

## **SOLID WASTE PLAN 2040 - SUMMARY**

The Solid Waste Plan 2040 for Lincoln and Lancaster County was prepared as a guidance document, communication tool, and a resource for policy decisions regarding solid waste management systems, facilities and programs for the City of Lincoln and Lancaster County.

The planning process included the following:

- the appointment of an Advisory Committee by the Mayor;
- an evaluation of existing solid waste practices and a projection of future needs;
- an evaluation of solid waste management programs and alternatives;
- the development of strategy options/alternatives for further evaluation; and
- the development of recommendations by the Advisory Committee to guide future solid waste systems, facilities, and programs.

The recommendations will move the current solid waste management system toward a more comprehensive and integrated strategy and reduced quantities of solid waste going to disposal in landfills. The recommendations are based on a hierarchy of solid waste management practices and guiding principles established in the planning process.

### **1.1 Purpose and Background**

In October 2011 the development of a comprehensive, integrated solid waste management plan was identified as a strategy in the Lincoln-Lancaster County 2040 Comprehensive Plan (LPlan 2040). In fulfillment of that strategy, the City's Public Works and Utilities Department and the Lincoln-Lancaster County Health Department (LLCHD) facilitated the development of the Solid Waste Plan 2040 with technical support from the solid waste consulting specialty firm of HDR Engineering, Inc. (HDR).

As part of the process to create the Solid Waste Plan 2040, the Mayor appointed an [Advisory Committee](#) comprised of a broad cross-section of community leaders; their names are listed in the Acknowledgements section. The Advisory Committee met monthly from June 2012 through November 2013. During those meetings they reviewed the components of the Plan, provided guidance and feedback, evaluated community inputs, and provided the recommendations included in the Plan.

### **1.2 Public Involvement**

From the beginning of the planning process the public was invited to participate and provide comments. All Advisory Committee meetings were open to the public and included time for public comment. All documents distributed to the Advisory Committee were made available to the public. The planning process included numerous opportunities and means for public participation and involvement. Public outreach was an ongoing activity throughout the planning process and involved a wide array of communication tools. In-person and on-line Open House Meetings were held at the following key milestones in the planning process:

- Needs Assessment
  - Open House - November 13, 2012
  - On-Line Town Hall Meeting - November 6 to November 20, 2012
- System Definition
  - Open House - August 13, 2013
  - On-Line Town Hall Meeting - August 6 to August 20, 2013

Community outreach, public involvement, and public comments are further described in Section 5.

### 1.3 Vision, Guiding Principles, and Goals

An initial part of the planning process was to establish a vision statement with guiding principles and plan goals ([Vision, Guiding Principles and Goals](#)); these served as overarching guidance for the Advisory Committee and the development of the Plan. The Vision Statement and Guiding Principles were developed to complement similar statements in the LPlan 2040. The Vision Statement read:

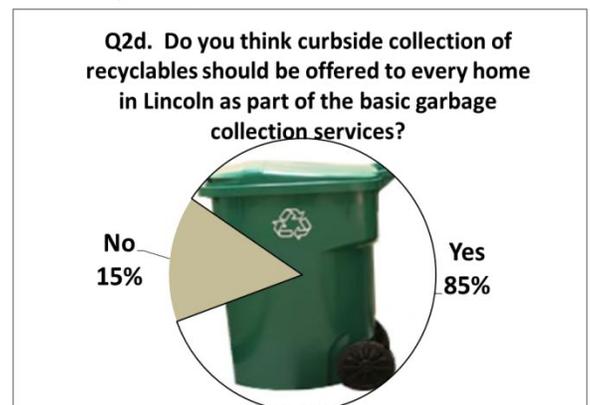
“Solid Waste Plan 2040 acknowledges and will reflect the core promise embedded in LPlan 2040; that being a commitment to ‘maintain and enhance the health, safety and welfare of our community during times of change, to promote our ideals and values as changes occur, and to meet the needs of today without sacrificing the ability of future generations to meet their needs.’ The Solid Waste Plan 2040 will also reflect the ‘importance and interconnectedness of the economic, environmental, and socio-cultural domains, and the ways in which technology and public policy are applied and affect outcomes of these domains’ as is likewise stated in the LPlan 2040 Vision.”

The guiding principles and goals are included in Section 1.3.1 of the Plan.

### 1.4 Needs Assessment

A random Baseline Assessment/Survey of over 400 Lincoln residents was conducted in August 2012 to provide a quantitative assessment of public opinion on: garbage collection, residential recycling, management of yard waste, household hazardous waste collections, and satisfaction levels regarding various solid waste management services and current costs for services. As shown in Figure S-1, there is strong interest in having residential recycling services as part of garbage service. (See Appendix D5 for complete survey results.)

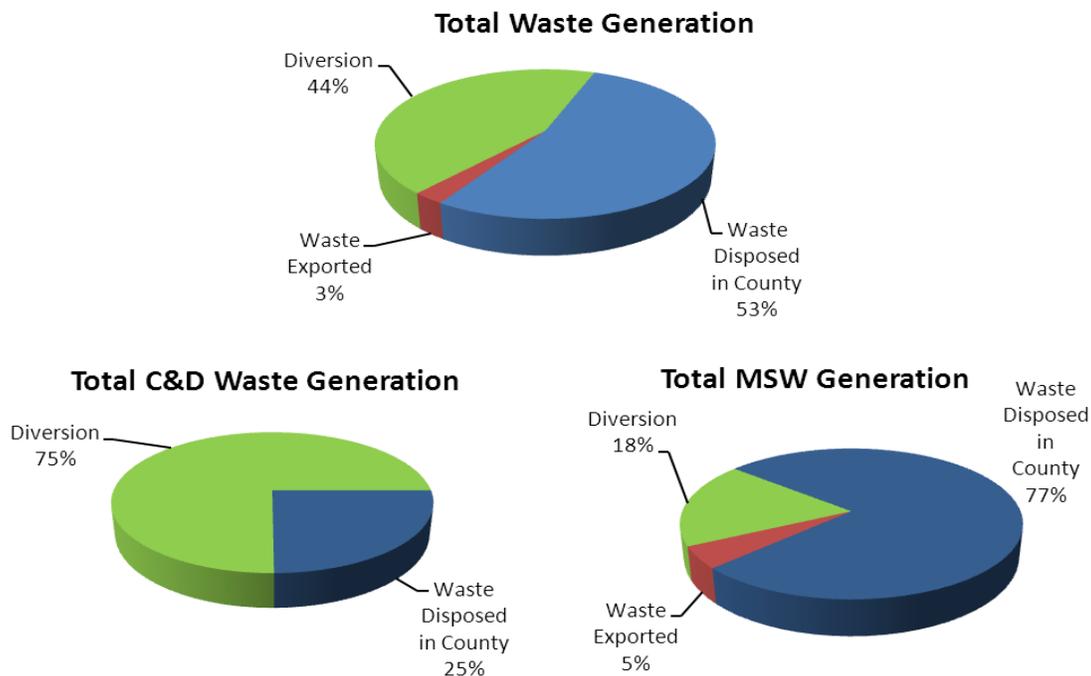
**Figure S-1 – Baseline Assessment/  
Survey Response to Questions 2d**



A [Needs Assessment](#) was completed in November 2012 to identify the current (baseline) conditions for solid waste management in Lincoln and Lancaster County. The Needs Assessment addressed the volumes and types of waste being generated, the existing waste management practices, and future needs. Figure S-2 summarizes waste disposal and waste diversion data for the Planning Area for 2011. (The complete Needs Assessment can be found in Appendix A1 and is summarized in Section 2 of the Plan.)

The Needs Assessment established the foundation for solid waste management planning, and subsequent evaluation of system, facility and other solid waste management alternatives. Regulatory and environmental information was included to provide a broad-based perspective on existing conditions and possible future practices.

**Figure S-2 – 2011 Waste Disposal and Diversion, Percentage by Weight**



As shown in Figure S-1, approximately 77 percent of the generated municipal solid waste (MSW) is disposed in the City's Bluff Road Municipal Solid Waste Landfill, another 5 percent is exported to out-of-county landfills and the remaining 18 percent is diverted by reuse, recycling, and composting.

The key needs of the Planning Area, identified in the Needs Assessment, were as follows:

- Compliance with state and local laws, regulations and policies.
- Under the status quo, a new MSW landfill will be needed by 2032 prior to the end of the planning period.
- Under the status quo, a new C&D landfill will be needed by 2030 prior to the end of the planning period.
- Additional mechanisms may be necessary to better collect information on types and quantities of materials being diverted and possibly on waste exports.

## 1.5 Solid Waste Management Alternatives and Technical Evaluations

Detailed technical papers were provided to the Advisory Committee and the public on a wide range of solid waste management topics. These were presented and discussed with the Advisory Committee. The technical papers include the following:

- [Source Reduction \(Definitions/Framework/Options\)](#) (Appendix B1)
- [Product Stewardship](#) (Appendix B2)
- [Zero Waste](#) (Appendix B3)
- [Household Hazardous & Conditionally-Exempt Small Quantity Generator \(Small Business\) Hazardous Waste](#) (Appendix B4)
- [Yard Waste](#) (Appendix B5)
- [Universal, Special and Unique Wastes](#) (Appendix B6)
- [Residential Recycling and Diversion](#) (Appendix B7)
- [Commercial Recycling and Diversion](#) (Appendix B8)
- [Organic Waste Diversion \(Composting\)](#) (Appendix B9)
- [Construction and Demolition Materials Recycling](#) (Appendix B10)
- [Recycling Incentives](#) (Appendix B11)
- [Waste Conversion Technologies](#) (Appendix B12)
- [Municipal Solid Waste Disposal](#) (Appendix B13)
- [Bioreactor/Bio-Stabilization Technologies](#) (Appendix B14)
- [Construction and Demolition Waste Disposal](#) (Appendix B15)
- [Collection Systems](#) (Appendix B16)
- [Transfer Station and Processing Facilities](#) (Appendix B17)
- [Markets \(for recovered/recycled materials\)](#) (Appendix B18)

In general, each of the technical papers followed a similar format as outlined below:

- Overview
- Current Programs
- Generation and Diversion
- Program (Facility/System) Options
- Options Evaluation
- Relationship to Guiding Principles and Goals
- Summary

Prior to the development of technical topic papers a common set of [evaluation/screening criteria](#) were developed under the following categories:

- Waste reduction/diversion
- Technical requirements
- Environmental impacts
- Economic impacts
- Implementation viability

The system, facilities, and program options presented in these technical papers were compared using the established evaluation/screening criteria. The evaluation/screening criteria are discussed in further detail in Section 3.2.

Key aspects of these technical evaluations are summarized in Section 3 of this Plan. Throughout the planning process, the Vision, Guiding Principles, and Plan Goals were displayed (along with the graphic on the Waste Management Hierarchy) at the Advisory Committee meetings to help communicate and reinforce the core values that served as the basis for the planning effort.

## 1.6 System Definition

Following discussion of the technical papers and various options the Advisory Committee was guided through a facilitated and structured process to identify a general direction for further evaluation of various system, facilities, and program options. The outcome of this process was the “Preferred Paths.” In developing these Preferred Paths a set of options were presented to the Advisory Committee and the committee voted on the Preferred Paths. A five step process (depicted graphically below) was utilized for each of the solid waste management topics reviewed by the Advisory Committee. Table S-1 summarizes the Preferred Paths.



**Table S-1 – Preferred Paths for System Definition**

<b>Option/Topic</b>	<b>Options Decision for System Definition</b>
Source Reduction	Expand Programs that Lead to Greater Source Reduction.
Toxics Reduction	Expand the Toxics Reduction program and create a place to provide year round access.
Yard Waste	Maintain Status Quo (Seasonal Ban)
Residential Recycling and Diversion	Residential Curbside Recycling to be provided to all single family and duplex dwellings City wide.
Commercial Recycling and Diversion	Commercial Recycling to be provided to multi-family dwellings, businesses, industries and institutions.
Construction and Demolition Materials Recycling	Develop/Support programs to reduce the quantities of construction and demolition waste going to the City’s disposal site(s).
Organic Waste Diversion (Composting)	Develop/Support programs to reduce the quantity of organics, especially food waste, going to the City’s MSW disposal site.
Waste Conversion Technologies	Pursue the development of Waste Conversion Technology(ies) as a part of a long-term strategy for energy recovery and resource conservation.
Municipal Solid Waste Disposal	Expand on City-owned property to the east of the currently permitted site.
Construction and Demolition Waste Disposal	Expand on City-owned property.

Bioreactor/Bio-Stabilization Technologies	No further consideration is given in the System Definition to pursuing the development of a bioreactor/bio-stabilization technology.
Transfer Station and Processing Facilities	Develop a municipal solid waste Transfer Station if a feasibility study shows it can be cost effective.

The resulting Preferred Paths were then used in developing the [System Definition](#) (summarized in Section 4). The System Definition was developed to serve as the basis for the development of the Solid Waste Plan 2040 and combines information on existing solid waste management programs and program options considered for managing solid waste in the future. Based on the Preferred Paths three system scenarios were created to illustrate potential landfill diversion rates associated with components of the integrated waste management strategies. These three system scenarios reflected different levels of waste diversion and resource recovery strategies as well as short- and long-term program options. The System Definition describes programs that would move the integrated solid waste management system from current levels of waste diversion and existing disposal practices toward greater resource conservation, waste reduction, waste diversion and resource recovery efforts. The System Definition also included information on the following:

- Strategies
- Qualitative/Quantitative Goals
- Benefits
- Cost Considerations
- Capital Costs
- Operating Costs
- Funding
- Diversion

Prior to the Advisory Committee formulating Plan recommendations, the System Definition was provided to the public, and Open House and Virtual Town Hall meetings were conducted to allow for public input on key topics. The results of the public comments are provided in Appendix D6.

Following the review of all public comments received throughout the planning process, the Advisory Committee met and formulated recommendations for future solid waste management in Lincoln and Lancaster County.

## 1.7 Advisory Committee Recommendations

The Advisory Committee developed specific recommendations on solid waste management in two phases. The first was in the facilitated process described above to develop the Preferred Paths. The Committee Chair led the second phase of the process in which the Advisory Committee was asked to suggest recommendations and these were discussed and voted on. The following is a list of recommendations that were approved by the Advisory Committee. In addition, a complete list of recommendations offered and/or discussed by the Advisory Committee is provided in Section 6 of the Plan and in Appendix E.

- **Overall Waste Reduction and Recycling Goal**
  - Reduce the per capita rate of municipal solid waste disposed of in landfills to:
    - 1,940 pounds per capita per year by 2018
    - 1,720 pounds per capita per year by 2025
    - 1,510 pounds per capita per year by 2040

Metric: 2011 rate is 2,150 pounds per capita per year. This is calculated by dividing the total municipal solid waste sent to disposal in landfills (from Lincoln and Lancaster County) by the current Lancaster County population (estimates prepared by the City's Planning Department). The recommended goal should be revisited and adjusted in 2015 and every five (5) years thereafter.
- **Source Reduction**
  - Expand programs that lead to greater source reduction.
- **Toxics Reduction**
  - Expand the toxics reduction program and create a place to provide year round access.
- **Yard Waste**
  - Maintain the status quo (seasonal ban on grass and leaves); long term consideration may be given to banning grass and leaves year round.
- **Residential Recycling**
  - Residential curbside recycling to be provided to all single family and duplex dwellings City-wide.
    - The preferred path would require (mandate by ordinance) that curbside collection of recyclables be provided to all single family and duplex dwellings. All single family and duplex residential dwellings would receive recyclables collection service but resident participation would be voluntary (e.g., they would not be required/mandated to recycle).
- **Commercial Recycling**
  - Commercial recycling to be provided to multi-family dwellings, businesses, industries and institutions.
    - The preferred path would require (mandate by ordinance) that collection of recyclables be provided to all multi-family dwellings, businesses, industries and institutions. All multi-family dwellings, businesses, industries and institutions would receive recyclables collection service but their participation would be voluntary (e.g., they would not be required/mandated to recycle).
- **Construction and Demolition Materials Recycling**
  - Develop/Support programs to reduce the quantities of construction and demolition waste going to the City's disposal site(s).
- **Organic Waste Diversion (Composting)**
  - Develop/Support programs to reduce the quantity of organics, especially food waste, going to the City's MSW disposal site.
- **Waste Conversion Technologies**
  - Pursue the development of Waste Conversion Technologies as a part of a long-term strategy for energy recovery and resource conservation.

- **Municipal Solid Waste Disposal**
  - Expand on City-owned property to the east of the currently permitted site.
- **Construction and Demolition Waste Disposal**
  - Expand on City property.
    - When additional construction and demolition waste disposal area is required the C & D landfill should be expanded to the south of the current landfill within the North 48th Street Facility. Expansion space may also be available south of the currently permitted Bluff Road disposal area.
- **Transfer Station and Processing Facilities**
  - Develop a municipal solid waste Transfer Station if a feasibility study shows it can be cost effective.
  - The City of Lincoln is encouraged to locate and secure a site for the construction of a second transfer station if supported by a feasibility study.
- **Eco-Park**
  - The City of Lincoln is encouraged to establish an “Eco-Park” at either the existing North transfer station or a future Transfer Station if supported by a feasibility study. The “Eco-Park” could be a permanent facility for the collection and storage of HHW. It could also be a one-stop shop for the recycling, repurposing and disposal of items that one may collect when selling a house, cleaning a garage, or engaging in a remodeling project. The “Eco-Park” could include drop-off facilities for the recycling of traditional recyclables (glass, plastic, paper, metal) but also for the recycling/repurposing of wood, yard waste, clothing, used construction materials, appliances, latex paint, and electronics).
- **Education/Behavior Change**
  - Targeted educational programming be developed dealing with each Preferred Path Recommendation.
  - A financial commitment be made by the City to provide staffing and resources to educate individuals and businesses as part of the implementation of the plan recommendations.
- **Data and Reporting**
  - The city and county should collect data relevant to the effectiveness of each preferred path and should use the data to analyze adjustments in the goals set by this committee.
  - A reporting system should be created and adopted to measure recycling rates. Reporting should be required by ordinance, said reports should occur on an annual basis and should be required as part of operating a recycling service.
  - The City should gather data related to each of the preferred paths. This data can be based on record keeping, experience, or other sources and would be used as part the periodic reviews of the Solid Waste Management Plan.
  - The City should collect additional data on C&D waste, recycling, and diversion rates and the amounts disposed of in the City of Lincoln.

## 1.8 Implementation Process

The process of implementing the Solid Waste Plan 2040 recommendations will require working closely with elected and appointed officials, recyclers, waste haulers, regulated businesses and the community as a whole. Specific implementation actions may include:

- Educating users of the system and promoting the programs and goals of the Solid Waste Plan 2040.
- Communicating with residents, businesses, and stakeholders.
- Executing cooperative agreements or arrangements between units of government or private entities.
- Performing additional studies or evaluation.
- Changing laws, regulations and ordinances.
- Monitoring and enforcing laws, regulations, ordinances and policies.

## 1.9 Monitoring Mechanism and Updates

The Advisory Committee made several recommendations on data collection and monitoring. In addition, there are many things that affect estimates of future diversion including: specific program elements, costs, participation levels, public education and implementation timing. For the effective realization of the recommendations in the Solid Waste Plan 2040 it will be necessary to monitor the selected systems, facilities and programs as they are implemented to assess their effectiveness and make appropriate modifications to this plan.

In order to monitor the implementation of the Solid Waste Plan 2040, the following actions are recommended:

### Annual

- Annually update and report on the progress achieved in the prior year toward achieving the Solid Waste Plan 2040's recommendations.

### Two-year

- As part of the biennial budgeting process identify priority systems, facilities and program changes anticipated in the next 2 years.

### Five-year

- As major changes occur, review the Solid Waste Plan 2040 and modify the plan to reflect changes in recommendations, action items and timetables.