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1.0 Introduction

1.1 About the Greater Nashville Regional Council

The Greater Nashville Regional Council (GNRC or the Council), is a public body corporate and politic initially created by the Tennessee Development District Act of 1965 and further empowered by Title 64, Chapter 7, Part 1, Tennessee Code Annotated (TCA), as amended (the Act). GNRC is owned by and operated on behalf of its local government membership comprised of Cheatham, Davidson, Dickson, Houston, Humphreys, Montgomery, Robertson, Rutherford, Stewart, Sumner, Trousdale, Williamson, and Wilson Counties, and all incorporated municipalities and metropolitan governments located within these counties.

GNRC’s mission is to assist local communities and state agencies in the development of plans and programs that guide growth and development in the most desirable, efficient, and cost-effective manner, while ensuring the continued long-term livability of the region. GNRC is governed by a regional council comprised of city mayors, county mayors/executives, state legislators, appointments representing business/industry, and appointments representing minority populations and employs approximately 80 full-time staff.

1.2 About the Solid Waste Master Plan


In 2017, under the guidance of members of the Middle Tennessee Mayors Caucus GNRC expanded its work on issues relating to solid waste management. GNRC’s activity supports TDEC’s 2025 Plan and its goal of creating regional forums for discussing the future of solid waste facilities, programs, funding, and legislation. Through this coordinated effort, GNRC began the process of convening industry and elected leaders to develop the first-ever Solid Waste Master Plan for Middle Tennessee.

The purpose of a solid waste management plan is to serve as a regional framework to guide solid waste materials management. This document provides an overview of the solid waste industry, communicates the current state of solid waste management in Middle Tennessee, and offers recommendations for improvements to operations, and capacity for multi-jurisdictional coordination on a range of issues related to solid waste management.

Development of the plan included the following tasks:

1) Organize and convene stakeholders and local experts; formation of a Solid Waste Directors’ RoundTable.
2) Inventory assets, policies, finances, and behaviors associated with solid waste systems.
3) Analyze trends and estimate future waste generation based on population and economic growth forecasts.
4) Identify existing and future needs of the private sector, local solid waste departments, and state government to address known and anticipated challenges.
5) Research and evaluate national/global best practices; prioritize solutions for improving solid waste planning and management across Middle Tennessee.
6) Identify legislation, policy, resources, and strategies for implementing recommendations.

Residential services are the focus of this plan since the State of Tennessee requires each county to provide residential collection of solid waste. Residential solid waste management is a government function. Management of waste materials and chosen level of service vary for commercial, industrial and institutional organizations, based on their specific mission.
1.3 Solid Waste Planning Partners
The Solid Waste Master Plan includes the counties and cities that are part of GNRC and bordering counties to its footprint. This includes Cannon, Cheatham, Coffee, Davidson, Dickson, Hickman, Houston, Humphreys, Macon, Marshall, Maury, Montgomery, Robertson, Rutherford, Stewart, Sumner, Smith, Trousdale, Williamson, and Wilson counties.

Figure 1.1 – Solid Waste Planning Region in Middle Tennessee

SOLID WASTE DIRECTORS ROUNDTABLE
The Solid Waste Directors RoundTable is a working group of Solid Waste Directors, and other industry professionals, from each of the jurisdictions represented in the plan. RoundTable members worked together for more than a year to assess industry trends related to growth and development, understand the ever-changing recycling markets and technologies, and monitor landfill capacity. Their research into area needs coupled with review of national and global best practices shaped the recommendations for the solid waste master plan framework.

MIDDLE TENNESSEE MAYORS CAUCUS
Legislative issues for the GNRC area are discussed and prioritized by the Middle Tennessee Mayors Caucus. The Caucus was formed in 2009 to provide leadership on important issues facing a rapidly changing regional landscape. Although transportation, and particularly the pursuit of a modern regional transit system, served as the early catalyst, the Caucus has grown into an effective forum to discuss issues that cross political boundaries, identify shared opportunities and challenges, and develop collaborative strategies for action among mayors and county executives. The Caucus advocates for public policies beneficial to individual cities and counties, and the region.
INDUSTRY PROFESSIONALS
Beyond public sector solid waste professionals, coordination and collaboration with state, non-profit, and public sector industry leaders was critical to ensuring a holistic view of solid waste management in Middle Tennessee. Many private industry service providers fill the need for specific services and collect materials based on local infrastructure, supply and demand. Fostering public-private partnerships is a critical component of building an integrated solid waste management system.
2.0 Key Issues and Trends

2.1 Trends in Solid Waste
The philosophy of the Solid Waste Hierarchy has been adopted by most industrialized nations as the roadmap for addressing municipal solid waste (MSW). Figure 2.1 diagrams the hierarchy established by the Environmental Protection Agency (EPA). Its purpose is to communicate that no single waste management approach serves every waste stream in all situations. The path from the widest to narrowest, ranks management strategies from most favored to least favored, environmentally.

Across the globe materials in any waste stream are similar, but the amount of each type of material is what dictates best practice when managing solid waste. The local economy, infrastructure, resources, consumer support and legislation all directly affect how materials are collected and processed before the final step, disposal.

CONSTRUCTION AND DEMOLITION
Construction and Demolition (C&D) materials consist of the debris generated during the construction, renovation and demolition of buildings, roads, and bridges. The EPA promotes a Sustainable Materials Management (SMM) approach that identifies certain C&D materials as commodities that can be used in new building projects, thus avoiding the need to mine and process virgin materials. Middle Tennessee has not yet found a viable way to follow this approach. As the region has experienced an increase in residential and commercial development the amount of C&D materials deposited into Class I landfills has gradually risen.

COMPOSTING
Composting, particularly home based, has gained attention of consumers in recent years. This controlled decomposition requires a proper balance of “green” organic materials and “brown” organic materials. Green organic material includes grass clippings, food scraps, and manure, which contain large amounts of nitrogen. Brown organic materials include dry leaves, wood chips, and branches, which contain large amounts of carbon but little nitrogen. Integrated facilities, where composting is co-located with other types of processing and disposal facilities, are becoming more common. Compost, the product produced from the composting process, is being used in non-traditional applications such as erosion control.

FOOD WASTE
Food scraps have been added to residential composting operations for years. Mention of solving the global issue of food waste started making headlines in 2015 when the National Restaurant Association Culinary Forecast recognized this as a “What’s Hot” Top 10 trend. The EPA created the Food Recovery Hierarchy, similar to the Solid Waste Hierarchy to depict priority actions organizations can follow to prevent and divert wasted food from landfills. The six tiers on this hierarchy include: (1) Source Reduction, (2) Feed Hungry People, (3) Feed Animals, (4) Industrial Uses, (5) Composting and (6) Incineration/Landfill with source reduction being the most preferred and landfilling representing the least preferred method for managing food waste.

RECYCLING
Recycling is the use of waste material in the production of a new product that avoids the use of virgin materials and defines the process of converting waste materials into new products. The concept of recycling is popular among the public and is successful in diverting some portion of materials from a landfill. However, the fluctuating markets for...
recycling materials and the cost associated with handling, transportation, and management of these materials can limit services provided to consumers.

**WASTE TO ENERGY**

Energy recovery from waste through the conversion of waste materials into heat, electricity, or fuel through various processes is called Waste to Energy (WTE). Typically, WTE processes for MSW are carried out through a mass burn process. Incinerators, which recover energy through the combustion process, have been limited in use since the EPA enacted the Maximum Achievable Control Technology (MACT) regulations in the 1990s. Air pollution, cost, and long-term program viability are major concerns across the country as it relates to WTE opportunities. Many new WTE technologies are being introduced to the industry. Facilities using combustion decrease the amount of materials to be landfilled by an average of 90 percent.

**ZERO WASTE**

The zero-waste management philosophy focuses on conserving all resources from production, consumption, reuse, and recovery of all products. The concept of zero waste adds a new challenge to a traditional integrated solid waste management system. The intent is to draw attention to the importance of resource conservation and should be defined by the percent of materials expected to be diverted from landfills. The goal is not necessarily 100 percent diversion from landfills, but to divert as much waste as possible. It requires a shift in our perception from the habit that solid waste materials belong in the trash, to every material has value. The conservation of materials follows the EPA non-hazardous integrated solid waste management hierarchy, with focus on not producing the waste in the first place, or reusing and recycling what is generated, before it is incinerated or landfilled.

**2.2 Issues of Concern**

A survey of state and local leaders was carried out to assess the needs and concerns related to solid waste management across the region. The feedback collected considered operations, revenue and expenses, level of service and the materials collected, and management of facilities. In addition to the survey responses, qualitative data was collected through conversations with the Solid Waste Directors RoundTable, Mayors Caucus, and state agencies. The primary concerns identified are:

- Capacity and lifespan of current landfills;
- Practical limitations on meaningful recycling programs;
- Rising costs of solid waste management and disposal;
- Impact of growth and development on production of waste;
- Maintaining a positive relationship with TDEC;
- Lack of coordination among neighboring communities;
- Compliance with state and federal requirements;
- Pollution associated with solid waste and its disposal;
- Staffing capacity at local level to adequately address solid waste issues; and
- Staff expertise at local level to adequately address solid waste issues.
3.0 A Primer on Solid Waste

Solid Waste Management has been described as a “wicked” problem. As defined, a wicked problem is a social or cultural problem that is difficult or impossible to solve for four reasons: incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of these problems with other problems.

Wicked problems are typically offloaded to policy makers or written off as being too cumbersome to handle together, as a group. But the problem of improving solid waste management in Middle Tennessee exists and continues to exist with direct effects on our cities, counties, states and country; every single person is ultimately affected. Since addressing solid waste challenges reaches beyond the boundaries of any single county it is critical that the region work together to tackle this wicked problem. The following section provides an overview of solid waste management, waste streams, policies that impact services, and growing challenges.

3.1 Waste Streams

Waste streams are the flow of waste materials from point of generation to final disposal. Intervention of recycling and other methods of removing materials from the waste stream may reduce the amount of waste as it moves through its life cycle.

Municipal solid waste (MSW) makes up most of the volume across Middle Tennessee, as is often true in many parts of the country. Regardless of the type of material, all must be managed systematically to protect public health, the environment, and quality of life. It is valuable to recognize that efforts to improve our materials management concepts are needed to maintain sanitation in our communities.

The most common residential materials generated in most communities include:

- Municipal Solid Waste – household garbage
- Organics – brush, treated wastewater sludge, yard waste, food
- Recyclables – plastics #1, plastics #2, plastics #3-7, glass, mixed paper and cardboard
- Metals – aluminum, steel and tin
- Construction and Demolition - materials left after demolition, renovation or remodeling and construction projects are completed (drywall, wood, brick, concrete, roofing, and similar)
- BOPAE – batteries, oil (automotive and cooking), paint, antifreeze and electronics
- Household Hazardous Waste - chemicals, cleaners, herbicides and pesticides
- Problem Waste – non-hazardous material that requires special handling such as bulky items (furniture, mattresses), medications, textiles, tires, white goods (appliances)

Figure 3.1 – Average MSW Created Per Person Per Day in Pounds

In 2017, the region generated an average of SIX pounds of trash per person per day. Figure 3.1 compares the region’s average per person daily generation to that of the state, and country as reported by the EPA.

Note: The EPA has not reported for 2017
ORGANICS
Based on the U.S. 2015 MSW Composition published by the EPA, yard trimmings, food waste, paper and wood make up approximately 60 percent of the overall mix of MSW materials. These materials can be separated from a waste stream and delivered to a permitted processing facility for composting. Diverting yard waste from landfills not only conserves space, but also reduces the amount of methane gas emitted during the decomposition process. Composting diverts yard waste and other organics from landfills and can be used in local parks projects as a cost saving measure.

RECYCLABLES
Recyclable materials often depend on the infrastructure available for separating, processing, marketing, and transporting these items from a local facility to the location where the recovered materials can be used. Manufacturers want specific materials that serve as feedstock for their operations of creating new products and recovered materials, or commodities, may be purchased to fill the need.

Common items collected for recycling in our area include: plastics #1-#7, mixed paper, cardboard, metals, and glass. Some of these commodities are easily managed in existing processing facilities, while others are difficult and costly to recycle. When Southeast manufacturers source feedstock locally, as is practical, the recycling economy is strong based on the economics of supply and demand.

Nationally, the percent of MSW materials recycled has continued to increase. New Jersey enacted the first universal mandatory recycling law in 1987, which required all residents to separate recyclables from their household garbage. This, and other similar legislation, have proven to be catalysts for increasing the percentage of recyclable materials separated from the waste stream.

Figure 3.2 – Comparison of Average Percent MSW Materials Recycled

METALS
Unlike other waste materials, nearly all metals are recyclable. Most counties within our region include diversion of metals as part of their regular operations. Various metals are removed from waste streams and sold locally for revenues based on the current market value of the metals. On average there are 1,782,966 tons of metals recycled in the region annually. Recycling scrap metals is an effective way to reuse resources. Iron, steel, aluminum, brass and copper are the most common metals that are recycled.
Iron and Steel
Iron and steel both have magnetic properties which makes them easy materials to separate for recycling. Iron used to be the preferred metal for pipes, gas heaters, grills and other similar items. Iron is highly corrosive, and steel has become a more common metal for manufacturing these same items. Iron is still useful as scrap metal because it can be melted down and used to create new items. Steel is the most widely used metal in large appliances, cars, shelving and other household items. Steel is commonly used in construction projects. Cans of food from the supermarket are often made from steel.

Aluminum, Brass, and Copper
Aluminum is most often used in making aluminum cans for beverages. Gutters, car parts, doors, window pieces and other products also have aluminum components. Aluminum is known for its quick turnaround time from scrap metal to consumer products or packaging, which can be as little as 60 days.

Brass is a heavier metal made from zinc and copper. Most popular items made with brass include light fixtures, water faucets, door handles and plumbing pieces.

Copper is most commonly found in pipes, electrical components, and wires. This is the third most common metal used in manufacturing.

CONSTRUCTION & DEMOLITION (C&D)
Construction and demolition materials are not usually generated from the residential sector. Currently, in Middle Tennessee, there are several Class III/IV, C&D landfills that are reaching capacity. The materials resulting from the increased amount of construction continue to flow.

As a result, the C&D materials have been diverted to local Class I, MSW landfills. As we consider alternative options for managing our residential materials, we must also address the need to better manage our C&D materials. Simply finding better solutions for the C&D materials will help conserve what permitted space remains in our MSW landfills.

BATTERIES, OIL, PAINT, ANTI-FREEZE AND ELECTRONICS (BOPAE)
Universal wastes are materials that are classified as hazardous waste but widely produced in households, in small volumes. These materials are not held to the same standards for handling, storage, and transport as other hazardous wastes.

BOPAE are those special materials that used to be collected as part of household hazardous waste (HHW) events. According to the State of Tennessee, paint and electronics represented a statewide average of 74 percent by weight and 35 percent by costs of materials collected and managed through mobile HHW events in 2010. Most counties in Middle Tennessee currently accept some of the items included in the BOPAE list of materials through mobile events for collection, or permanent facilities in the community.

Batteries
Since the passing of the Mercury Containing Battery Management Act in 1996 the sale of alkaline batteries containing mercury is prohibited in the United States. It is assumed that any batteries purchased before 1996 have already been disposed of, therefore, alkaline batteries no longer contain mercury and may be safely disposed of with regular household garbage.

Lead Acid Batteries
Lead Acid Batteries more commonly recognized as automotive batteries, contain both lead and sulfuric acid which lends them to regulation as a hazardous waste. At a volume produced by households these batteries can be managed as “universal waste” or a waste that needs to be handled in a special way, but not following all hazardous waste guidelines.

Proper handling of these batteries requires them to be palletized with cardboard between each layer of batteries, with shrink wrap applied for stability and safe transport. These batteries do have value and local battery recyclers will often pay consumers for these materials. In Tennessee, counties are expected to plan for providing at least one site to receive lead-acid batteries as a drop-off collection service for residents of their county.
**Rechargeable Batteries**
Rechargeable Batteries contain heavy metals that can be hazardous to the environment unless they are properly managed as recycled materials. These should be delivered to an appropriate recycling facility through mail-in, drop-off or take-back programs.

**Oils**
Cooking oil is a plant, animal or synthetic fat used in frying, baking, and other types of cooking. To support responsible wastewater management, cooking oils are collected separately in some communities. When oils are poured down a drain, the build-up over time will clog the pipes and create problems for a unified wastewater management facility. Typically, vegetable, canola, corn or peanut oils are considered “cooking oil”. Grease is not accepted in the same containers as these oils. Prior to collection, cooking oils and motor oils are stored in different containers and are processed separately.

Commercial customers often manage large volumes of waste motor oil as operating expenses for their business. Used motor oil, collected from households, can be combined in 250+ gallon tanks, and pumped or reused onsite for heating facilities in and around the operations area.

Tennessee counties are expected to ensure that proper disposal of used automotive oil is available within their community, either through local retailers or county facilities.

**Paint**
Oil-based paint is made with oils that dry through a process of oxidation which creates a durable, long lasting surface. The odor that lingers while the oil-based paint dries has been found to contain “volatile organic compounds” (VOCs) that have been identified as dangerous air pollutants, and lends to the hazardous nature of this material. Oil-based paints are considered hazardous and should be delivered to a recycling facility for proper disposal.

Latex paints are water based, dry quickly and are easy to clean up. The drawback of choosing latex paints over oil-based is durability. The odor associated with latex paints is minimal and the VOCs emitted are considerably less than those from oil-based paints. Once dried, these paints can be properly disposed of with other household wastes. The primary concern from proper handling of this paint is the liquid state can contaminate stormwater drainage and water sources. A common way to dispose of water-based paints is to dry the liquid with a granular absorbent (i.e. oil dry or cat litter absorbent) before including the paint and container(s) with regular household garbage.

**Antifreeze**
Antifreeze is an engine coolant, mixed with water, to help regulate the engine temperature during extreme weather conditions. Liquid antifreeze can pollute water sources if it is leaked, spilled, or dumped in areas not monitored for contamination. Waste antifreeze is considered hazardous when it becomes mixed with lead, fuel, or other contaminants during normal use.

Like other automotive related materials, commercial businesses often manage waste antifreeze as part of everyday business operations. Used antifreeze, collected from households, can be combined in 250+ gallon tanks, and pumped for recycling by a hazardous waste processor.

**Electronics**
Commonly referred to as “e-waste”, include electronic products nearing the end of their useful life and discarded by the owner who has no intention of reusing it. Items in this category include central processing units (CPUs), laptops, cathode ray tubes (CRTs), televisions, VCRs, stereos, copiers, fax machines, copiers, cell phones, and similar electronic devices.

**LIGHT BULBS**
Compact Fluorescent Bulbs (CFLs) bulbs, like other fluorescent bulbs, contain mercury and are considered a material that requires special handling to process appropriately. The mercury is sealed in the glass portion of the bulb and is not harmful until the glass is broken. EPA recommends fluorescent bulbs be recycled to not only prevent release of mercury vapor for human exposure, but all parts of light bulbs are reusable in various manufacturing operations.

Responsible recycling is often available at local county convenience centers, drop-off sites designated for proper handling of special materials and most home improvement retailers offer the service as drop-off in the respective location.
HOUSEHOLD HAZARDOUS WASTE (HHW)

HHW materials are identified as flammable, corrosive, reactive with air, water, or other chemicals, and are toxic or poisonous to living organisms. Examples of these materials include cleaners, pesticides, herbicides, mothballs, fuels, poisons, smoke detectors, medical wastes, car wax, thermostats, and swimming pool chemicals. HHW materials must be handled responsibly to prevent damage to the environment.

PROBLEM WASTES

Problem wastes are specific materials, or a combination of materials, that require special handling and disposal, because of the quantity, concentration, physical, chemical or biological characteristics. Some of the most common household problem wastes are tires, bulky wastes, medical wastes, white goods, electronics and unused pharmaceuticals/medications.

**Tires**

Large volumes of tires are collected by privately owned, commercial entities that usually manage proper disposal as a business expense. Residential customers do not often have tires for disposal. However, scrap tires can become a health hazard when disease-carrying mosquitoes and other vermin set up housekeeping in discarded tires. For this reason, an affordable, effective system is needed for managing tires.

The Solid Waste Management Act of 1991 created the Tennessee Waste Tire Program that banned the disposal of whole tires in landfills. Based on this Act, each county is required to provide one temporary waste tire collection site for citizens and tire dealers. TDEC is authorized to provide direct or grant funding to find beneficial reuses and end uses for waste tires.

**Bulky Wastes**

Residential bulky wastes are often identified because the size of the item(s) prevents it’s deposit into a residential waste container. These materials include large items such as furniture, mattresses, and similar materials. Because these materials require extra handling with more than one person or specialized equipment to prevent worker injury, there is often a fee associated with collection of these materials.

In Middle Tennessee, depending on local policies, some residential bulky wastes are collected at convenience centers or curbside locations. If bulky wastes are not handled with local solid waste services, residents are responsible for transporting these materials directly to a landfill for proper disposal.

**Medical Wastes**

Waste that contains infectious material are classified as medical wastes. These materials are often generated by healthcare facilities, dental offices, research facilities, laboratories, and veterinary clinics. Some examples of medical wastes include discarded sharps, contaminated wastes from surgery, pathological wastes, cultures of infectious agents, and other similar wastes.

Residential medical waste, most commonly in the form of used needles, poses a health risk to industry personnel and the public. These needles, often referred to as sharps, should be delivered to designated drop-off collection sites or disposed of using a mail-back service, for safe handling.

Tennessee requires that medical waste generators apply for an evaluation of their waste materials and obtain special permits for proper disposal. If permitted landfills are used for disposal, written approval from the Division of Solid Waste Management (SWM) must be obtained, with a Waste Evaluation Fee Worksheet and a completed Special Waste Data Collection Form to accompany any medical wastes to properly permitted facilities.

**White Goods**

White goods are appliances and other large household items used for specific tasks. Refrigerators, washing machines, dryers, water heaters, and other similar materials are examples. Metal processors often pay for these items as the metals and other components are recoverable for recycling, as well as profit. As part of an effort to help with responsible disposal, some delivery companies take back old appliances when a replacement is delivered.

**Unwanted Household Pharmaceuticals/Medications**

Most households, at some point in time, generate unwanted pharmaceuticals or medications. Some expire, and some are no longer needed for the purpose for which they were prescribed. Flushing pills down the toilet was once thought to be appropriate until the potential contamination of waterways was realized. Most medications are not filtered
through septic systems, and wastewater treatment plants are not designed to filter medications. Unwanted pills are often still chemically active, even if they are expired.

Pharmaceutical takeback programs are the safest, most environmentally responsible way to dispose of unwanted household pharmaceuticals or medications. Appropriate disposal of unwanted medications is particularly relevant considering the on-going Opioid Crisis, and growing problem of prescription drug abuse. TDEC has worked with local communities to ensure there is one household pharmaceutical takeback location in every county in the state.

### 3.2 Solid Waste Management Cycle

The Solid Waste Management Cycle includes all activities and actions required to manage waste from its inception to its final disposal. This includes amongst other actions, collection, transport, processing, and disposal of waste, together with monitoring and regulation. It also encompasses the legal and regulatory framework that relates to waste management guidance on recycling and proper handling of waste materials. The tasks required for each phase of solid waste management present complex technical challenges and pose a wide variety of administrative, economic, and social problems that must be considered.

**COLLECTION**

The first step in any materials management process is collection. Materials must be collected, in some manner, in an organized process to develop effective plans for managing solid waste. Collecting materials locally helps ensure proper handling and reduces the amount of illegal dumping and roadside litter.

Services provided can vary widely based on the community and its needs. Some communities provide convenience center drop-off solid waste services while others provide a variety of integrated curbside and drop-off services to meet the demand of their community. Often for-profit companies provide service options for residents when the municipality does not. The two most common methods for solid waste collection are convenience centers or curbside service.

Collection functions depend on local transportation from the point of collection to a facility for processing or transfer, and in some cases direct hauling to landfills.

**Curbside Collection**

Curbside collection is most common in urban areas where households are built closer together. The density of residential neighborhoods creates more opportunity for efficiencies of curbside collection to be the best choice for collecting waste materials.

**Convenience Center**

A convenience center is a location used for temporary storage of solid waste and recyclables. These centers serve to provide drop-off services for individuals choosing to deliver their waste materials to a centralized convenience center instead of a disposal or processing facility. Tennessee counties are required to provide residential garbage collection services throughout their jurisdiction. The most common method of service delivery is drop-off service provided through a convenience center model.
Figure 3.5 – Garbage Collection Services in Middle Tennessee
Figure 3.6 – Yard Waste Collection Services in Middle Tennessee
Figure 3.6 – Bulk Waste Collection Services in Middle Tennessee
TRANSPORTATION
Transportation is a key component of any solid waste management system. Transport of materials from transfer stations to processing facilities, WTE facilities, and landfills all require transportation appropriate for the materials hauled. Commodities from processing facilities must be delivered to manufacturers who will use the separated recyclable materials, and customers using drop-off centers must have easy ingress and egress to safely and effectively use these locations as a collection point for household waste materials.

Middle Tennessee’s Interstate network is the most common mode of transportation for transferring materials throughout the Southeast. Tractor-trailer trucks are the most common type of vehicle used in transport. Rail and waterway alternatives are both available in the region, but not as readily used for transporting waste materials.

As Class I landfill space begins to fill up, alternative transportation methods to more efficiently haul materials further must be considered. The mountainous topography of the state presents added challenges in planning for future transport of materials. Rail and waterway alternatives will take time to implement, but may prove to be a more effective, economical solution in the future.

PROCESSING
Processing is the third phase of the waste management cycle and can include a variety of methods.

Reduction and reuse are the most effective ways to protect the environment, conserve natural resources, and save money. Reducing the amount of waste generated results from simply not creating waste in the first place. The steps required to make new products and packaging, are often never considered when purchases are made at local retailers. Raw materials have to be mined, the product has to be fabricated, and transported from the manufacturer to a local outlet before the product reaches the shelf for consumers. Individuals can actively buy used goods, shop for products with less packaging, choose reusable over disposable items, maintain or repair existing goods, and rent or borrow items that are not used frequently.

Recycling constitutes a method of waste reduction as long as the recovered materials are marketed for reprocessing. Most obvious, recycling reduces the amount of waste delivered to waste-to-energy facilities and landfills. Natural resources and energy are preserved as recyclable commodities are used in place of virgin materials during the manufacturing process. Recycling functions help create jobs in both recycling and manufacturing industries, locally, and supports our American manufacturing facilities.

DISPOSAL
Landfills are the most widely used method for disposing of solid waste. A common misconception is that landfills and dumps are the same.

Landfills
Landfills are well-engineered, managed facilities that are regulated by the Resource Conservation and Recovery Act (RCRA) Regulations. The RCRA Subtitle D outlines these federal regulations. State and local government entities are responsible for implementation of the regulations through the planning and managing of nonhazardous solid waste, including household waste.

States often choose to regulate appropriate locations for landfills, overall design at specific landfill sites, acceptable operating procedures for landfills, required monitoring for landfill sites, and comprehensive instruction about how landfills must be closed and cared for at the end of the operating life cycle.

The main components of a regulated landfill are:
- Bottom Liner - separates and prevents the buried waste from coming into contact with underlying natural soils and groundwater.
- Cells - Cells are the areas of a landfill that have been approved and permitted to accept waste (old and new).
- Leachate Collection System – the process of collecting and removing the liquid or “leachate” that is present at a low point, or sump, that traps liquids near the bottom surface of the landfill.
- Stormwater Drainage and Erosion Control - an engineered system that controls water runoff during rain events.
Methane Collection System - Landfill gas, most of which is methane, is a common output when bacteria break down without oxygen, which is what happens when trash is buried.

Cover or Cap – Daily cover is placed on top of landfilled waste to control odor, windblown litter, animals and rainfall.

Groundwater Monitoring System - performed using a series of wells, located both above and below the landfill disposal area.

**Dumps**

A dump is an excavated piece of land used to store waste materials that is not regulated. Dumps were smaller than landfills and did not follow appropriate processes to protect the environment from the potentially hazardous materials that rots over time.

### 3.4 Policy and Governance

There has been an evolution in the governance and oversight of solid waste management since the early 1900s. Two important factors have contributed to shifts in waste management practices: the desire to protect public health and much later, the desire to protect the environment.

**FEDERAL LEVEL**

Federal legislation designed to protect air quality at a national level was introduced in 1955 after several states and local governments passed legislation addressing air pollution. The Air Pollution Control Act was the nation’s first piece of federal legislation to recognize air pollution as an environmental hazard. The Clean Air Act of 1963 set emission standards for stationary sources, such as power plants and steel mills. Additional amendments establishing standards for auto emissions, and air quality control programs, with compliance deadlines, were passed during the next several years. As air quality continued to raise questions about air pollution, five main areas were addressed in the Clean Air Act of 1990. Those areas were air-quality standards, motor vehicle emissions and alternative fuels, toxic air pollutants, acid rain and stratospheric ozone depletion.

Congress passed the Solid Waste Disposal Act (SWDA) of 1965 that established the United States Environmental Protection Agency (USEPA), as “the first federal effort to improve waste disposal technology.” The SWDA set minimum safety requirements and created a foundation for states to better manage their solid waste disposal functions. Born in the wake of elevated concern about environmental pollution, Environmental Protection Agency was established in 1970 to consolidate into one agency a variety of federal research, monitoring, standard-setting, and enforcement activities to ensure environmental protection. The Resource Conservation and Recovery Act (RCRA) of 1976, created a foundation for the EPA to assert its authority in developing proper management for hazardous and non-hazardous waste materials.

The RCRA defines the role of the EPA in developing regulations and policies to direct safe management, and cleanup of solid and hazardous materials, as well as promoting source reduction and responsible reuse. Subtitle D of RCRA regulates non-hazardous materials, specifically, requiring a ban on open dumping of waste and minimum criteria to be used in the operation of municipal, and industrial landfills. Landfill design criteria, location restrictions, financial assurance, cleanup, remediation, and closure requirements are all directed by RCRA. Each state has the freedom to create more stringent requirements; however, federal requirements shall be met by all waste operations.

The adoption of RCRA in 1976 imposed more strict regulations on municipal solid waste landfills. In response to this legislation, the number of operating landfills in Tennessee decreased as publicly owned landfills were replaced with privately owned facilities. This trend created a major concern regarding the availability of adequate disposal capacity for the waste generated in Tennessee.

As waste generation, technologies, habits, manufacturing processes, and other key components of materials management change, so does RCRA in their ongoing quest to continue effectively regulating safe handling of solid waste in the United States. Most recent challenges include population growth and long-term responsibility for closed sites with waste in place.
STATE LEVEL
In 1989, the Tennessee General Assembly passed the Tennessee Solid Waste Planning and Recovery Act directing the State Planning office to establish a comprehensive solid waste management plan for the state. In 1991, the Tennessee General Assembly passed two important pieces of legislation, the Solid Waste Management Act and the Solid Waste Authority Act.

The Solid Waste Management Act mandated the following programs for local governments to take an active role, with funding made available from a landfill surcharge:

- Twenty-five percent reduction goal – each municipal solid waste planning region must reduce the amount of waste disposed of in Class I landfills and incinerators in 1995, by December 31, 2003.
- Countywide collection assurance – each county shall assure one or more collection systems are available for residential use.
- Countywide disposal assurance – each county shall assure one or more disposal systems are available to meet the needs of county residents.
- Problem waste management – each county must provide at least one collection site for waste tires, lead acid batteries, and used oil, if there is not another collection site available.
- Recyclable collection assurance – each county must provide at least one collection site for recyclables, if there is not another collection site available.
- Solid waste education planning – comprehensive education action plans shall be in place to qualify programs for education awards and grant monies.
- Full financial disclosure and accountability – each county, solid waste authority, and municipality shall account for financial activities related to solid waste management using either a special revenue fund or an enterprise fund established solely for accounting for solid waste expenses and revenues.
- Required planning, reporting and recordkeeping – municipal solid waste regions are required to compile ten-year solid waste management plans and annual reports.

The Part 9 Solid Waste Authority Act authorized the creation of regional solid waste authorities across the state. Through this statutory framework, an authority operates as a separate legal entity, may incur debts and issue bonds, enter into contracts and can exercise the power of eminent domain. At the Board’s discretion, the authority may exercise exclusive control over the publicly owned solid waste systems within its boundaries.

Through consistent efforts and planning for continuous improvement, there have been successful outcomes that addressed many of these concerns. Tennessee’s 95 counties worked together to develop 67 regional planning districts for solid waste management planning and annual reporting. Most counties have achieved the 25 percent diversion goal, and all have submitted annual progress reports.

3.5 Administration
In addition to the list of concerns identified through our surveys to elected officials, industry professionals, and local solid waste management leaders, the most beneficial outcomes of a collaborative effort for managing solid waste included:

- Help determining future solid waste facilities;
- Meeting expectations of the public and businesses for recycling;
- Technical assistance with developing local solid waste plans and reports;
- Help reducing costs of waste disposal;
- Support for a regular forum for regional coordination on solid waste issues;
- Help developing and implementing a recycling program;
- Help identifying revenue to pay for solid waste management programs; and
- Help marketing solid waste and recycling options.

Because of the Part 9 Solid Waste Authority Act, there are 14 Solid Waste Planning Regions in Middle Tennessee. Planning regions are responsible for developing solid waste plans for assured disposal capacity, waste reduction
goals, collection assurance, public education and other functions of an integrated solid waste management system. Part 9 Authorities have certain rights not available to planning boards with the goal of implementing mandates to meet the requirements of the Solid Waste Management Act. There are two Solid Waste Authorities in this area of Middle Tennessee (1) Bi-County Solid Waste which is a partnership between Montgomery and Stewart counties and (2) Resource Authority of Sumner County (RASCO) for Sumner County. The concept of Part 9 authorities was designed to plan and implement regional solid waste programs that span the borders of several counties; a framework for a truly integrated system of solid waste management. Solid waste regional planning boards are mandated by statute and Part 9 authorities are optional.

The fact these authorities operate as independent government entities and aid coordination between jurisdictions for actual implementation of integrated solid waste system programs, are advantageous for our intent to build a system to serve many different counties, based on logistics, needs and available resources. The primary disadvantage of Part 9 authorities is the perception that control is lost in managing local residential services. It is important to note, that these authorities primarily operate as independent entities but are capable of revision or dissolution as the Board deems necessary.

3.6 Funding and Financing
The most fiscally transparent integrated solid waste management systems provide collection and disposal services at the lowest cost possible, ensure reliable continuous services, optimize their efforts to recover recyclable materials and take responsibility for protecting the environment.

The cost of solid waste functions is often overshadowed because the expenses associated with each task are not apparent, and services. Bundling services is common and often leads to the perception garbage is expensive, and recycling is free. Residents are often unaware of the costs associated with solid waste functions because these expenses are funded through tax revenue, instead of fees identified and designated for services. Forecasting expenses associated with any single service, material, or transportation method is not realistic. The majority of solid waste infrastructure in the Middle Tennessee area is owned by competitive, privately-owned, publicly-traded companies. Current Class I landfill tip fees range from $27/ton to $75/ton, and contracts typically add transportation costs associated with transferring materials from one location to another for communities that do not direct haul materials to a processing or disposal facility.

Some communities are currently using out-of-state landfills with much lower tip fees. Solid waste facilities need specific volumes of materials to maintain efficient operations, and some communities that generate more waste can recognize reduced tip fees associated with volume discounts. In the recent past, if MRF facilities charged tip fees for recyclables, the fee was minimal. Some facilities did not charge tip fees but kept revenues from the sale of commodities after the processing, separation, and sale functions were completed. Currently, the cost of processing recyclables is estimated to be more than $50/ton. Therefore, the combination of material type, travel distance with transportation-related expenses and tip fees are all part of the equation when assessing options for the best ways to manage solid waste materials. In comparison, a collection or transfer station facility should consider the disposal fee, in addition to transportation costs before making final decisions for the waste generated in their community.

The economics of supply and demand drive the cost of any function within a solid waste management system. Working together fosters an environment where local governments may coordinate and balance the expenses associated with services to protect public health. Operating expenses are evident, but forecasting supports a gradual increase in costs related to services based on population growth, instead of a decision based on immediate need.

The concept of unit pricing, pay-as-you-throw (PAYT) or save-as-you-throw (SAYT) are common tools for creating visible service costs so residents are aware of the expense associated with managing specific types of materials and can perceive the value of those services. Implementing this type of fee structure usually requires residents to purchase official garbage bags or tags identified for specific waste streams.
4.0 State of the Region

As the region continues to thrive and population increases, the amount of residential garbage generated will rise as well. To keep up with this dynamic, growing need, Middle Tennessee must have a responsible, functional, affordable solid waste system. Objectives of effective solid waste management systems include protecting public health, protecting the environment, providing convenient and dependable services, and resource conservation, all at the most affordable cost.

The following section provides an overview of existing services and facilities, landfill generation and disposal, and projected landfill capacity. This information creates a high-level view of current solid waste operations in the region.

4.1 Existing Services and Facilities

The facilities available for processing various types of materials are permitted and regulated by TDEC. These resources are diverse but do not offer effective, efficient options for managing the waste materials we generate.

Today, the region is heavily dependent upon landfills for waste disposal. The amount of available permitted space and the low fees associated with use of a landfill have prevented behavior from changing to more responsible options for materials management.

Figure 4.1 – All Class 1 Landfills and Status
Currently, there are 48 permitted Class I landfills with 31 of those that are constructed and operating.

Convenience Centers are stationary residential solid waste collection locations meant to accept household waste, recyclables, and other residential special wastes depending on the location. In rural areas convenience centers provide more effective, less expensive disposal options than curbside collection services.
Some jurisdictions offer curbside collection of most recyclable material, and some offer a limited list of materials collected at drop-off locations, often as part of existing convenience centers.
4.2 Waste Generation

Waste generation is the amount of materials that enter the waste stream before any processing or separation take place. The amount of waste generated is a starting point for calculating diversion when recycling, composting, and other processing functions are performed to reduce the amount of materials being landfilled.

Waste Generation numbers were calculated using Annual Progress Reports provided to TDEC, by each county.

Figure 4.6 – Waste Generated Per County
Figure 4.7 – Waste Generated Per Person Per Day

[Map showing waste generated per person per day in different counties of Greater Nashville Region]
4.3 Materials

Materials in the waste stream have value, but based on potential use, each must be segregated for effectiveness. Using the Waste Characterization Study conducted as part of the *Metropolitan Nashville and Davidson County Solid Waste Master Plan: Achieving Zero Waste*, GNRC calculated the breakdown of material disposed of across the region. The most abundant materials are organics, that make up 33 percent of the waste stream followed by paper at 20.9 percent.

**Figure 4.8 – Breakdown of Disposed Material in Middle Tennessee**

Based on the volume of waste generated in Middle Tennessee, diverting organics, and paper from landfills would effectively reduce the amount of material from 2,386,639 tons/annually, to 1,100,241 tons/annually.
4.4 Landfill Use and Capacity
Landfill capacity is constantly changing, as landfills close, new landfills are permitted, and landfills currently operating do not fill at the projected rate. Besides the operating permitted landfills, there are several landfills in Tennessee that have permits but are not yet developed or operational. Therefore, TDEC updates life expectancy and capacity projections for Class I landfills annually.

Figure 4.9 – Waste Landfilled in Middle Tennessee

This map depicts the level of waste generated by each county and the tonnage that is landfilled at each landfill. It is important to note that some of the waste generated in Middle Tennessee is not only sent to other parts of the state but also out of state to be landfilled. In 2017, more than 2 million tons of trash were landfilled in the region.

A breakdown of waste generated, and local location of tonnage landfilled for each county can be found in Appendix E.
Figure 4.10 – Waste Landfilled in Middle Tennessee from Outside Counties

This map shows the level of waste that is landfilled from counties outside of the region. Understanding the amount of waste that is transported into landfills also serving Middle Tennessee counties is important to ensure a full picture of capacity when planning for future needs.

Appendix D provides an overview of waste generation and disposal per county.

Figure 4.11 – Tonnage Landfilled to Middle Point per County

In 2017, Middle Point Landfill received waste from 37 counties, Cedar Ridge Landfill received waste from 27 counties, West Camden Landfill received waste from 37 counties, Bi-County Landfill received waste from 15 counties, Smith County Landfill received waste from 11 counties, and Rhea County Landfill received waste from 25 counties.

A breakdown of waste generated, and the local location of tonnage landfilled for each county can be found in Appendix E.
4.5 Planning and Coordination
Solid waste decision-making and functions are often referred to as “local” issues simply because a local county or city can choose what level of service they want to provide for the residents of their community. Tennessee counties are required to provide collection services, which are often managed with convenience center drop-off locations, but they can opt to provide curbside services throughout their county if that is preferred.

TDEC has noted the importance of regional coordination in its 2025 Solid Waste and Materials Management Plan. The plan identifies the considerations of numerous facets in an integrated solid waste management system and the populations served and points out that it is realistic to assume rural communities may not be able to afford to provide the same services more urban areas provide. Multi-county coordination, through a single governing structure, allows for more equally distributed services, but also allows more options for appropriate locations to permit additional facilities.

4.6 Funding and Costs
Most counties pay for solid waste functions out of General Fund budgets. The cost of providing solid waste services is often included in property tax rates, without specifically identifying a dollar amount associated with the cost of residential solid waste services. Cities typically charge service fees. However, many do not cover the entire cost of providing services to residential customers.

A full cost accounting system includes recording, summarizing, and allocating expenses associated with end-to-end service delivery. Accounting for solid waste management functions using full cost accounting assists decision-makers in identifying specific operational areas where changes could make a noticeable difference to the operating budget.
5.0 Assessment of Regional Needs

This chapter presents a general assessment of programs or investments needed to maintain or enhance solid waste management across the region.

5.1 Programmatic Needs

The TDEC’s 2025 Plan presents guidance for local governments through the Four Tiers of an Integrated Waste Management System table attached in Appendix F. The four tiers represent (1) Small Rural Counties, (2) Larger Rural Counties, (3) Suburban/Rural Counties, and (4) Urban Counties defined by population served. Specifically, this table identifies, for each tier, benchmarks of best management practices through specific targets regarding Collection Systems, Disposal Systems, Waste Reduction, Problem Waste Management, Education/Awareness, Staffing, Composting/Mulching, and Economics and Management.

GNRC and members of the RoundTable analyzed solid waste management through respective services and delivery methods, level of public education, and funding mechanisms.

Needs identified include:

1) Education and outreach focused on recycling and waste reduction with consistent messaging;
2) Uniform guidelines across the area to create a simple, easy to follow residential recycling system, including a common suite of materials, to collect, based on materials used by southeast manufacturers;
3) Support local government solid waste professionals through industry training and certification;
4) Resource sharing when other local government partners need assistance with fleet management, staffing, disaster response and debris management, and other similar on-demand needs;
5) A method for creating collaboration for regional coordination on solid waste issues, recognizing communities have different resources and needs, but all have resources to contribute to a unified effort toward an integrated system;
6) A governing structure, independent of local jurisdictional entities, to maintain an integrated solid waste management system, long-term;
7) Additional infrastructure, based on specific materials collected, to help achieve higher recycling goals associated with waste diversion;
8) Support for manufacturing reforms associated with reducing the amount of waste packaging, and establishment of fees to support end-of-life management of problem wastes;
9) Incentives are needed to encourage using recyclable materials in construction projects;
10) Considering the expectation materials will be transported further away from the point of generation, and feasibility of alternative transportation methods needs to be studied; and
11) Transparent financial reporting regarding costs associated with what each service costs.
5.2 Future Facility Needs
As the region works toward building an integrated solid waste management system, there are additional facilities needed to serve what is expected to be diverted from landfills and managed through recycling, composting and other facilities for processing.

As previously illustrated, organics make up approximately 33 percent and paper 21 percent of the residential waste generated in Middle Tennessee. Considering that organics and paper are compostable, adding composting and anaerobic digestion facilities, and supporting segregated collection of these materials, will allow for more responsible management of these waste streams.

Increasing the infrastructure for recycling construction and demolition debris would alleviate the current situation we experience as we fill up Class I landfill space with these materials.

Siting and permitting additional material recovery facilities (MRFs) would allow for more efficient processing of collected recyclables. Additionally, investing in options to improve collection services could positively impact transportation costs.

Locating new facilities as close to the point of generation as possible, reduces costs, and provides for more efficient functions in an integrated solid waste management system. Siting and permitting every type of facility needed in every county, including landfills, is not practical or economically feasible. Every solid waste facility needs a volume of material to consistently maintain daily operating functions to keep the system moving and meet permit requirements. One benefit of a separate governing body for an integrated solid waste management system is improved effectiveness to plan, locate, permit, and construct regional facilities as demand outpaces capacity.
6.0 Recommendations and Proposed Actions

The Middle Tennessee Solid Waste Master Plan presents a series of recommendations based on a combination of research and analysis of national and global trends and an evaluation of best practices. These recommendations and proposed actions were unanimously endorsed by the Greater Nashville Regional Council’s Executive Board in June 2019.

The non-binding recommendations provide a guide for a coalition of willing partners to improve the consumer experience, increase opportunities for local reduce, reuse, recycle initiatives, and promote integrated systems planning and operations.

6.1 Enhancing Consumer Experience

**Clearinghouse:** Establish an online centralized source of information for consumers across Middle Tennessee to find recycling and waste disposal locations, rules, fees, and rewards.

**Public Education:** Increase marketing and public education campaigns to inform residents of what, how, when, and where to recycle; make materials available for use by any participating jurisdiction.

**Convenience:** Enact agreements among local governments that allow residents to use the most convenient drop-off facilities.

**Household Hazardous Material:** Expand the number of locations that allow household hazardous waste and pharmaceutical drug disposal.

**Uniformity:** Draft and implement a uniform set of guidelines and standards for the collection, recycling, and disposal of waste across cooperating Middle Tennessee communities.

**Pricing Reforms:** Encourage recycling or waste reduction through financial incentives or by reforming fee structures or billing practices so that costs are transparent and tiered, or consumption based; explore enterprise fund accounting to support regional initiatives.

6.2 Reduce, Reuse, Recycle

**Set Targets:** Convene community leaders and industry experts to set regional targets for reduction in landfilling and increases in recycling, waste to energy, and organics diversion.

**Waste to Energy:** Position the region as an early adopter of emerging technologies for waste to energy to reduce landfilling and to capitalize on the associated economic development opportunities.

**Food and Organics:** Establish programs aimed at reducing food waste generated by restaurants, schools, hospitals, stadiums, and similar facilities to ensure diversion to facilities managing anaerobic digestion and/or composting functions.

**Construction and Demolition:** Increase monitoring and establish programs to assist in ensuring C & D generated from residential remodeling and repairs are diverted from Class I landfills.

**Local Materials Markets:** Invest in regional processing facilities and infrastructure and build partnerships with local companies and governmental agencies that can incorporate glass, tires/rubber, and other hard-to-transport/store material into their manufacturing or construction projects.

**Manufacturing Reforms:** Work with industry, policymakers, and legislators to encourage or require manufacturing processes that reduce waste, especially through packaging, and that enable easier recycling.
6.3 Integrated Systems Planning and Operations

**Regional Authority.** Evaluate benefits, costs, and steps necessary for the creation of regional solid waste authority to include an assessment of ownership structure, governance, funding and financing, authority and duties, and accountability.

**Cooperative Agreements.** Identify short-term opportunities for cooperative purchasing or shared-use agreements among two or more communities in Middle Tennessee to gain additional buying power, expand markets, and reduce costs to individual jurisdictions.

**Public-Private Partnerships.** Formalize public-private partnerships to spread responsibility, liability, costs, and ownership in a way that maximizes strengths and encourages innovation.

**Facility Siting.** Develop a land use and market suitability model to evaluate and prioritize potential sites for future solid waste facilities and assess their impacts on neighboring property.

**Triple-Bottom-Line.** Incorporate life-cycle cost and triple bottom line analysis to account for economic, social, and environmental impact when evaluating the cost/benefits of proposed strategies or investments.

**Ongoing Coordination.** Continue to convene the Solid Waste Directors Round-table to promote regional coordination and to guide and assist in the implementation of master plan recommendations.

**Annual Reporting.** Produce an annual “State of Solid Waste” report to the region to track progress towards master plan goals including rates of diversion and landfilling.

6.4 Proposed Actions

With the support from elected and state leaders, GNRC will coordinate among local partners and state agencies to move forward on the following priorities identified in the plan.

- **Develop an online tool that provides a one-stop shop for residents to find information about where they can recycle and/or dispose of materials of any type.**
  
  A comprehensive tool for identifying the closest, most responsible location for proper disposal of specific materials will support local public education and outreach. Developing this tool can be achieved without active decision-making from local jurisdictions.

- **Take steps to increase the amount of recycled material used across the region. Particularly in construction projects for public infrastructure. This will require regional cooperation to identify or implement suitable processing facilities to refine construction debris, tires and glass so material is more easily integrated.**
  
  As noted, construction and demolition debris are being landfilled in Class I landfill space due to the lack of capacity in Class III/IV landfills. Collaboration between local government, private businesses and state partners can offer support for diverting these materials for use in ongoing construction projects. This is an action that requires active involvement with team efforts to establish and revise specifications appropriate for both the solid waste management components, as well as needs identified by engineers and construction industry professionals.

- **Establish a working group to evaluate best practices for multi-county regional solid waste authorities to help design a framework and implementation strategy that would benefit Middle Tennessee communities.**
  
  A solid waste authority offers resolution to many of the concerns identified by industry professionals and elected officials. The balance needed between infrastructure, regulations and legislation, and financial resources can assist in developing an economically, environmentally, and socially responsible integrated solid waste management system for Middle Tennessee. As the area continues to grow, a coalition of the willing, for a common purpose can further develop an industry that can create economic growth for the future.
Appendix A. Map of Study Area
Appendix B. List of Partners

Middle Tennessee Mayors Caucus
Mayor Jimmy Alexander, Town of Nolensville
Mayor Steve Allen, Ashland City
Mayor Rogers Anderson, Williamson County
Mayor Michael Arnold, City of White House
Mayor Bernie Ash, City of Lebanon
Mayor John Blade, City of Fairview
Mayor David Briley, Metropolitan Nashville
Mayor Paige Brown, City of Gallatin
Mayor Mike Callis, City of Portland
Mayor Heidi Campbell, City of Oak Hill
Mayor Jamie Clary, City of Hendersonville
Mayor Jason Cole, City of La Vergne
Mayor Bill Davis, City of Charlotte
Mayor Bonnette Dawson, Town of Greenbrier
Mayor Jeff Duncan, City of Goodlettsville
Mayor Jim Durrett, Montgomery County
Mayor Rick Graham, City of Spring Hill
Mayor Tony Gross, City of Kingston Springs
Mayor Ed Hagerty, City of Mt. Juliet
Mayor Linda Hayes, Town of White Bluff
County Executive Anthony Holt, Sumner County
Mayor Jim Hunt, City of Belle Meade
Mayor Randall Hutto, Wilson County
Mayor Lanson Hyde, City of Forest Hills
Mayor Mike Jennings, City of Watertown
Mayor Perry Keenan, Town of Pleasant View
Mayor Bill Ketron, Rutherford County
Mayor Jerry Kirkman, City of Westmoreland
Mayor Timothy Lassiter, City of Millersville
Mayor Chad Leeman, City of Eagleville
Mayor Rhea Little, City of Brentwood
Mayor Greg Mabey, City of Berry Hill
Mayor Kerry McCarver, Cheatham County
Mayor Shane McFarland, City of Murfreesboro
Mayor Chaz Molder, City of Columbia
Mayor Ken Moore, City of Franklin
Mayor Charles Morehead, Town of Pegram
Mayor Corey Napier, Town of Thompson's Station
Mayor Andy Ogles, Maury County
Mayor Joe Pitts, City of Clarksville
Mayor Mary Esther Reed, Town of Smyrna
Mayor Bob Rial, Dickson County

Mayor Ann Schneider, City of Springfield
Mayor Billy Vogle, Robertson County
County Executive Jessie Wallace, Humphreys County
Mayor Don Weiss, Jr., City of Dickson
Mayor Bill White, City of Mt. Pleasant
**Solid Waste Directors RoundTable Members**

Mac Nolen, Rutherford County Solid Waste, Co-chair  
Joey Smith, City of Murfreesboro, Co-chair

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**State Partners**

Tennessee Department of Environment and Conservation, Division of Solid Waste Management  
Tennessee Department of Environment and Conservation, Office of Policy and Sustainable Practices

**Non-Governmental Organizations**

Southeast Recycling Development Council (SERDC)  
Tennessee Recycling Coalition (TRC)  
Urban Green Lab
Appendix C. Peer Exchange Summaries

Middle Point Landfill Study – 05.24.18

Rutherford County and the City of Murfreesboro partnered to hire Gershman, Brickner & Bratton, Inc (GBB) to consult and present alternatives for solid waste management, in anticipation of the Republic Services, Middle Point Landfill closure. The timeline for the GBB project included creating a Solid Waste Advisory Committee (SWAC) in the fall of 2016, workshops held in December 2016, February 2017 and February 2018, and site visits to the City of Huntsville Solid Waste Authority Waste-to-Energy facility, in Huntsville, Alabama, WastAway facility in Morrison, Tennessee and PHG Energy (now Aries Energy) in Lebanon, Tennessee. The priorities for their work included: (1) residential curbside recycling in Rutherford County cities, (2) source reduction, (3) new materials recovery facility (MRF) in Rutherford County, (4) conventional waste-to-energy options, (5) education and outreach, (6) county-wide residential curbside recycling, (7) collection and composting of organics, (8) one or more transfer stations in Rutherford County, (9) new mixed waste processing (MWP) facility in Rutherford County, (10) expanding Middle Point Landfill, (11) use out-of-county landfill for disposal, (12) advanced conversion technologies (waste-to-energy), (13) additional recycling centers in Rutherford County, (14) new landfill in Rutherford County and (15) county contracted/franchised collection for unincorporated areas. The plan objectives were summarized to include: (1) Stabilize Planning, (2) Improve Solid Waste Services, (3) Increase Recycling and Waste Reduction and (4) Provide for Disposal.

GBB’s recommendations were presented from two (2) perspectives. The first recommendations, based on organizational structure, included (1) No Action/Go it Alone, (2) Interlocal Agreements, (3) Create Solid Waste Authority and (4) Regional Solid Waste Authority. The gist of no action is essentially continuing to operate under the current model, let Middle Point Landfill close, and all Rutherford County governments manage solid waste disposal independently. Interlocal agreements would create partnerships between local governments with one (1) government, most likely Rutherford County, managing the disposal function for all those entities that are part of the interlocal agreement. Creating a Solid Waste Authority (SWA) would entail two (2) or more local governments creating an authority, using the TN Solid Waste Authority Act of 1991 as the foundation. A regional SWA would include not only Rutherford County, but also counties adjoining Rutherford County; although current state law does limit the ability for a SWA to function outside of each respective existing Solid Waste Planning Region(s). The other recommendations from GBB were centered around management of the solid waste stream for Rutherford County. These included (1) No Assets, No Programs, (2) Middle Point 2.0, (3) Max-Flex and (4) Regional WTE as options. No assets, no programs essentially led to the recommendation to depend on the open market for disposal capacity. Middle Point 2.0 involved allowing Republic Services to expand onto land between the existing Rutherford County construction and demolition (C&D) landfill, as well as over the C&D site to extend the life of Middle Point Landfill. Max-Flex outlined a plan for building two (2) transfer stations within Rutherford County for consolidation of municipal solid waste for hauling and final disposal at a different disposal location. The Regional WTE would include development of a waste to energy facility to serve Rutherford County and other current Middle Point Landfill customers.

The last SWAC meeting was held February 27, 2018 with recommendations to the full County Commission to create a solid waste management authority to balance strength and feasibility for a collaboration of efforts, and in conjunction with creation of a SWA, the communities included, pursue both the Middle Point 2.0 and Max-Flex options as presented by GBB.

The SWAC supported extending the life of the Middle Point Landfill, delaying closure, based on the alternative of losing the economic benefits for the county and its incorporated cities. Max-Flex was a step toward creating a system that could be expanded upon when Middle Point Landfill does close at a to be determined date in the future. On April 12, 2018, the Rutherford County Commission tabled the SWA discussion and dismissed the Middle Point 2.0 recommendation.

Since this time, Rutherford County delegation has spent resources visiting the Sevier County, Tennessee, composting operation. This government owned and operated facility uses the Bedminster system for composting solid waste.
where a portion is converted to usable compost product. Additionally, future tours of the Republic Services San Jose, California, and Las Vegas, Nevada compost operations are scheduled for February 2019.

**Electronics Recycling Solutions (ERS) – 06.28.18**

The model for Electronics Recycling Solutions (ERS) is Blue Star Recyclers, in Colorado. [http://bluestarrecyclers.org](http://bluestarrecyclers.org) Additionally, she has researched Spring Back Recycling, a mattress recycling operation in Middle Tennessee. The mission is to recycle electronics to create local jobs for people with disabilities.

Ms. Dopp shared the statistics that every year, 1 in 5 Americans are diagnosed with a disability and of those, only 20% participate in the job market. Additionally, less than 13% of electronics are recycled, annually. ERS is a not-for-profit organization created to offer a viable solution to both issues. ERS will hire adults with autism and other disabilities to sort and process electronics for recycling markets. This organization will be a certified electronics recycler with plans to eventually serve as a one-stop shop for electronics and other recyclables, like the EcoPark concept, in Colorado.

The most effective location(s) for a processing facility will be close to a rail spur, that is also easily accessible by our municipalities and other collection agencies, using interstate systems as a common form of transportation. As ERS begins operation and expands, the expectation is there would be capacity to process not only residential, but also non-residential electronics, for recycling. The business model allows for monitors and specific computer components to be accepted and responsibility processed at no charge, while other electronics would incur a fee to cover some of the operating expenses associated with the amount of waste needing to be delivered to alternate facilities for further processing or landfill disposal.

Overall, the intent is to create a win-win solution for both adults with disabilities and local governments that either currently collect or plan to offer collection of electronics.

The organization is open to the idea of regional collaboration and shared resources to allow responsible recycling services to a wider area.

The idea of recycling construction and demolition (C&D) wastes is something ERS is most interested in helping develop for responsible recycling and disposal of those materials, as well.

**Urban Green Lab – 08.16.18**

A Nashville non-profit, the Urban Green Lab focuses their efforts on four areas for educating communities how to live healthy, sustainable lives.

The Sustainable Classrooms program is a statewide program that trains teachers how to integrate sustainability into classroom curriculum. Overall, the goal is to empower teachers for systemic change. This portion of their programming seeks to prioritize and integrate sustainability literacy in Tennessee schools and administrations, strengthen teachers’ resources when teaching environmental sustainability, foster sustainability literacy and long-term behavioral change in students and engage families in the learning process. The new lesson plan guide and home investigation workbook were created by the Lab with funding from the Tennessee Department of Environment and Conservation (TDEC) and the Tennessee Department of Transportation (TDOT). Sixth graders are the target audience, and 27 Nashville public schools were the first to complete the train-the-trainer workshops. This same curriculum will be rolled out in Memphis, Chattanooga and Knoxville during the next two (2) years.

Livable Schools, as a companion program to Livable Nashville, is designed to ensure youth are part of the process, and empower middle and high school students to help disseminate and bring the plan to life through the establishment of Livable School Councils (LSCs) to educate school communities about the plan, as well as hold the Livable Nashville Committee accountable to its targets, and secure a youth voice in future plan iterations.

The Corporate Sustainability Roundtable, in partnership with Nissan North America, Piedmont Natural Gas, and the Country Music Hall of Fame & Museum brings corporations together year-round to learn, network, foster new skills and policies, inform leadership and exchange best practices to make sustainable workplaces a priority. Because of research in 2017, Metro Nashville Public Works discovered 73% of all trash coming from area corporations could have been reused, recycled or composted before reaching a landfill for final disposal. This roundtable allows the
opportunity for local businesses to assess their operations, review their business practices and discuss alternative ways of managing their respective wastes, taking into consideration energy, water, food and solid waste. Since no two (2) businesses manage things exactly the same, the diverse group of industries represented in this roundtable of 33 member companies, provides a comprehensive view of managing companies in more sustainable ways. The Lab plans to produce an annual look at corporate sustainability efforts with the CEO Sustainable Workplace Report. As a component of their Corporate Roundtable efforts, there is a Zero Waste Workshop, scheduled for a late 2018, early 2019 roll-out.

The Mobile Lab is a mobile classroom to teach middle and high school students how and why to live a more sustainable lifestyle, by focusing on reducing waste of food, water, and energy through hands-on activities. This mobile educational resource is available to schools and is often seen at trade shows, such as the national 2018 WASTECON conference, in Nashville, Tennessee.

Urban Green Lab is actively involved in sustainability efforts in and around the Nashville area, including Livable Nashville, 100 Resilient Cities, Solid Waste Master Planning Taskforce, and the Nashville Food Waste Initiative.

**Rockwood Recycling – 09.27.18**

Ground Up Recycling was established in 2014, with the intent to help solve the problem of responsible recycling for one (1) of the primary materials in the construction and demolition (C&D) waste stream – shingles. Initially, collection of shingles included the City of Murfreesboro, City of Cookeville and the City of Lebanon. A partnership between Rutherford County, Putnam County and Ground Up Recycling developed in 2015 with the goal of diverting shingles from the Class III/IV Landfills in these two (2) counties. Rockwood Recycling became reality in 2016 to manage other waste streams, in addition to shingles. Rockwood Recycling opened a Lebanon, Tennessee location, in August 2016, to accept wood and tires, in addition to shingles; November 2016 brought brick and concrete to the mix of materials accepted, all for the purpose of being recycled. Aries Energy (formerly PHG), the City of Lebanon and Rockwood Recycling worked together to open the down draft gasification facility that provides power to the Lebanon Wastewater Treatment Plant.

The philosophy Rockwood Recycling believes in is a circular process to benefit business, community and environment through responsible, effective and efficient recycling services. For instance, the shingles collected at their Lebanon collection site are ground to chips and added to asphalt for use in roadway projects. There are specifications in place to allow for chipped shingles to be included in asphalt mix, but no added incentive for a paving company to request the asphalt mix with recycled components.

Processing tires taught them the need for a constant, consistent volume of any material is a key to success. Tires are ground into a “tire derived aggregate” and used as fill material during installation of septic tanks in the area.

The lessons learned and efforts for continuous improvement result from the ability to work with partner organizations to create a win-win for each entity. Pricing services in a range that allows for operating costs to be covered, while the price remains close or less than the current choice(s) for disposal starts the conversation. Additional effort is needed to include incentives for vendors to use recycled materials in new and ongoing construction projects, which will close the loop on this “circular” effort to responsibly manage specific C&D waste materials. Initial start-up costs and equipment purchases are such that a steady flow of materials, with dependable buyers for the end material, is critical for continued success of any recycling operation.

Currently, Liberty Tire operates as a sole vendor to manage the stream of used tires in Tennessee. Mr. Young has found end uses for tires, but needs volume diverted from Liberty Tire to make those uses viable options. Transportation of any waste from one (1) location to another continues to be a challenge in our area.

Rockwood Recycling wants to be an active partner in the ongoing conversations and ultimate solutions for best waste practices in Middle Tennessee.
Cannon County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannon County Transfer/Tire Storage</td>
<td>Transfer</td>
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</tbody>
</table>
Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Note: Cannon only sent 3 tons to Cedar Ridge and West Camden in 2017. Cannon only sent 2 tons to Marion in 2016.
Cheatham County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheatham County Landfill</td>
<td>Class I</td>
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</tr>
<tr>
<td>Bill Allen Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Barr Tire Company</td>
<td>Class IV</td>
<td>Inactive</td>
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<tr>
<td>Sam’s Creek Disposal</td>
<td>Transfer</td>
<td>Active</td>
</tr>
</tbody>
</table>

Existing Solid Waste Facilities

Nashville

Didion

CLASS I, Inactive (2)
CLASS IV, Inactive (1)
CONVENIENCE, Active (5)
CONVENIENCE, Termination (1)
PROCESSING, Active (1)
PROCESSING, Inactive (1)
TRANSFER, Active (1)
Cheatham County
Municipal Solid Waste Facilities Used

Landfilled MSW from Cheatham County
5-Year Average (2012-2017) in tons

Cheatham shipped 479 tons out state (state not mentioned in APR) in 2014

Note: Cheatham shipped 479 tons out state (state not mentioned in APR) in 2014

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

1 ton = 2,000 pounds
# Coffee County

**Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)**

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<thead>
<tr>
<th>Year</th>
<th>Population</th>
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<tr>
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<tr>
<td>2015</td>
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<td>2016</td>
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<th>Year</th>
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<td>2015</td>
<td>2,400</td>
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<td>2016</td>
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## Existing Solid Waste Facilities

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<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
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<tbody>
<tr>
<td>Coffee Co Joint Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Coffee County Demolition Landfill</td>
<td>Class III</td>
<td>Inactive</td>
</tr>
<tr>
<td>AEDC Demolition Landfill</td>
<td>Class IV</td>
<td>Active</td>
</tr>
<tr>
<td>Southern Central Waste Services</td>
<td>Transfer</td>
<td>Active</td>
</tr>
</tbody>
</table>
Coffee County

Municipal Solid Waste Facilities Used

Landfilled MSW from Coffee County
5-Year Average (2012-2017) in tons

Middle Point
28,118.6

Cedar Ridge
740.2

Rhea
17,007.4

Marion
178.2

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Coffee to Middle Point

Coffee to Cedar Ridge

Coffee to Rhea

Coffee to Marion
Davidson County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste

![Graphs showing population and MSW generation over time.]

Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Services</td>
<td>Class III</td>
<td>Active</td>
</tr>
<tr>
<td>Central Pike</td>
<td>Class IV</td>
<td>Active</td>
</tr>
<tr>
<td>Antioch Pike</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Waste Management</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>BFI Waste Services Freightliner Dr</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Natural Resource Reclamation</td>
<td>Transfer</td>
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</tr>
<tr>
<td>Music City Pick A Part, LLC</td>
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<tr>
<td>Reliable Pharmaceutical Returns</td>
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<tr>
<td>Waste Connections Apex Street</td>
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</tr>
<tr>
<td>ProVira LLC</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Stericycle, Inc.</td>
<td>Transfer</td>
<td>Active</td>
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</table>
Davidson County
Municipal Solid Waste Facilities Used

Landfilled MSW from Davidson County
5-Year Average (2012-2017) in tons

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Note: Davidson sent 2 tons to Rhea in 2016, 8 tons to Volunteer in 2015, 11 tons to Decatur, and 23 tons to North Shelby
Dickson County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existent Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dickson County Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Dickson County Demolition</td>
<td>Class III</td>
<td>Active</td>
</tr>
<tr>
<td>Dickson County Transfer Station</td>
<td>Transfer</td>
<td>Active</td>
</tr>
</tbody>
</table>
Hickman County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turney Center Demolition</td>
<td>Class III</td>
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<tr>
<td>Hickman County Transfer Station</td>
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</tr>
<tr>
<td>Hickman Demolition Landfill</td>
<td>Class III</td>
<td>Active</td>
</tr>
<tr>
<td>Hickman County Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
</tbody>
</table>
Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Notes: Hickman sent 6 tons to Cedar Ridge in 2017 and 3 tons in 2016 and 5 tons in 2017 to Bi-County
Houston County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Houston County Transfer Station</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Houston County Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
</tbody>
</table>
Landfilled MSW from Houston County
5-Year Average (2012-2017) in tons

Houston County
Municipal Solid Waste Facilities Used

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

1 ton = 2,000 pounds
Humphreys County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existing Solid Waste Facilities

- CLASS I, Inactive (2)
- CLASS II, Active (5)
- CLASS II, Inactive (6)
- CLASS III, Active (1)
- PROCESSING/COAL ASH, Inactive/Terminated (3)
- CONVENIENCE, Active (7)
- CONVENIENCE, Inactive (2)
Humphreys County
Municipal Solid Waste Facilities Used

Landfilled MSW from Humphreys County
5-Year Average (2012-2017) in tons

Northwestern Disposal
356.6

West Camden
22,043.4

Bi-County
1041.6

Chesnut Ridge
0.4

North Shelby
232.4

Madison Development
0.2

South Shelby
203.2

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Humphreys to West Camden

Humphreys to Northwestern Disposal

Humphreys to Bi-County

Humphreys to North Shelby

Humphreys to South Shelby

Note: Humphreys sent 2 tons in 2016 to Chestnut Ridge
Macon County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lafayette City Landfill</td>
<td>Class I</td>
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</tr>
<tr>
<td>Macon County Lafayette Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Red Boiling Springs Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Wayne Dotson Landfill</td>
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<td>Inactive</td>
</tr>
<tr>
<td>Macon County Transfer Station</td>
<td>Transfer</td>
<td>Active</td>
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</table>
Macon County Municipal Solid Waste Facilities Used

Landfilled MSW from Macon County
5-Year Average (2012-2017) in tons

Kentucky
Upper Cumberland
West Camden
Cedar Ridge
South Shelby

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Note: Macon sent 11 tons in 2016 to Cedar Ridge, 11 tons in 2014 and 8 tons in 2016 to West Camden, and 13 tons in 2014 to Kentucky
Marshall County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedar Ridge Landfill Inc.</td>
<td>Class I</td>
<td>Active</td>
</tr>
<tr>
<td>Lewisburg City Landfill</td>
<td>Class I</td>
<td>Inactive</td>
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</tbody>
</table>
Marshall County
Municipal Solid Waste Facilities Used

Landfilled MSW from Marshall County
5-Year Average (2012-2017) in tons

Dyersburg City
1,415.8

West Camden
1,130.8

Middle Point
2,367.6

Cedar Ridge
22,854.8

Bi-County
137.4

North Shelby
47

South Shelby
192.8

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Note: Marshall sent 82 tons in 2016 and 153 tons in 2017 to North Shelby and 964 tons in 2016 to South Shelby

1 ton = 2,000 pounds
Maury County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

### Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
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<tbody>
<tr>
<td>Maury County Balefill</td>
<td>Class I</td>
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<tr>
<td>Maury County Transfer Station</td>
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<tr>
<td>Maury County Landfill</td>
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<tr>
<td>Maury County Demolition Landfill</td>
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<tr>
<td>Saturn Company Demolition</td>
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<tr>
<td>City of Columbia</td>
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<tr>
<td>United Waste Haulers</td>
<td>Transfer</td>
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</table>
Maury County
Municipal Solid Waste Facilities Used

Landfilled MSW from Maury County
5-Year Average (2012-2017) in tons

Bi-County
3,719.6

Middle Point
31,253

Dekalb
10,840.4

West Camden
20,491.4

Decatur
23,973.2

Cedar Ridge
15,857.2

Mississippi
206.2

Note: Maury sent 54,202 tons in 2015 to DeKalb and 1,031 tons in 2017 to Mississippi

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Note: Maury sent 54,202 tons in 2015 to DeKalb and 1,031 tons in 2017 to Mississippi
Montgomery County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Management TN Clarksville</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Bi-County</td>
<td>Class III</td>
<td>Active</td>
</tr>
<tr>
<td>Ft. Campbell Demo Landfill</td>
<td>Class IV</td>
<td>Active</td>
</tr>
<tr>
<td>Bi-County</td>
<td>Class I</td>
<td>Active</td>
</tr>
<tr>
<td>Bi-County Solid Waste Manag.</td>
<td>Class IV</td>
<td>Active</td>
</tr>
<tr>
<td>Bi-County High Drive</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Bi-County Demolition</td>
<td>Class IV</td>
<td>Active</td>
</tr>
</tbody>
</table>
Landfilled MSW from Montgomery County
5-Year Average (2012-2017) in tons

Montgomery County Municipal Solid Waste Facilities Used

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

1 ton = 2,000 pounds
Robertson County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlands Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Robertson County Facility</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Robertson Co. Demolition</td>
<td>Class III/IV</td>
<td>Active</td>
</tr>
<tr>
<td>Robertson County Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
</tbody>
</table>
Robertson County
Municipal Solid Waste Facilities Used

Landfilled MSW from Robertson County
5-Year Average (2012-2017) in tons

Robertson to Middle Point

Robertson to West Camden

Robertson to Bi-County

Robertson to Kentucky

Note: Robertson County sent 3,361 tons in 2016 and 3,088 tons in 2017 to Cedar Ridge
## Rutherford County

### Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

![Graphs showing population and waste generation](image)

### Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rutherford County Demo Landfill</td>
<td>Class III</td>
<td>Active</td>
</tr>
<tr>
<td>Middle Point Landfill</td>
<td>Class I</td>
<td>Active</td>
</tr>
<tr>
<td>Murfreesboro Transfer Station</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Rockwood, LLC</td>
<td>Class III</td>
<td>Pending</td>
</tr>
<tr>
<td>Rutherford County Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Murfreesboro Demolition Landfill</td>
<td>Class IV</td>
<td>Inactive</td>
</tr>
<tr>
<td>SafePoint, LLC</td>
<td>Transfer</td>
<td>Terminated</td>
</tr>
</tbody>
</table>
Rutherford County
Municipal Solid Waste Facilities Used

Landfilled MSW from Rutherford County
5-Year Average (2012-2017) in tons

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Note: Rutherford County sent 897 tons in 2013 and 1,649 tons in 2014 to Smith County Landfill and 37,668 tons in 2013 and 38,654 tons in 2014 to Kentucky.
Smith County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existing Solid Waste Facilities
Smith County
Municipal Solid Waste Facilities Used

Landfilled MSW from Smith County
5-Year Average (2012-2017) in tons

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste
Stewart County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

Existing Solid Waste Facilities
Stewart County
Municipal Solid Waste Facilities Used

Landfilled MSW from Stewart County
5-Year Average (2012-2017) in tons

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Stewart to West Camden

Stewart to Bi-County
## Sumner County

### Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

#### Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rasco Transfer Station</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Resource Authority Demolition</td>
<td>Class IV</td>
<td>Inactive</td>
</tr>
<tr>
<td>Hendersonville Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Gallatin City Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>J &amp; A</td>
<td>Transfer</td>
<td>Active</td>
</tr>
</tbody>
</table>
Sumner County
Municipal Solid Waste Facilities Used

Landfilled MSW from Sumner County
5-Year Average (2012-2017) in tons

1.358.4
Bi-County

7,573.8
West Camden

173,477.8
Middle Point

5,607.8
Cedar Ridge

56,228.2
Upper Cumberland

104.8
Smith

55,257.2
Kentucky

Notes: Sumner County sent 92,102 tons in 2013, 89,715 tons in 2014, and 25,739 tons to Kentucky

1 ton = 2,000 pounds
**Trousdale County**

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Population (Historic)</th>
<th>Population (Forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td></td>
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<tr>
<td>2020</td>
<td></td>
<td></td>
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<tr>
<td>2021</td>
<td></td>
<td></td>
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<tr>
<td>2022</td>
<td></td>
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<td>2023</td>
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<tr>
<td>2024</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2025</td>
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</tbody>
</table>

**Existing Solid Waste Facilities**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hartsville Trousdale Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Hartsville Trousdale Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>TVA Hartsville Demolition</td>
<td>Class IV</td>
<td>Inactive</td>
</tr>
</tbody>
</table>
Trousdale County
Municipal Solid Waste Facilities Used

Landfilled MSW from Trousdale County
5-Year Average (2012-2017) in tons

Notes: Trousdale County sent 9 tons in 2013 to Kentucky
### Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>McMinnville Transfer Station</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>City of McMinnville Demolition</td>
<td>Class III</td>
<td>Active</td>
</tr>
<tr>
<td>McMinnville City Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>McMinnville City Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>Barry Pearsall Landfill</td>
<td>Class III</td>
<td>Inactive</td>
</tr>
</tbody>
</table>
Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Notes: Trousdale County sent 9 tons in 2013 to Kentucky
Williamson County

Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

**Existing Solid Waste Facilities**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williamson County Transfer</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Williamson County Demolition</td>
<td>Class III</td>
<td>Active</td>
</tr>
<tr>
<td>Williamson County Landfill</td>
<td>Class I</td>
<td>Inactive</td>
</tr>
<tr>
<td>City of Franklin Transfer</td>
<td>Transfer</td>
<td>Active</td>
</tr>
<tr>
<td>Franklin Transfer Station</td>
<td>Transfer</td>
<td>Inactive</td>
</tr>
</tbody>
</table>
Williamson County
Municipal Solid Waste Facilities Used

Landfilled MSW from Williamson County
5-Year Average (2012-2017) in tons

Notes: Williamson County sent 371 tons in 2015 to Madison Development

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Notes: Williamson County sent 371 tons in 2015 to Madison Development
## Wilson County

### Historic and Forecasted Population and Generated Residential Municipal Solid Waste (in tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>150,000</td>
</tr>
<tr>
<td>1995</td>
<td>200,000</td>
</tr>
<tr>
<td>2000</td>
<td>250,000</td>
</tr>
<tr>
<td>2005</td>
<td>300,000</td>
</tr>
</tbody>
</table>

### Existing Solid Waste Facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilson County Demolition</td>
<td>Class IV</td>
<td>Active</td>
</tr>
<tr>
<td>Wilson County Demolition</td>
<td>Class III</td>
<td>Active</td>
</tr>
<tr>
<td>Cedar Grove Landfill</td>
<td>Class I</td>
<td>Active</td>
</tr>
<tr>
<td>SafePoint, LLC</td>
<td>Transfer</td>
<td>Active</td>
</tr>
</tbody>
</table>
Wilson County
Municipal Solid Waste Facilities Used

Landfilled MSW from Wilson County
5-Year Average (2012-2017) in tons

Notes: Wilson County sent 1 ton in 2017 to Bi-County

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Notes: Wilson County sent 1 ton in 2017 to Bi-County
Wilson County
Municipal Solid Waste Facilities Used

Landfilled MSW from Wilson County
5-Year Average (2012-2017) in tons

17,105.2

Kentucky

0.2

Bi-County

16,090.8

West Camden

44,441.6

Smith

44,460.8

Middle Point

9,919

Cedar Ridge

8

Rhea

1 ton = 2,000 pounds

Five-year Trend of Class I Landfill Use for Residential Municipal Solid Waste

Notes: Wilson County sent 1 ton in 2017 to Bi-County
### Bi-County Class I Landfill

**Five-year Average of Counties Contributing Residential Municipal Solid Waste (Tons)**

<table>
<thead>
<tr>
<th>County</th>
<th>Tonnage (2012-2017)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montgomery</td>
<td>187,879.20</td>
<td>53.48%</td>
</tr>
<tr>
<td>Williamson</td>
<td>81,072.80</td>
<td>23.08%</td>
</tr>
<tr>
<td>Robertson</td>
<td>40,024.60</td>
<td>11.39%</td>
</tr>
<tr>
<td>Cheatham</td>
<td>13,663.00</td>
<td>3.89%</td>
</tr>
<tr>
<td>Stewart</td>
<td>9,850.40</td>
<td>2.80%</td>
</tr>
<tr>
<td>Houston</td>
<td>6,231.80</td>
<td>1.77%</td>
</tr>
<tr>
<td>Davidson</td>
<td>5,201.20</td>
<td>1.48%</td>
</tr>
<tr>
<td>Maury</td>
<td>3,719.60</td>
<td>1.06%</td>
</tr>
<tr>
<td><strong>All other contributing counties</strong></td>
<td><strong>3,660.40</strong></td>
<td><strong>1.04%</strong></td>
</tr>
</tbody>
</table>
## Cedar Ridge Class I Landfill

Five-year Average of Counties Contributing Residential Municipal Solid Waste (Tons)

### Counties contributing to Cedar Ridge Landfill (2012-2017)

<table>
<thead>
<tr>
<th>County</th>
<th>Tonnage (2012-2017)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davidson</td>
<td>141,460.40</td>
<td>39.56%</td>
</tr>
<tr>
<td>Maury</td>
<td>63,092.40</td>
<td>17.64%</td>
</tr>
<tr>
<td>Williamson</td>
<td>42,026.60</td>
<td>11.75%</td>
</tr>
<tr>
<td>Giles</td>
<td>38,912.60</td>
<td>10.88%</td>
</tr>
<tr>
<td>Marshall</td>
<td>22,854.80</td>
<td>6.39%</td>
</tr>
<tr>
<td>Rutherford</td>
<td>15,550.00</td>
<td>4.35%</td>
</tr>
<tr>
<td>Wilson</td>
<td>9,919.00</td>
<td>2.77%</td>
</tr>
<tr>
<td>Sumner</td>
<td>5,607.80</td>
<td>1.57%</td>
</tr>
<tr>
<td>Bedford</td>
<td>4,424.60</td>
<td>1.24%</td>
</tr>
<tr>
<td>All other contributing counties</td>
<td>13,780.20</td>
<td>3.85%</td>
</tr>
</tbody>
</table>
# Middle Point Class I Landfill

Five-year Average of Counties Contributing Residential Municipal Solid Waste (Tons)

## Counties contributing to Middle Point Landfill (2012-2017)

<table>
<thead>
<tr>
<th>County</th>
<th>Tonnage (2012-2017)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davidson</td>
<td>516,445.00</td>
<td>46.90%</td>
</tr>
<tr>
<td>Rutherford</td>
<td>254,002.60</td>
<td>23.07%</td>
</tr>
<tr>
<td>Sumner</td>
<td>47,247.80</td>
<td>4.29%</td>
</tr>
<tr>
<td>Wilson</td>
<td>44,460.80</td>
<td>4.04%</td>
</tr>
<tr>
<td>Williamson</td>
<td>36,215.20</td>
<td>3.29%</td>
</tr>
<tr>
<td>Maury</td>
<td>31,253.00</td>
<td>2.84%</td>
</tr>
<tr>
<td>Lincoln</td>
<td>29,185.40</td>
<td>2.65%</td>
</tr>
<tr>
<td>Coffee</td>
<td>28,116.60</td>
<td>2.55%</td>
</tr>
<tr>
<td>Bedford</td>
<td>25,261.80</td>
<td>2.29%</td>
</tr>
<tr>
<td>Franklin</td>
<td>24,553.60</td>
<td>2.23%</td>
</tr>
<tr>
<td>Overton</td>
<td>19,081.00</td>
<td>1.73%</td>
</tr>
<tr>
<td>All other contributing counties</td>
<td>45,230.80</td>
<td>4.11%</td>
</tr>
</tbody>
</table>
Smith County Class I Landfill

Five-year Average of Counties Contributing Residential Municipal Solid Waste (Tons)

Counties contributing to Smith County Landfill (2012-2017)

<table>
<thead>
<tr>
<th>County</th>
<th>Tonnage (2012-2017)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sumner</td>
<td>56,228.20</td>
<td>45.47%</td>
</tr>
<tr>
<td>Wilson</td>
<td>44,441.60</td>
<td>35.94%</td>
</tr>
<tr>
<td>Smith</td>
<td>9,142.80</td>
<td>7.39%</td>
</tr>
<tr>
<td>Trousdale</td>
<td>4,457.80</td>
<td>3.60%</td>
</tr>
<tr>
<td>Macon</td>
<td>3,156.40</td>
<td>2.55%</td>
</tr>
<tr>
<td>Davidson</td>
<td>2,348.00</td>
<td>1.90%</td>
</tr>
<tr>
<td>Van Buren</td>
<td>1,845.00</td>
<td>1.49%</td>
</tr>
<tr>
<td>All other contributing counties</td>
<td>2,052.00</td>
<td>1.66%</td>
</tr>
</tbody>
</table>
West Camden Class I Landfill

Five-year Average of Counties Contributing Residential Municipal Solid Waste (Tons)

Counties contributing to West Camden Landfill (2012-2017)

<table>
<thead>
<tr>
<th>County</th>
<th>Tonnage (2012-2017)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davidson</td>
<td>170,178.80</td>
<td>37.55%</td>
</tr>
<tr>
<td>Williamson</td>
<td>63,148.40</td>
<td>13.93%</td>
</tr>
<tr>
<td>Dickson</td>
<td>59,715.80</td>
<td>13.18%</td>
</tr>
<tr>
<td>Benton</td>
<td>28,198.20</td>
<td>6.22%</td>
</tr>
<tr>
<td>Rutherford</td>
<td>24,669.60</td>
<td>5.44%</td>
</tr>
<tr>
<td>Maury</td>
<td>20,491.40</td>
<td>4.52%</td>
</tr>
<tr>
<td>Humphreys</td>
<td>19,720.00</td>
<td>4.35%</td>
</tr>
<tr>
<td>Wilson</td>
<td>16,090.80</td>
<td>3.55%</td>
</tr>
<tr>
<td>Hickman</td>
<td>10,326.60</td>
<td>2.28%</td>
</tr>
<tr>
<td>Carroll</td>
<td>8,448.20</td>
<td>1.86%</td>
</tr>
<tr>
<td>Sumner</td>
<td>7,673.80</td>
<td>1.69%</td>
</tr>
<tr>
<td>All other contributing counties</td>
<td>24,588.20</td>
<td>5.42%</td>
</tr>
</tbody>
</table>
## Appendix F. TDEC Guidance for Local Governments

### Four Tiers of an Integrated Waste Management System

#### Tier 1 – Small Rural Counties

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Very rural counties</td>
<td>At least one class I (MSW) disposal facility</td>
<td>At least one class I (MSW) disposal facility</td>
<td>Recycling program includes at least two materials types</td>
<td>Maintain/secure public or private sites to manage batteries, tires, oil, and other automotive fluids</td>
<td>Adequate signage provided at convenience center(s)</td>
<td>A solid waste director or recycling coordinator oversees materials management</td>
<td>Some composting or mulching may take place at county or residential level</td>
<td>Full cost accounting approach through a county enterprise fund for all waste and materials management services</td>
</tr>
<tr>
<td>Population of 25,000 or less</td>
<td>At least one staffed convenience center</td>
<td>At least one class I (MSW) disposal facility</td>
<td>Preferred materials include cardboard and metals (steel and/or aluminum)</td>
<td>Provide K-12 education and promotion on core message</td>
<td>Handsouts/ mailers provided to user of Center(s) and/or by mail/email</td>
<td>Duties are at least 55% solid waste/ waste reduction related</td>
<td>Website with information and references to composting methods</td>
<td></td>
</tr>
</tbody>
</table>

#### Tier 1 – Small Rural Counties

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Same as above</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Recycling program includes at least three materials</td>
<td>Maintain/secure public or private sites to manage batteries, tires, oil, and other automotive fluids</td>
<td>Same as above plus county Website contains up-to-date information on recycling drop-off sites and HHW collection events and BOPAE</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Grasscycling and backyard composting</td>
</tr>
<tr>
<td>Preferred Level of Solid Waste/ Materials Management</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Same as above</td>
</tr>
</tbody>
</table>
## Tier 2 – Larger Rural Counties

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Targeted - Minimum Level of Solid Waste/ Materials Management</strong></td>
<td>- More developed rural counties with low to moderate populations&lt;br&gt;- Population of 25,001-50,000</td>
<td>- At least one Class I (MSW) disposal facility available to the county either locally or regionally</td>
<td>- Recycling program includes at least three recyclable commodities&lt;br&gt;- Preferred materials include cardboard, metals (steel and aluminum) Plastics (#1 and #2)</td>
<td>- Maintain/secure public or private sites to collect manage batteries, tires, oil, and other automotive fluids&lt;br&gt;- Host at least one mobile HW/W collection event every other year, sponsored by the State&lt;br&gt;- Implement program to manage BOPAE</td>
<td>- Adequate signage provided at convenience centers&lt;br&gt;- Handouts/materials with core materials management/recycling information distributed&lt;br&gt;- K-12 education/promotion on core message provided&lt;br&gt;- County website provides recycling information</td>
<td>- A solid waste director or recycling coordinator oversees materials management&lt;br&gt;- Duties are at least 75% solid waste/materials management-related</td>
<td>- Some county/municipal composting/mulching occurs&lt;br&gt;- County and/or municipal websites have information about backyard composting and grass recycling</td>
<td>- Full cost accounting approach employed through a county enterprise fund for all waste and materials management services</td>
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<td><strong>Preferred Level of Solid Waste/ Materials Management</strong></td>
<td>- Same as above.</td>
<td>- Conveniences Centers located throughout county, with higher level of service available in more densely populated areas</td>
<td>- At least one Class I (MSW) disposal facility available to the county either locally or regionally</td>
<td>- Recycling program includes at least four materials&lt;br&gt;- Preferred commodities include cardboard, metals (steel, and aluminum) plus any of the following: newspaper, magazines, mixed paper, plastic ( #1 and #2 bottles), glass, and white goods</td>
<td>- Maintain/secure public or private sites to collect and manage batteries, tires, oil, and other auto fluids&lt;br&gt;- Implement a program to manage BOPAE&lt;br&gt;- Counties host at least one mobile HW/W collection event per year, sponsored by the State</td>
<td>- As above, plus increased usage of media materials, multimedia presentations, and social media&lt;br&gt;- BOPAE education and outreach provided&lt;br&gt;- Website includes up-to-date information on drop-off recycling locations, HW/W and BOPAE</td>
<td>- Same as above</td>
<td>- At least one composting/mulching facility operating in county</td>
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## Tier 3 – Suburban/Rural Counties

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<tr>
<td><strong>Targeted Minimum Level of Solid Waste Management</strong></td>
<td>• More developed rural counties transitioning to suburban • Population of 50,000-100,000</td>
<td>• Minimally required number of County Convenience Centers (based on SWRAR of 1991)</td>
<td>• At least one Class I (MSW) disposal facility available to the county either locally or regionally</td>
<td>• Recycling program includes full spectrum of fiber, metals, multiple types of plastics, and glass recycling</td>
<td>• Adequate signage at conversion centers • Convenience center staff trained to actively engage public on waste reduction • Handouts/mailers with core information distributed • K-12 education and promotion on core message provided • BOPAE education provided to those using the center • Website up-to-date and provides materials management information including importance of recycling/waste minimization as well as drop-off locations and HHW/BOPAE information • Multi-media used</td>
<td>• Full-time solid waste director/public works director oversees materials management dept. • Full-time recycling coordinator actively promotes waste reduction/recycling</td>
<td>• At least one composting/mulching facility operating in county • Promote backyard composting/pressure cooking • At least one demonstration/plot composting program including food residuals</td>
<td>• Full cost accounting approach through a county enterprise fund for all materials management services</td>
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| Preferred Level of Solid Waste Management | • Same as above | • Provide higher level of MSW and recycling collection service • Mandate countywide collection service as growth dictates • Curbside collection of yard trimmings offered where density/waste generation dictates | • May use transfer stations to consolidate and transfer materials to improve economics of disposal • Use pit burners or air curtain destructors to reduce bulk and improve economics of disposal management | • Recycling program includes full spectrum of fiber, metals, multiple types of plastics, and glass recycling • Some non-traditional recyclables materials such as textiles and pallets also recovered | • Increased frequency of K-12 education programs • Actively target residents and businesses with waste reduction messages • Increase use of multimedia, PSAs, and social media for BOPAE message • City/County provide information to businesses/public about recycling non-traditional materials • Website provides information about drop-off sites, HHW, and BOPAE | • Same as above | • Same as above • County and some municipalities have some green purchasing guidelines/contracts in place | • Same as above |
### Tier 4 for Urban Counties

<table>
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<tr>
<th>Population Served</th>
<th>Collection Systems</th>
<th>Disposal Systems</th>
<th>Waste Reduction</th>
<th>Problem Waste Management</th>
<th>Education/ Awareness</th>
<th>Staff</th>
<th>Composting/ Mulching</th>
<th>Economic and Business</th>
</tr>
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<tr>
<td><strong>Targeted - Minimum Level of Solid Waste Management</strong></td>
<td>• Large to very large suburban and urban areas</td>
<td>• Mandatory, countywide curbside collection service for MSW</td>
<td>• At least one Class I (MSW) disposal facility available to the county either locally or regionally</td>
<td>• Full spectrum of fiber, metals, multiple types of plastics, and glass recycling available</td>
<td>• At least one and preferably 2 mobile HHW collection events per year</td>
<td>• County and municipalities provide a comprehensive K-12 education/outreach program</td>
<td>• Full-time waste/prefec works director oversees materials management department</td>
<td>• Full cost accounting approach through a county enterprise fund for all materials management services</td>
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<td>• Entire collection of recyclable materials at no extra cost to residents in more densely populated areas</td>
<td>• Curbside collection of recyclable materials available to the county either locally or regionally</td>
<td>• At least one Class IIIW disposal facility available to the county either locally or regionally</td>
<td>• Some communities have financial incentives to minimize waste (PAYT, Rewards)</td>
<td>• Work with the state to determine cost effectiveness of local permanent HHW facility</td>
<td>• County and/or municipalities fulfill multiple social media outlets to deliver messages directly to targeted audiences</td>
<td>• One or more full time recycling coordinator(s) employed</td>
<td>• Coordination/ communication between municipal and county staff, shared programs where mutually beneficial</td>
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<td>• Alternative technologies explored</td>
<td>• Non-traditional materials recycled, e.g., textiles, pallets, mattresses, etc.</td>
<td>• Some communities implement post-recycling ordinances</td>
<td>• Comprehensive BIPAE management program operated by County</td>
<td>• County may manage more difficult problem wastes through an advanced problem waste management system</td>
<td>• At least one composting or mulching operation</td>
<td>• County and municipalities promote back yard composting</td>
<td>• Actively seek opportunities for public/private partnership</td>
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<tr>
<td><strong>Preferred Level of Solid Waste Management</strong></td>
<td>• Same as above</td>
<td>• Most residents have economic incentive to reduce amount of waste disposed (through PAYT, rewards programs, etc.)</td>
<td>• Exploration of alternative disposal system technologies</td>
<td>• County has permanent HHW facility which accepts materials from other counties within the region for a fee</td>
<td>• Public education materials are available in multi-lingual formats as needed</td>
<td>• At least two composting and mulching operations</td>
<td>• At least one non-open-window facility or pilot demonstration project in County</td>
<td>• County and larger municipalities have some green purchasing contracts/guidelines in place</td>
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<tr>
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<td>• Explore curbside collection of organics provided where population density and generator dictate</td>
<td></td>
<td>• Implement one or more advanced waste reduction strategy such as landfill bans, PAYT collection service, local product stewardship, waste exchanges, LEED construction, etc.</td>
<td>• Market e-scrap through cooperative marketing and industry provided programs.</td>
<td>• County and municipalities educate businesses/situations on waste reduction strategies including WasteWise, LEED construction, etc.</td>
<td>• At least one non-open-window facility or pilot demonstration project in County</td>
<td>• County and municipalities promote back yard composting</td>
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**Greater Nashville Regional Council | Middle Tennessee Solid Waste Master Plan | 2019**
Appendix G. Generation and Disposal by County

A list of commonly used terms and acronyms.

Active Life - The period from initial intake of solid waste at a landfill facility until post-closure activities begin.

Airspace - Volume of space a landfill site has permitted for disposal of waste materials.

Bans - An act, usually by regulation or legislation, that prohibits specific material from being accepted or processed at various facilities.

Closed Site - When a landfill reaches its permitted waste capacity, the permanent cap is in place and the appropriate regulatory agency has declared the site closed.

Collection - The act of gathering accumulated waste materials from identified locations and transporting to a processing or disposal facility based on volume and material type.

Compost - Organic, biodegradable material that has undergone controlled biological decomposition.

Compostable - Material capable of breaking down in a way that leaves no visible, distinguishable or toxic residue through biological decomposition.

Construction/Demolition (C&D) Debris - Waste materials resulting from construction, remodeling, repair and demolition of structures and road building.

Contamination Rate - The amount of non-targeted or non-recyclable materials delivered to a specific facility, relative to the total weight of materials delivered by the same customer.

Convenience Center (Drop-off) - Stationary residential solid waste collection facility accepting household waste, recyclables and other residential materials.

Disposal or Tip Fee - A fee charged for waste materials disposed of by customers using a processing facility or landfill for solid waste disposal.

Direct Haul - Use of a collection vehicle to transport material directly to a processing or disposal facility.

Diversion - The act of diverting material(s) from the solid waste stream.

Diversion Rate - How much waste material is diverted from the total MSW volume of waste.

Enterprise Fund - Accounts designated for a specific purpose that generates revenues and operates as a self-sustainable function of government.

Household Hazardous Waste (HHW) - Materials designated as hazardous, by regulatory agencies, because they are potentially dangerous and can catch fire, adversely react with other substances, explode, are corrosive or toxic and are found in small quantities in residential homes.

Incinerator - A unit/facility used to burn all types of waste materials until the final output is ash.
**Industrial Solid Waste** - Non-hazardous waste materials resulting from industrial manufacturing processes, such as factories, mills and mining operations.

**Inorganic Waste** - Materials that are not biodegradable, such as plastics and metals.

**Institutional Waste** - Waste produced from institutions such as social, charitable, educational and governmental services, that is like household waste.

**Integrated Solid Waste Management (ISWM)** - A systematic approach to managing solid waste materials.

**Landfill** - A highly engineered, and regulated piece of land where solid wastes are disposed.

**Leachate** - Liquid produced as it passes through and emerges from decomposing waste ("garbage juice").

**Materials Recovery Facility (MRF)** - Pronounced “Murf,” is a facility that takes in mixed recyclables and separates them into individual commodities.

**Municipal Solid Waste (MSW)** - Household trash waste and everyday items resulting from the operation of residential, municipal, commercial or institutional establishments. Consists of items discarded from homes, schools, hospitals, businesses, and other community activities.

**Organic Waste** - Biodegradable material that comes from either a plant or an animal.

**Participation Rate** - Percentage of households participating in a recycling program during a defined period of time.

**Post-Closure** - Time frame and procedures required for monitoring and maintenance after a landfill facility is properly closed.

**Problem Wastes** - Solid wastes that are either difficult or dangerous to manage, including sludge, bulky waste, medical waste, tires, mattresses, electronics and other similar materials.

**Processing** - Series of mechanical or chemical steps used to change or preserve a specific type of material; typically results in size reduction, separation or recovery of materials.

**Producer Responsibility/Product Stewardship** - Strategy that places shared responsibility for end-of-life management for consumer products on the manufacturers of the products.

**Recyclables** - Materials or objects that can be processed and used again.


**Single Stream** - Source separated mixed materials placed into one container for collection.

**Solid Waste Management** - Principles relating to the functions of generation, storage, collection, transport or transfer, processing and disposal of solid waste materials in the best interest of public health, economics, aesthetics, conservation, engineering and other environmental considerations.

**Source Reduction** - Any action or activity that reduces or eliminates the generation of waste.
Transfer Station - A building or processing facility, where solid waste from public or private collection vehicles is placed for temporary storage.

Waste Reduction - Reducing or preventing the amount of waste created.

Waste-to-Energy (WTE) - Converting non-recyclable waste into usable forms of energy, including steam and electricity.

Yard Waste - Decomposable materials generated by yard and lawn care, including leaves, grass clippings, brush, shrub and hedge trimmings.

Zero Waste - A waste management philosophy focused on conserving all resources from production, consumption, reuse and recovery of all products, packaging and materials, eliminating waste through prevention or recovery of resources for beneficial use, with the goal of sending no materials to an incinerator or landfill.
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