerPoint, handouts)
 - b. A speakers training guide
 - c. Reminder items (stickers, magnets and bookmarks)
 - d. BRCs or opt-in for website
 - e. English and Spanish formats.
2. Develop Eblasts, quarterly or bimonthly newsletter (English and Spanish) using Constant Contact.
3. Develop monthly set of factoids that other stakeholders can use (schools, community groups, SWALCO members and other municipalities) in newsletters and websites.
4. Supply books, movies, etc. to schools, educators and possibly other appropriate groups.
5. SWALCO should continue and enhance, if possible, its school and community outreach programs, including Earth Flag, and others. Zero waste grant applications and other helpful information and resources.
6. Develop direct mail content in bills for municipal hauling (work with local haulers to assist in this effort).
7. Develop posters for variety of venues, including copy machine areas, recycling bins showing what to do, etc.
8. Continue to educate children to drive household behaviors.

9. Get municipalities more involved; and distribute information to schools, churches, libraries and other community groups.
10. SWALCO should continue to work with its members and non-member municipalities, and provide programs, information (via website and other), attend community events, etc. Develop new tools and programs to help meet mission and reach 2020 goal. Continue to promote the Rs.
11. SWALCO should continue to network with other organizations and public information officers throughout the County to develop a broad based and consistent message regarding the drive to increase recycling and lower disposal volumes in Lake County.

SECTION 5

IMPLEMENTATION OF THE TASK FORCE REPORT

5.1 APPROVAL OF THE TASK FORCE REPORT

The Task Force Report was approved by the 60% Recycling Task Force at its meeting on October 12, 2011. From there the Report was sent to Lake County and each of the 40 municipal members of SWALCO in good standing with the Agency. The members' legislative bodies reviewed the Report and ultimately passed a resolution approving or accepting the Report. After each municipality and Lake County passed resolutions during the period of _____ to _____ approving or accepting the Report, a final vote was taken by the SWALCO Board of Directors at its meeting on _____.

SWALCO is comprised of 41 municipal members and the County of Lake. The City of Waukegan was suspended from SWALCO in 2008 due to its non-payment of the Operations and Maintenance (O&M) fee instituted by SWALCO in 2007. Waukegan along with the other 11 Lake County municipalities that are not members of SWALCO have not participated in the development of this Report. SWALCO intends to reach out to these units of local government to educate them about the Report and to hopefully gain their approval as well.

5.2 IMPLMETATION OF THE TASK FORCE REPORT

Planning without implementation renders the planning process a useless exercise. While the planning process was time consuming and required extensive discussions and compromise, the key to success for this Report is its implementation. It will take a public-private commitment to make the type of progress the Report envisions by 2015 and ultimately 2020. Most importantly, it will take a change in attitude and subsequent action by all Lake County residents and businesses to be successful.

SWALCO members have been advised that the first step in implementing the Report is to choose several recommendations, from the list of 36 recommendations that are applicable to them (15 recommendations are applicable to Lake County, 18 to municipalities, 22 to SWALCO and 3 to haulers), that can be achieved relatively quickly and easily. Then start working on ones that are slightly more challenging until they reach those that are most challenging. Building momentum is important and essential in order to stay focused on the goals and to keep making progress. If you asked people 20 years ago if smoking in bars would eventually be against the law in Illinois, they would likely have laughed at the notion. Change is possible, we need to stay focused, have a plan and implement it. SWALCO is not starting at ground zero, the Agency has some of the best recycling and household chemical waste programs in the State, but as stated earlier, we must do better.

ATTACHMENT A

ATTACHMENT A TASK FORCE MEMBERS

ATTACHMENT B

ATTACHMENT B TASK FORCE MEETING MINUTES

ATTACHMENT C

ATTACHMENT C EDUCATION SUBCOMMITTEE POWERPOINT

Attachment D
IEPA Plan Update Form





FIVE YEAR MUNICIPAL WASTE MANAGEMENT PLAN UPDATE

The Agency has prepared this form to assist local governments with the five year updates of municipal waste (MW) plans. Although local governments may prepare and submit a more extensive document, the Agency will consider submission of this completed form to be the plan update required under the Solid Waste Planning and Recycling Act (SWPRA).

Attach additional labeled pages as necessary.

GENERAL INFORMATION

Local Government:	<u>Lake County</u>		
Contact Person:	<u>Walter Willis, Executive Director, Solid Waste Agency of Lake County</u>		
Address:	<u>1311 North Estes Street</u>		
P.O. Box:			
City:	<u>Gurnee</u>	State: <u>IL</u>	Zip: <u>60031</u>
Telephone:	<u>(847) 336-9340 x 2</u>	Plan Adoption Date:	<u>9/12/89</u>
Re-Adoption Date:	<u>9/1/91</u>	Plan Update Due:	<u>11/9/19</u>

1. Recommendation and Implementation Schedule Contained in the Adopted Plan

This information should be easily accessible in the plan's Executive Summary or Recommendations chapter. Briefly describe the recommendations and implementation schedule for each alternative in the adopted plan below.

a. Source Reduction

Refer to Section 5, page 5-3.

b. Recycling and Reuse

Refer to Section 5, page 5-3 through 5-6.

c. Combustion for Energy Recovery

The Lake County Plan does not recommend combustion technologies. However, alternative technologies that convert waste to energy through biological conversion are considered. Refer to Section 6, page 4-10.

d. Combustion for Volume Reduction

The Lake County Plan does not recommend combustion technologies. However, alternative technologies that convert waste to energy through biological conversion are considered. Refer to Section 4, page 6-4.

e. Disposal In Landfills

Refer to Section 6, page 6-2 through 6-3.

2. Current Plan Implementation Efforts

a. Which recommendations in the adopted plan have been implemented?

Refer to Section 3, Table 3.1.

Briefly describe which recommendations were not implemented and the reasons why these were not implemented.

Refer to Section 3, Table 3.1.

b. Which recommendations in the adopted plan have been implemented according to the plan's schedule?

Briefly describe which recommendations were not implemented according to the adopted plan's schedule, and attach a revised implementation schedule.

Refer to Section 3, Table 3.1.

3. **Recycling Program Status**

Because the Agency's annual landfill capacity report includes data on each adopted plan's recycling status, information on your recycling percentages is not being requested on this form. This will avoid duplication of efforts.

a. Has the program been implemented throughout the county or planning area:

Yes No

b. Has a recycling coordinator been designated to administer the program?

Yes No If yes, when? 1991

c. Does the program provide for separate collection and composting of leaves?

Yes No

Does the recycling program provide for public education and notification to foster

d. understanding of and encourage compliance with the program?

Yes No

Does the recycling program include provisions for compliance, including incentives

e. and penalties?

Yes No If yes, please describe:

Lake County has implemented and enforces its Solid Waste Hauling and Recycling Ordinance, a copy of which is available on the County's website. The ordinance identifies hauler requirements regarding recycling and contains penalties for violations of the ordinance. The 2019 Plan Update also contains recommendations of incentives for recycling, such as implementation of volume-based pricing and cart-based recycling (Section 5, page 5-5).

f. Does the program include provisions for recycling the collected materials, identifying potential markets for at least three materials, and promoting the use of products made from recovered or recycled materials among businesses, newspapers, and local governments?

Yes No If yes, please describe:

The Lake County Solid Waste Hauling and Recycling Ordinance requires all haulers operating in the County to offer recycling collection services. In addition, SWALCO maintains a capacity agreement with Waste Management Recycle America, LLC to recycle any materials collected from SWALCO members and Lake County townships.

g. Provide any other pertinent details on the recycling program.

Refer to Section 3 of the 2019 Plan Update for a discussion of current program status. Refer to Section 5 of the 2014 Plan Update for a discussion of future program recommendations.

4. **Current Needs Assessment Information (optional)**

Depending upon the available resources, updated waste generation data, current municipal waste recycling and disposal information, and any other recent available data may be included; this information will not be required by the Agency.

a. MW Generated per year: 1,063,720 Tons Cubic Yards

b. MW Generation Rate: 8.92 pcd (pounds/capita/day)

c. MW Recycled/Year: 414,527 tons

d. MW Incinerated/Year: 0 Tons Cubic Yards

e. MW Landfilled/Year 649,193 Tons Cubic Yards

Time period for this information: 2018

5. **New Recommendations and Implementation Schedule**

Due to political, fiscal, or technological changes, a local government may choose to recommend different waste management options for the review plan. It should be noted, however, that the recycling program requirements of the SWPRA must be followed. Discuss any new recommendations included in the revised plan, and the implementation schedule to be followed.

Status of recommendations from the 2014 Plan Update is addressed in Section 3. Section 5 of the 2019 Plan Update contains all current recommendations.
