



2012

*Municipal Waste Management
Plan Update*

Prepared by





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EXECUTIVE SUMMARY

MACON COUNTY MUNICIPAL WASTE MANAGEMENT PLAN

FIVE-YEAR UPDATE

2012

In April 1991, the Macon County Board adopted a Solid Waste Plan prepared pursuant to the Illinois Solid Waste Planning and Recycling Act (415 ILCS 15/1 et.seq). In April 2006, an update to the 1996 plan was approved. This document, intended to be an in-depth five-year update, has been completed considering the dynamic nature of the solid waste industry, the demographic changes occurring in Macon County, and the finalization of long-term plans to ensure a growing recycling rate as well as solid waste disposal capacity within the County.

This 2012 Solid Waste Plan Update supersedes and replaces the original 1991 plan, the revised 1996 plan, and the 2006 plan update, and thus becomes the officially adopted plan for the management of solid wastes generated within the boundaries of Macon County.

This 2012 Plan Update includes updated population figures from the 2010 Census, thus it incorporates new population projections and disposal needs for the twenty-year planning period. A summary of the current state of waste collection and disposal is provided, and modifications to the county waste reduction and recycling programs are recommended to maintain and expand upon the successful programs implemented in previous years.

It is recommended that the final disposal option for Macon County will continue to be an in-county landfill. Though adequate disposal capacity for the planning period is available at the existing landfill within the county, it is important to continue to evaluate private facility developments that are consistent with the County's Waste Management Plan's goal of environmentally responsible disposal.

As was the case in previous plans, the County has responsibly planned for its disposal needs for the next twenty years. In summary, the County plans to improve established programs and institute new programs in the areas of solid waste planning, education, enforcement, recycling, waste reduction, and collection events. Unanticipated events may affect the timely implementation of the Macon County Solid Waste Management Plan, however, the County remains steadfast in its decision to provide economical, as well as environmentally responsible and sound waste management policies for its municipalities, residents and businesses.

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CHAPTER 1. INTRODUCTION

Background

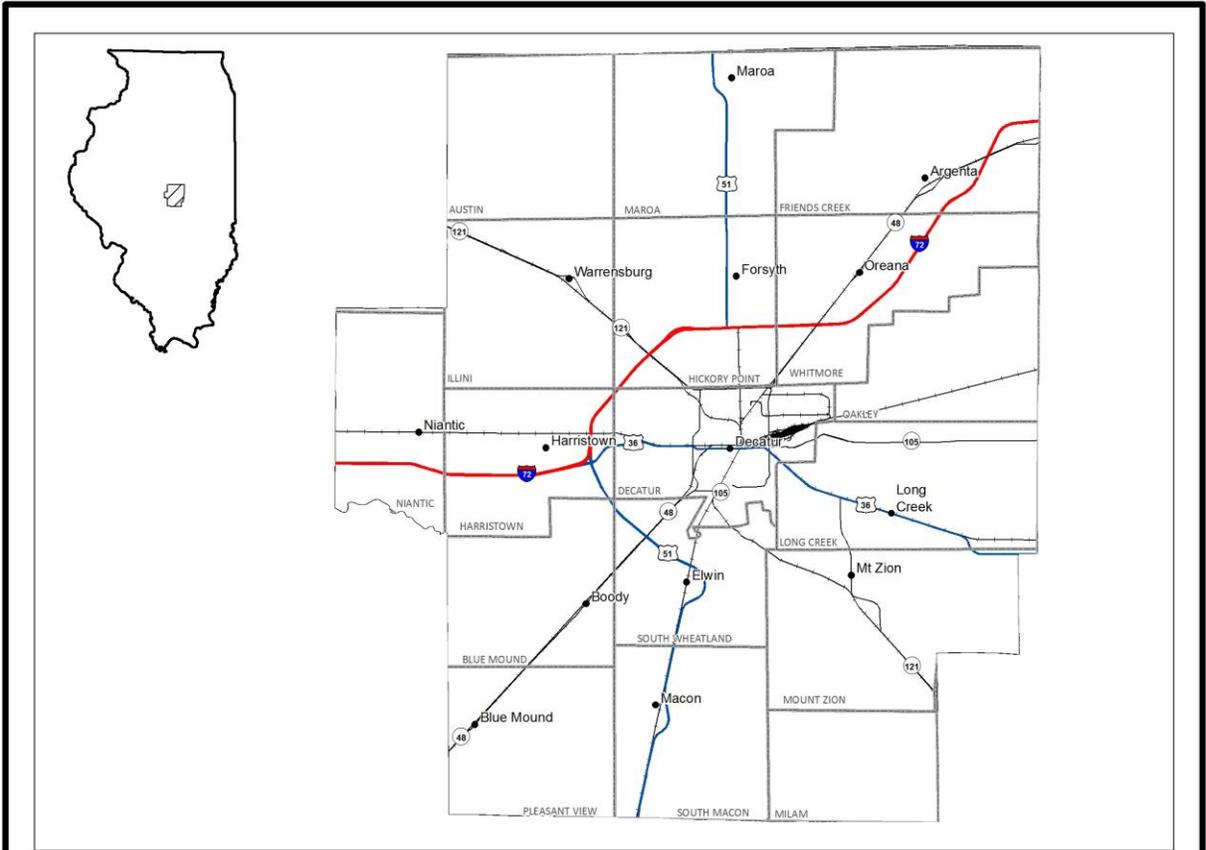
The Illinois Solid Waste Planning and Recycling Act (Public Act 85-1198, 415 ILCS 15/1 et seq.) became effective on January 1, 1989. This Act states that counties have the primary responsibility to plan for the management of waste within their boundaries to insure the timely development of needed waste management facilities and programs. It also states that waste reduction and recycling are preferable to the disposal of solid waste.

The Solid Waste Planning and Recycling Act (SWPRA) required that each county submit to the Illinois Environmental Protection Agency (IEPA), an officially adopted plan for the management of waste within its boundaries. Such plans had to conform with the waste management hierarchy established as Illinois State policy in subsection (b) of Section 2 of the Illinois Solid Waste Management Act, i.e., in descending order of preference: (1) volume reduction at the source; (2) recycling and reuse; (3) combustion with energy recovery; (4) combustion for volume reduction; (5) disposal in landfill facilities.

Pursuant to the SWPRA, the jurisdiction of this Plan encompasses Macon County and its municipal and township corporations. These corporate entities include:

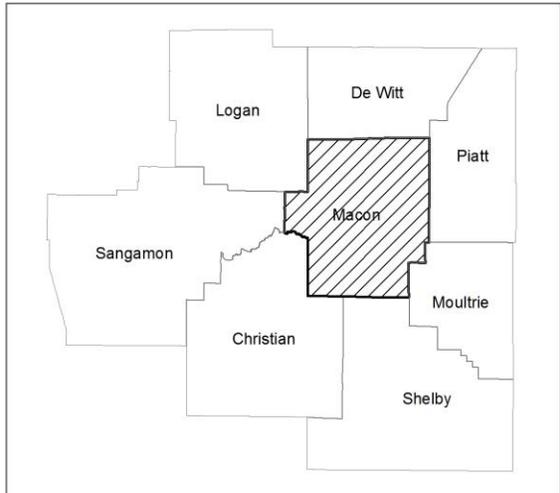
Table 1.1 – Macon County Local Jurisdictions

Municipalities	Townships
Argenta village	Austin
Blue Mound village	Blue Mound
Boody	Decatur
Decatur city	Friends Creek
Forsyth village	Harristown
Harristown village	Hickory Point
Long Creek village	Illini
Macon city	Long Creek
Maroa city	Maroa
Mount Zion village	Milam\ Mount Zion
Niantic village	Niantic
Oreana village	Oakley
Warrensburg village	Pleasant View
	South Macon
	South Wheatland
	Whitmore



Legend

-  Interstate
-  US Highways
-  State Highways
-  Railroad
-  Township Boundaries



SOURCE: GIS Data provided by Illinois Natural Resources Geospatial Data Clearinghouse and ESRI.

	<p>Macon County Location and Vicinity Map</p>	
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This Municipal Waste Management Plan as updated is intended to provide for the management of solid waste in an environmentally and economically sound manner. Waste Management encompasses the total life cycle of waste, from generation, storage, collection, transportation, hauling, processing, transfer, waste reduction, reuse, recycling, incineration and landfilling.

Additionally, the SWPRA requires that a recycling program be included in the Plan which shall be implemented throughout the county. Such program shall be designed to recycle, by the end of the third and fifth years of the program, respectively, 15% and 25% by weight of the municipal waste generated in the county.

The SWPRA also mandates that a county plan be updated and reviewed every 5 years with any necessary and appropriate revisions submitted to the IEPA.

In April 1991, the Macon County Board adopted its original Waste Management Plan. The Macon County Board readopted the Plan in April 1996 with some additional objectives. In August of 2006, Macon County submitted its second update of the Plan to the IEPA.

The 1991 plan contained 528 pages, which included technical information on volume reduction, recycling, composting, combustion, and landfilling. The 1996 Plan Update consisted of a short document confirming the 1991 Plan and adding some additional objectives. The 2006 Plan Update evaluated the progress made in implementing the plan and presented 26 new recommendations or changes to the 1996 Plan.

The Macon County Environmental Management Department is the entity responsible for implementing the Plan recommendations on behalf of the County. Funding for environmental programs is provided primarily from landfill host fees, licensing fees, and enforcement grants from the IEPA.

CHAPTER 2. SUMMARY OF 1991/1996 AND 2006 MUNICIPAL WASTE MANAGEMENT PLANS

This chapter summarizes the status of the Macon County Municipal Waste Management Plan components contained in the 1991/1996 Plan and the 2006 Plan Update. Table 2.1 summarizes each previously recommended plan component as well as a recommendation to continue, delete, implement or modify the component in the 2012 Plan Update.

It is necessary to periodically update the Macon County Municipal Waste Management Plan in order that it conveys the intent of the Macon County Board with respect to Plan implementation. Some of the original Plan's recommended system components are no longer relevant, applicable, necessary, or appropriate. Therefore, they have been modified or deleted from this 2012 Plan Update to reflect current conditions.

Note: This chapter contains a status report for the previous plan components; the full recommendations for 2012 Plan Update components are found in the relevant chapters.

Table 2.1 - Macon County Solid Waste Management Plans Summary, Status and Recommendations

Plan Element	1991/1996 Plan Recommendations	2006 Plan Recommendations	Current Status	Recommendations
<p style="text-align: center;">Planning/Systemic</p>	<p>Implement a comprehensive integrated solid waste management plan that is economically and environmentally sound, that meets or exceeds federal and state standards , and meets or exceeds the needs and directives of Macon County citizens</p>	<p>Continue to build a coordinated county wide approach to the management, recovery and disposal of all nonhazardous waste generated in Macon County.</p>	<p>Implementation of the Solid Waste Management Plan is the responsibility of the Macon County Environmental Management Department.</p> <p>The County works with businesses and municipalities throughout the county to assist with education of waste reduction programs and disposal options</p>	<p>Modify: The Macon County Environmental Management Department will continue to have primary responsibility for implementation of the Solid Waste Management plan.</p> <p>The Department will coordinate program development with service providers, local governments, county businesses, and provide opportunities for public input.</p> <p>The Department will continue to pursue additional and alternative sources of funding to support the Department’s operation and program development.</p>
		<p>Provide centralized management of the plan implementation process and encourage expanded municipal use of programming and support.</p>		
		<p>Increase input from the public in the development of solid waste policies, perhaps through the formation of a citizens advisory group.</p>		
		<p>Provide for professional staff necessary to undertake all programs to implement the Solid Waste Plan.</p>		
		<p>Where appropriate, pursue all reasonable available sources of interim and long-term funding for implementing programs and facilities recommended in the Plan Update.</p>		

	Coordinate with solid waste management officials from surrounding counties and cities to insure continuity and cooperation between programs			
Planning/Systemic	Coordinate with local solid waste management businesses to facilitate programs and optimize results.			
	Award and oversee Grants from solid waste management fund	Encourage other entities and units of local government to consider other available sources of grants and assistance funds to finance and operate local recycling projects.	The County provides grants to local governments and organizations in support of special recycling events.	Continue to provide grants from the host fees and disseminate information on other available grant sources.
	Update the Refuse Ordinance.	Finalize the Solid Waste Ordinance based on the current Refuse Ordinance, Siting Fees and other resolutions.	A new Refuse Ordinance was passed June 2006 which includes hauler licensing, but no mandatory recycling requirements.	Modify: Periodically review and update the refuse ordinance and reporting requirements as necessary. New: Consider the advantages and disadvantages of an ordinance requiring commercial establishments to recycle at least 2 commodities.
	Consider a mandatory commercial recycling ordinance, if necessary			
	Implement and maintain an active hauler licensing program			
	Adopt ordinances and regulations to support and enhance implementation of solid waste management programs			
Planning/Systemic	Develop siting criteria for each new waste processing or disposal facility.	Any pollution control facility must enter into a Host Community Benefit Agreement with the appropriate units of local government.	A new Siting Ordinance for Pollution Control Facilities ordinance was passed Sept. 2008 requiring siting fees and host agreements for new or expanding facilities. A host agreement for the expansion of Valley View landfill was approved in Oct. 2008.	Modify: Periodically review and update siting ordinance and host agreement requirements as necessary.

		Consolidate the current Refuse Ordinance, Siting Fees and other resolutions in an updated Solid Waste Ordinance.		
		Evaluate alternative methods of waste reduction, waste treatment and disposal on individual developing merits.	Ongoing	Modify: Review and evaluate new and developing methods for source reduction, waste recovery, and waste disposal for possible application in Macon County.

Plan Element	1991/1996 Plan Recommendations	2006 Plan Recommendations	Current Status	Recommendations
Education And Information	Develop and implement educational and public relations programs that enhance public awareness of and involvement in waste reduction and recycling programs.	Identify new and support ongoing education and informational activities to encourage waste reduction, reuse, recycling and recovery (buying recycled products) through the County website, newsletters and other publications and community organizations.	Ongoing	<p>Modify: Maintain continuing education and informational outreach to encourage waste reduction, reuse, recycling and buying recycled products.</p> <p>Seek partnership opportunities with the business community, institutions, organizations, and other governmental entities for focused educational activities.</p> <p>Maintain the County website as an information resource for teachers, students and the general public</p>
		Develop partnerships with the business community, institutions and organizations, and other governmental entities to expand the outreach potential for focused educational efforts.	Ongoing	
		Identify and utilize applicable public and school education resources to develop customized activities and programs for Macon County.	Ongoing	
		Develop, implement, and support school education programs that meet Illinois Learning Standards, the education "classroom" of the website, subsidized performances by "enviroainers" and in-class presentations.	Ongoing. The County website contains links to lesson plans and other curriculum materials.	
		Expand opportunities for public outreach at special events. Develop plans, emphasizing recycling, to manage the events' waste streams.	The County supports recycling efforts at 21 events in FY12.	Continue; with the added goal of sustainability without Department support.

Education And Information		Establish crisis communication procedures so the Department is viewed as the point of contact during emergency events and interruptions of service.	Ongoing	Modify: The Environmental Management Department will cooperate with and assist the Emergency Management Agency in planning for and executing debris management in emergency events.

Plan Element	1991/1996 Plan Recommendations	2006 Plan Recommendations	Current Status	Recommendations
Source reduction	Set a volume reduction goal of 3%			Delete
	Develop an information clearinghouse and cooperative programs with schools and libraries		Ongoing. The County website contains source reduction suggestions and links to other materials.	Continue
	Implement volume-based collection fees for residential waste.	Consider economic incentives such as a "pay-as-you-throw" garbage collection program.	The City of Decatur requires haulers to provide a two-level, quantity-based rate.	Modify: Encourage communities and service providers in the county to adopt a quantity-based rate plan similar to the City of Decatur. New: Consider amending refuse ordinance to require county-licensed haulers to offer quantity-based rate plans to all residential customers.
	Implement volume reduction programs in county buildings	Conduct a "pilot program" of source reduction in County buildings to provide an example in cost savings.		Macon County buildings are currently recycling with continued support from Macon County Environmental Management.

Plan Element	1991/1996 Plan Recommendations	2006 Plan Recommendations	Current Status	Recommendations
Recycling and Reuse	Coordinate recycling programs with commercial, industrial, institutional and governmental entities		Ongoing	Continue
	Require haulers operating in Decatur to offer curbside collection of 3 materials		Complete. Decatur is currently served by a single-stream residential curbside program.	Original objective has been met.
	Develop a system of drop-off sites to serve remaining parts of County		Complete. Nine drop-off locations serve Macon County's smaller communities	Continue to support.
	Develop a commercial collection program for cardboard.		Commercial recycling services are available in Macon County for these materials.	Objectives have been met.
	Develop an office paper collection program			
	Develop a commercial program for collection of beverage containers			
	Sponsor the development of a 20-30 tpd recycling processing facility		Single-stream recycling processing is provided by a private regional facility.	Objectives have been met.
Recycling and Reuse		Maintain and expand collection of data on recycling activity in Macon County, and determine indicators that reflect changes in recycling and waste management	Refuse ordinance requires haulers to keep records and provide data to the County on request.	Modify: Require regular, periodic reporting by disposal and recycling service providers, transfer stations and landfills.

	Consider "pay by the bag" garbage collection program.	Encourage local cities and villages to adopt "pay as you throw" waste collection programs, with curbside recycling. Provide contract and ordinance development support.	City of Decatur requires haulers to provide a two-level quantity-based rate.	Modify: Consider amending refuse ordinance to require county-licensed haulers to offer quantity-based rate plans to all residential customers. New: Consider a third, single-can level in Decatur's rate plan.
	Establish new drop-off or curbside recycling services.	Expand drop-off or curbside recycling programs to areas that are not currently served.	Ongoing	Modify: Continue to improve and expand existing recycling programs and encourage increased participation
	Attempt to increase participation in recycling programs.	Encourage increased participation in existing recycling programs.	Ongoing	New: Consider amending refuse ordinance to require licensed haulers to offer curbside recycling collection to all residential customers.
	Increase the quantity and quality of recycled materials to maximize profit and minimize costs	Develop programs to increase diversion of recyclable materials.		
		Develop programs for residential electronics and other "orphan" wastes, along with commercial and multi-family pilot programs.	Website provides a recycling guide for materials not accepted in curbside and drop-off programs.	Modify: Continue to expand opportunities to recycle electronics, and other hard to recycle items.

Recycling and Reuse	Encourage increased voluntary recycling among multi-family dwellings, institutions, commercial and industrial businesses.	Establish regular collection programs for difficult to recycle items or bulky waste items.	County has implemented programs for glass, electronics, fluorescent bulbs, paint, and event recycling	Maintain County Website as a source of information for management of “orphan wastes”. New: Consider amending refuse ordinance requiring commercial operations to recycle at least three commodities.
		Place increased emphasis on the proper management of non-residential waste, including construction and demolition debris and industrial waste. Develop diversion programs to increase processing of construction and demolition (C&D) debris for beneficial uses.	Asphalt shingle recycling implemented by private firm in 2011.	Modify: Encourage the development of increased processing and recycling capacity for construction and demolition (C&D) debris. Encourage increased diversion of C&D to beneficial uses. New: Consider requiring recycling plan as part of building and/or demolition permit application.
	Develop industrial recycling programs that draw capital investments for producing commodities from waste.	When feasible, support area recyclers in activities that expand their capabilities of diverting marketable materials from landfills.	Ongoing	Continue

		Adopt a recycled product procurement policy to allow for the use of recycled products when the price for, and the quality of recycled alternatives is comparable to that of products using virgin stock		Modify: Adopt a recycled product procurement policy that specifies the use of recycled-content products when the price for, and the quality of, recycled alternatives is competitive.

Plan Element	1991/1996 Plan Recommendations	2006 Plan Recommendations	Current Status	Recommendations
Composting / Landscape Waste	Distribute educational material countywide to encourage home management of landscape waste.		County website provides information on landscape waste management to all residents.	<p>Modify: Maintain the County website as a source of information regarding landscape waste management and composting.</p> <p>Encourage “leave-it-lay” and home composting for landscape waste management.</p>
	Encourage haulers to offer curbside collection of landscape waste in Decatur. Evaluate feasibility in other municipalities.		Complete. The 2006 Refuse Ordinance requires licensed hauler to provide landscape waste pick-up.	<p>Modify: Examine the feasibility of collecting and composting other compostable organic wastes, such as food waste, from commercial and residential sources.</p>
	Develop drop-off sites in four quadrants of county for landscape waste.		Landscape waste may be dropped off at two composting site locations.	

Plan Element	1991/1996 Plan Recommendations	2006 Plan Recommendations	Current Status	Recommendations
Combustion With Energy Recovery	Explore the feasibility of an RDF facility to supply fuel to ADM.	Revisit at the ten year mark and evaluate the political and economical feasibility of regionalization.		Modify: Siting requests for incinerators, other thermal conversion technologies, or biological conversion technologies designed to recover energy, fuels or chemicals from waste, will be considered by the County Board on a case-by-case basis provided such facilities can be shown to be protective of the public health and welfare and economically viable.
	Recognize new WTE markets that are being developed.	Monitor and evaluate emerging technologies that appear to be effective on waste streams similar to Macon County's.	Ongoing	

Plan Element	1991/1996 Plan Recommendations	2006 Plan Recommendations	Current Status	Recommendations
Landfill Disposal	Support the creation/expansion of landfill facilities in the County -Select site (s) acceptable for development of a landfill. -Review and decide on ownership/operation options. -Develop RFP for landfill development and/or operation.	Acquire additional landfill capacity to meet Macon County's long term disposal needs	Done. Expansion of Valley View Landfill provides an additional 28 years of capacity.	Modify: The County will not seek to site additional landfill capacity in the next 5-years except under certain circumstances. However, the County will consider siting requests from private developers on a case-by-case basis provided such facilities can be shown to be protective of the public health and welfare and economically viable.
	Establish Siting Guidelines for Landfill development based on criteria established by the State to insure selection of safe and acceptable site.	Encourage landfill owners to design and implement emerging landfill technologies to extend capacity expectancy, reduce long term toxicity and conserve resources when possible and environmentally appropriate.	A new Siting Ordinance for Pollution Control Facilities ordinance was passed Sept. 2008	Modify: Periodically review and update the siting ordinance and host agreement requirements as necessary.
		Continue the Delegation Agreement/ Enforcement Grant with IEPA	Continuing. Latest 5-year agreement executed June 2011	Continue
		Transfer station siting should only be considered after a complete study of its' economic effects to citizens and business; its' impact on competition; and various operational scenarios.	Ongoing	Modify: The County will not seek to site a transfer station. However, the County will consider siting requests from private developers on a case-by-case basis provided such facilities can be shown to be protective of the public health and welfare and economically viable.
	Pursue more frequent/regular Household Hazardous Waste (HHW) collections	Investigate viability of permanent regional options for a HHW Program and pursue a solution based on the results.	Ongoing	Continue

CHAPTER 3. DEMOGRAPHICS UPDATE

Knowledge of the history and demographic makeup of an area makes it possible to assess trends in waste generation and predict the quantity and origin of municipal waste generated in that area. In addition, demographic data is necessary to design the operational components of the waste management system. This chapter presents current demographic statistics for Macon County and the trends expected to occur from 2010 through 2030, including population, employment and other demographic statistics.

According to the 2010 Census, 110,768 people reside in Macon County- down by 3,938 from 2000. Most of Macon County's population lives within municipal boundaries. The 21 municipalities within the County account for 87% of the County's population – unchanged from 2000. The municipalities of Decatur, Mt. Zion and Forsyth account for 77% of the County's 2010 population. The history of the population for each municipality from 1990 through 2010 is shown in Table 3-1.

Table 3.1 Macon County Population by Municipality.

PLACE	Pop 1990	Pop 2000	Pop 2010	Change (2000 to 2010)	Change (%/yr)
Argenta village	940	921	947	26	0.28%
Blue Mound village	1161	1,129	1,158	29	0.25%
Boody CDP	X	X	276	276	-0.35%
Decatur city	83885	81,860	76,122	-5,738	-0.72%
Forsyth village	1275	2,434	3,490	1,056	3.67%
Harristown village	1319	1,338	1,367	29	0.21%
Long Creek village	1250	1,364	1,328	-36	-0.27%
Macon city	1282	1,213	1,138	-75	-0.64%
Maroa city	1602	1,654	1,801	147	0.86%
Mount Zion village	4522	4,845	5,833	988	1.87%
Niantic village	647	738	707	-31	-0.43%
Oreana village	847	892	875	-17	-0.19%
Warrensburg village	1274	1,289	1,210	-79	-0.63%
Unincorporated	17202	15,029	14,516	-513	-0.35%
Macon County Total	117,206	114,706	110,768	-3,938	-0.35%

Source: US Census

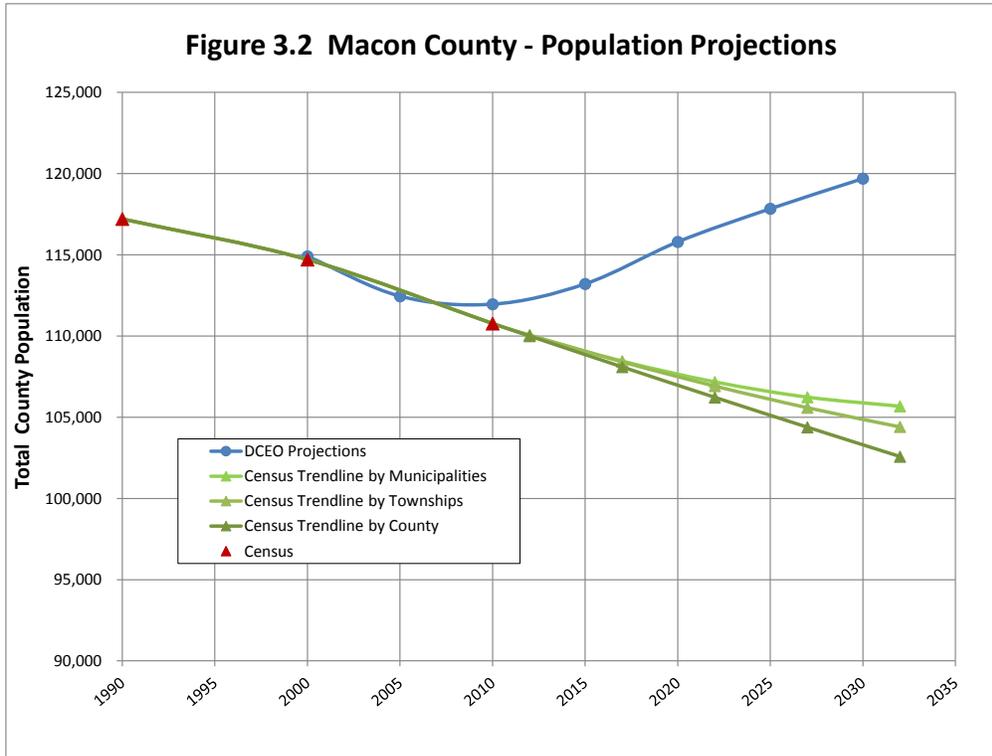
Of the 16 townships in the County, three townships, Decatur, Hickory Point and Long Creek account for 76% of the County's total 2010 population. Table 3.2 depicts the population for each township from 1990 through 2010.

Decatur Township has lost population. In 1990, the Township had a population of 61,907 and by 2010 it declined to 52,915. On the other hand, Hickory Point Township increased from 1990 growing from 16,556 to 18,523 (2010). Of the other townships in the County, only Milam/Mt. Zion has had any significant change in their share of population, growing from 6,026 to 7,131 since 1980.

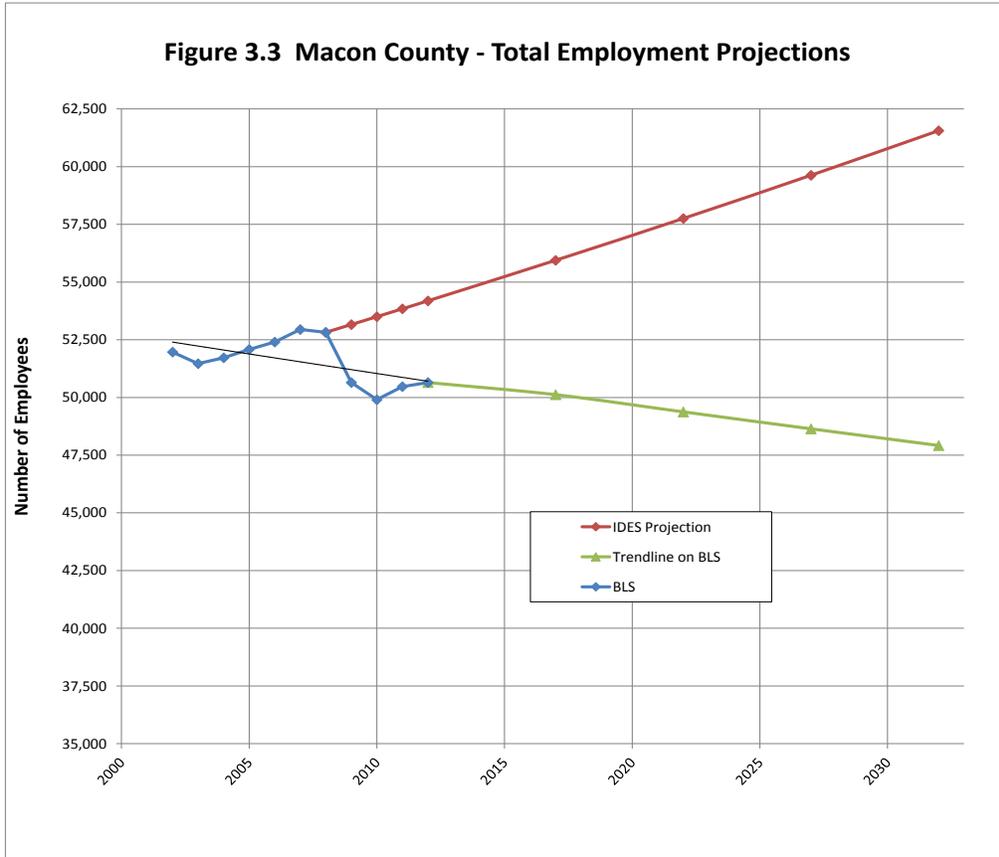
Table 3.2 Macon County Population by Township.

Township	Pop 1990	Pop 2000	Pop 2010	Change (2000 to 2010)	Change Since 2000 (%/yr)
Austin	263	240	214	-26	-1.14%
Blue Mound	916	917	890	-27	-0.30%
Decatur	61907	58,355	52,915	-5,440	-0.97%
Friends Creek	1429	1,456	1,450	-6	-0.04%
Harristown	1956	1,913	1,921	8	0.04%
Hickory Point	16556	17,603	18,523	920	0.51%
Illini	1517	1,563	1,469	-94	-0.62%
Long Creek	10628	10,547	10,679	132	0.12%
Maroa	1898	1,988	2,100	112	0.55%
Milam\ Mount Zion	6026	6,419	7,131	712	1.06%
Niantic	850	896	842	-54	-0.62%
Oakley	1060	1,177	1,082	-95	-0.84%
Pleasant View	1486	1,428	1,481	53	0.37%
South Macon	1633	1,545	1,457	-88	-0.58%
South Wheatland	4340	4,185	4,143	-42	-0.10%
Whitmore	4741	4,474	4,471	-3	-0.01%
Macon County Total	117,206	114,706	110,768	-3,938	-0.35%

Population Trends. The 2010 Census Bureau measured the population of Macon County to be 110,768 residents. This is a decrease of 3.4 percent since the 2000 Census. Since 1990, Macon County has lost an average of 322 people annually. Between 2000 and 2010, the Census estimates Macon County has lost 3,938 residents – a modest decline when compared to the 1980’s when Macon County lost 14,169 people between 1980 and 1990. Figure 3.2 illustrates these population trends and extrapolates them over the planning period. Three projections were made based on the historic rate of change for the past decade on census data for Macon County municipalities, townships, and the county as a whole. It also compares population estimates and projections prepared by the Illinois Department of Economic Opportunity (DCEO) in 2005, which anticipate a significant turn-around in the population decline in the coming decade.



Employment Trends. According to the US Bureau of Labor Statistics (BLS), 50,649 people were employed in Macon County in 2012. Historical data shows employment numbers for Macon County have risen and fallen over the last ten years with a downward trend. Figure 3.3 illustrates this trend, which is approximated at 0.3% decline per year. This projection results in an estimated employment of 47,917 by 2032. The graph also illustrates employment projections made by the Illinois Department of Employment Security (IDES) in 2008 which anticipate employment growth at a rate of 0.64% per year.



Other Demographic Trends. Between 2000 and 2010, the U.S. Census reported the number of households in Macon County decreased by 707, down from 46,561 to 45,855.

The median household income in Macon County is 20.5% below the State average. Median household income in Macon County in 2010 was \$44,337, and the median for the State was \$55,735. Incomes are decreasing in Macon County relative to the State. Between 2000 and 2010, the statewide median household income increased by 0.25%. In the same period, Macon County’s median household income decreased by 4.8%.

Various studies have found that per capita waste generation is related to the number of people per household, per capita income and retail sales, but the strongest predictors of overall waste generation are population and employment.

CHAPTER 4. WASTE CHARACTERIZATION

Knowing the types of materials and their relative quantities in the waste stream can be important in planning solid waste management programs. Such composition data provides guidance on which waste streams should be targeted for source reduction, recycling, composting or other programmatic activities.

Characterizing waste is often accomplished by a waste audit, where samples of waste destined for the landfill are taken over a period of time and hand sorted into various categories. Though labor-intensive and messy, this technique can produce reasonably accurate results depending on the size and number of samples taken. However, to obtain a characterization of all waste generated would require measuring the amount and composition of recycling and compost streams as well. For this reason total waste composition is often developed using economic modeling.

In 2008, DCEO commissioned a statewide waste characterization study¹ through the Illinois Recycling Association. As part of this study, total waste characterizations were developed for each county in Illinois based on economic modeling. In addition, waste audits were conducted at a number of landfills around the state. One of the landfills sampled was the Valley View Landfill in Decatur which receives the majority of Macon County's waste.

Figure 4.1 provides the results of the modeled total waste characterization for Macon County, and Figures 4.2 and 4.3 illustrate the results of the waste audit on the waste disposed in Valley View Landfill and the sub-component of construction and demolition debris (C&D).

See Chapter 5 for the formal definition of Municipal Solid Waste (MSW).

¹ CDM, *Illinois Commodity/Waste Generation and Characterization Study*, Commissioned by IL Department of Economic Opportunity in association with the Illinois Recycling Association, May 22, 2009.

Figure 4.1 Macon County - Municipal Solid Waste Generation by Material Type

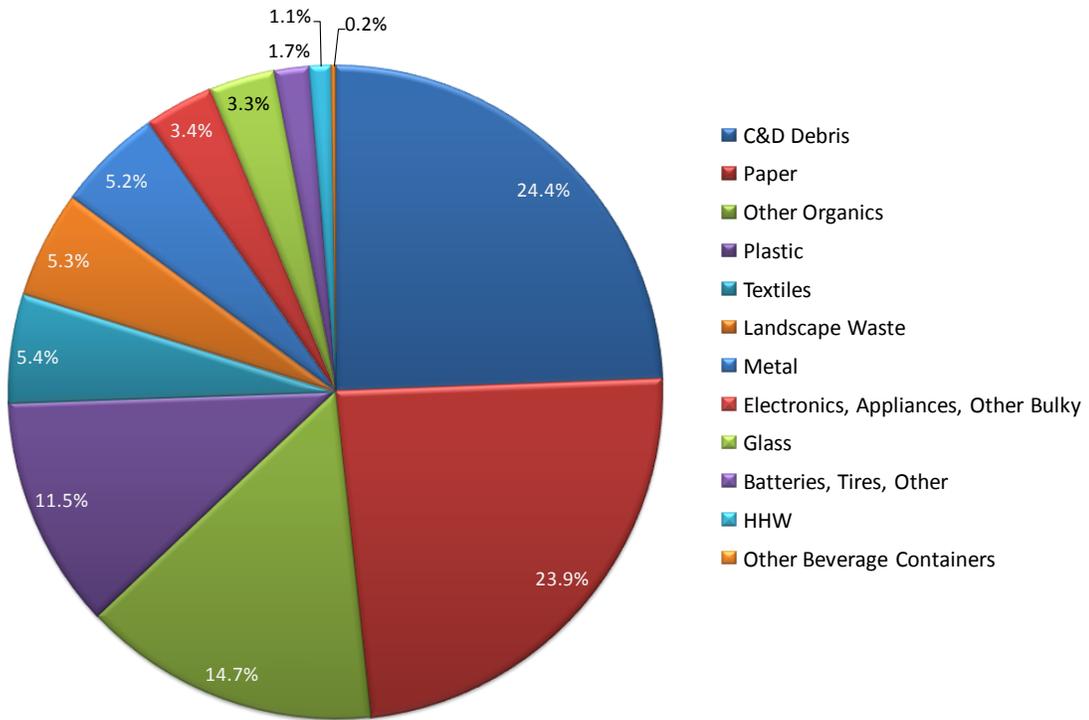
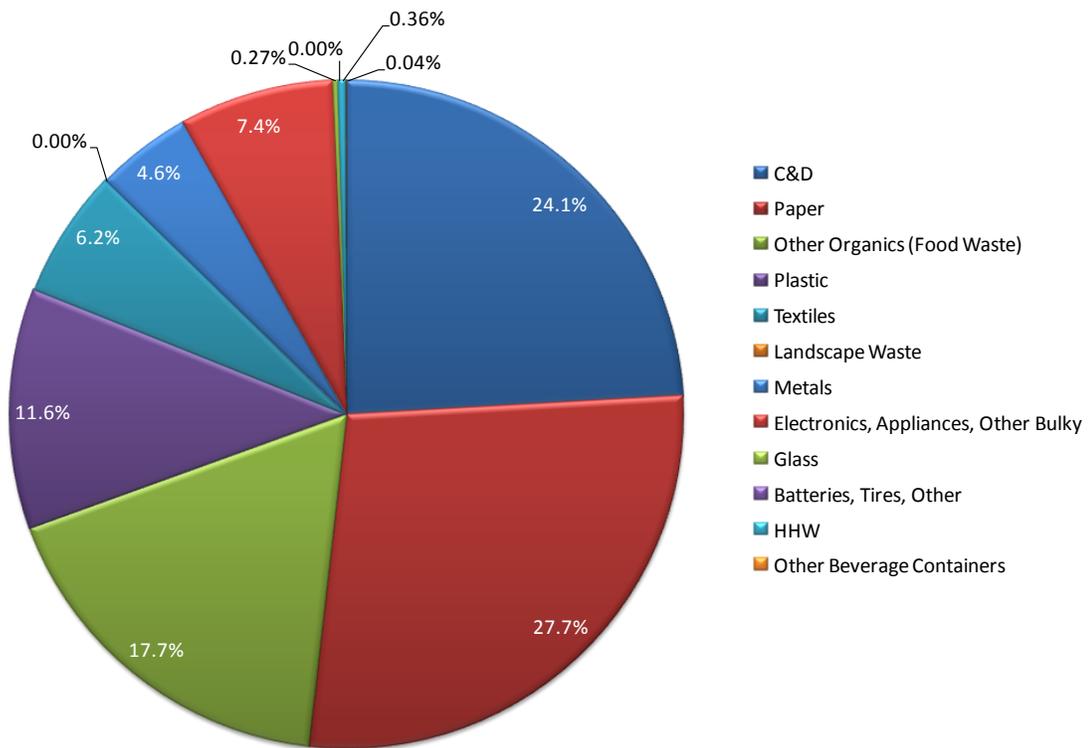
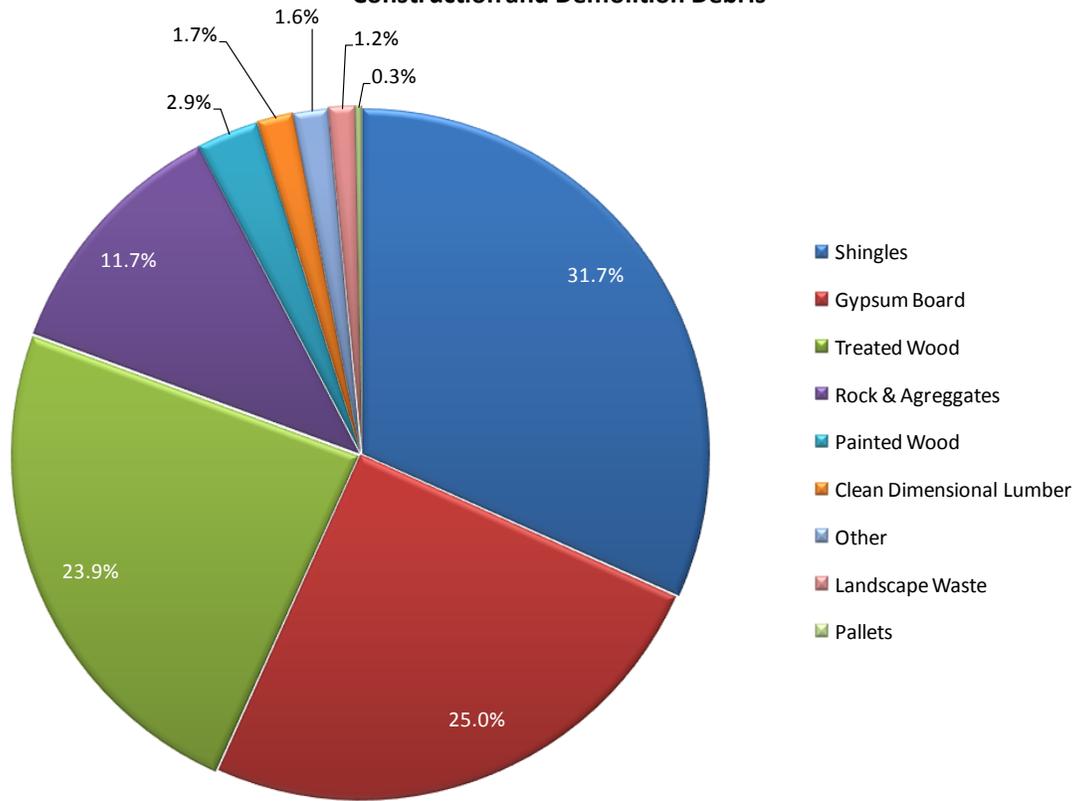


Figure 4.2 Macon County - Landfill Disposal by Material Type Residential, Institutional and Commercial MSW



**Figure 4.3 Macon County - Landfill Disposal by Material Type
Construction and Demolition Debris**



CHAPTER 5. CURRENT AND PROJECTED WASTE GENERATION

The quantity and origin of municipal waste that is generated in the county must be determined in order to plan appropriately for the County's future solid waste management. The scope of this chapter is to quantify the municipal solid waste generated within Macon County and to provide projections of future quantities of waste generated based on projected demographic data.

The IEPA has defined "Municipal waste" to mean garbage, general household, institutional and commercial waste, industrial lunchroom or office waste, landscape waste, and construction and demolition debris from buildings and roads. This definition has also been interpreted to include:

- Abandoned or discarded household and commercial appliances (white goods)
- Abandoned or waste parts from automobiles normally removed as part of regular maintenance such as tires and batteries.
- Wastes collected in a household hazardous waste collection

Municipal waste does not include:

- Special (non-hazardous industrial) waste
- Non-special industrial wastes
- Hazardous waste
- Abandoned or scrap automobiles
- Scrap metal from industrial operations such as machining, etc.
- Surplus or donated, reusable clothing or commodities donated to charitable organizations such as Goodwill or Salvation Army.
- Surplus or donated food for human consumption.
- Earth materials moved or removed during demolition or construction.
- Pollution control wastes (Coal ash, contaminated soils, sludges, asbestos, etc.)

According to the mandates of the Macon County Refuse Ordinance, licensed haulers "*shall keep accurate records so that he/she can provide to the inspector, from time to time, as requested by the inspector, information pertaining to quantity of refuse collected, disposed, recycled, etc.*" The County has also requested voluntary reports from recycling processors and regional landfills. These reports have not always been complete and consistent, and obtaining a complete picture of the quantities of waste collected and managed in Macon County has been problematic.

Using reports from the three landfills that receive the vast majority of the waste disposed by Macon County – Valley View in Decatur, Clinton Landfill, and Five Oaks in Taylorville – an average per capita disposal rate has been developed. This rate does not include wastes diverted for recycling or composting. Table 5.1 shows the quantities of waste that originated in Macon County disposed at these three landfills. Please note that these numbers are approximate as it is not possible to separate Macon County waste from out-of-county waste in all instances. Collection routes that cross county lines mix in- and out-of-county waste before it is weighed at the landfill. Also, these numbers do not capture small quantities of waste that may be landfilled at sites other than the three closest landfills. The 2011 and 2012 populations are from the projection of municipality data in Figure 3.2.

Table 5.1 Landfill disposal of Macon County Waste

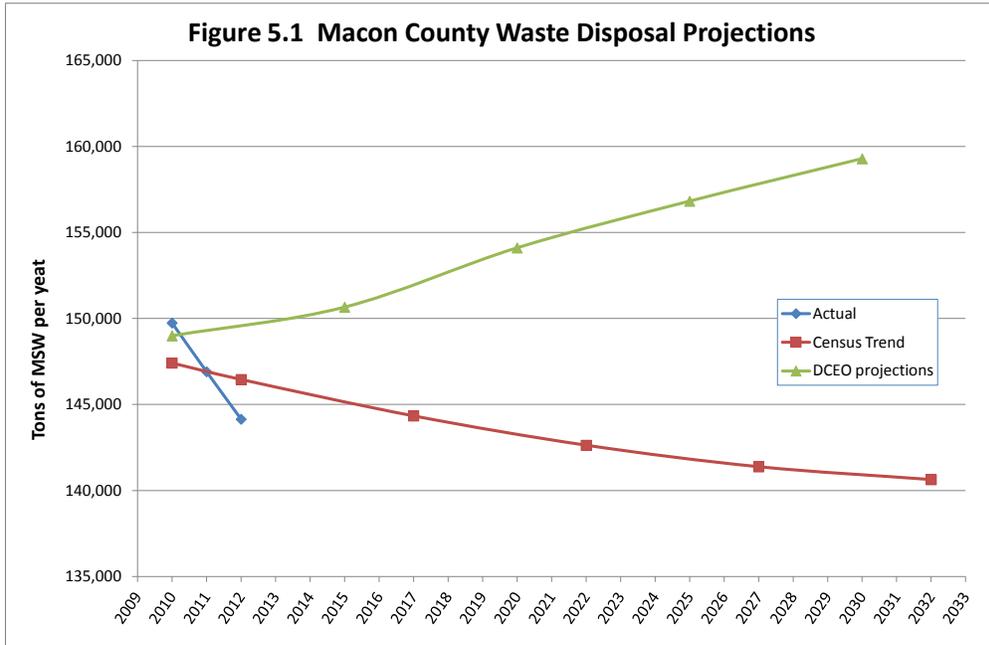
	2010	2011	2012	3-Yr Average
MSW (tons)	149,740	146,904	144,143	146,929
MSW (PCD)	7.41	7.29	7.18	7.29
Non-MSW (tons)	52,436	48,236	54,151	51,608
Non-MSW (PCD)	2.59	2.39	2.70	2.56
Total Waste (tons)	202,175	195,140	198,295	198,537
Total Waste (PCD)	10.0	9.7	9.9	9.85

For comparison, the DCEO/IRA study² calculated a statewide average MSW disposal rate of 6.53 pounds per capita per day (PCD) and a total generation rate (including recycled and composted materials) for urban counties of 8.17 PCD. The 2011 siting application for the expansion of the Peoria City/County landfill calculated a disposal rate of 6.8 PCD for Peoria County. The 2010 siting application for the expansion of the DeKalb Landfill estimated a total generation rate for MSW at 7.4 PCD.

Estimates of the quantity of MSW that will be disposed during the 20-year planning period are generated by applying the average disposal rate over the last three years to the population projections from Chapter 3. These extrapolations for MSW range from 141,000 tons/yr to 159,000 tons/year by 2032 (see Figure 5.1). Projections for the total waste disposal over the 20-year planning period, 2013-2032, ranges from 2.86 to 3.1 million tons.

² CDM, *Illinois Commodity/Waste Generation and Characterization Study*, Commissioned by IL Department of Economic Opportunity in association with the Illinois Recycling Association, May 22, 2009.

Non-MSW waste disposal has averaged about 26% of the total waste disposed from 2010 to 2012. Adding this to the MSW projections above, gives a range for all waste disposal of 178,000 to 200,000 tons/year and a total over the planning period of 3.6 million to 3.9 million tons.



Recommendations. In order to acquire the information necessary to assess solid waste programs and project future needs, the County should require regular, periodic reporting by disposal and recycling service providers, transfer stations and landfills. The existing record-keeping, and reporting requirements under the refuse ordinance and host agreement should be clarified as to the data required to be recorded, and a standardized reporting mechanism and schedule developed. Consideration should be given to extending record-keeping and reporting requirements to recycling service providers.

CHAPTER 6. CURRENT WASTE DISPOSAL IN MACON COUNTY

Waste collection in Macon County is accomplished primarily by private haulers. The City of Decatur contracts with multiple haulers that are each assigned by geographic areas. Seven other communities are provided waste disposal by a single provider. Niantic is served by American Disposal. The Village of Macon is served by Benson Disposal. Blue Mound is served by IV Container. Mt. Zion is served by HH&H Inc. (dba Lynch Disposal). Maroa is served by United Waste Services. Argenta and Oreana are both served by Advanced Disposal, formerly Veolia.

The County Refuse Ordinance now requires license and several licensure conditions for all waste haulers including record keeping and reporting requirements. Table 6.1 lists the licensed haulers known to be operating in Macon County.

Although successful recycling and composting programs are in place, the majority of wastes discarded in Macon County are managed by landfilling. There are no municipal waste incinerators in operation in Macon County. Although an unknown amount, it is estimated that a very small percentage of the municipal waste is likely disposed of in backyard “burn barrels” in rural areas.

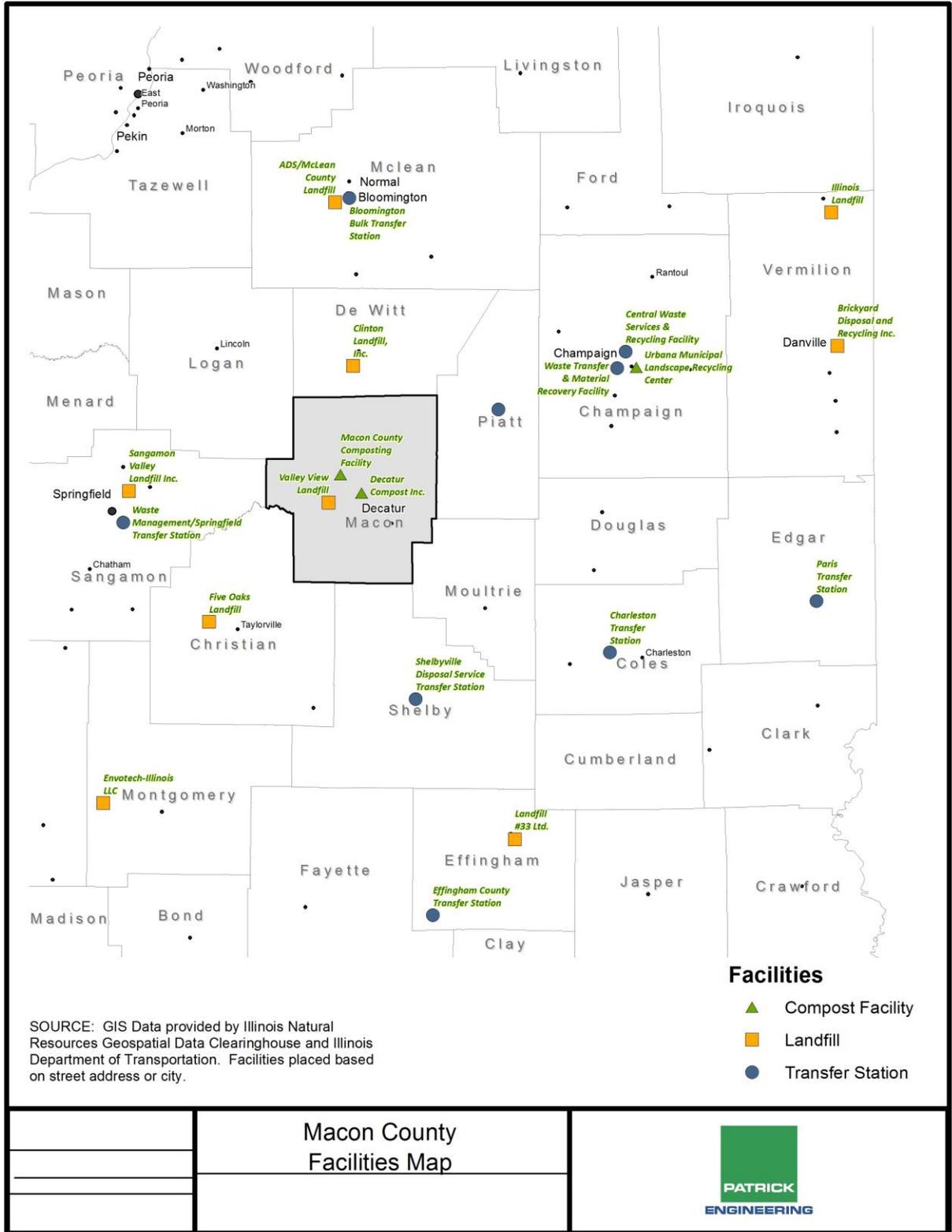
A number of pollution control facilities, including transfer stations, landfills and compost facilities, operate in Macon County and the surrounding area. Figure 6.1 shows the relative location of these facilities, which are described further below.

Table 6.1 Licensed Haulers in Macon County

Advanced Disposal (217) 429-0020	Illini Recycling (217) 356-0648	Murrell's Disposal (217) 963-2469
Advantage Disposal (217) 962-0846	IV Container Inc. (217) 425-4897	Oakley Container (217) 963-2826
Allied Waste (217) 522-7797	Jeremy Doolin Disposal (217) 422-5298	Pugsley Container (217) 422-6500
American Disposal Service Inc. (217) 963-2826	Joe Coleman Salvage & (217) 562-4625	R&M Disposal Service Inc. (217) 864-4607
Area Disposal Service Inc. (800) 935-5652	Lynch Disposal / H H & H Inc. (217) 864-4052	Ross Disposal Service (217) 963-2670
Benson Disposal Service Inc. (217) 428-0480	Matchbox Disposal Inc. (217) 235-5222	United Waste Services (217) 425-4011
Birds McKenney Disposal (217) 412-6016	Mayberry Disposal 217) 963-2552	Waste Management (217) 824-3942
Doolin Disposal Service (217) 423-1680	Mixell Disposal (217)-422-6704	

Landfills. Historically, landfills have been the primary method for managing the disposal of municipal solid waste. Stringent new standards are in place to control how landfills are designed, constructed, operated, closed, and maintained after closure, with the purpose to minimize or eliminate their impact on the environment.

Figure 6.1 – Solid Waste Facilities Map



A sanitary landfill is a facility permitted by the IEPA for the disposal of waste on land meeting the requirements of the Resource Conservation and Recovery Act (RCRA). The federal regulations for landfills were originally addressed in "Criteria for the Classification of Solid Waste Disposal Facilities and Practices" (Code of Federal Regulations [CFR] 40 Part 257), and were established in 1979 under RCRA. Subtitle D of RCRA excludes Municipal Solid Waste Landfills (MSWLF's) from Part 257 (Hazardous Waste Landfills) and adds Part 258 specifically for MSWLF's. The Part 258 regulations contain minimum criteria for MSWLF's, primarily in the form of performance standards. The intent of the revised regulations is for states to become approved for the implementation and enforcement of the regulations under individual state permitting programs.

The Illinois landfill regulations pertaining to Subtitle D landfills are the Illinois Environmental Protection - Administrative Code Title 35 Parts 810 through 815. Part 811 includes the standards for new solid waste landfills.

Strong economies of scale have driven a trend to fewer, larger regional landfills. Illinois' 102 counties are served by only 40 active landfills. There is one permitted, municipal waste landfill currently operating in Macon County - Advanced Disposal's Valley View Landfill. There are two landfills in neighboring counties that are known to receive measurable quantities of waste from Macon County; Five Oaks Landfill in Taylorville, and Clinton Landfill. Table 6.2 lists the landfills in Macon County and the neighboring counties.

A simple comparison of the total available landfill capacity in the Macon County area from Table 6.2, to the projected needs for disposal space over the planning period from Chapter 5 (25.5 million tons vs. 3.9 million tons), it is clear that sufficient regional capacity exists for disposal of Macon County waste. In addition, prior to the approval of the Valley View Landfill expansion, the IEPA's latest landfill capacity report calculated 54 years of capacity in the East Central Illinois region which includes Macon County. Also, the host agreement with Valley View Landfill requires the operators to reserve at least 118,000 tons of capacity for wastes generated in Macon County for a period of 20 years.

Table 6.2. Macon County Area Landfills, 2012

Facility	Remaining Capacity 1/1/2012	Projected Closure Date	IEPA Site Number
Advanced Disposal Valley View Landfill ** 1363 Bear Road Decatur, IL 62522 314-821-4000	314,000 yd3** 95,000 tons	2013**	1158040008
Clinton Landfill, Inc. (an affiliate of Peoria Disposal Co.) 4700 N. Sterling Ave., P.O. Box 9071 Peoria, IL 61615 309-495-1551	47,501,000 yd3 14,394,000 tons	2057	0390055036
Five Oaks Landfill Waste Management of Illinois Inc. 890 E. 1500 North Road Taylorville, IL 62568 217-824-3942 Ext. 103	22,103,000 yd3 6,698,000 tons	2054	0218160006
Sangamon Valley Landfill Inc. (a subsidiary of Allied Waste Industries) 2980 Granger Dr. Springfield, IL 62707 217-391-0636	6,053,000 yd3 1,834,000 tons	2024	1678220037
TOTAL	85 million yd³** 25.5 million tons		
** An expansion application has been approved and a permit issued in Nov. 2012 for Valley View that adds approximately 9.5 million cubic yards (yd3) or 2.9 million tons of capacity and extends the projected closure date to 2038. Source: IEPA Annual Landfill Capacity Report, July 2012			

Transfer Stations. A transfer station is a facility that accepts waste for temporary storage or consolidation, and further transfers the waste to a waste disposal, treatment or storage facility. The current trend towards fewer landfills results in larger, regional disposal facilities and generally results in longer haul distances (such as 50 to 100 miles) and increased transportation costs. By transferring waste from conventional packer trucks used for collection to long-haul transportation such as tractor-trailer trucks, rail and barges, transfer stations make the long-distance transportation of waste more efficient and economical.

Transfer stations can also offer the potential for recovering recyclables by using dump and pick, or higher technology options to separate recyclables from incoming waste. Materials can be manually, mechanically or electronically screened and removed from the garbage after it is dumped on the transfer station floor. Options may include a conveyor system with manual picking stations where laborers pull materials from the waste as it passes by or more sophisticated automated systems. As opposed to a “clean” Materials Recovery Facility (MRF) where source-separated recyclables are sorted, such a system is often referred to as a “dirty MRF” . These options are generally not as effective at capturing large percentages of marketable recyclables from households as successful curbside recycling programs.

There are no transfer stations currently operating in Macon County. However transfer stations in surrounding counties can direct out-of county waste to the Valley View landfill in Macon County. About 40% of the waste landfilled at Valley View is from out-of-county. With the recent closing of ERC/Coles County landfill, Macon County can expect additional imports from eastern Illinois via Advanced Disposal’s Charleston transfer station. See Figure 6.1 for locations of the transfer stations in the region.

Site Approval per SB 172. The Process to gain regulatory approval of any pollution control facility (PCF) - transfer stations, incinerators or landfills - begins with application for local siting approval from the local governmental body that has jurisdiction over the proposed site. The siting process in Illinois is sometimes called "SB 172 siting" after the senate bill that introduced the legislation. This legislation (PA 82-682, effective Nov. 12, 1981) amended the Environmental Protection Act by adding Section 39.2 to the Illinois Environmental Protection Act ("the Act").

In September 2008, through Resolution O-75-9-08, the County Board passed the Macon County Siting Ordinance for Pollution Control Facilities. This ordinance stipulates the local requirements for the siting approval process for any pollution control facility. The County has also negotiated a host agreement for the expansion of the Valley View Landfill that provides for additional guarantees, environmental protections, fees and benefits for the Macon County public.

Recommendations. Since at the present time there appears to be adequate disposal capacity available for Macon County waste, Macon County does not expect to consider siting applications for new or expanded landfill facilities within the County for a period of five years after the approval date of this plan update. The County will rely on the existing in-county landfill and out-of-county regional landfill facilities for waste disposal. Siting applications from private developers for transfer stations will be

considered on a case-by-case basis provided such facilities can be shown to be protective of the public health and welfare and economically viable.

Landfill siting applications may be considered within the above five-year period if the County Board determines that regional landfill capacity has become insufficient for Macon County waste disposal, or unacceptable increases in disposal costs within the County have occurred.

The County will periodically review and update the refuse ordinance, siting ordinance and host agreement requirements as necessary.

CHAPTER 7. WASTE REDUCTION AND RECOVERY

Waste Reduction. The SWMPRA establishes the reduction of waste at its source as the preferred method of managing solid wastes. By giving preference to products, processes and activities that do not produce excess waste, the costs of resources, energy, manufacturing and disposal embodied in the waste material can be eliminated. Even recycling costs are avoided. Avoiding products with excess packaging, and the use of disposables are ways everyone can reduce the amount of garbage they produce.

Quantity-based disposal fees or “Pay as you throw (PAYT)” provide a financial incentive to reduce the amount of waste discarded. Instead of a fixed rate for unlimited waste pick-up, the waste generator is charged according to the amount discarded. This type of rate system is common in commercial waste hauling, where dumpster size and frequency of collection relate to the amount charged for removal services. It is less common in residential collection, but has become a more common alternative as it is seen as a way to more fairly charge for services and as a way to incentivize waste reduction and recycling. The USEPA reports that in 2006, 170 communities (13%) in Illinois and 7095 communities (26.3%) across the US had implemented PAYT.

Macon County’s Environmental Management Department public education programs encourage waste reduction. The City of Decatur’s waste hauling contracts provide a basic form of pay-as-you-throw consisting of two levels of service (3-cans and 6-cans a week). Assessing the efficacy of waste reduction programs is a problem since it is difficult to quantify the amount of waste NOT produced and separating it from other effects on the waste generation rate, such as a sluggish economy that may reduce purchasing and subsequently less generation and disposal.

Recycling. Recycling is an important way for individuals and businesses to dispose less waste and reduce the negative impact of that waste. The common mantra - Reduce, Reuse, Recycle - combined with purchasing recycled products, comprise a comprehensive waste and resource reduction strategy. Recycling conserves energy and our natural resources, saves landfill space, as well as reduces water and air pollution. As environmental awareness increases, recycling participation increases.

Recycling supports a viable business sector in Illinois and contributes to a strong economy. DCEO reports for every 1,000 tons per year of materials recycled, 15 jobs are created; as compared to less than one job created by landfilling the material. The US Environmental Protection Agency estimates that 70% of the waste Americans produce could be recycled. The Illinois Solid Waste Management and

Planning Act requires counties to plan for recycling 25% of the MSW generated within 5 years of enacting the plan.

Recycling collection in Macon County is primarily accomplished by private service providers. Curbside collection, franchised by the local municipality, is available in eight out of 13 communities - Argenta, Decatur, Forsyth, Long Creek, Macon, Mt Zion, Oreana, and Warrensburg. Most of these programs, including Decatur's, are single-stream recycling programs that do not require sorting recyclables. All refuse pick-up contracts with Decatur require that the hauler provide once-a-week recycling service. These communities represent 82% of the total county population. However the curbside programs do not service businesses, institutions, or larger multi-family buildings.

Recognizing the need for convenient recycling in communities and rural areas without curbside recycling, the Macon County Board and Environmental Management designate a portion of landfill host fees to fund nine drop off sites in the County. Items accepted include: steel and aluminum cans, catalogs, cereal boxes, junk mail, magazines, newspapers, office paper, phone books, plastics #1 through #7 and paperback books. These recycling drop-offs accounted for 145.5 tons of recycled materials in 2010 and 189.2 tons in 2011. Table 7.1 lists the locations. Based on the Macon County population not served by curbside collection (approximately 18%), the drop-off collections represented 19 pounds per capita per year in 2011.

Table 7.1 Drop off Recycling Trailer Locations:

Austin Township 2402 Lincoln Memorial Parkway in front of the Township Hall	South Wheatland Township (Elwin) 3987 West Elwin Road, West of Business 51 next to the Township garage
Blue Mound Township 5758 Railroad St., next to Township Hall in front of Township garage	Village of Blue Mound 229 Railroad Avenue, corner of Railroad Avenue and Highway 51
City of Maroa 120 South Locust, In front of City Hall near the Police Department entrance	Village of Harristown 185 North Kembark, next to the Village office
Long Creek Township Highway Department, , off Route 36 turn onto 70th Street next to water tower	Village of Niantic 2402 Lincoln Memorial Parkway, in front of Township hall
Oakley Township 2221 Sangamon Street, in front of the Township garage	

Landfill host fees also allow the Environmental Management Department to sponsor a “Beyond Curbside” recycling program which encourages the recycling of other problematic materials that are not accepted in typical curbside programs. The County website directs the public to opportunities to recycle items such as compact fluorescent light bulbs, electronics, eyeglasses, household hazardous waste (HHW), batteries, motor oil, pharmaceuticals, mercury containing products, and many others. Since 2000, Macon County has participated in the Partners for Paint Program, sponsored partially by the Illinois Environmental Protection Agency, by operating a drop-off for unused paint. The paint program recycled 4,550 gallons in 2010 and 5,550 gallons in 2011. Though these materials are a small portion of the waste stream they are particular environmental problems, or provide additional social benefits when recycled.

In 2012, the County launched an events recycling program to organize the collection of recyclables at special events in Macon County. Collections were implemented at 22 special events including the Farm Progress Show, a Christmas lights recycling event, two electronics recycling events, the County Fair, the Decatur Celebration and a Mega Recycling Event. These events resulted in the recycling of 78.83 tons of plastic bottles, aluminum cans, electronics and other materials. The Department has actively worked to facilitate electronics recycling and to grow the capacity to recycle electronics.

The SWPRA sets a recycling goal of 25% for counties. The Macon County Environmental Management Department cannot confirm an actual recycling rate because data received from haulers and recyclers has not been complete. Only a few recyclers have reported quantities recycled, resulting in much of the residential collection and nearly all of the commercial collection being unaccounted for. Most of the recyclers and haulers do not track the source of materials as industrial vs municipal, or the county of origin of the waste received; and cannot separately report municipal waste and recyclables originating in Macon County.

Composting. Landscape waste recycling benefits the homeowner, the community and the environment. Decomposed lawn clippings and leaves provide nutrients to growing plants, retain water and improve soil composition. In turn, fewer fertilizers, pesticides and soil amendments need to be purchased. Landscape waste has been banned from landfills in Illinois since July 1, 1990.

Licensed waste haulers in Macon County are required to provide landscape waste pickup, on at least a seasonal basis, as part of their basic rate plans. Landscape waste is processed at two (2) privately owned and operated, permitted, compost facilities. The Macon County Compost Facility (permitted until

July 2013) is also permitted to transfer landscape waste. Decatur Compost, Inc. is a standard windrow composting operation (permitted until January 2014). Much of the waste receives initial processing at the Macon County Compost Facility, and then is transferred to Decatur Compost for final composting.

The Macon County Compost Facility reports receiving 21,830 cubic yards (5,230 tons) of landscape waste in 2010 and 18,088 cubic yards (4,334 tons) in 2011. Decatur Compost reports receiving 9,000 cubic yards (1,500 tons of mixed grass and leaves) in 2011.

“Backyard” landscape waste recycling eliminates the cost, fuel consumption and carbon emissions of transporting bags and bundles of landscape material by the waste hauler. Grass clippings and leaves can be left on the lawn as a nutrient or used along with wood chips as mulch for lawn and garden applications. Homeowners can construct an on-site, well maintained, household compost bin and use the compost as a soil amendment.

Since 2010, to encourage “backyard” composting, Macon County Environmental Management sold compost tumblers and rain barrels fabricated from used food-grade plastic barrels.

Recommendations. Despite the excellent recycling programs implemented in Macon County, the DCEO/IRA waste audit at Valley View demonstrated that significant quantities of potentially recyclable materials are still being disposed in the landfill. The County will maintain continuing education and informational outreach to encourage waste reduction, reuse, recycling, composting and buying recycled products. When feasible, the County will support area recyclers in activities that expand their capabilities of diverting marketable materials from landfills.

The Environmental Management Department will continue to improve and expand existing recycling programs and encourage increased participation. Recycling programs will be coordinated with commercial, industrial, institutional and governmental entities, to seek partnership opportunities for focused educational activities. The Department will support school education programs, and the current county website will be maintained and expanded as an information resource for teachers, students and the general public.

The Department will expand opportunities for public outreach at special events - developing plans emphasizing recycling, to manage the events’ waste streams, and will continue to expand opportunities to recycle electronics, and other hard to recycle items.

The County will encourage a recycled product procurement policy that specifies the use of recycled-content products when the price for, and the quality of, recycled alternatives is competitive.

The waste audit identified Construction and Demolition Debris (C&D) as the second largest component after paper of the waste disposed by Macon County. The County will encourage the development of increased processing and recycling capacity for C&D and increased diversion of C&D to beneficial uses. When developers think about recycling and plan for it, they often discover the financial benefit of reducing the amount of material taken to a landfill for disposal. Therefore, the County will consider the feasibility of requiring a recycling plan as part of the application for building and demolition permits.

The third largest component of the Macon County waste stream - food waste – is not currently addressed by existing recycling programs. The County will examine the feasibility of collecting and composting other compostable organic wastes, such a food waste, from commercial and residential sources and will consider the implementation of a pilot program. It is recommended to obtain professional assistance in developing this pilot in order to thoroughly understand all the ramifications of organic recovery, such as economics, regulatory issues, and operations issues.

Should educational out-reach programs and existing incentives fail to improve participation in recycling programs to the extent desired, the County should consider amending the refuse ordinance to require:

- Licensed haulers to offer quantity-based rate plans to all residential customers, and/or
- Commercial businesses, institutions and multi-family residential buildings to recycle.

The County will also encourage, low-cost, single-can level rate plan with all county waste haulers. This more restrictive disposal quantity would provide homeowners with the incentive and the opportunity to further reduce their disposal costs by more actively participating in waste reduction and recycling.

Although the IEPA is no longer requesting annual reports on recycling activities, in order to evaluate existing programs and provide data for future planning efforts, the Environmental Management Department will require regular, periodic reporting by recycling service providers. Consideration should be given to extending the existing record-keeping, and reporting requirements under the refuse ordinance to recycling service providers; and a standardized reporting mechanism and schedule - clarified as to the data required to be recorded - be developed.

CHAPTER 8. ALTERNATIVE WASTE DISPOSAL AND PROCESSING

Thermal Conversion Technologies: Thermal technologies encompass a variety of processes that use or produce heat to change the composition of waste, resulting in the production of energy. These can include incineration, pyrolysis, thermal de-polymerization and gasification (air-blown, steam-blown, oxygen-blown, or plasma-arc).

After landfilling, the most common method of solid waste disposal in the United States is incineration with energy recovery – traditional waste-to-energy systems. Traditional waste-to-energy technologies use municipal solid waste as a fuel, recovering the heat value of the combusted waste in the form of steam. Traditional waste-to-energy facilities include two basic types of technology: mass burn and refuse-derived fuel (RDF). Mass burn plants combust unprocessed, mixed municipal waste in furnaces dedicated to converting the waste into energy. Mass burn is the most common technology for existing waste-to-energy facilities in the United States, in use at more than 70% of the operating facilities. RDF facilities pre-process the waste, by removing non-combustible materials and shredding the remaining waste to create a more uniform fuel. The resulting RDF can be burned on-site, or transported for use as fuel in off-site boilers. Air pollution control technology is generally applied after combustion to reduce emissions.

In general, when thermal conversions occur in a closed, high-temperature, pressurized reaction vessel, they are considered gasification processes, though they can also be referred to as pyrolysis or thermal-cracking. Depending on the choice of operating temperatures, pressures, and the amount and form of oxygen admitted to the process, a variety of gaseous or liquid, fuel or chemical products can be produced. Syngas produced through gasification of municipal solid waste may be converted to energy by using the gas as a fuel in traditional combustors such as boilers, reciprocating engines and combustion turbines, or used as a feedstock for chemical synthesis of other fuels or chemicals. Typically, an ash/slag/char solid by-product is also produced.

High capital and operating costs make thermal conversion technologies more expensive than landfilling. They can be economical in areas where landfill tipping fees are very high, and adequate markets exist for electricity, steam or waste heat, and for beneficial use of the solid by-products.

Gasification technologies are considered emerging for the management of municipal solid waste, because gasification is not currently in wide commercial use in the United States. There are no MSW incinerators or gasifiers operating in Illinois.

Biological Conversion Technologies: Anaerobic digestion, fermentation and composting are conversion technologies that utilize microorganisms to digest the organic portion of MSW producing a stabilized, solid by-product.

Composting is an aerobic process – occurring in the presence of oxygen - that is widely used to process the landscape waste portion of the waste stream (see Chapter 7), but can also be applied to other organic waste fractions such as food waste.

The only large component of the solid waste stream that is not addressed by Macon County's recycling programs is food wastes and other non-landscape organic wastes (see Figure 4.2). In 2010, the State of Illinois relaxed the requirements for food waste composting by allowing landscape waste composting facilities to mix limited quantities of other organic wastes without triggering the SB172 siting process for pollution control facilities (PA 096-0418).

In anaerobic digestion, microorganisms digest organic material in the absence of oxygen, producing a methane-rich biogas as well as the solid digestate. The biogas can be used for the production of electricity or for use as a fuel, and the digestate used as a soil amendment similar to compost. Anaerobic digestion has been used extensively to stabilize sewage sludge, and has been used more recently to process the organic fraction of municipal solid waste.

Fermentation is also an anaerobic process that produces a chemical product instead of biogas. Typically this product is ethanol, but other chemicals can be produced with the selection of the proper microbial strains. Fermentation has been used extensively in ethanol production from sugars and starchy feedstocks, but has not been widely used to process MSW.

Biological conversion systems are typically less efficient at recovering the energy content from MSW and require more thorough separation of the organic fraction of MSW, but have the advantage of less problematic air emissions. Like thermal conversion systems, they suffer from high capital and operating costs. They can be economically feasible only where both landfill tipping fees and the value of the fuel/chemical products are high. Biocycle³ reports that over 150 cities in 16 states have implemented collection programs for source-separated food waste including San Francisco, Tacoma, Eugene, Boulder, Cedar Rapids, Cambridge and Lexington.

³ *Residential Food Waste Collection in the US*, Biocycle, January 2012

There are no biological conversion systems for MSW operating in Illinois, though a few pilot programs for source-separated food waste have begun. For example, DCEO provided grant support for a joint pilot project with the Town of Normal, Illinois State University and Midwest fiber. The City of Highland Park – in partnership with Advanced Disposal Services, the Solid Waste Agency of Lake County (SWALCO), Glad® and Orbis® – launched a voluntary food waste composting pilot program to 2500 households starting August 2, 2012. As of January 2013, the program was extended to all residents.

Recommendations. Macon County will not seek to site incineration facilities, however, siting requests for incinerators, other thermal conversion technologies, or biological conversion technologies designed to recover energy, fuels or chemicals from waste, will be considered by the County Board on a case-by-case basis, provided such facilities can be shown to be protective of the public health and welfare and economically viable.

The County will examine the feasibility of collecting and composting other compostable organic wastes, such a food waste, from commercial and residential sources. A pilot program is suggested that would compost selected commercial organic wastes, such as waste from food preparation or wholesale and retail produce markets, at existing landscape waste facilities.

CHAPTER 9. IEPA DELEGATION AGREEMENT

In June of 2011, the Macon County Board approved Resolution G-3594-6-11 which approved a five-year continuation of the delegation agreement between the Illinois Environmental Protection Agency and Macon County. Through this agreement, the IEPA grants Macon County authority to act on behalf of the Illinois EPA, to make inspections, conduct investigations of solid waste management sites and enforce applicable provisions of the EPA Act and state regulations. In addition to inspecting and monitoring the operating landfill and compost sites, the County also conducts annual inspections of five closed landfill sites. The delegation agreement also authorizes inspections of illegal dumping.

Associated with the delegation agreement are annual enforcement grants from IEPA. The grant for State fiscal year 2013 was \$46,262.80.

Recommendations. If IEPA is able to continue to support the delegated activities with enforcement grants, Macon County will continue to seek renewal of the delegation agreement.

CHAPTER 10. LEGISLATIVE ACTIVITY

Since the last solid waste plan update in 2006, the following legislation has made changes in state laws regarding solid waste management, recycling, collection and disposal.

Illinois General Assembly

- P.A. 094-0272 - Exempts recycled broken, uncontaminated concrete from the definition of waste. Creates an Open Dumping Clean-up Program within IEPA. Requires interim authorization and permits to use clean construction and demolition debris in certain fill operations.
- P.A. 094-0314 – Requires IEPA to notify property and well owners of potential threats when soil or groundwater contamination is found beyond the boundary of the site where releases occurred.
- P.A. 094-0518 – Establishes a commission to investigate options for the recycling and proper disposal of computer equipment.
- P.A. 094-0591 – Clarifies that a pollution control facility siting application must be consistent with the solid waste management plan in effect as of the application filing date.
- P.A. 094-0641 – Requires IDPH and IEPA to establish guidelines for the proper disposal of hypodermic needles and other sharps. Exempts sharps collection stations from permitting if wastes handled as infectious medical waste.
- P.A. 095-0741 – Extends requirements for schools to purchase recycled-content products and plan for recycling and waste reduction.
- P.A. 095-0959 - Electronic Products Recycling and Reuse Act, implements a “producer responsibility” program for recycling covered electronic devices.
- PA. 095-0288 – Specifies that siting authority vests with the governing authority of the location at the time of filing the application for siting approval.
- P.A. 095-0177 – Exempts temporary, containerized storage of non-putrescible waste while in-transit from PCF siting.
- P.A. 095-0268 – Implements a pilot plastic bag recycling program in Lake County, and creates the Plastic Bag Recycling Task Force to report on the results.
- P.A. 095-0856 – Requires public hearing process prior to awarding commercial waste hauling franchise contracts to new contractors.
- P.A. 095-0049 – Extends collections of tire disposal fee.

- P.A. 095-0119 – Authorizes township road districts to organize, administer, and participate in recycling programs.
- P.A. 095-0408 – Exempts landscape-waste-only transfer stations from PCF siting provided waste is removed within 24 hours of receipt.
- P.A. 095-0121 – Removes 30-day holding limit for C&D debris recycling. Defines speculative accumulation for asphalt pavement.
- P.A. 095-0913 – Burning MSW is not “renewable energy”
- P.A. 096-0077 – Requires state agencies to use compost materials in the maintenance of public lands.
- P.A. 096-0121 – Establishes rules for operation of Household Hazardous Waste (HHW) drop-off points and one-day collection events. Authorizes the IEPA to approve one-day collection events and to adopt rules for drop-off points.
- P.A. 096-0197 – Amends procurement code to define environmentally preferable procurement and provides price preference for recycled content materials which do not constitute an undue economic or practical hardship
- P.A. 096-0235 – Makes technical changes to the EPA Act concerning handling and recycling of C/D debris containing waste wood and cardboard.
- P.A. 096-0369 – Establishes the “MEDS” collaborative under IEPA to promote the environmentally responsible disposal of unwanted and expired medications.
- P.A. 096-0393 – Requires IEPA to create a website to inform the public on proper disposal of mercury-containing fluorescent lamps.
- P.A. 096-0418 – Defines food waste and landscape wastes and rules under which mixed organic waste composting facilities may be exempted from PCF siting. Modifies the public notice process for issuing compost facility permits.
- P.A. 096-0449 – Includes “qualified solid waste energy facilities” in the State’s Renewable Energy Portfolio.
- P.A. 096-0489 – Authorizes IEPA to determine that a material otherwise required to be managed as waste may be managed as non-waste if that material is used beneficially. Applicant must demonstrate compliance with conditions. Such determinations may be effective for up to 5 years.
- P.A. 096-0611 – Requires a permit for facilities accepting exclusively C&D debris.
- P.A. 096-0659 – Defines “green industries” to include recycling, composting and large scale reuse of C/D debris for green career technical education programs.

- P.A. 096-0887 – Exempts demonstration MSW gasification from PCF siting for one year. Authorizes IEPA to issue permits for pilot-scale, gasification conversion technology demonstration projects. Establishes conditions for permit.
- P.A. 096-1068 – Exempts C&D facilities in counties contiguous with Cook County from PCF siting.
- P.A. 096-1154 – Modifies some provisions of the Electronic Products Recycling and Reuse Act regarding producer reporting and registration fees.
- P.A. 096-1215 - Amends public hearing process prior to awarding commercial waste hauling franchise contracts to new contractors established by P.A. 095-0856. Requires issuance of an RFP.
- P.A. 096-1295 – Provides producer responsibility for the collection and recycling of mercury thermostats.
- P.A. 096-1314 – Exempts a demonstration MSW thermochemical conversion project in Naperville from PCF siting. Authorizes IEPA to issue permit. Establishes conditions for permit.
- P.A. 096-1416 – Defines “clean construction or demolition” and “uncontaminated soil” fill operations and requires IEPA to establish rules for such operations. Establishes interim rules and fees. Authorizes delegated counties to impose fee/surcharge up to \$0.10/yd³, or \$0.07/ton, on materials accepted at fill operations.
- August 23, 2011: The Illinois Pollution Control Board adopted final amendments to the financial assurance regulations of 35 Ill. Adm. Code 807 Subpart F, 810.104, and 811 Subpart G. Effective June 22, 2011. The amendments to Parts 807 and 811 add auto-renewal language to the letters of credit and bonds obtained by Illinois landfills as financial assurance for closure and post-closure care. The amendments also reduce the required term for bonds and letters of credit from four or five years to one year or more.
- P.A. 097- 046 – Requires IL DCEO, in awarding Small Business Development Grants, to give preference to businesses providing energy from renewable energy technologies including biomass-based waste products.
- .P.A. 097-0137 – Makes technical changes to the limits of exposure to carcinogens from contaminated soil. Allows professional geologists to sign off on soil certifications as well as professional engineers.
- P.A. 097-0095 – Authorizes the PCB to adopt general permits for non-hazardous solid waste activities and discharge of water from landfills among other activities.
- P.A. 097-0230 – Excludes “general construction or demolition debris that is processed for use at a landfill” from the definition of “non-recyclable general construction and demolition debris” under the operating rules for C&D waste processors.

- P.A. 097-0265 – Creates and defines Renewable Energy Production Districts which include a Renewable Energy Facility. The facility may be powered by anaerobic digestion of livestock or food processing waste
- P.A. 097-0287 – Additional modifications to the Electronic Products Recycling and Reuse Act. Adds additional items to the list of covered electronic devices, and changes the recovery goals for manufacturers for 2012 and 2013. Authorizes IEPA to provide grants from manufacturers’ fees to county recycling coordinators for public education. Modifies fees and reporting requirements for manufacturers
- P.A. 097-0314 – Provides addition diversion allowances for C&D processors separating asphalt shingles for processors operating under proper permits or a Beneficial Use Determination. Requires IDOT specifications to allow the use of asphalt from properly-permitted shingle processors to be used in asphalt pavement. Forbids use of such recycled asphalt from non-permitted sources by any asphalt pavement producer.
- P.A. 097-0384 – Prohibits the purchase of or exchange of anything of value for any metal taken from the grave marker of a veteran.
- P.A. 097-0459 – Makes minor changes to previous legislation concerning manufacturer responsibility for the collection of mercury switches and the list of banned mercury-added products
- P.A. 097-0488 – Authorizes local Fire Officials to temporarily ban open burning if weather condition or other contingencies create an unreasonable risk.
- P.A. 097-0491 – Adds anaerobic digestion to the definition of “Renewable Energy Resources” in the Illinois Power agency Act.
- P.A. 097-0510 - Requires structural fills using coal combustion by-products to comply with ASTM standards or IDOT specifications
- P.A. 097-0545 – Creates the Prescription Pill and Drug Disposal Fund funded by a \$20 assessment on drug related offences. Exempts pharmaceutical incinerators from PCF siting rules.
- P.A. 097-0551 – Requires notification of land owner, neighbors and township officials before applying sludge to farmland. Limits storage of sludge on site to 30-days.
- P.A. 097-0616 – Adds a definition of a “Distributed Renewable Energy Generation Device” which includes untreated and unadulterated organic waste biomass and tree waste, among other power sources.
- P.A. 097-0832 – Requires anyone acquiring five or more vehicles a year for scrapping be licensed by the Secretary of State as an automotive parts recycler.
- P.A. 097-0843 – Bans new and expanded landfills in counties over 2,000,000 population

- P.A. 097-0853 – Creates the Task Force on the Advancement of Materials Recycling to investigate and provide recommendations for expanding waste reduction, recycling, reuse, and composting in Illinois in a manner that protects the environment, as well as public health and safety, and promotes economic development.
- P.A. 097-0923 and P.A. 097-0924 – Amends Recyclable Metal Purchase Registration Act adding additional due-diligence requirements and purchasing restrictions on scrap metal buyers to prevent purchasing of stolen materials.
- P.A. 097- 1081 – Permits IEPA to issue 3-year Special Waste Hauling Permits instead of annual permits.
- P.A. 097-1085 - Creates the Plastic Bulk Merchandise Container Act which places due-diligence requirements and purchasing restrictions on plastic buyers to prevent purchasing of stolen materials.
- P.A. 097-1108 – Defines feeding garbage to animals as a misdemeanor criminal offense. Defines garbage as putrescible vegetable waste, animal, poultry, or fish carcasses or parts thereof resulting from the handling, preparation, cooking, or consumption of food, but does not include the contents of the bovine digestive tract.
- P.A. 097-1110 - For the purposes of the Renewable Energy Production District Act, adds methane gas generated from landfills to the definition of renewable fuels and specifically excludes incineration of solid wastes except for tree waste, and clean, untreated wood waste.

CONCLUSION

This 2012 Solid Waste Plan Update supersedes and replaces the original 1991 plan, the revised 1996 plan, and the 2006 plan update, and thus becomes the officially adopted plan for the management of solid wastes generated within the boundaries of Macon County.

It is recommended that the final disposal options for Macon County will continue to be the in-county landfill. Though adequate capacity for the planning period is available, the County will continue to evaluate private facility developments that are consistent with the County's Waste Management Plan.

Macon County's Environmental Management Department will continue to be the primary agency responsible for implementing the Municipal Waste Management Plan and providing programs and services funded by landfill host fees. The Department will coordinate program development with service providers, local governments, county businesses, and provide opportunities for public input.

The Environmental Management Department will review and evaluate new and developing methods for source reduction, waste recovery, and waste disposal for possible application in Macon County. The Department will continue to expand existing recycling programs and to encourage increased participation.

Special attention will be given to increasing diversion of construction and demolition debris and food waste to beneficial uses.

In summary, the County plans to improve established programs and institute new programs in the areas of solid waste planning, education, enforcement, recycling, waste reduction, and collection events. Unanticipated events and fluctuations in landfill host fees may affect the timely implementation of the Macon County Solid Waste Management Plan, however, the County remains steadfast in its decision to provide economical, as well as environmentally responsible and sound waste management policies for its municipalities, residents and businesses.