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Department of
**Environment &
Conservation**

[DRAFT] 2025-2035 Statewide Integrated Solid Waste Management Plan

Tennessee Department of Environment & Conservation | February 2026



Executive Summary

The 2025–2035 Tennessee Integrated Solid Waste Management Plan (ISWMP), referred to herein as the 2035 Plan or The Plan, developed by the Tennessee Department of Environment and Conservation (TDEC), Division of Solid Waste Management (DSWM), establishes a strategic framework to guide solid waste management across the state over the next decade. The Plan responds to evolving waste streams, infrastructure gaps, and regulatory challenges, and is grounded in the statutory authority of the Solid Waste Management Act of 1991 (Tennessee Code Annotated [TCA] §68-211-601).

Tennessee’s solid waste management system consists of landfills, transfer stations, recycling centers, composting operations, and convenience centers. Although statewide disposal capacity is sufficient, the system faces significant challenges, including uneven population growth, infrastructure and disposal capacity disparities, financial pressures, and data gaps that strain its effectiveness.

The Plan responds with targeted recommendations and action items addressing eight objectives to reduce waste generation, increase diversion, and enhance operations. Emphasizing regional planning, stakeholder engagement, and sustainable funding, The Plan calls for investing in solid waste infrastructure, strengthening end markets, expanding recycling and organics collection, modernizing data systems, improving management of problematic and hard-to-handle wastes, enhancing disaster debris preparedness, and developing sustainable funding sources. Together, these strategies provide a roadmap for a resilient, equitable, and environmentally protective solid waste management system that supports public health, conserves resources, and drives long-term economic growth across Tennessee.

Summary of Objectives

Objective 1: Ensure Long-term Environmentally Protective Disposal Capacity	Objective 2: Advance Material Processing Infrastructure and Market Development
Objective 3: Increase Diversion of Organic Waste	Objective 4: Strengthen Goals and Data-Driven Performance Metrics
Objective 5: Manage Problematic or Hard-to-Manage Waste	Objective 6: Disaster Debris Management
Objective 7: Expand and Focus Education and Outreach	Objective 8: Develop Sustainable Funding Sources for Municipal Solid Waste Management Programs

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Abbreviations and Acronyms

%	Percent	NGO	Non-governmental Organization
2035 Plan	2025–2035 Tennessee Statewide Integrated Solid Waste Management Plan or The Plan	OSHA	Occupational Safety and Health Administration
AD	Anaerobic Digestion	PAYT	Pay-As-You-Throw
APR	Annual Progress Report	PCC	Post Closure Care
BMP	Best Management Practice	RCRA	Resource Conservation and Recovery Act
BOPAE	Batteries, Oil, Paint, Antifreeze, and Electronics	RMPF	Recovered Material Processing Facility
C&D	Construction and Demolition	SSWI	Sevier Solid Waste, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	SWMF	Solid Waste Management Fund
CPI	Consumer Price Index	SWOR	Solid Waste Origin Report
CY	Calendar Year	SWOT	Strengths, Weaknesses, Opportunities, and Threats
DDMP	Disaster Debris Management Plan	TCA	Tennessee Code Annotated
EPA	Environmental Protection Agency	TDEC	Tennessee Department of Environment and Conservation
FY	Fiscal Year	TDOT	Tennessee Department of Transportation
HHW	Household Hazardous Waste	TEMA	Tennessee Emergency Management Agency
ICI	Industrial, Commercial, Institutional	U.S.	United States
ISWA	Interlocal Solid Waste Authority	USDA	U.S. Department of Agriculture
ISWMP	Integrated Solid Waste Management Plan	UST-SWDCB	Underground Storage Tanks and Solid Waste Disposal Control Board
MRF	Materials Recovery Facility	WTE	Waste-to-energy
MSW	Municipal Solid Waste		

Terms and Definitions

Anaerobic Digestion/ Digester	The process by which microorganisms break down organic (carbon-based) materials, such as food waste, grease, and wastewater solids, in the absence of oxygen.
Best Management Practices	Proven procedures, habits, systems, or methods that achieve the greatest amount of desired results from the invested time, effort, and resources toward a goal or objective when implemented by an agency or organization.
Biosolids	Nutrient-rich organic materials from treated sewage that can be used as fertilizer.
Circular Economy	A systems-based approach to economic activity that keeps materials and products in use for as long as possible, minimizes resource consumption, and eliminates waste through thoughtful design and regeneration.
Compliance	Adherence to laws, regulations, and directives set forth by governing bodies or organizations.
Composting	The managed, aerobic (oxygen-required) biological decomposition of organic materials by microorganisms.
Construction & Demolition Debris	C&D debris or waste refers to non-hazardous waste materials generated during the construction, renovation, repair, or demolition of buildings, roads, utilities, and other structures.
Convenience Center	Also referred to as a drop-off center, is any area which is staffed and fenced that has waste receptacles on site that are open to the public, when an attendant is present, to receive household waste, municipal solid waste, and recyclable materials
Development District	Development Districts are regional planning agencies established under the Development District Act of 1965 to support coordinated planning and service delivery across counties. Tennessee has nine Development Districts, which align with the Grand Divisions and provide technical assistance to Solid Waste Planning Regions, helping ensure plans are consistent with statewide goals.
Division of Solid Waste Management	The TDEC DSWM is responsible for ensuring the safe and sanitary processing and disposal of solid waste in Tennessee. This includes regulating RMPFs, transfer stations, and landfills for various types of waste, including MSW, industrial waste, and C&D waste.
Enforcement	The act of compelling compliance with laws, regulations, or rules and policies.
Environmental Protection Agency	The EPA is a federal agency that provides guidance, data, and funding for sustainable waste management practices. They also provide regulation, pursue enforcement, and a whole host of other items such as research and development, and technology.
Gasification	A process through which recoverable feedstocks are heated and converted into a fuel-gas mixture in an oxygen-deficient atmosphere and the mixture is converted into valuable raw, intermediate, and final products, including, but not limited to, monomers, chemicals, waxes, lubricants, chemical feedstocks, crude oil, diesel, gasoline, diesel and gasoline blendstocks, home heating oil, and other fuels including ethanol and transportation fuel.
Grand Division	Tennessee is constitutionally divided into three Grand Divisions, East, Middle, and West, which serve as broad geographic regions for administrative, legal, and planning purposes. Each division encompasses multiple counties and provides a framework for regional coordination and representation in state governance.
Household Hazardous Waste	RCRA Exempt Solid wastes discarded from homes or similar sources as listed in 40 CFR 261.4(b)(1), that are either hazardous wastes as listed by the EPA in 40 CFR 261.33(e) or (f), or wastes that exhibit any of the following characteristics as defined in 40 CFR 261.21-261.24: ignitability, corrosivity, reactivity and TCLP toxicity.
Industrial, Commercial, and Institutional	Organizations and businesses from the industrial (manufacturing), commercial (customer facing), and institutional (other governmental and para-governmental extensions) sectors.
Landfill	A landfill is a designated site used for the disposal of waste materials by burial in excavated pits or trenches. Waste is typically covered with soil or an approved alternative cover daily to minimize rain infiltration and environmental impacts such as odors and pests.
Landfill Airspace	The volume of space on a landfill site permitted for solid waste disposal.

Landfill Capacity	The total volume of waste that a landfill can accept before reaching its permitted final elevation.
Material Recovery Facility	Building where commingled recyclables are separated and processed (including sorting, baling and crushing) or where source separated recyclables are processed for sale to various markets.
Municipal Solid Waste	Solid waste other than hazardous wastes comprised of commercial, household, and institutional wastes.
Municipality	Any incorporated subdivision of the State of Tennessee.
Non-Putrescible Waste	Any waste that contains no more than trivial or minor amounts of materials capable of decomposition that are contained in such a way that they can be easily separated from the remainder of the load without causing contamination of the load. This includes C&D waste, glass, plastics, metals, and other inorganic substances.
Organic Waste	Waste composed of organic materials such as food scraps, yard trimmings, paper products, and vegetative matter generated from landscaping, lawn maintenance, and land clearing operations.
Population Density	The number of people living per unit of land area is commonly measured by people per square mile.
Pyrolysis	Thermal and chemical decomposition of organic waste in a furnace operated without sufficient oxygen to allow combustion. Pyrolytic products include combustible gases, oils, charcoal, and mineral matter. Contrast Incinerator.
Recovered Materials	Those materials which have been diverted or removed from the solid waste stream for sale, use, reuse, or recycling, whether or not requiring subsequent separation processing. Such recovered materials are not solid waste.
RMPF	A RMPF is a facility engaged solely in the storage, processing, and resale or reuse of recovered materials. A recovered materials processing facility is not a solid waste processing facility.
Recycling	The process by which recycled or recovered materials are transformed into new products, including the collection, separation, processing, and reuse of recovered materials either directly or as raw materials for the manufacture of new products.
Rural	A county with a population under 35,000, generally characterized by low density and limited infrastructure. This threshold is adapted from the Census Bureau's definition of rural areas as those outside urbanized areas and urban clusters (Census Bureau, 2024). The population cutoff was adapted to apply this concept to entire counties for use in regional planning and assessment.
Solid Waste	Garbage, trash, refuse, abandoned material, spent material, byproducts, scrap, ash, sludge, and all discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, and agricultural operations, and from community activities. Solid waste includes, without limitation, recyclable material when it is discarded or when it is used in a manner constituting disposal.
Solid Waste Disposal	The process of permanently or indefinitely placing, confining, compacting, or covering solid waste.
Solid Waste Facility	Land, rights in land, buildings, facilities and equipment suitable or necessary for collecting, receiving, transferring, placing, confining, compacting, treating or covering solid waste or for processing solid waste by, without limitation, incinerating, composting, separating, grinding, shredding, reducing or otherwise modifying the characteristics or properties thereof, including all property, real and personal, appurtenant thereto or connected with such work.
Solid Waste Management Fund	The SWMF provides financial support for local waste reduction, recycling, and infrastructure programs through landfill surcharges and tire fees. It funds multiple grant and rebate programs to help communities improve solid waste operations and meet long-term sustainability goals.
Solid Waste Planning Region	A Solid Waste Planning Region is a single or multi-county area designated under the Solid Waste Management Act of 1991 to develop and maintain 10-year regional solid waste plans. These regions are responsible for coordinating local efforts in waste collection, recycling, disposal, and public education, and are overseen by regional boards composed of local government representatives.

Solid Waste Processing	Any process that modifies the characteristics or properties of solid waste, including, but not limited to, treatment, incineration, composting, separation, grinding, shredding, and volume reduction; provided that it does not include the grinding or shredding of landscaping or land clearing wastes or unpainted, unstained, and untreated wood into mulch or other useful products.
Solid Waste Stream	The system through which solid waste and recoverable materials move from the point of discard to recovery or disposal
Source Reduction	The practice of reducing the amount of waste generated at the source.
Stakeholder	An individual or group with an interest or concern in a particular issue or project, including state and local government officials, solid waste directors and facility operators, private entities, educational institutions, and non-profit organizations.
State of Tennessee	The state of Tennessee and, unless otherwise indicated by the context, any agency, authority, branch, bureau, commission, corporation, department, or instrumentality thereof now or hereafter existing.
Strengths, Weaknesses, Threats, and Opportunities Analysis	A SWOT analysis is a strategic planning tool used to identify and evaluate the Strengths, Weaknesses, Opportunities, and Threats related to a project, organization, or initiative. It helps decision-makers understand internal capabilities and external challenges to guide strategy and planning.
Suburban	A county with a population between 35,000 and 115,000, representing moderately dense areas that fall between urban and rural classifications. The Census Bureau does not formally define suburban areas, but this range was adapted to reflect counties that may include urban clusters, which are places with populations between 2,500 and 49,999 (Census Bureau, 2024). The threshold provides a practical middle category for county-level analysis.
Sustainable Materials Management	A holistic, systems-based approach that seeks to use and reuse materials more productively across their entire life cycle, from extraction and manufacturing to use, reuse, and end-of-life, to reduce environmental impacts and conserve resources.
Tennessee Department of Environment and Conservation	TDEC is a cabinet-level agency responsible for regulating and protecting Tennessee's air, land, and water quality, managing state parks and natural heritage, and promoting public health and environmental stewardship.
Tire	A continuous, solid, or pneumatic rubber covering encircling the wheel of a motor vehicle
Tipping Fee	A fee charged for the disposal of waste at a landfill or other waste management facility.
Transfer Station	A facility where waste is transferred from smaller collection vehicles to larger transportation units, the latter of which transport the waste for final disposal.
Underground Storage Tanks and Solid Waste Disposal Control Board	The UST-SWDCB, was established by §68-211-111, is composed of 14 members, and is responsible for adopting, modifying, repealing, promulgating after due notice, and enforcing rules and regulations which the board deems necessary.
Urban	A county with a population over 115,000, typically marked by high density and extensive development. This threshold was adapted from the Census Bureau's definition of urbanized areas, which are places with at least 50,000 people. Because Census classifications are applied to small geographic units like census blocks, a higher population cutoff was used to identify counties that are predominantly urban in character.
Used Oil	Oil refined from crude, synthetic, or recovered sources that, due to use, storage, or handling, have become unsuitable for its original purpose because of contamination or degradation, but may still be viable for further use through recycling or as a fuel source.
Waste Characterization	The process of identifying and quantifying the types of waste generated.
Waste Tire Hauler	A person engaged in the commercial transporting of waste tires for the purpose of storage, processing, or disposal.
Yard Waste	Vegetative matter resulting from landscaping, lawn maintenance, and land clearing operations other than mining, agricultural, and forestry operations.

Introduction and Background

Overview and Purpose

The State of Tennessee ISWMP, referred to herein as the 2035 Plan or The Plan, establishes a strategic framework to support solid waste management systems across Tennessee for the 10-year planning period of 2025 through 2035. The Plan was developed for TDEC DSWM, in accordance with the Tennessee Solid Waste Planning and Recovery Act (TCA §68-211-601) and the Solid Waste Management Act of 1991 (TCA §68-211-801), which mandate that the state maintain a current plan addressing waste reduction goals, system capacity, and program effectiveness.

The 2035 Plan provides an overview of the current state of solid waste management in Tennessee, identifies emerging challenges and opportunities, and outlines objectives to improve system performance, increase waste diversion, promote sustainable materials management, and safeguard public health and the environment. Rather than serving as a direct implementation tool, The Plan is intended to guide the DSWM in supporting counties and other stakeholders in reducing the volume of waste entering municipal solid waste (MSW) landfills.

TDEC envisions the 2035 Plan as a long-term strategic framework and a practical guide for implementation. Regular reviews will ensure The Plan remains relevant and practical as conditions and priorities evolve.

Vision

TDEC envisions a future where the state's environment and natural resources are protected and enhanced for the benefit of current and future generations. The official vision statement is "*Working together, we will protect our environment and conserve critical natural resources for future generations while we make Tennessee an even better place to live, work, and play*" (TDEC, 2020).

In alignment with this vision, the DSWM is committed to advancing a sustainable and efficient waste management system that reduces environmental impact and promotes resource recovery (TDEC, 2025a). DSWM's efforts focus on minimizing waste generation, increasing recycling and diversion rates, and ensuring the safe handling and disposal of solid waste. Through innovative programs and support for local planning, DSWM plays a critical role in achieving TDEC's broader environmental and public health goals.

The 2035 Plan represents Tennessee's strategic vision for advancing solid waste management statewide, building on the foundation of the 2015–2025 Plan and aligning with the policy of the Solid Waste Management Act of 1991. The Plan reflects a commitment to sustainability, environmental stewardship, and long-term planning through the vision "*To lead Tennessee toward a sustainable future with sufficient and environmentally sound disposal capacity through efficient waste management practices.*"

The Plan's success will depend on collaboration among local governments, businesses, and residents to implement innovative strategies supporting the goal of protecting our environment and conserving critical natural resources for future generations while making Tennessee an even better place to live, work, and play (TDEC, 2020).

Objectives

The objectives of this Plan are intended to guide policy development, strategic planning, and implementation efforts across Tennessee. They were shaped by input from various stakeholders, including state and local government officials and representatives from private industry, nonprofit organizations, and academic institutions. Aligned with statutory requirements, these objectives address the most critical needs and opportunities identified during the planning process. Each objective supports measurable progress in waste reduction, material recovery, system efficiency, sustainable funding, and environmental protection.

Objective 1: Ensure Long-term Environmentally Protective Disposal Capacity

Assess and plan regularly for Tennessee's disposal needs, maintaining sufficient capacity for non-divertible waste and residuals. Promote best practices in landfill operations and environmental monitoring to safeguard public health and environmental quality while supporting the transition toward a more sustainable solid waste management system.

This objective builds upon Objective 7 of the 2015-2025 Plan, "Ensure Sufficient and Environmentally Sound Disposal." As Tennessee continues efforts to increase diversion and recycling rates, the need for reliable, environmentally protective disposal infrastructure remains constant. Proactive planning and operational excellence in landfill management are essential to protect communities, maintain regulatory compliance, and ensure public confidence in the state's solid waste management system. By prioritizing long-term capacity and environmental safeguards, Tennessee lays the groundwork for a resilient and sustainable materials management future.

Objective 2: Advance Material Processing Infrastructure and Market Development

Address current infrastructure gaps and support stakeholder investment in modern regional processing capacity. Strengthen end markets for recovered materials through public-private collaboration and promoting education and awareness.

Objective 2 is aligned with Objective 3 of the 2015-2025 Plan, "Promote Material Processing and End Use in Tennessee," and supports Objective 2, "Increase Recycling Access and Participation." Expanding and modernizing processing infrastructure, while fostering robust end markets, is critical to ensuring that recyclable materials are recovered and reused. This approach not only maximizes the environmental benefits of recycling but also drives economic growth and job creation. By supporting investment and collaboration, Tennessee positions itself as a leader in the circular economy.

Objective 3: Increase Diversion of Organic Waste

Develop strategies to reduce organic waste entering municipal solid waste (MSW) landfills by promoting reuse, beneficial use, composting, and source reduction efforts. Support regional collaboration by sharing best practices, establishing communication channels, and coordinating efforts to enhance resource sharing and efficiency.

This objective continues the work of Objective 4 from the 2015-2025 Plan, “Increase Diversion of Organics.” Diverting organic waste is a key strategy for reducing landfill methane emissions, extending landfill life, and producing valuable soil amendments. By emphasizing regional collaboration and the sharing of best practices, Tennessee can accelerate progress, improve efficiency, and ensure that communities of all sizes benefit from advances in organics management.

Objective 4: Strengthen Goals and Data-Driven Performance Metrics

Establish clear, measurable, and forward-looking goals for solid waste and materials management, supported by modernized data collection and reporting systems. Improve data accuracy, transparency, and timeliness to better track material flows, disposal trends, and diversion rates, informing more strategic decision-making and progress reporting.

Objective 4 is closely related to Objective 1 of the 2015-2025 Plan, “Update Goals and Measure Progress.” Setting ambitious, data-driven goals and investing in modern reporting systems enables Tennessee to track progress, identify trends, and help local governments make informed decisions. This commitment to transparency and accountability is essential for building public trust, guiding continuous improvement, and ensuring that the state’s materials management system remains effective and adaptable.

Objective 5: Manage Problematic or Hard-to-Manage Waste

Provide guidance on managing problematic or hard-to-manage waste, including but not limited to household hazardous waste (HHW), waste tires, batteries, used oil, electronics, solar panels, and wind turbines. Promote proven emerging technologies and establish programs to prevent illegal

This objective expands upon Objective 7 of the 2015-2025 Plan, “Ensure Sufficient and Environmentally Sound Disposal,” and is also informed by Objective 3, “Promote Material Processing and End Use in Tennessee.” As new products and technologies emerge, Tennessee must address increasingly complex waste streams. By proactively managing problematic and hard-to-handle materials, the state protects human health and the environment, discourages illegal dumping, and ensures that its solid waste management system remains forward-looking and resilient.

Objective 6: Disaster Debris Management

Prepare local governments to respond effectively to natural or manmade disasters by ensuring they have an updated MSW Region Plan that includes a Disaster Debris Management Plan (DDMP) component. Emphasize incorporating the DDMP into larger Emergency Management Plans for comprehensive preparedness and response.

Objective 6 builds on the disaster debris management guidance found in the 2015-2025 Plan, particularly in Appendix C, and supports the broader goal of environmentally sound disposal (Objective 7). Effective disaster debris management is essential for minimizing environmental impacts, expediting community recovery, and maximizing eligibility for federal reimbursement. By integrating DDMPs into broader emergency planning, Tennessee enhances its preparedness and resilience in the face of increasing disaster risks.

Objective 7: Expand and Focus Education and Outreach

Improve education and outreach regarding opportunities for source reduction, recycling, and composting and their benefits. Educate the public on how solid waste management is funded and the vital importance of this service.

This objective is a direct continuation of Objective 6 from the 2015-2025 Plan, “Expand and Focus Education and Outreach.” Comprehensive education and outreach efforts are fundamental to increasing participation, changing behaviors, and building public understanding of the value and funding of solid waste management. By empowering Tennesseans with knowledge, the state ensures greater program success and long-term sustainability.

Objective 8: Develop Sustainable Funding Sources for MSW Management Programs

Encourage state and local governments to seek sustainable funding sources by providing guidance on application processes and establishing funding mechanisms to support MSW management programs. Ensure counties and private entities can meet financial responsibility for permitted facilities including day to day operations, closure, and post closure activities.

Objective 8 is directly related to Objective 8 of the 2015-2025 Plan, “Develop Sustainable Funding Sources for Sustainable Materials Management.” As diversion increases and traditional disposal-based funding models become less reliable, Tennessee must pursue innovative and equitable funding strategies. Sustainable funding is essential for maintaining and expanding critical services, supporting innovation, and ensuring all communities have access to effective waste management solutions.

Roles and Responsibilities for Implementation

Implementation of the 2035 Plan is the shared responsibility among the state government, regional entities, and local stakeholders. TDEC, through the DSWM, serves as the lead agency, with statutory authority and enforcement powers granted under the Solid Waste Management Act of 1991 (TCA §68-211-801).

State Government

TDEC is responsible for:

- Developing and maintaining the statewide plan in accordance with TCA §68-211-814 and §68-211-815, ensuring alignment with state goals and regulatory requirements;
- Providing statewide guidance, oversight, technical assistance, and regulatory enforcement to support regional and local planning efforts;
- Administering grants, setting waste reduction goals (TCA §68-211-861), and conducting enforcement actions;
- Reviewing and approving or disapproving regional solid waste plans within 90 days of receipt per TCA §68-211-814; and
- Regulating the siting, permitting, operation, and closure of solid waste facilities, including landfills, transfer stations, convenience centers, recovered material processing facilities (RMPFs), material recovery facilities (MRFs), and composting facilities.

Enforcement Authority

TDEC is vested with comprehensive enforcement authority under the Solid Waste Management Act of 1991 and related statutes. This authority ensures that all entities, state, regional, and local, comply with the requirements of the 2035 Plan and the broader statutory framework

Monitoring and Compliance

TDEC monitors compliance through inspections, audits, and reviews of regional solid waste plans, facility operations, and grant-funded programs. When deficiencies or violations are identified, the Commissioner may initiate enforcement actions to ensure corrective measures are taken.

Graduated Sanctions for Noncompliance

Under TCA §68-211-816, the Commissioner has the authority to impose a range of graduated sanctions, including:

- **Formal Warning Letters:** Issued to notify entities of noncompliance and required corrective actions.
- **Suspension of Grant Eligibility:** If noncompliance persists beyond 30 days, the entity may become ineligible for Solid Waste Management Fund (SWMF) grants.
- **Civil Penalties:** Continued violations beyond 60 days may result in civil penalties of up to \$5,000 per day, in accordance with TCA §68-211-117. All civil penalties assessed under these provisions are to be deposited into the SWMF to support statewide waste reduction and infrastructure initiatives.
 - Any person who violates TCA §68-211-608, TCA §68-211-866(a), or TCA §68-211-867(d) is subject to the penalties outlined in TCA §68-211-117, which include civil penalties and other enforcement actions.

- **Targeted Sanctions:** Sanctions may be applied to individual counties or municipalities responsible for a region's failure to meet waste reduction goals, per TCA §68-211-861(e), pursuant to TCA §68-211-116.

These mechanisms ensure accountability and reinforce the importance of timely and effective implementation of the 2035 Plan.

Collaborative Compliance

While enforcement is a critical tool, TDEC prioritizes collaboration and technical assistance to help regions and stakeholders achieve compliance. Enforcement actions are typically pursued when cooperative efforts fail or when violations pose significant risks to public health, environmental quality, or the integrity of the statewide solid waste system.

Solid Waste Planning Regions

As mandated by TCA §68-211-814 and §68-211-815, Solid Waste Planning Regions must:

- Prepare and maintain 10-year regional solid waste plans consistent with the state solid waste plan and update the plans annually through an Annual Progress Report (APR) as required by TCA §68-211-814. The 10-year regional solid waste plan must include at a minimum:
 - Demographic information and anticipated growth trends for the next ten-year period;
 - A current system analysis of waste streams, including data concerning types and amounts generated; collection capability, including data detailing the different types of collection systems and the populations and areas which receive and do not receive such services; disposal capability, including an analysis of the remaining life expectancy of landfills or other disposal facilities; costs, using a full-cost accounting model, or similar, developed by the commissioner, including costs of collection, disposal, maintenance, contracts and other costs; and revenues, including cost reimbursement fees, appropriations and other revenue sources;
 - Adoption of the uniform financial accounting system required by TCA §68-211-874;
 - Anticipated waste capacity needs and planned capacity assurance, including descriptions of planned or needed facilities;
 - A recycling plan, including a description of current public and private recycling efforts and planned efforts to enhance recycling within the county or region;
 - A plan for the disposal of HHW;
 - Adoption of uniform reporting requirements as required by TCA §68-211-815;
 - A description of waste reduction and recycling activities designed to attain the goal required by TCA §68-211-861;
 - A description of education initiatives aimed at businesses, industries, schools, citizens and others, which addresses recycling, waste reduction, collection and other applicable goals;

- An evaluation of multi-county solid waste disposal region options with an explanation of the reasons for adopting or failing to adopt a multi-county regional approach;
 - A timetable for implementation of the plan;
 - A description of the responsibilities of the various participating jurisdictions;
 - A certification from the region's solid waste authority, if such an authority has been formed, or if no such authority has been formed, the county legislative body of each county in the region that they have reviewed and approved of the region's plan and/or revised plan;
 - A plan for managing solid waste generated as a result of disasters or emergencies; and
 - Any other information the commissioner may deem relevant to the implementation of this part.
- Failure to submit an adequate plan or meet the minimum content requirements outlined in TCA §68-211-815 may result in disapproval and enforcement actions.
 - Demonstrate progress toward the 25 percent (%) waste reduction goal (TCA §68-211-861) or face qualitative assessments and potential sanctions.

Enforcement Authority

In accordance with TCA §68-211-871, a Solid Waste Planning Region may:

- Require any person or entity that is actively and regularly engaged in the collection, transportation, or disposal of MSW, or in the recovery or recycling of materials within the county or counties that make up the region, to provide any information necessary for the region to meet its reporting requirements under this statute; and
- If a person or entity fails to provide the required information, the region may file an action for mandatory injunction in the chancery court to compel compliance. The region is also authorized to recover all associated costs and attorney's fees from any person or entity that fails to meet the reporting requirements of this section.

Local Governments

Local governments play an essential role in implementing the Plan by:

- Operating collection, recycling, and disposal programs and infrastructure within their jurisdictions, including municipal systems that must be coordinated with and supplemented by county systems as required under the Solid Waste Management Act.
- Ensuring the availability of at least one site for recyclable material collection per county, in accordance with TCA §68-211-863.
- Supporting regional planning efforts by participating in regional boards, coordinating service levels, and providing required data for APRs as mandated under TCA §68-211-871.

In addition, counties are specifically required under TCA §68-211-851 to prepare and submit plans to ensure adequate solid waste collection services and to update these plans annually. These county responsibilities must consider municipal collection systems and ensure that county services complement and supplement those provided by municipalities.

Technical assistance for preparing, updating, and implementing these plans is available through the University of Tennessee's County Technical Assistance Service and, when applicable to municipal systems, the Municipal Technical Advisory Service.

Other Stakeholders

In addition, successful implementation depends on active participation from:

- **Private Industry:** Operating facilities, supporting diversion and market development.
- **Non-Governmental Organizations (NGOs):** Leading public education, outreach, and community initiatives.
- **Academic Institutions:** Providing research, data analysis, and technical support for evidence-based decision-making.
- **Individual Citizens:** Residents supporting implementation through informed participation, responsible practices, and engagement at the local and community level.

DRAFT

Existing Conditions

Understanding Tennessee's current solid waste management system is key to developing an effective statewide plan. This assessment draws on census data, state reports, regional plans, and facility-level insights to evaluate system performance. It highlights community diversity, service disparities, market pressures, and progress in areas like regional collaboration, infrastructure investment, and public support. The findings provide a foundation for setting goals, shaping policy, and prioritizing investments in infrastructure, education, and programs.

Policy and Regulatory Framework

Tennessee's solid waste management system functions within a legal and policy framework that guides its planning, permitting, operations, and oversight. This section provides an overview of the key statutes, regulations, and policies that shape solid waste management across the state and the roles and responsibilities of various state and local entities.

Federal Regulation

While solid waste management is primarily regulated at the state and local levels, several federal laws and programs influence how Tennessee manages the generation, recycling/reuse, and disposal of solid waste. The most significant federal law is the Resource Conservation and Recovery Act (RCRA) of 1976, which establishes a national framework for solid and hazardous waste management (42 U.S. Code §6901). Under Subtitle D of RCRA, states are authorized to regulate non-hazardous solid waste, including MSW, construction and demolition (C&D), and industrial non-hazardous waste, provided their programs meet minimum federal criteria for landfill design, groundwater monitoring, closure/post-closure care (PCC), and corrective action. Tennessee implements these requirements through its state permitting and compliance programs, overseen by DSWM within TDEC. TDEC maintains United States (U.S.) Environmental Protection Agency (EPA) authorization to operate the state's Subtitle D program.

Several other federal statutes also influence aspects of solid waste management in Tennessee including: the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, which governs the remediation of contaminated sites, including closed or abandoned landfills and illegal dumps, through the Superfund program (42 U.S. Code §6901); The Clean Air Act (CAA) of 1963, which regulates emissions from waste-to-energy (WTE) facilities and landfill gas systems, particularly methane and other greenhouse gases from MSW landfills (42 U.S. Code §7401-7671); and, the Clean Water Act (CWA) of 1972, which applies to stormwater runoff, leachate collection, and water quality protection at solid waste facilities (33 U.S. Code §1251-1387).

Tennessee's adherence to these federal requirements ensures consistency with national environmental standards, supports public health protections, and enables continued eligibility for technical and financial assistance from federal agencies.

Tennessee Governance and Regulation

Solid waste in Tennessee is governed by the Solid Waste Management Act of 1991 and regulated by TDEC. TDEC oversees facility permitting, compliance, and enforcement, including landfills, transfer stations, convenience centers, recycling centers, waste processing facilities, and

composting operations. Local governments are responsible for implementing ten-year regional solid waste plans, with TDEC providing regulatory oversight, policy direction, and technical support.

Statutory Framework

The foundation of Tennessee's solid waste regulatory system is the Solid Waste Management Act of 1991, which mandates solid waste planning, establishes regional governance structures, and authorizes regulatory oversight by TDEC. Key provisions of the Act include:

- Creation of Solid Waste Planning Regions, each required to prepare and maintain a regional solid waste plan (TCA §68-211-814);
- Preparation of 10-year regional solid waste plans, updated every 10 years following publication of Tennessee's 10-year plan with APRs to track implementation and effectiveness (TCA §68-211-814);
- Authorization for TDEC to set diversion goals, administer grants, and conduct enforcement (TCA §68-211-861); and
- Establishment of a waste reduction and diversion goal of 25% per capita by weight, relative to a 1995 baseline (TCA §68-211-861).

Permitting and Facility Regulation

TDEC's DSWM regulates the siting, permitting, operation, and closure of solid waste facilities, including:

- Class I, II, III, and IV landfills;
- Transfer stations;
- Convenience centers;
- Solid Waste Processing and recycling facilities;
- Composting operations; and
- Tire storage and processing sites.

Facility permits are issued pursuant to the Rules of the TDEC DSWM (Chapter 0400-11-01) and must comply with both state and federal environmental requirements, including design standards, financial assurance, groundwater monitoring, and PCC (TCA §68-211-801).

Waste Diversion, Recycling, and Problematic or Hard-to-Manage Waste Policies

Tennessee encourages and mandates recycling and/or waste diversion (TCA §68-211-863). State goals include reducing landfilled MSW through local efforts, supported by education grants, convenience center development funding, and HHW collection programs. The SWMF, established under the Solid Waste Management Act of 1991, is financed through tipping fee surcharges and provides financial support for these efforts (TCA §68-211-814). Other problematic or hard-to-manage waste programs include:

- Waste Tire Management Program (TCA §68-211-867) – Requires county collection sites and prohibits landfilling of whole tires; funded by a pre-disposal fee to support proper disposal and reuse. The draft Waste Tire Hauler Rule, developed in response to TN HB1689, introduces enhanced compliance requirements for hauler registration, load tracking, and reporting protocols to strengthen oversight and curb illegal dumping across Tennessee (TDEC, 2025b). It was presented at the May 2025 Underground Storage Tanks

and Solid Waste Disposal Control Board (UST-SWDCB) meeting and is anticipated to be finalized by late 2026 following public hearings and comment review.

- The Household Batteries, Used Oil, Paint, Antifreeze, and Electronics (BOPAE) Program ensures safe disposal of items like cathode ray tubes and lithium-ion batteries in line with federal standards.
 - The Mercury-Containing and Rechargeable Battery Management Act (TCA §68-211-301) was established to phase out the use of mercury-containing batteries and to promote the recycling of rechargeable batteries such as nickel-cadmium and small sealed lead-acid batteries (TCA §68-211-801);
 - The Used Oil Collection Act of 1993 established a statewide program to reduce improper disposal of used oil and antifreeze by providing incentives and grants to expand public collection facilities for do-it-yourselfers, thereby promoting proper recycling and environmental protection (TCA §68-211-1001); and
 - HHW Mobile Collection – TDEC partners with local governments and vendors to host mobile events for HHW drop-off (TCA §68-211-828, 829).

Enforcement and Compliance

TDEC conducts facility inspections, reviews permit compliance and may issue administrative orders or pursue civil penalties for violations of solid waste regulations. In cases of non-compliance with regional planning or data reporting requirements, TDEC can withhold grant funding or impose corrective actions.

Local governments may also adopt and enforce ordinances that address illegal dumping, open burning, nuisance waste conditions, and other community-specific issues. Local enforcement authority varies depending on charter provisions, county structure, and interlocal agreements.

Regional and Local Organization

Tennessee's approach to solid waste planning is organized across three layers: Grand Divisions, Development Districts, and Solid Waste Planning Regions. The state, divided into three Grand Divisions (**Figure 1**), is comprised of 95 counties and over 340 incorporated cities and towns, which contribute to a diverse and complex waste management landscape. Each county constitutes or is part of a Solid Waste Planning Region (**Figure 2**), which generally aligns with one of nine Development Districts (**Figure 1**) to support coordinated regional planning and service delivery.

Tennessee is constitutionally divided into three Grand Divisions: East, Middle, and West (TCA §4-1-201 to 4-1-204). Within this framework, the state's nine Development Districts, established under the Development District Act of 1965 (TCA §13-14-101 to 13-14-114), provide regional planning support and technical assistance. These districts align with the Grand Divisions and help Solid Waste Planning Regions develop consistent, actionable plans by conducting five-year solid waste needs assessments that identify infrastructure gaps, market opportunities, and regional priorities.

Figure 1: Tennessee Grand Divisions and Development Districts

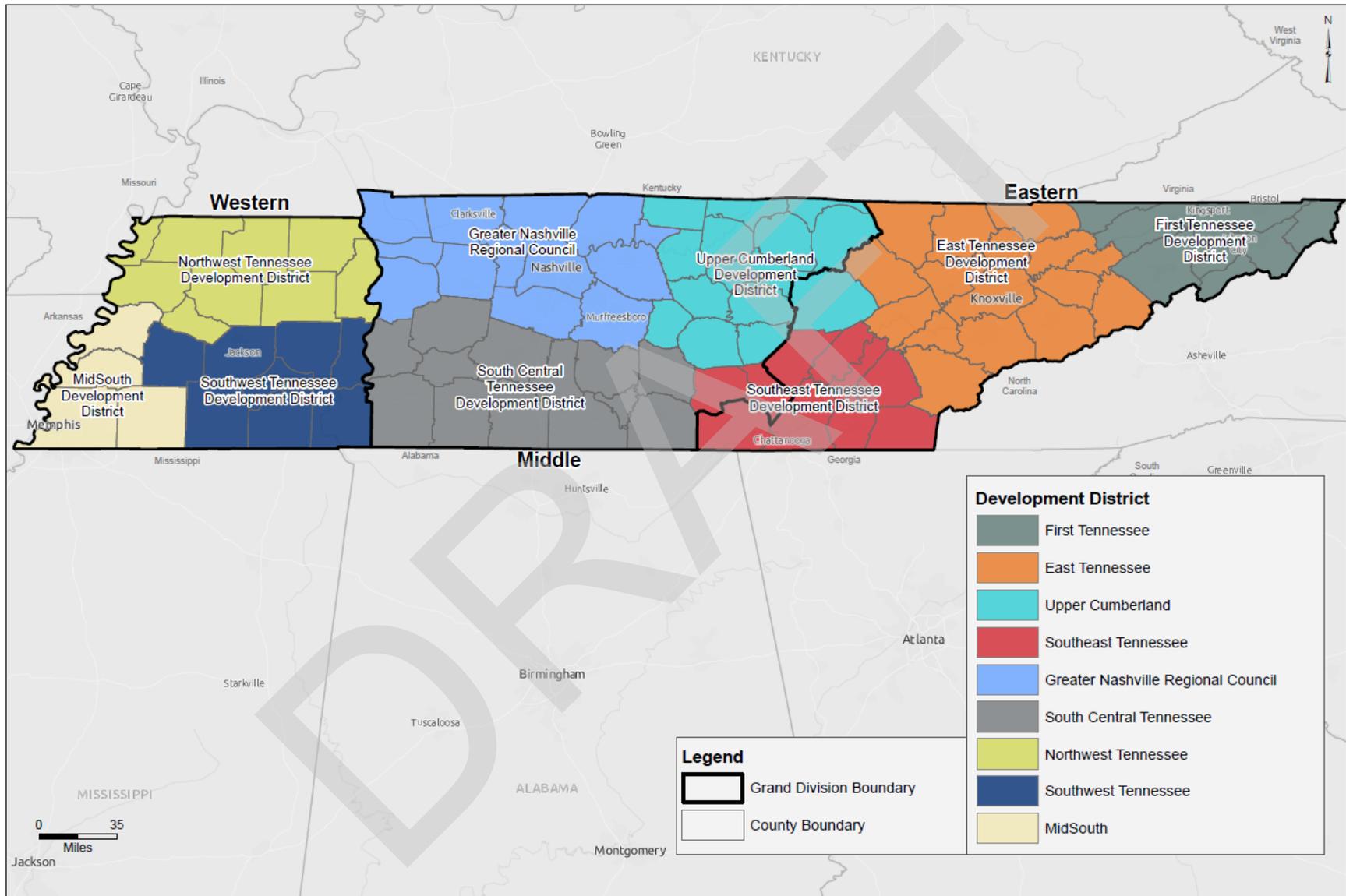
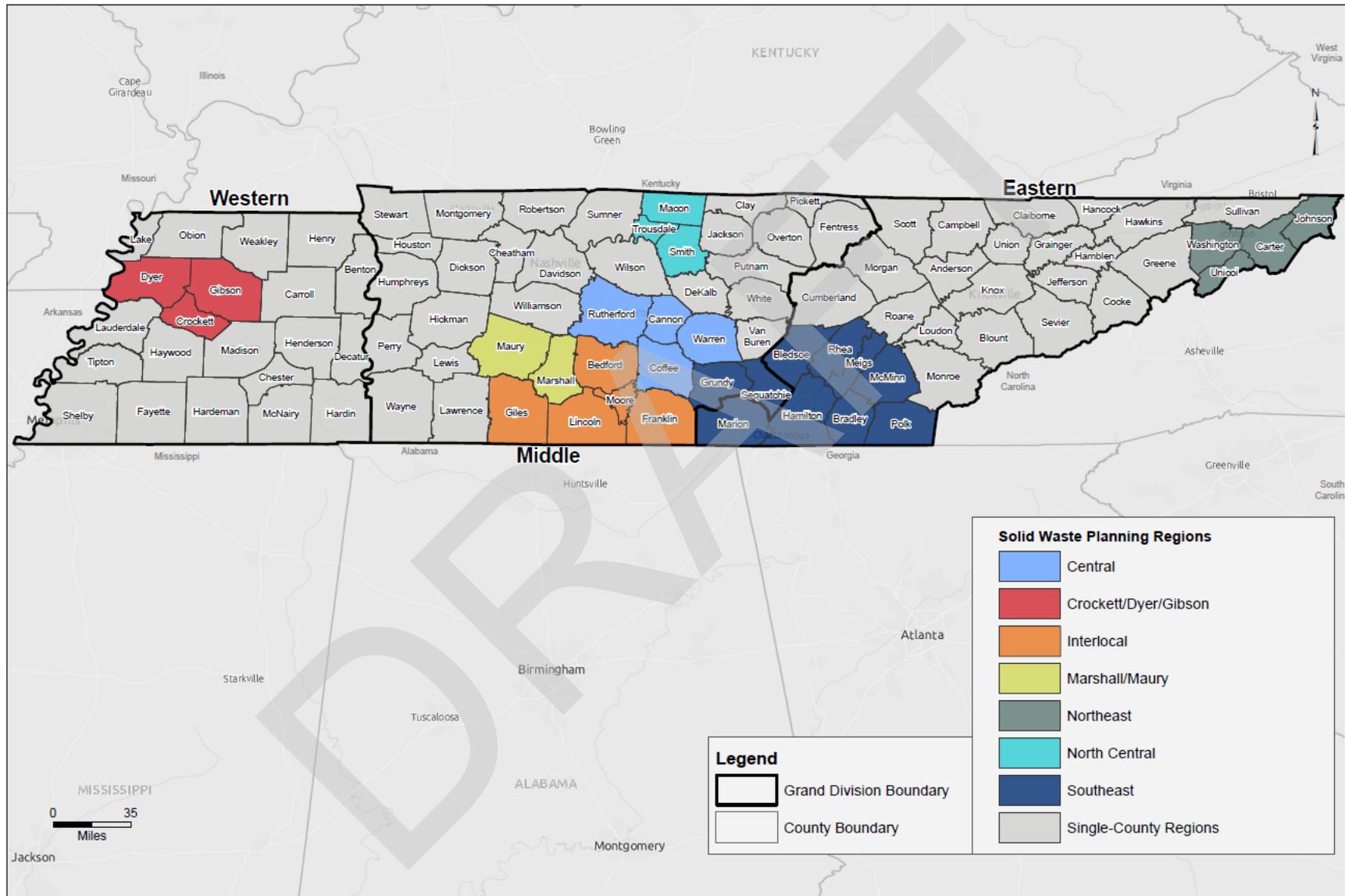


Figure 2: Tennessee Solid Waste Planning Regions



Under the Solid Waste Management Act of 1991, Tennessee’s 71 Solid Waste Planning Regions, both single- and multi-county, are responsible for preparing and maintaining 10-year solid waste plans addressing collection, recycling, disposal, public education, and long-term capacity (TCA §68-211-813). These plans are submitted to TDEC and updated annually as part of the APR for review and updates. While counties and municipalities manage day-to-day operations, their local programs must align with the strategies and requirements set forth in the regional plan.

Geology and Topography

Tennessee’s terrain falls into three major regions, each shaping waste management in distinct ways (Safford, 1869). East Tennessee, dominated by the Appalachian Mountains and Ridge-and-Valley Province, has steep slopes, fractured bedrock, and extensive karst, making landfill siting difficult and increasing complexity to groundwater monitoring, especially in carbonate formations like the Knox Group and Chickamauga Limestone. Middle Tennessee, within the Highland Rim and Central Basin, also contains widespread limestone and karst, creating similar siting challenges. West Tennessee, part of the Gulf Coastal Plain, offers flatter terrain and thick sediments more conducive to traditional landfill development, though it remains susceptible to flooding and perched water tables. These geologic and topographic conditions influence facility siting, design, monitoring, and transportation logistics. Steep grades, long distances, and isolated areas increase hauling costs and limit access to recycling markets.

Demographics

Understanding Tennessee’s population and economic landscape is essential for effective solid waste planning. Population growth can drive increases in residential waste, while employment and economic activity shape waste generation in the institutional, commercial, and industrial (ICI) sectors. Household size, housing type, and whether residents own or rent their homes affect consumption and recycling behaviors, and cultural and language considerations can influence outreach and participation. This section explores these and other key demographic and economic indicators to provide a foundation for projecting future waste generation and planning responsive, equitable solid waste services.

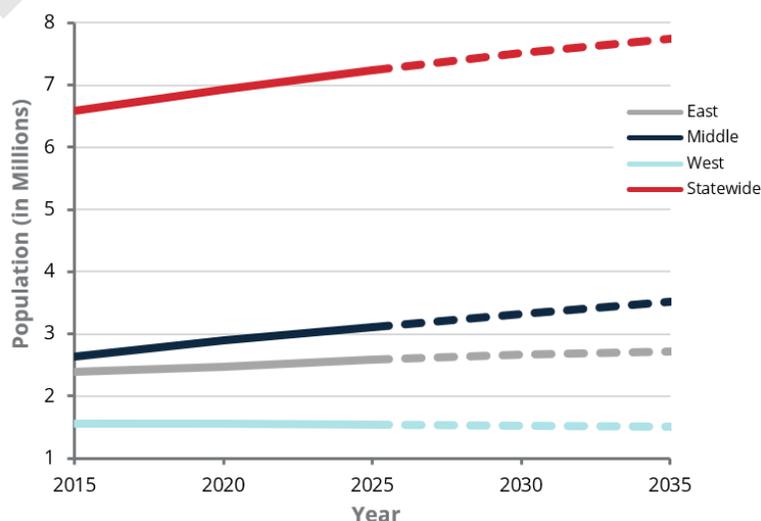
Attachment A: Supplemental Data Tables

provides county-level data for more localized analysis, while summary-level data is presented throughout the section in tables.

Population

Tennessee’s population has grown steadily over the past decade and is projected to continue expanding (**Figure 3**). From 2015 to 2025, the state’s population increased by nearly 10%, rising from

Figure 3: Projected Population



approximately 6.59 million to 7.24 million (U.S. Census Bureau, n.d.). By 2035, it is expected to increase by an additional 6.9% to reach 7.74 million (Tennessee State Data Center, 2024). This growth, however, is unevenly distributed across the state’s three Grand Divisions and is concentrated in urban and suburban counties as discussed later in this section. **Table 1** presents population and growth rates at the Grand Division and statewide levels from 2015 through 2035.

Table 1. Projected Population Growth (2015-2035)

Region of Interest		2015	2020	2025	2030	2035	Growth Rate			
							Average Annual (%)	2015-2025 (%)	Projected 2025-2035 (%)	2015-2035 (%)
East	Total	2,384,690	2,477,169	2,589,177	2,662,599	2,709,720	0.7	8.6	4.7	13.6
	Average	72,263	75,066	78,460	80,685	82,113				
Mid	Total	2,641,824	2,893,203	3,112,067	3,325,500	3,522,997	1.7	17.8	13.2	33.4
	Average	64,435	70,566	75,904	81,110	85,927				
West	Total	1,564,656	1,557,532	1,541,489	1,525,658	1,506,191	-0.2	-1.5	-2.3	-3.7
	Average	74,507	74,168	73,404	72,650	71,723				
State	Total	6,591,170	6,927,904	7,242,733	7,513,757	7,738,908	0.9	9.9	6.9	17.4
	Average	69,381	72,925	76,239	79,092	81,462				

Population Density and Regional Classifications

Population density, or the number of people living per unit of land area, varies across Tennessee’s Grand Divisions. East and Middle Tennessee show steady growth and rising density, while West Tennessee remains flat or slightly declining (**Table 2**).

Table 2: Projected Population Density Growth (2015-2035)

Region of Interest	Area (Sq. Miles)	2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Total Growth Rate (%)
East	Total	13,298	7,837	8,061	8,337	8,516	0.5	10.1
	Average	403	237	244	253	258		
Mid	Total	17,278	7,453	7,959	8,387	8,795	1.2	23.0
	Average	421	182	194	205	215		
West	Total	10,656	2,483	2,467	2,444	2,418	-0.2	-3.9
	Average	507	118	117	116	115		
State	Total	41,233	15,757	18,487	19,168	19,728	0.7	13.5
	Average	434	166	195	202	208		

Tennessee counties are classified by population as urban (>115,000), suburban (35,000 to 115,000), or rural (<35,000), based on adapted U.S. Census Bureau definitions (U.S. Census Bureau, 2012). Most of the state’s population is concentrated in urban and suburban counties near Knoxville, Chattanooga, Nashville, and Memphis (**Figure 4**). Middle Tennessee has a balanced mix of urban, suburban, and rural counties; East Tennessee is more urbanized (61% urban/suburban), while West Tennessee is predominantly rural (71%).

Urban counties contain about 56% of the state’s population despite representing a small share of counties, with higher densities that can improve service efficiency but also generate large waste volumes. Suburban counties account for 30% of the population and must balance rapid growth with flexible infrastructure, while rural counties serve only 14% of residents across more than half of Tennessee’s counties, where low population density increases collection costs and limits centralized infrastructure options.

Regional Growth Trends and Waste Management Implications

Middle Tennessee, the state’s largest Grand Division, is projected to grow by 31.4% between 2015 and 2035, with the fastest growth occurring in Trousdale, Wilson, Maury, Rutherford, and Williamson counties. East Tennessee is expected to grow by 16.7%, led by Monroe, Knox, and Blount counties, while West Tennessee is projected to decline by 3.7%, with particularly sharp losses in rural counties such as Lake and Lauderdale.

These divergent population trends directly affect solid waste management planning. Increased growth in Middle and East Tennessee will place added pressure on collection systems, disposal capacity, and funding, while stagnant or declining populations in West Tennessee may result in underused infrastructure and higher per capita service costs.

Household Characteristics

Household characteristics directly impact solid waste and recycling system design. Household size influences waste volume, while housing type, whether single-family or multi-family, determines whether curbside collection or centralized infrastructure is more feasible. Since one-third of Tennessee households are renter-occupied, higher turnover rates can disrupt recycling participation and necessitate more frequent, targeted outreach to ensure compliance (U.S. Census Bureau, 2023c).

Tennessee’s average household size is 2.49, with Middle Tennessee highest at 2.55 (U.S. Census Bureau, 2023b). Owner-occupied households are slightly larger (2.52) than renter-occupied ones (2.41), a consistent trend across all three Grand Divisions (**Table 3**).

Table 3: Average Household Size

Region of Interest	Average	Owner-Occupied	Renter-Occupied
East	2.43	2.47	2.34
Middle	2.56	2.58	2.49
West	2.46	2.48	2.38
State	2.49	2.52	2.41

Housing type also varies regionally. East Tennessee leads in single-family housing, comprising 83.1%, while multi-family housing comprises over 20% of both Middle and West Tennessee housing (**Table 4**). Rural areas have the highest share of single-family homes (92%), followed by urban (73.8%), while urban areas have the most multi-family housing (26.2%), likely due to mobile home parks and small apartment complexes.

Table 4: Housing Type

Region of Interest	Total Housing Units	Single-Family Housing	Multi-Family Housing
East	Total	981,058	199,434
	Percentage	83.1%	16.9%
Mid	Total	949,397	258,866
	Percentage	78.6%	21.4%
West	Total	550,382	140,735
	Percentage	79.6%	20.4%
State	Total	2,480,837	599,035
	Percentage	80.6%	19.4%

Homeownership rates follow a similar pattern: East Tennessee has the highest (69.2%) and West Tennessee the lowest (61.5%) (U.S. Census Bureau, 2023a). **Table 5** provides additional detail on owner- and renter-occupied units by Grand Division and region type.

Table 5: Housing Units and Tenure Status

Region of Interest		Number of Occupied Housing Units	Number of Owner-Occupied Units	Number of Renter-Occupied Units
East	Total	1,043,773	731,573	312,200
	Percentage		70.1%	29.9%
Mid	Total	1,114,676	748,945	365,731
	Percentage		67.2%	32.8%
West	Total	610,294	375,275	235,019
	Percentage		61.5%	38.5%
State	Total	2,768,743	1,855,793	912,950
	Percentage		67.0%	33.0%

These variations in household size, housing type, and tenure status shape waste generation rates, infrastructure needs, and outreach effectiveness. Understanding these patterns enables more responsive, data-informed planning tailored to Tennessee’s diverse living arrangements and service requirements.

Employment, Income, and Economic Indicators

Employment, income, and poverty trends across Tennessee’s Grand Divisions provide important context for differences in waste generation and access to solid waste services. As detailed in **Table 6**, Tennessee’s median household income of approximately \$62,061 remains well below the national median of \$80,610, despite steady growth of 4.8% annually from 2014 to 2023 (Federal Reserve Bank of St. Louis, 2023). Per capita income, however, exceeds the national average at approximately \$52,152 (U.S. Census Bureau, n.d.). Employment has stabilized near 58% since 2020 (**Table 7**), and strong business formation in 2024, particularly in Davidson, Shelby, Knox, and Hamilton counties, reflects continued economic activity associated with increased residential and ICI waste generation.

Table 6: Income Per Capita and Household Income

Region of Interest		2023 Income Per Capita	2025 Income Per Capita ¹	2023 Household Income	2025 Household Income ²
East	Total	\$1,593,422	\$1,673,571	\$1,900,052	\$1,995,625
	Average	\$48,286	\$50,714	\$57,577	\$60,473
Mid	Total	\$2,092,174	\$2,197,410	\$2,572,911	\$2,702,328
	Average	\$51,029	\$53,595	\$62,754	\$65,910
West	Total	\$1,031,579	\$1,083,467	\$1,140,485	\$1,197,851
	Average	\$49,123	\$51,594	\$54,309	\$57,041
State	Total	\$4,717,175	\$4,954,449	\$5,613,448	\$5,895,804
	Average	\$49,654	\$52,152	\$59,089	\$62,061

Notes:

¹Income per Capita adjusted to maintain purchasing power in 2025 dollars

²Median Household Income adjusted to maintain purchasing power in 2025 dollars

Table 7: Employment Rates for Population Aged 16 and Over

Region of Interest		Population Age 16+	Total Employed	Percent Employed
East	Total	2,002,695	1,096,508	55%
	Average	60,688	33,228	
Mid	Total	2,202,275	1,363,134	62%
	Average	53,714	33,247	
West	Total	1,232,272	687,688	56%
	Average	58,680	32,747	
State	Total	5,551,644	3,213,805	58%
	Average	58,438	33,830	

Approximately 16% of Tennessee residents live below the poverty line (**Table 8**), with the highest poverty rates in West Tennessee and the largest number of individuals in poverty in East Tennessee. In these areas, affordability challenges and limited access to curbside and recycling services can reduce participation and widen service disparities. These conditions highlight the need for flexible and inclusive solid waste strategies, such as subsidized services and targeted outreach, to support economically vulnerable populations

Table 8: Population Living in Poverty

Region of Interest	Number in Poverty	Average Percent in Poverty
East	373,646	16%
Middle	325,507	14%
West	264,325	18%
Statewide	963,478	15.7%

Language, Education, and Cultural Considerations

English proficiency in Tennessee is relatively high, with only 1.51% of residents classified as having limited English proficiency (**Table 9**), and Spanish is the most common non-English language spoken statewide (U.S. Department of Justice, n.d.). Other languages, including Arabic, Vietnamese, and Chinese, are spoken by small shares of the population. Educational attainment varies by region, with 13.5% of residents statewide having less than a high school diploma and significantly higher concentrations in West Tennessee, while Middle Tennessee has the highest share of residents with a bachelor's degree or higher (**Table 10**).

Table 9: Limited English Proficiency and Most Common Non-English Languages

Region of Interest	Average Population With LEP (%)	Most Common Other Primary Languages
East	1.42	Spanish or Spanish Creole, Chinese, Vietnamese, French (Patois, Cajun)
Middle	1.68	Spanish or Spanish Creole, Arabic, African Languages, Chinese
West	1.31	Spanish or Spanish Creole, Vietnamese, African Languages, Chinese
Statewide	1.51	Spanish or Spanish Creole, Vietnamese, African Languages, Chinese

Table 10: Average Educational Attainment

Region of Interest	Less Than High School Diploma	High School Diploma or Equivalent	Bachelor's Degree	Graduate or Professional Degree	Other
East	13.5%	38.7%	12.1%	7.4%	28.3%
Middle	13.1%	39.2%	13.6%	7.4%	26.8%
West	14.4%	42.6%	10.9%	6.3%	25.8%
Statewide	13.5%	39.8%	12.5%	7.1%	27.1%

These language and education patterns are important considerations for effective solid waste outreach. Aligning educational materials and communication strategies with local language needs and literacy levels can improve understanding, increase participation, and reduce contamination, supporting more inclusive and effective waste management programs.

Age Distribution

Age demographics influence solid waste service needs and program design across Tennessee. Older residents may require assisted collection and accessible services, while younger and student-heavy communities tend to respond better to digital tools, flexible scheduling, and incentive-based recycling programs.

As detailed in **Table 11**, Tennessee's population of 7.13 million includes 22.1% under age 18, 60.6% working-age adults, and 17.4% seniors (U.S. Census Bureau, 2023d). East Tennessee has

the highest share of seniors, indicating a greater need for age-friendly services, while Middle Tennessee has the largest working-age population linked to rapid urban growth. These patterns highlight the importance of tailoring solid waste services to local age profiles to improve accessibility, participation, and long-term system sustainability.

Table 11: Population Distribution by Age Group

Region of Interest		Population under 5	Population 5-13	Population 14-17	Population 18-24	Population 25-44	Population 45-64	Population above 65	Total Population Estimate
East	Total	136,965	264,586	130,602	233,815	651,635	686,400	530,176	2,634,179
	Percent	5.2%	10.0%	5.0%	8.9%	24.7%	26.1%	20.1%	37%
Mid	Total	172,659	323,558	154,323	262,862	818,973	694,490	431,696	2,858,561
	Percent	6.0%	11.3%	5.4%	9.2%	28.6%	24.3%	15.1%	41%
West	Total	97,389	186,118	87,728	132,225	409,721	378,298	265,845	1,557,324
	Percent	6.3%	12.0%	5.6%	8.5%	26.3%	24.3%	17.1%	22%
State	Total	407,013	774,262	372,653	628,902	1,880,329	1,759,188	1,227,717	7,050,064
	Percent	5.8%	11.0%	5.3%	8.9%	26.7%	25.0%	17.4%	

Industrial, Commercial, and Institutional (ICI) Sector

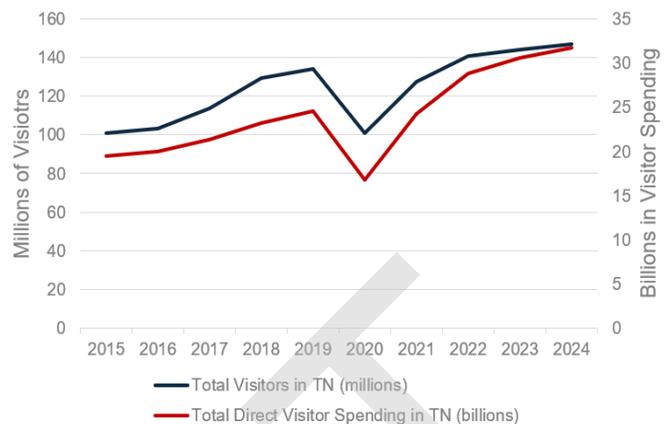
The ICI sector generates a substantial share of Tennessee’s solid waste but remains poorly characterized due to reliance on private haulers and limited reporting requirements. Nationally, ICI waste accounts for an estimated 40-60% of non-hazardous solid waste, a range likely applicable to Tennessee given its strong manufacturing, logistics, healthcare, and tourism sectors, particularly in urban counties such as Davidson, Shelby, Hamilton, and Knox (EPA, 2020). Recent employment trends suggest shifts within the ICI waste stream. Healthcare employment has remained relatively flat since 2019, while food services grew by 11.6%, accelerating food waste and disposable packaging generation (U.S. Census Bureau, 2022). Manufacturing remains a major source of industrial waste, especially from automotive facilities, though planned plant closures may reduce output in some subsectors (IndustrySelect, 2024) (Bridgestone Americas Press Center, 2025). Retail trade and accommodation and food services continue to generate large volumes of recyclable materials such as cardboard and food waste, making them key targets for diversion. Despite this, data gaps persist statewide, and available audits, such as Nashville’s 2018 ICI waste characterization, show high landfill disposal rates for readily recoverable materials, highlighting significant untapped diversion potential (Metropolitan Nashville-Davidson County Government, 2018).

Tourism

Tourism is a major economic driver in Tennessee, drawing tens of millions of visitors annually to destinations such as the Great Smoky Mountains, the most visited national park in the U.S., as well as Nashville, Memphis, and historic small towns (U.S. National Park Service, 2022). The Tennessee Department of Tourist Development (TDTD) reported a record 147 million visitors who spent \$31.7 billion, averaging \$87 million in daily economic activity (TDTD, 2024a). Between 2015 and 2024, visitation rose 46%, and spending 63%, with annual increases averaging 5% and 7%. International visitors spent nearly six times more per person than domestic travelers, signaling a strong post-pandemic recovery and sustained growth (**Figure 5**).

Peak tourism months, May through August and September through October, place added pressure on local solid waste management systems, requiring expanded collections and more frequent service schedules (TDTD, 2024b). High-tourism counties like Sevier, Davidson, Shelby, Knox, and Hamilton experience sharp spikes in monthly waste tonnage. In Sevier County, which includes Gatlinburg, Pigeon Forge, and Dollywood, short-term rental cleaning alone generates an estimated 20–25 tons of waste daily, creating operational and financial challenges (Sevier County Government, 2024).

Figure 5: Tourism Trends from 2015 to 2024



Tourism adds a significant but often underrecognized burden to Tennessee’s solid waste management system. **Table 12 in Attachment A: Supplemental Data Tables** compiles estimates from multiple studies, showing wide variability in per-tourist waste generation depending on location, season, and tourism type. While high-volume destinations skew the mean, the median offers a more typical planning value. A reasonable estimate ranges from 2.5 to 4.5 pounds of waste per tourist per day, lower for outdoor recreation and higher for urban tourism, hotels, events, and festivals.

To support planning, the following model can be used: ***Tourist Waste (tons) = (number of tourists x average stay in days x waste per tourist per day) ÷ 2000***. This formula helps estimate seasonal waste loads by county or attraction type and informs infrastructure proposals, grant applications, and comparisons between resident and visitor impacts. Tennessee could also conduct targeted waste audits at hotels, campgrounds, festival sites, and trailheads. These would yield region-specific data to guide recycling, composting, and litter management strategies.

Despite tourism’s impact, few local or regional solid waste plans explicitly address it. Most counties lack mechanisms to attribute waste tonnage to tourism, and many hospitality businesses use private haulers, limiting visibility into volumes and diversion rates. This creates a persistent blind spot in planning, especially for peak season services, infrastructure budgeting, and public education.

Tourism is both a major economic driver and a complex challenge for Tennessee’s solid waste management system. Understanding the impacts of waste and integrating them into planning is essential for maintaining service quality and meeting environmental goals.

Statewide Waste Composition and Generation

Understanding how much waste Tennessee generates, and what it’s made of, is essential for evaluating infrastructure needs, identifying diversion opportunities, and designing equitable, effective waste policies. This section summarizes recent data on total generation, per capita rates, and material composition, with attention to regional trends and long-term implications.

Total Waste Generation

In 2023, Tennessee generated approximately 18 million tons of MSW, including residential and ICI sources. Waste generation has increased steadily, especially in urban and suburban areas like Nashville-Davidson, Knoxville, and Memphis (TDEC, 2024b). About 52% of this waste was landfilled, while the rest was managed through recycling, composting, or beneficial reuse. Generation rates vary across Solid Waste Planning Regions, with lower rates often reported in rural areas due to limited data or underreporting.

On a per capita basis, Tennessee’s average disposal rate was approximately 6.5 lbs. per person per day, well above the national average of 4.9 lbs. (EPA, 2023). Rates vary widely by region, influenced by population, land use, economic activity, tourism, and reporting practices.

Waste Composition

In 2024, Tennessee initiated a statewide waste characterization study using funding from the Solid Waste Infrastructure for Recycling. The study is being led by TDEC, in collaboration with SCS Engineers, to improve statewide understanding of MSW composition and to support data-driven solid waste planning, recycling, and infrastructure development. The study is being conducted over multiple seasons and includes statistically robust sampling at representative facilities across the state, with material categories evaluated at a 95% confidence level.

Season One of the Tennessee Statewide Waste Characterization Study evaluated residential and commercial MSW, recyclable materials, and bulky waste. The results from this initial season are complete, providing a comprehensive baseline of material composition across multiple waste streams. A summary of the Season One results is included in **Attachment D: Tier-Based Infrastructure Expectations**

Gate surveys indicate the residential sector generates approximately 62.1% of the overall tonnage, with the ICI sector contributing the remaining share (32.9%). Overall, organics and paper were identified as the largest components of Tennessee’s MSW (**Figure 6**). Plastics, both film and rigid, are also significant. Metals, glass, C&D debris, HHW, electronics, and miscellaneous materials comprise the remainder.

Residential MSW contains a higher proportion of “other materials” and rigid plastics, reflecting greater use of mixed consumer packaging and household goods, while commercial MSW is more heavily weighted toward paper and organics generated from offices, retail, and food service establishments. Overall, commercial waste is dominated by fewer material types that present clearer opportunities for targeted diversion (**Figure 7** and **Figure 8**).

Analysis of recyclables shows old corrugated cardboard and mixed paper dominate, with plastics and metals present in smaller amounts; glass and organics are less common among recyclables (**Figure 9**).

Figure 6: Overall Waste Composition Summary

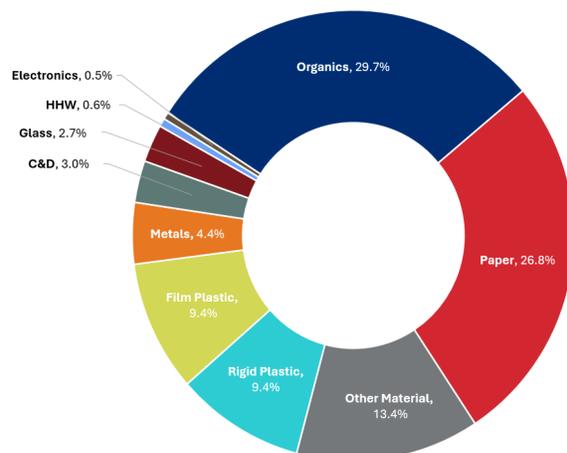


Figure 7: Residential Waste Composition

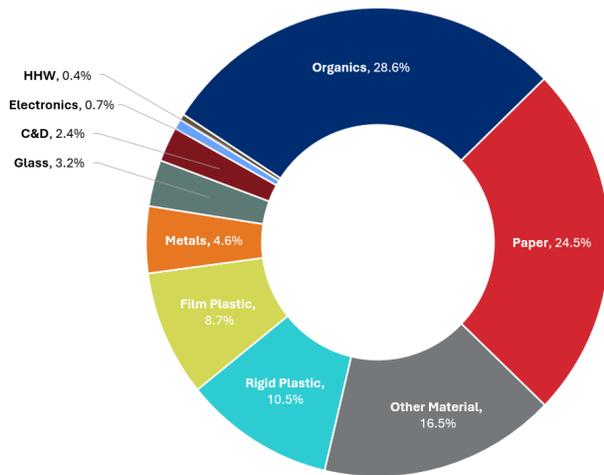


Figure 8: Commercial Waste Composition

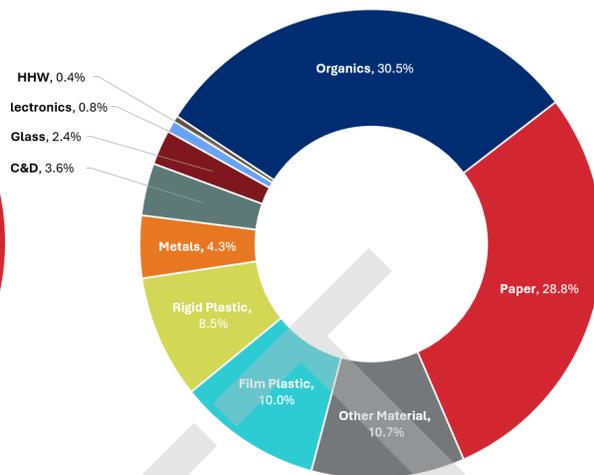
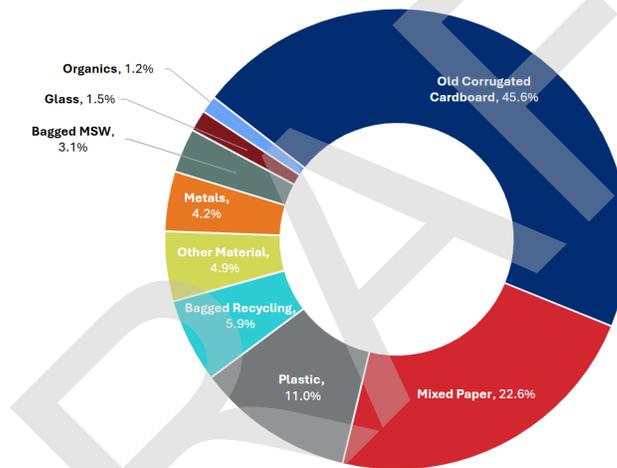


Figure 9: Overall Recyclable Material



Infrastructure and Facilities

Tennessee’s solid waste system is supported by a broad network of MSW landfills, transfer stations, convenience centers, RMPFs, MRFs, and composting facilities. As of September 2025, TDEC reports 1,832 permitted facilities, 939 of which are operational. Infrastructure varies across the state’s Grand Divisions: West Tennessee has limited assets outside Memphis, Middle Tennessee faces challenges siting new landfills, and East Tennessee increasingly depends on convenience centers to serve growing rural communities.

Material Collection and Transfer

Tennessee’s material collection system uses both decentralized and centralized methods. Materials may be collected close to where they are generated through curbside service, dumpsters, or roll-off containers, or delivered by residents to centralized drop-off locations such as convenience centers. Waste and recyclables collected at or near the point of generation are typically consolidated at intermediary facilities, such as transfer stations or baling sites, before being transported to their final disposal or processing destinations. As urban and suburban

populations grow, decentralized, route-based collection, particularly curbside service, has expanded, increasing convenience and often boosting recycling participation.

Convenience Centers and Drop-off Sites

Convenience centers are vital in rural areas, offering drop-off access for MSW, recyclables, and other wastes. TDEC supports these facilities through grants, technical assistance, and mapping tools (TDEC, 2025c) to improve public access. The shift from unstaffed “green boxes” to staffed centers has improved material separation and recycling outcomes. Over 500 active, permitted centers exist statewide, nearly half in Middle Tennessee. However, access remains uneven, while one county operates as many as 15 centers, others have none. **Figure 10** shows county-level distribution.

Waste Transfer and Long-Distance Transport

Tennessee has 96 active, permitted transfer stations that consolidate waste for efficient transport to disposal or processing sites. East Tennessee operates 31 stations, Middle Tennessee has 44, and West Tennessee maintains 21. Some stations also handle industrial waste, C&D debris, or specialized streams. Facilities for regulated medical waste, auto shredder residue, and waste tires are tracked separately and excluded from this total. **Figure 10** also illustrates the statewide distribution of transfer stations.

Other Collection, Transfer, and Temporary Storage Facilities

Beyond MSW transfer stations, Tennessee’s infrastructure includes facilities for C&D debris, industrial residuals, waste tires, regulated medical waste, and aggregated recyclables. These specialized sites expand the reach of the state’s materials management system, especially in rural and underserved areas. Mobile collection events support the proper management and/or recycling of problematic or hard-to-manage wastes where permanent infrastructure is limited. Tennessee currently has 15 permitted tire storage sites, 14 county-owned and one operated by Johnson City.

Recycling and Diversion

Tennessee follows the EPA’s waste management hierarchy, which prioritizes source reduction, recycling, and composting over disposal. Where waste cannot be diverted through reuse or recycling, processes such as WTE and other material conversion technologies are encouraged as alternatives to landfilling, provided they result in beneficial outputs. **Figure 11** illustrates the distribution of processing facilities across the state.

Waste and Recyclables Processing Facilities

Waste and recyclables processing facilities are essential to meeting Tennessee’s diversion goals. Typically located near major waste generators, they may include MRFs, industrial residual recyclers, municipal composting sites, and other operations that recover value from the waste stream. Facilities that use recovered materials to manufacture finished products onsite, such as packaging plants, are exempt from permitting. In contrast, facilities that only sort or process materials without producing usable products, such as crumb rubber processors, must obtain TDEC registration or permits.

Figure 10: Permitted Solid Waste Transfer Stations and Convenience Centers by County

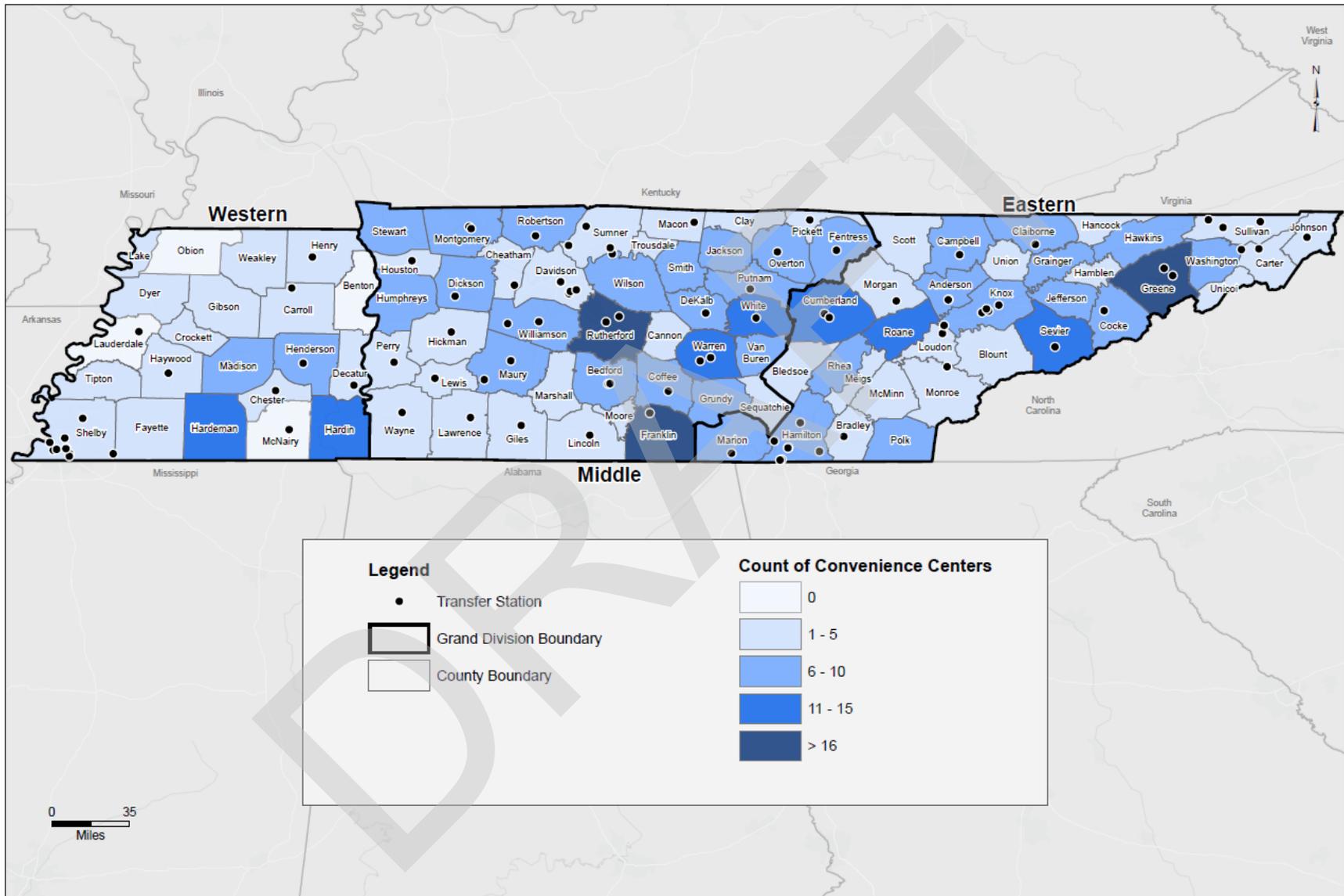
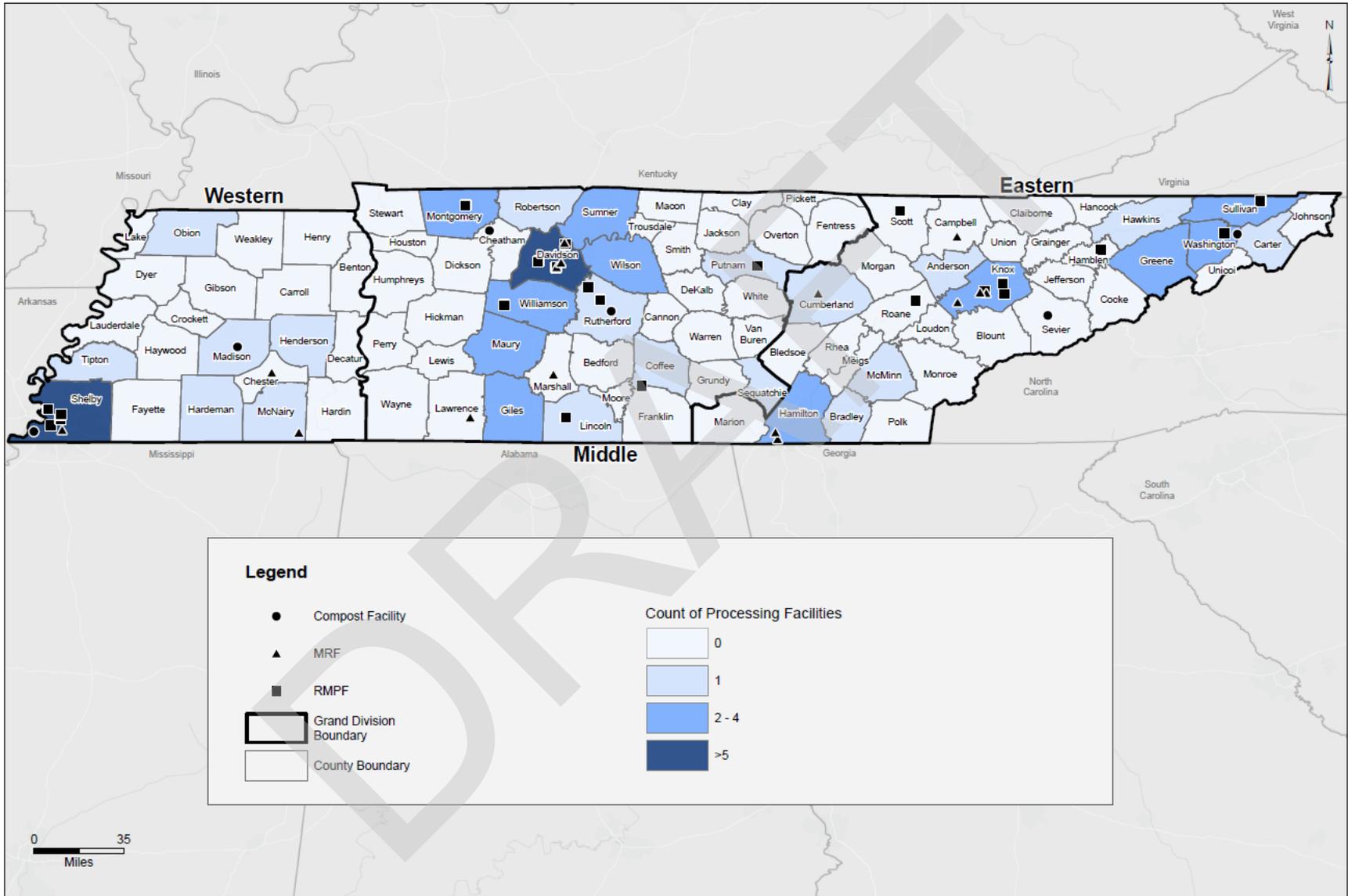


Figure 11: Diversion Infrastructure: MRFs and Composting Facilities



Tennessee currently has at least 16 MRFs that sort commingled materials. These MRFs accept single- or dual-stream recyclables, sorting them into marketable commodities. While most MRFs do not require permits in the state of Tennessee, if more than 20% of the material handled by the facility becomes residual waste (i.e., waste that cannot be recycled and must be disposed of), the facility is required to obtain a permit.

Permitted Processing Facilities:

In Tennessee, there are 72 active, permitted solid waste processing facilities that handle regulated waste or produce significant residuals requiring disposal. These sites include operations for auto shredder residue, regulated medical waste autoclaves, tire processing, composting, and organics shredding.

RMPFs:

In addition to permitted facilities, the state registers RMPFs focused on the storage, processing, and resale of recovered materials. These facilities handle a variety of recyclables, including materials collected through curbside programs or generated by C&D activities. While RMPFs must register with TDEC and report their operations, they are exempt from permitting if they handle only recovered materials, properly notify TDEC, manage materials as valuable commodities without creating environmental or public health risks, demonstrate a viable market for the recovered materials, and either provide financial assurance of at least \$10,000 or qualify for an exemption based on government ownership or material value. There are currently 23 RMPFs registered with TDEC.

Composting and Organic Waste Management:

There are currently six Tier I-III permitted composting facilities in Tennessee, up from four in the 2015-2025 Plan. Additional facilities across all three Grand Divisions manage yard waste, leaves, and processing residuals.

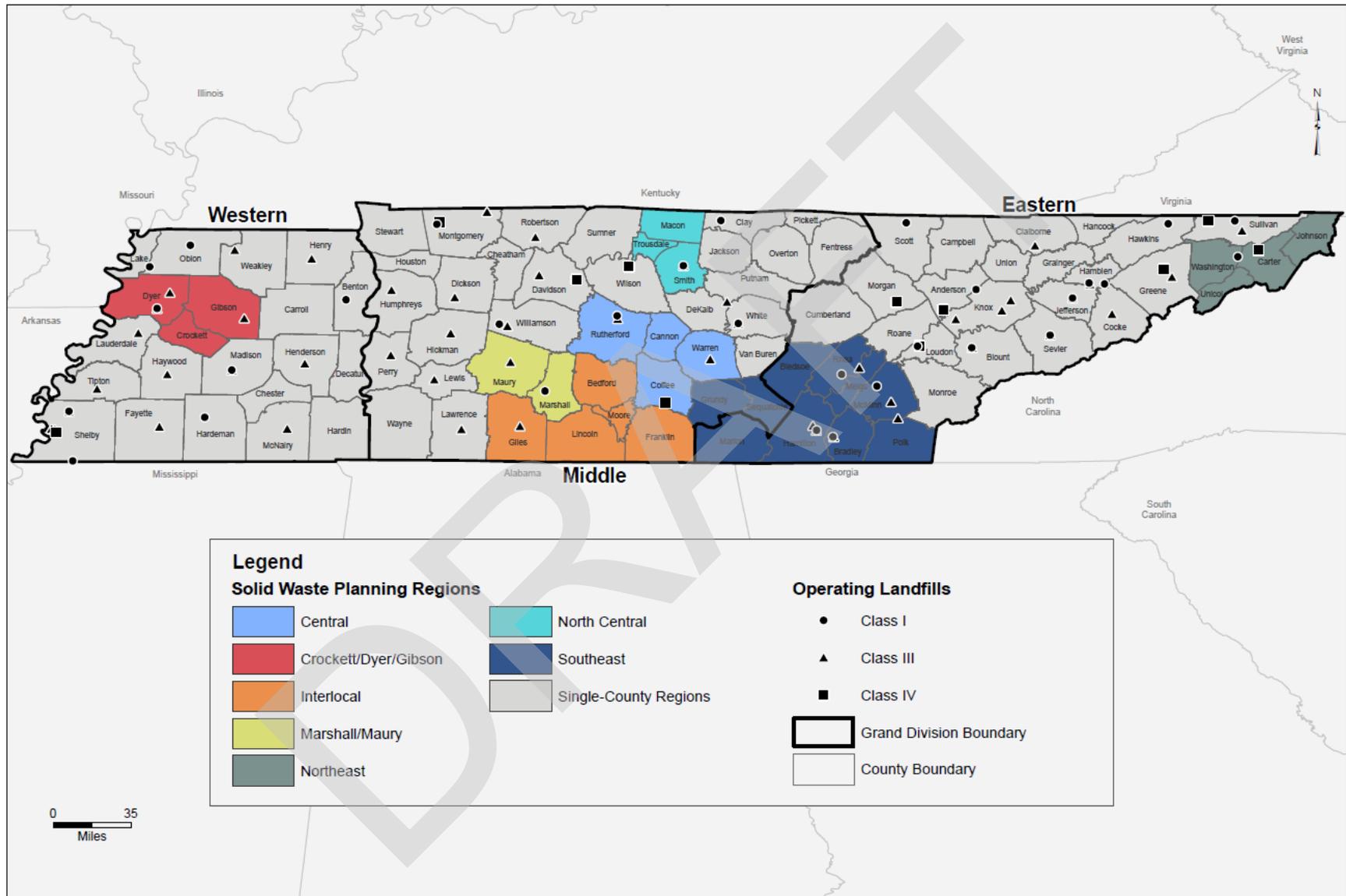
TDEC Recycling Programs:

TDEC's Recovered Materials Division leads recycling, composting, and materials management initiatives across Tennessee. The 2015-2025 Plan emphasized expanding curbside and drop-off recycling, strengthening MRFs, promoting composting and food recovery, and launching public education campaigns. With around 528 convenience centers accepting recyclables, accessibility has improved, supporting greater program participation and diversion efficiency.

Landfill Disposal Facilities:

In Tennessee, there are 113 active permitted landfills, unevenly distributed across the state. The number of Class I (MSW) landfills dropped from 96 in 1991 to just 40 by 2015, and currently stands at 30. Class III landfills have declined from 65 to 42, while Class IV sites have reduced from 11 to 10. Publicly owned MSW landfills have also declined, from 82% to 40%, reflecting significant privatization. **Figure 12** maps the locations of Class I, III, and IV landfills statewide.

Figure 12: Operating Tennessee Class I, III, and IV Landfills



Class I Landfills

Class I landfills are Tennessee’s primary MSW disposal facilities, subject to strict standards for operations, leachate management, gas management, groundwater monitoring, surface water management and monitoring, staffing, training, and financial assurance. Currently, 30 active Class I landfills operate statewide: 15 in East Tennessee, 7 in Middle Tennessee, and 8 in West Tennessee. Capacity constraints are emerging across the state. Middle Point Landfill in Rutherford County is projected to reach capacity by 2029 and has been pursuing expansion since 2011. Upper Cumberland Landfill in Clay County is also nearing capacity. In contrast, other facilities that were previously considered at risk, including those in Hamblen County, Loudon County, Rhea County, and White County, have recently received permits for expansion, which has extended their operational timelines. **Table 12** details active Class I facilities and their remaining permitted airspace as of 2023. The 2023 Annual Engineering Report also notes 12 additional permitted but unbuilt facilities (TDEC, 2024b).

Table 12: Capacity Overview of Active Class I Landfills

Region of Interest		Total Tons Accepted by Year (CY)		Permitted Remaining Airspace (CY)
		2014	2023	2023
East	Total	2,885,033	3,900,820	115,067,598
	Average	206,074	278,630	3,486,897
Mid	Total	1,944,883	2,157,693	24,867,381
	Average	324,147	359,615	606,521
West	Total	1,483,794	2,435,373	151,495,404
	Average	1,483,794	2,435,373	7,214,067
State	Total	6,313,710	8,493,885	291,430,383
	Average	233,841	303,353	3,067,688

Class II Landfills

Class II landfills are typically designated for non-hazardous industrial waste. Industries use these landfills to dispose of their own process waste that is not classified as hazardous under federal regulations. There are 31 active and Class II landfills in Tennessee designed for non-hazardous industrial, commercial, and inert wastes.

Class III/IV Landfills

Class III landfills accept C&D debris, shredded tires, and non-putrescible wastes. Of the 83 permitted facilities, 42 are currently active. These active sites do not use synthetic liners but are required to have a geologic buffer or other equivalent or superior protection along with groundwater protection measures. These sites charge lower tipping fees and are exempt from disposal surcharges. Class IV landfills (also for C&D and quarter tires) are no longer permitted post-2008 but remain active under a grandfather clause; 10 remain operational, with 25 closed or in PCC. Capacity data for Class III and IV sites is not currently tracked by TDEC. Active Class III/IV sites are distributed relatively evenly across regions.

Closed Disposal Facilities

Approximately 309 landfills are closed or undergoing PCC, including cap maintenance, groundwater monitoring, stormwater management, and landfill gas management. Of these, 261 are Class I, III, or IV and are primarily managed by local governments. TDEC inspects each site twice annually to ensure compliance with environmental regulations.

Funding and Economic Conditions

The long-term viability of Tennessee’s solid waste management system depends on stable, diversified funding. Most services are funded by local governments through property and sales taxes, tipping and collection fees, host fees, and grants, with supplemental support from state programs, federal agencies, and NGOs. However, rising costs, driven by inflation, labor shortages, volatile recycling markets, and aging infrastructure, are outpacing revenue growth.

A review of the 2024 Solid Waste Needs Assessments from the nine Development Districts revealed current revenue sources, program costs, and infrastructure priorities. A detailed analysis of one district covering 16 counties (18% of the state population) showed property taxes (63%), tipping fees (60%), and disposal fees (60%) as the most common revenue sources, with most jurisdictions relying on two to three primary sources **Table 13**.

Table 13: Primary Local Funding Sources for Solid Waste Programs in Tennessee

Revenue Source	Frequent Utilization	Majority Source > 50%
Property Taxes	69%	63%
Collection Charges	38%	13%
Sales Tax	19%	19%
Tipping Fees	19%	60%
Disposal Fee	31%	60%
Surcharge	13%	0%
Host Fee	60%	0%
Other Sources: Grants, bonds, interest, sales, etc.	94%	0%

Local expenditures vary widely, ranging from \$10 to \$70 per capita. As of FY2022, counties spent an average of \$30 per resident. The inclusion of city-level expenditures results in a total \$45 per capita funding level. Collectively, Tennessee jurisdictions spend over \$300 million annually on essential services like collection, disposal, education, and facility operations.

Despite this mix, many counties face a 5–10% funding shortfall, equating to \$10-20 million annually. These gaps often result in reduced service levels, fewer drop-off sites, and limited material acceptance, especially in rural areas.

Tipping fees at Tennessee landfills range from \$60 to over \$90 per ton, depending on location, ownership, and market competition. These fees may be utilized to subsidize convenience centers and recycling programs, but rural counties with low waste volumes struggle to recover costs, relying on general fund subsidies or deferring maintenance.

At the state level, the SWMF is Tennessee’s primary funding source. Supported by a \$0.90 per-ton surcharge on Class I landfill disposal (TCA §68-211-835), the SWMF collected \$11.6 million in FY2024 and disbursed \$8.8 million in grants. The \$24.2 million FY2024 ending balance in the SWMF includes committed funds, meaning the surplus is not fully discretionary (Tennessee Department of Finance and Administration, 2024). SWMF grants support equipment purchases, diversion programs, HHW events, and education, especially in rural areas with limited revenue options.

Local governments in Tennessee receive funding from a mix of federal, nonprofit, and private-sector sources, including EPA grants for solid waste infrastructure and recycling, USDA Rural Development grants and loans for solid waste management, and nonprofit investments such as those provided by The Recycling Partnership and the Closed Loop Fund, which together

contributed more than \$3 million to support recycling development in Memphis between 2014 and 2016. Despite these funding sources, economic conditions remain challenging due to volatile recycling markets; the collapse of overseas export markets has periodically reduced the value of mixed paper and certain plastics, forcing many programs to renegotiate contracts under less favorable terms. High upfront capital costs and long payback periods further limit investment in infrastructure such as transfer stations, composting facilities, and MRFs, especially for smaller jurisdictions that often lack the financial and technical capacity to develop modern systems, resulting in regional disparities and higher transportation costs. Economic conditions are also shaped by private sector participation, with competition among haulers in urban areas helping to control costs, while limited-service availability in rural areas increases prices and reduces operational flexibility.

Looking ahead, Tennessee faces additional cost pressures from rising contamination rates, increased demand for organics diversion, and more stringent EPA and Occupational Safety and Health Administration (OSHA) compliance requirements, underscoring the need for funding strategies that are resilient to evolving economic and regulatory conditions.

Data Reporting and Performance Metrics

Reliable data and consistent performance tracking are essential for evaluating Tennessee's solid waste management system and informing planning and investment decisions. State law and TDEC rules require local governments, planning regions, and permitted facilities to submit recurring reports on waste generation, disposal, diversion, capacity, and system costs. These reports provide baseline accountability and are compiled by TDEC into its Annual Solid Waste Management Report.

Statewide Reporting Requirements

Reliable data and consistent performance tracking are essential for evaluating Tennessee's solid waste management system and informing planning and investment decisions. As described in **Roles and Responsibilities for Implementation**, state law and TDEC rules require local governments, planning regions, and permitted facilities to submit recurring reports on waste generation, disposal, diversion, capacity, and system costs. These reports provide baseline accountability and are compiled by TDEC into its Annual Solid Waste Management Report.

Reporting Systems

TDEC collects solid waste and recycling data primarily through the MyTDEC Forms platform, which is used by permitted landfills and transfer stations, counties, and planning regions. While the platform has improved standardization and accessibility, reporting challenges persist. Local staff capacity and training vary, some reporting fields do not fully capture emerging materials or diversion methods, and data from private haulers, commercial generators, and industrial sectors remains limited or incomplete. These gaps reduce visibility into ICI waste flows and regional system performance.

Performance Metrics and Benchmarks

TDEC and local governments use several core metrics to track system performance, including total waste generation and disposal, recycling tonnage by material type, diversion rates, facility waste acceptance volumes, landfill capacity and remaining life, and public program participation

and costs. Diversion rates are calculated using multiple methodologies, including population-adjusted, economically adjusted, and real-time reduction approaches. While these metrics provide a general snapshot of system performance, inconsistent calculation methods and assumptions limit comparability across regions and reduce confidence in statewide progress toward the 25% waste reduction goal.

Overall, enhancing Tennessee's data systems will require more consistent reporting practices, expanded participation from private-sector entities, and improved material- and sector-specific tracking. Strengthening these areas will support more accurate performance measurement, better investment decisions, and more effective long-term solid waste planning.

Summary of Key Trends and Challenges

Tennessee's solid waste management system is currently effective, but existing conditions indicate vulnerabilities that may worsen as the state continues to grow. Uneven population trends, infrastructure gaps, financial constraints, and data limitations are already influencing system performance and will shape future planning and investment decisions.

Rapid growth in urban and suburban areas, particularly in Middle Tennessee, is increasing waste volumes and straining local systems, while rural communities face higher per capita costs and underused infrastructure. At the same time, limited access to collection and processing infrastructure, declining landfill capacity, recycling market volatility, rising service costs, and gaps in data reporting reduce the state's ability to track waste flows accurately and measure progress toward long term waste reduction goals.

Stakeholder Engagement and Public Outreach

A variety of engagement strategies were used to support stakeholder and public involvement in developing the 2035 Plan with the goal of gathering input and fostering collaboration throughout the planning process. Additional details beyond those outlined in the following sections are provided in **Attachment C: Review of Technologies**.

Stakeholder Engagement

Stakeholder engagement for the 2035 Plan involved a comprehensive approach combining digital surveys and interactive workshops to gather diverse input from Tennessee stakeholders. A digital survey, designed and administered by Geosyntec and subcontractors via SurveyMonkey between December 2024 and January 2025, was distributed by TDEC through email and included multiple-choice, open-ended, and ranking questions to capture a wide range of perspectives, concerns, and suggestions. Complementing this, five design workshops were conducted to assess the current solid waste management system and generate ideas through strength, weakness, opportunity, and threat (SWOT) analysis. Four in-person sessions were held in Jackson, Nashville, Chattanooga, and Morristown during TDEC's APR Workshops in January 2025, with an additional virtual option provided for broader accessibility. These workshops enabled stakeholders to brainstorm and prioritize needs based on significance and impact.

Additionally, TDEC has provided frequent updates on the status of the 2035 Plan at various conferences throughout 2025. These presentations served to keep stakeholders informed of ongoing efforts and to solicit feedback on key elements such as the vision statement and The Plan's objectives. TDEC also established a steering committee composed of 15 stakeholders representing a cross-section of interests. This committee was tasked with providing initial reviews and feedback on draft versions of the 2035 Plan, ensuring that the final document reflects a broad and inclusive range of perspectives.

Public Outreach

To foster transparency and gather broad public input, a formal 30-day public comment period was held during March 2026. During this time, the public was invited to review and provide feedback on the draft 2035 Plan, which was published on the TDEC webpage. Participants were asked to review the document and share feedback or questions on the site.

In addition to the online comment portal, four in-person, and one virtual, public hearings were conducted to provide opportunities for the public to engage directly with TDEC staff. These meetings served as forums for presenting the draft Plan and receiving questions and comments. Following the conclusion of the public comment period and public hearings, TDEC compiled and published responses to all received questions on the project webpage. These outreach efforts were designed to ensure that the 2035 Plan reflects the priorities and concerns of both Tennessee residents and stakeholders.

Review of Best Practices and Technologies

As Tennessee works to modernize and strengthen its solid waste management system, identifying and promoting BMPs and technologies is essential to achieving the objectives outlined in The Plan. These proven and adaptable approaches support waste reduction, increased diversion, operational efficiency, and environmental protection. By benchmarking practices and technologies, Tennessee aims to equip Solid Waste Planning Regions, local governments, and private sector partners with practical tools to inform decision-making, foster innovation, and advance progress toward the state’s long-term goals.

Best Practices

This section describes various BMPs implemented across Tennessee and the U.S. that have proven successful and can serve as examples for adoption. Identification of BMPs began with a review of resources from the EPA, including the examples and case studies found in the *Managing and Transforming Waste Streams – A Tool for Communities* (EPA, 2025a).

The BMPs are organized into eight thematic categories to reflect the full lifecycle of solid waste management, highlighting The Plan’s strategic focus areas, with each category aligned to one of the first seven core objectives of The Plan:

1. Ensure Long-term Environmentally Protective Disposal Capacity	→	Source Reduction and Reuse
	→	Waste Collection and Transfer
2. Advance Material Processing Infrastructure and Market Development	→	Material Processing Infrastructure and Market Development
3. Increase Diversion of Organic Waste	→	Food Waste and Organics Management
4. Strengthen Goals and Data-Driven Performance Metrics	→	Performance Metrics
5. Manage Problematic or Hard-to-Manage Waste	→	Problematic or Hard-to-Manage Waste
6. Disaster Debris Management	→	Disaster Debris Management
7. Expand and Focus Education and Outreach	→	Education and Outreach

Each category highlights a set of relevant BMPs, accompanied by a brief overview of potential benefits and implementation considerations. These BMPs are drawn from in-state and regional examples that demonstrate practical, scalable approaches suitable for adaptation across other areas of Tennessee. BMPs associated with the eighth objective, “Develop Sustainable Funding Sources for MSW Management Programs,” are discussed in the section **Funding and Contract Mechanisms for Local Governments**.

Source Reduction and Reuse

Source reduction, the most effective strategy in the EPA’s waste management hierarchy (EPA, 2025), prevents waste before it is created by minimizing material volume entering the waste stream, conserving resources, reducing environmental impact, and lowering disposal costs. Reuse, however, focuses on methods that allow for the repurposing of materials in their original

form, extending their lifecycle and reducing the need for new production. **Table 14** highlights a variety of legislative, planning, and procurement-based BMPs.

Table 14: Source Reduction and Reuse BMPs

Name	Location	Description
<u>Get Food Smart TN</u>	Tennessee (State)	An initiative to reduce food waste through education, outreach, and recognition efforts. It helps reduce waste by promoting food recovery (e.g., donations), diversion (e.g., composting), and prevention strategies like meal planning, consumer education, and the use of imperfect produce, ultimately conserving resources and reducing landfill impact (TDEC, n.d.).
<u>Mobile HHW Collection Service</u>	Tennessee (State)	This program allows residents to safely dispose of toxic, flammable, corrosive, or reactive household products, like pesticides, automotive fluids, and cleaning chemicals, through seasonal mobile collection events, diverting these materials from landfills (TDEC, 2025e).
<u>Pay-As-You-Throw (PAYT) Program with Variable Rates</u>	Gainesville, FL (Local)	PAYT program with variable rates based on garbage container size led to an 18% reduction in solid waste and \$7.95 savings per home (EPA, 2016).
<u>Second Harvest Food Bank of Middle Tennessee</u>	Middle Tennessee (Local)	This group reduces waste and fights hunger through a multi-pronged sustainability strategy that includes food rescue, composting, and local agriculture partnerships. By rescuing over 29 million pounds of surplus food annually from grocery stores, farms, and individuals, and composting inedible items through initiatives like Project Grow, the organization diverts food from landfills while nourishing communities across 46 counties (Second Harvest Food Bank of Middle Tennessee, n.d.).
<u>Residential Waste Coverage Cap</u>	Franklin County, TN (Local)	Franklin County limits residential waste coverage to what cities pay for, and any excess costs are fully covered by the cities. This policy encourages cities to seek alternatives to landfill disposal (Franklin County, n.d.).
<u>Georgia Recycling Markets Directory</u>	Georgia (State)	This directory of recycling companies, detailing their contact information, operating hours, accepted materials, and recycling capabilities, serves as a resource for identifying collectors, processors, and brokers across various locations and material types (Georgia Department of Community Affairs, 2025).
<u>Goodwill Industries - Knoxville</u>	Knoxville, TN (Local)	A nonprofit organization that promotes sustainability and community development through donation, resale, and job training programs. It reduces waste by collecting used household goods and clothing, repairing and reselling them, thereby diverting materials from landfills (Goodwill Industries-Knoxville, n.d.).
<u>Goodwill Industries of Middle Tennessee</u>	48 counties in Middle and West Tennessee (Local)	This program promotes sustainability by operating a donation-based circular economy that extends the life of clothing and household goods through resale, salvage, and recycling. In 2023 alone, it diverted over 25 million pounds of items, primarily textiles, from landfills (Goodwill Industries of Middle Tennessee, n.d.).
<u>Multi Family Recycling Programs in Georgia</u>	Georgia (State)	A comprehensive toolkit for apartment, condo, loft, and townhome communities to establish and manage effective recycling systems. By offering guidance on service options, education, and infrastructure planning, the program helps divert recyclable materials from landfills, supports Georgia's strong end markets for recovered materials, and promotes sustainable waste reduction practices (Georgia Recycling Coalition, n.d.).

Implementing funding mechanisms such as PAYT, as further described in the **Funding and Contract Mechanisms for Local Governments** section, encourages residents to reduce waste generation by linking disposal costs to the amount of waste generated. In addition, expanding reuse infrastructure, such as donation centers, swap shops, and repair hubs, across Tennessee can enhance access to waste prevention opportunities. Local partnerships among producers, governments, and communities, supported by collaboration platforms like a Product Stewardship Council, can further strengthen these efforts.

Waste Collection and Transfer

Curbside services, convenience centers, and transfer stations that move waste from local collection points to processing or disposal facilities are major components of the waste management system. These systems are especially important in helping reduce illegal dumping, improving service equity, and supporting regional waste management. **Table 15** highlights waste collection and transfer management BMPs, summarizing each initiative's location and description.

Table 15: Waste Collection and Transfer BMPs

Name	Location	Description
<u>CAPS Program in Williamson County</u>	Williamson County, TN (Local)	Creates convenient, low-cost access points where residents can sort their recyclables, reducing collection expenses and diverting recyclables from the landfill. The program has successfully processed over 600 tons of recyclables monthly in Williamson County (Williamson County, 2025).
<u>Chattanooga Glass Curbside Pickup</u>	Chattanooga, TN (Local)	A new initiative running from October 1, 2025, through June 30, 2026, aimed at reducing landfill waste by offering curbside glass recycling to select neighborhoods, starting with Brainerd and Belvoir (Chattanooga Public Works Department, 2025).
<u>Mandatory Residential Recycling</u>	Griffin, GA (Local)	Trash collection is contingent on residents setting out their recycling bins, making recycling a required service (City of Griffin, n.d.).
<u>Multi-Family Recycling Requirement</u>	Atlanta, GA (Local)	Requires multi-family property owners to provide recycling containers and submit annual reports on collected recyclables (City of Atlanta, n.d.).
<u>Recycling Program Funded by Fee Increase</u>	Cartersville, GA (Local)	Increased refuse collection fees by \$2/month to fund a residential recycling collection program (American City & County, n.d.).
<u>Regulated Recyclable Material Ordinance</u>	Orange County, NC (Local)	Mandates source separation and recycling of scrap metal, clean wood waste, cardboard, and pallets (Orange County, North Carolina, n.d.).
<u>South Carolina's H4775</u>	South Carolina (State)	This legislation updates the state's electronics recycling law by replacing weight-based collection goals with convenience-based requirements. The law mandates 1–3 permanent collection sites per county (based on population) or four annual community events, while manufacturers remain responsible for packaging and transportation costs (South Carolina House of Representatives, 2023).
<u>Wipe Out Waste Recycling Ambassador Program</u>	Mecklenburg County, NC (Local)	Recognizes businesses that reduce, reuse, and recycle waste in the workplace and purchase recycled products (Mecklenburg County, n.d.).

Many communities rely on convenience centers and transfer stations, and the implementation of expanded single-stream recycling, especially with cart-based systems and multi-family recycling ordinances, could help close service gaps in urban areas. Mandatory recycling policies and fee-based funding models offer scalable options for embedding diversion into daily operations. Education and recognition programs can build public support and increase participation. Local governments can also explore modest fee increases to fund expanded services and use recognition programs to promote best practices.

Material Processing Infrastructure and Market Development

Material processing infrastructure refers to the systems and facilities that handle, sort, and prepare recyclable and reusable materials for sale. Market development involves building and expanding demand for these recovered materials, making sure they can be sold and reused for manufacturing or construction. **Table 16** highlights material processing infrastructure and market development BMPs, summarizing each initiative's location and description.

Tennessee communities can strengthen their solid waste systems by improving collection efficiency, expanding collaborative purchasing, and advancing reuse strategies. Using the Solid Waste Needs Assessments (TCA §68-211-811), Regions and local governments can prioritize infrastructure investments and market development based on identified gaps and regional goals. Infrastructure upgrades, green building incentives, and cooperative service models can be widely applied, while modest fee adjustments can sustainably support program needs. Digital tools and deposit-return approaches can further increase participation and enhance material recovery.

Table 16: Processing Infrastructure and Market Development BMPs

Name	Location	Description
<u>Cart-Based Recycling Expansion</u>	Florence, AL and Columbia, SC (Local)	Switched from 18-gallon bins to carts in 2015, funded partly by The Recycling Partnership; expected to increase recyclables by 1,400 tons/year in Florence (The Recycling Partnership, 2014) and 6,500 tons/year in Columbia (The Recycling Partnership, 2015).
<u>Chattanooga MRF</u>	Chattanooga, TN (Local)	At the MRF, materials are sorted with both machines and by hand. Plastic material is packaged and sent to suppliers in the carpet and flooring industry in Georgia. Paper and cardboard products are recycled for paper manufacturing (City of Chattanooga, n.d.).
<u>Chattanooga Refuse Collection Centers</u>	Chattanooga, TN (Local)	These centers provide residents with convenient drop-off locations for bulky household waste, such as furniture, appliances, and mattresses. By offering up to 12 free visits per year and restricting commercial dumping, the program helps reduce illegal dumping and landfill use while promoting responsible disposal of non-recyclable items (City of Chattanooga, 2025).
<u>C&D recycling facility</u>	Davidson County, TN (Local)	A newly automated, state-of-the-art mixed C&D recycling facility opened in Q1 2024. In less than a year, the landfill has processed more than 100,000 tons of material at the facility. Of that, the company successfully recovered 56% for reuse (TDEC, 2025j).
<u>Get Food Smart TN</u>	Tennessee (State)	An initiative to reduce food waste through education, outreach, and recognition efforts. It helps reduce waste by promoting food recovery (e.g., donations), diversion (e.g., composting), and prevention strategies like meal planning, consumer education, and the use of imperfect produce, ultimately conserving resources and reducing landfill impact (TDEC, n.d.).
<u>Increased refuse collection fee to fund recycling</u>	Cartersville, GA (Local)	The City raised its residential and commercial refuse collection fee by \$2 per month in order to fund a residential recycling collection program (American City & County, n.d.).
<u>Materials Marketplace</u>	Tennessee (State)	Facilitates resource exchange between businesses to scale reuse and recycling. The platform connects users across regional programs to turn waste into raw materials (Rheaply, n.d.).
<u>Sullivan County Solid Waste Program</u>	Sullivan County, TN (Local)	Sullivan County has invested more than \$5 million to rebuild and modernize their Solid Waste Program, with a major focus on establishing a new MRF to serve as a regional recycling hub for Upper East Tennessee. Through the next planning phases, Sullivan County plans on the installation of optical sorting technology for plastics. This advanced system will greatly improve efficiency in the recycling process by streamlining material separation, reducing labor costs, and enhancing the overall quality of recovered materials (Waste Advantage Magazine, 2025).
<u>West Tennessee Regional Recycling Hub</u>	Chester County, TN (Local)	The Recycling Hub play a key role in solid waste management by serving as a centralized facility for recycling across multiple counties. Their efforts focus on reducing landfill waste through curbside recycling programs, educational outreach, and infrastructure funded by over \$7 million in grants to improve regional waste diversion and environmental stewardship (Chester County, n.d.).

Food Waste and Organics Management

Food waste and other organic materials comprise as much as 31% of what ends up in landfills, as detailed in the **Waste Composition** section. Effectively managing these materials means reducing waste, recovering what can be reused, and turning the rest into valuable products like compost or energy. This can be done through backyard composting, curbside collection, commercial diversion programs, and co-digestion at wastewater facilities. **Table 17** highlights food waste and organics management BMPs, summarizing each initiative’s location and description.

With organics comprising 31% and 23% of the residential and ICI MSW streams, there is a clear opportunity to reduce landfill use, lower greenhouse gas emissions, and create local economic value through composting and energy recovery. Programs like curbside collection, backyard composting, and institutional partnerships can be tailored to fit communities across the state. Solid Waste Planning Regions and local governments can identify where organics diversion is most needed by using Solid Waste Needs Assessments and statewide or local waste characterization studies. Local governments can implement curbside collection or drop-off programs, promote backyard composting through education and incentives, and explore co-digestion opportunities with wastewater facilities.

Table 17: Waste and Organics Management BMPs

Name	Location	Description
<u>Athens-Clarke County Composting</u>	Athens-Clarke County, GA (Local)	Athens-Clarke County provides a Commercial Composting Facility and Food Scraps Drop-Off Program to divert organic waste, including food, paper, and dairy, from landfills to certified composting. The facility produces biosolid and food waste compost and sells it to the public (Athens-Clarke County, n.d.).
<u>Chattanooga Area Food Bank</u>	Chattanooga, TN (Local)	This program helps reduce food waste by recovering millions of pounds of food annually through retail rescue and direct donations, including fresh produce, meat, and dairy. These efforts ensure surplus food is redirected to families in need across Tennessee and Georgia, rather than ending up in landfills (Chattanooga Area Food Bank, n.d.).
<u>Chattanooga Composting Program (Pilot)</u>	Chattanooga, TN (Local)	From October 2025 to June 2026, a pilot program will offer curbside composting and glass recycling to divert waste from landfills and reduce methane emissions. Food scraps will be turned into nutrient-rich soil, and glass will be recycled into construction-grade sand and gravel (Chattanooga Public Works Department, 2025).
<u>Clean Memphis' Project Green Fork Program</u>	Memphis, TN (Local)	In partnership with the Careit food donation app, the program has rescued over 250,000 pounds of surplus food, resulting in more than 200,000 meals for people in need across Memphis. It streamlined donation logistics and expanded its reach, offering a scalable model to address food waste and insecurity (Careit, 2025).
<u>Food Scraps Pickup Pilot</u>	Nashville, TN (Local)	This pilot curbside composting initiative launched in October 2023, engaging 750 households to divert food waste from landfills by collecting scraps weekly for composting. The program aims to reduce methane emissions and improve soil health, with plans underway for broader implementation pending a feasibility study (Metropolitan Nashville-Davidson County Government, n.d.).
<u>Knoxville Compost Project</u>	Knoxville, TN (Local)	The City of Knoxville promotes backyard composting as a sustainable way to recycle yard and food waste into nutrient-rich fertilizer, helping reduce landfill use and improve soil health. Their guide outlines materials, moisture, and temperature requirements, and step-by-step instructions for starting and maintaining a compost pile effectively (City of Knoxville, n.d.).
<u>Sevier County Composting</u>	Sevier County, TN (Local)	The largest mixed MSW composting facility in North America processed over 119,000 tons of waste last year, converting 71,794 tons of organics into compost and diverting over 95% of household waste. Using six rotating drums and a 63-day cycle, it serves 39,221 households and regional companies (Sevier Solid Waste, n.d.).
<u>Shelby County Composting with Compost Fairy</u>	Shelby County, TN (Local)	Shelby County partners with a private entity to manage its composting services, offering residents a convenient way to divert food waste from landfills through curbside pickup and drop-off options (Compost Fairy, n.d.).
<u>Source-Separated Organics Recycling Toolkit</u>	Georgia (State)	The toolkit helps local governments and service providers assess feasibility, costs, and strategies for collecting organic materials like food scraps and yard trimmings. It supports residential waste diversion goals by guiding communities in implementing effective organics recycling programs (Georgia Department of Community Affairs, 2025).
<u>Sullivan County MRF</u>	Sullivan County, TN (Local)	A \$3.5 million, 16,000-square-foot MRF in East Tennessee, designed to serve as a regional recycling hub for both the county and surrounding communities, including distressed areas like Unicoi County (Waste Advantage Magazine, 2025).
<u>Tennessee Composting Council</u>	Tennessee (State)	A nonprofit organization founded in 2021 to promote compost manufacturing, utilization, and backyard composting across Tennessee. It supports environmental sustainability by hosting educational events, lobbying for compost-friendly policies, and building a network of stakeholders to divert organic waste from landfills (Tennessee Composting Council, n.d.).
<u>University of TN Composting</u>	Knoxville, TN (Local)	The University of Tennessee's campus composting initiative transforms food scraps, animal waste, and landscaping debris into nutrient-rich soil to fertilize campus gardens and green spaces. From July 2022 to June 2023, the program diverted over 2.25 million pounds of organic waste from landfills, significantly advancing UT's sustainability goals toward zero waste by 2030 (The University of Tennessee, Knoxville, n.d.).

Policy tools like PAYT and regulations for food businesses can effectively expand these efforts. Recognition programs and Public-Private Partnerships will be vital for building momentum for long-term success.

Performance Metrics

Performance metrics are the data gathered to assess how effectively a solid waste management system operates. These can come from monitoring waste generation, recycling rates, processing, and disposal, all to understand their effects on the solid waste management system. Overall, these performance metrics are used to increase transparency, guide investment decisions, and support data-based decision-making. Standardized performance metrics across specific

categories can be incorporated into regional solid waste plans and supported by modern data collection systems.

As outlined in **Table 18** National data from the U.S. EPA's *Advancing Sustainable Materials Management: 2018 Fact Sheet* shows how indicators like total MSW generation, recycling and composting rates, and landfill trends can be used to assess system performance (EPA, 2018).

Table 18: Performance Metrics

Category	Metrics	
General Metrics	Total MSW generation	Total MSW managed through other food pathways
	Total MSW recycled	Total MSW combusted with energy recovery
	Total MSW organics diverted	Total MSW landfilled
Metrics by material (e.g., paper, glass, metals, plastics, food, yard trimmings, etc.)	Weight generated	Recycling as % of generation
	Weight recycled	Organics diverted as % of generation
	Weight of organics diverted	Other food management as % of generation
	Weight managed through other food pathways	Combustion as % of generation
	Weight combusted with energy recovery	Landfilling as % of generation
	Weight landfilled	
Metrics by product category (e.g., durable goods, nondurable goods, containers, and packaging)	Weight generated	Recycling as % of generation
	Weight recycled	Organics diverted as % of generation
	Weight of organics diverted	Other food management as % of generation
	Weight managed through other food pathways	Combustion as % of generation
	Weight combusted with energy recovery	Landfilling as % of generation
	Weight landfilled	
Environmental Impact Metrics	Number of environmental violations (NOVs)	% of facilities meeting stormwater discharge permit requirements
Economic Metrics	Jobs created per 1,000 tons recycled	National landfill tipping fees (in constant dollars)
	Total jobs, wages, and tax revenue from recycling and reuse	Indexed MSW generation vs. personal consumption expenditures (PCE)
	Indexed recycled commodity values	

For Tennessee, performance metrics are crucial for aligning local and regional efforts with statewide goals. Tennessee currently monitors and evaluates its solid waste management system through a set of mandated reporting metrics collected through the APR from each Solid Waste Planning Region. The report details waste collection, recycling, disposal, infrastructure, and education efforts. Also, data is collected through Solid Waste Origin Report (SWOR) tracking MSW and C&D waste flows by county of origin and permitted in-state and out-of-state destination facility. The report also provides quarterly and annual tonnage and tipping fee reports from landfills and transfer stations. These documents provide needed inputs for diversion rate calculations for per capita, population-adjusted, economically adjusted, and real-time calculation methods.

These metrics are initially reported to TDEC via the MyTDEC Forms platform, which provides a standardized interface for local governments and facilities to submit data on waste generation, recycling tonnage, diversion rates, and program participation. Once submitted, the data is uploaded into WasteBin, TDEC's internal data management system used to track and analyze

statewide solid waste and recycling metrics. WasteBin supports internal performance monitoring, compliance tracking, and integration with public-facing tools.

To improve transparency and public access, TDEC developed the DSWM Data Viewers, which allow users to search and review inspection records, permit documents, and compliance histories for facilities such as Class I landfills and transfer stations. Through a searchable interface, users can locate specific records by facility ID, location, or document type.

Complementing these tools is the upcoming RecycleBin platform, TDEC's public-facing data visualization system designed to make statewide recycling and waste data more accessible and actionable. RecycleBin compiles information from APRs and SWORs, presenting it in a digestible format for a wide range of users. It supports data cleaning, harmonization, and annotation to improve consistency across jurisdictions and integrates with tools like Microsoft Excel and Tableau for advanced analysis of key performance indicators. RecycleBin will also include a data dictionary with standardized definitions aligned to market terminology, and its design promotes transparency and public engagement with Tennessee's waste reduction goals.

While these platforms and metrics provide a strong foundation for performance tracking, they are not static. TDEC recognizes the need for periodic review and refinement to ensure that metrics remain relevant and effective. For example, to improve statewide performance tracking, TDEC will be introducing a revised method for calculating diversion rates that separately assesses residential and industrial, commercial, and institutional (ICI) waste streams. This update will offer a more accurate reflection of local government performance and help tailor strategies to specific sectors. Further details on this updated methodology are provided in the section titled **Recommendations, Diversion Metrics Reporting Update, and Economic Modeling Tool**.

Problematic and Hard-to-Manage Waste Management

Problematic and hard-to-manage waste includes materials such as HHW, waste tires, batteries, used oil, electronics, solar panels, and wind turbine blades. Specialized handling is sometimes needed as certain wastes pose environmental and health risks due to toxicity, regulatory complexity, and limited end markets. **Table 19** highlights problematic and hard-to-manage waste management BMPs, summarizing each initiative's location and description.

Programs across the country are addressing problematic waste streams through a combination of education, regulation, infrastructure, and innovation. Increased accessibility to problematic waste disposal opportunities through the expansion of convenience center infrastructure is one such example. In addition to expanded infrastructure, local governments are encouraged to adopt ordinances and provide incentive programs to promote the responsible disposal of these hard-to-manage materials. However, public education is equally important, and Tennessee Solid Waste Planning Regions, local governments, or private sector partners may consider communication campaigns modeled after successful battery and HHW programs in South Carolina and Tennessee, as these programs can help raise awareness among residents and prevent improper disposal.

Table 19: Problematic and Hard-to-Manage Waste BMPs

Name	Location	Description
BOPAE	Tennessee (State)	Household BOPAE can pose environmental and health risks if improperly managed. Tennessee provides collection centers and guidelines for handling each material, emphasizing reuse, proper recycling, and legal disposal to protect public health and the environment (TDEC, 2025f).
<u>Electronics Recycling with Certified Contractors</u>	Durham, NC (Local)	The City accepts e-waste at no charge and requires contractors to be certified under Responsible Recycling or e-Stewards standards (City of Durham, n.d.).
<u>HHW and Electronics Recycling Programs</u>	North Carolina (State)	Offers local HHW collection programs and recycling options; includes electronics recycling and landfill bans (NCDEQ, n.d.).
<u>HHW, Batteries, Oil, and Electronics Recycling</u>	South Carolina (State)	Statewide programs for HHW, batteries, oil, and electronics recycling (SCDES, n.d.).
<u>HHW, Electronics, and Tire Amnesty Programs</u>	Kentucky (State)	Includes HHW, electronics recycling, and tire amnesty programs (Kentucky Energy and Environment Cabinet, n.d.).
<u>HHW, Used Oil, and Electronics Management</u>	Georgia (State)	Covers HHW, used oil, and electronics recycling and disposal (Georgia Environmental Protection Division, n.d.)
<u>HHW Collection Events</u>	Tennessee (State)	This service allows residents to safely dispose of hazardous materials during spring and fall events, with over 301,000 families having participated since its launch in 1993. The program excludes commercial and agricultural waste and is funded by a \$0.90 per ton landfill surcharge (TDEC, 2025e).
<u>Sustainable Materials Management (SMM) Electronics Challenge</u>	U.S. EPA (Federal)	The Challenge encouraged electronics manufacturers, brand owners and retailers to strive to send 100% of the used electronics they collect from the public, businesses and within their own organizations to third-party certified electronics refurbishing and recyclers (EPA, 2025c).
<u>Solid Waste Infrastructure for Recycling & RECYCLE Act Grants</u>	U.S. EPA (Federal)	Federal grants to improve recycling infrastructure and education (EPA, 2025d).
<u>U. S. Solar PV Manufacturing and Recycling Map</u>	Department of Energy (Federal)	Provides a map of solar photovoltaic (PV) manufacturers and recyclers across the U.S., supporting end-of-life management of solar panels (U.S. Department of Energy, n.d.).
<u>Household Used Oil Program</u>	Tennessee (State)	The program supports waste management efforts by helping local governments establish collection centers for used oil, preventing improper disposal and environmental harm. It provides grants and technical assistance to promote safe recycling and public education around hazardous waste handling (TDEC, 2025g).
<u>Waste Tire Hauler Rule</u>	Tennessee (State)	The draft Waste Tire Hauler Rule, developed in response to Tennessee HB1689, introduces stricter registration, tracking, and reporting requirements to combat illegal tire dumping. It was presented in May 2025 and is expected to be finalized by year-end following public input (TDEC, 2025h).
<u>Williamson County Tennessee Residential Mattress Recycling</u>	Williamson County, TN (Local)	Residents can bring their mattresses and box springs for recycling to the Nolensville, Grassland and Landfill convenience centers. In 2024, Williamson County documented 8,085 mattresses recycled (Williamson County, 2024).
<u>Wind Turbine Disposal and Recycling Strategies</u>	National	Provides a factsheet outlining sustainable strategies for wind turbine disposal, including recycling, reuse, and landfill alternatives (American Clean Power, 2024).

Disaster Debris Management

The organized removal, staging, and disposal of waste generated by natural or manmade disasters is referred to as disaster debris management. It includes handling C&D debris, vegetative waste, soil, sediment, and household materials. Effective debris management helps restore services, protect public health, and reduce environmental harm. **Table 20** highlights disaster debris management BMPs, summarizing each initiative's location and description.

Table 20: Disaster Debris BMPs

Name	Location	Description
<u>Disaster Debris Management Training</u>	North Carolina (State)	NC Department of Environmental Quality provided disaster debris management training for solid waste and emergency managers, with presentations from multiple state and local agencies (NCDEQ, 2017).
<u>Emergency Debris Disposal Guidance</u>	Alabama (State)	Alabama Department of Environmental Management (ADEM) provides guidance for emergency disposal of debris resulting from natural disasters (ADEM, 2016).
<u>Emergency Vegetative Debris Management</u>	Tennessee (State)	TDEC provides guidance for managing vegetative debris during emergencies, including burning protocols (TDEC, n.d.).
<u>EPA Disaster Debris Recovery Tool</u>	Federal (Federal)	An interactive mapping tool that identifies over 20,000 facilities (e.g., recyclers, landfills) across the U.S. capable of handling disaster debris. It supports sustainable recovery by helping planners locate appropriate disposal and recycling options (EPA, 2025e).
<u>EPA Planning for Natural Disaster Debris EPA 530-R-25-013</u>	Federal (Federal)	A comprehensive guidance document that helps communities prepare for managing debris from natural disasters. It outlines a four-step waste management planning process, emphasizes pre-incident planning, and includes case studies from major U.S. disasters (EPA, 2025f).
<u>Pre-Approved Disaster Debris Sites</u>	North Carolina (State)	North Carolina maintains hundreds of pre-approved disaster debris sites that can be activated by county officials. Active sites are viewable via an interactive mapping tool (NCDEQ, 2021).
<u>Tennessee Debris Management Planning Tool</u>	Tennessee (State)	This tool helps local governments prepare for natural disasters by guiding the development of debris management plans that meet both state (TCA §68-211-815) and Federal Emergency Management Agency (FEMA) requirements. It provides instructions, templates, and technical assistance to streamline debris removal operations, reduce recovery time, and ensure public safety through coordinated pre-event planning (TDEC, 2025i).

The Tennessee Emergency Management Agency (TEMA) coordinates statewide debris response in partnership with TDEC and local governments, and each Solid Waste Planning Region is required to develop a DDMP as part of its 10-year regional solid waste plan (TCA §68-211-815(b)(16)). Local governments and private sector partners are encouraged to strengthen disaster preparedness by prioritizing emergency personnel training, pre-identifying debris sites, and integrating DDMPs into broader emergency management plans. Recent events, such as Tropical Storm Helene, which generated over 90,000 cubic yards of vegetative debris, underscore the importance of proactive and detailed planning (FEMA, 2025).

To support these efforts, Tennessee has developed the Debris Management Planning Tool, a comprehensive, user-friendly resource designed to help local governments and planning regions create, update, and maintain effective DDMPs (TDEC, 2017a). The tool provides step-by-step guidance for assessing local risks, estimating debris quantities, identifying and mapping potential debris management sites, and establishing clear operational procedures for debris collection, segregation, and disposal. It also includes templates for contracts, checklists for regulatory compliance, and best practice recommendations for public communication and interagency coordination. By standardizing the planning process and ensuring alignment with FEMA requirements, the tool helps communities maximize eligibility for federal reimbursement and streamline disaster response and recovery. The Tennessee Debris Management Planning Tool empowers local officials to build more resilient, well-prepared communities capable of managing debris efficiently and safely in the aftermath of any disaster.

Education and Outreach

Education and outreach are essential pillars of an effective integrated solid waste management system. They empower residents, businesses, and institutions to make informed decisions, adopt sustainable behaviors, and actively participate in waste reduction, recycling, and composting programs. **Table 21** highlights states and localities that have implemented a wide range of BMPs

that demonstrate the power of communication, engagement, and collaboration in driving environmental outcomes.

Table 21: Education and Outreach BMPs

Name	Location	Description
<u>Atlanta Community ToolBank</u>	Atlanta, GA (Local)	Non-profit lending tools to volunteer groups for community improvement projects (Atlanta Community ToolBank, n.d.).
<u>Free Composting Classes</u>	Dalton-Whitfield County, GA (Local)	A series of free composting classes aimed at educating residents on proper composting techniques and promoting sustainable solid waste practices. These outreach efforts were part of a broader initiative to increase community engagement and environmental awareness through hands-on learning and public participation (The Daily Citizen, n.d.).
<u>Green Team in Williamson County</u>	Williamson County, TN (Local)	This group of leaders and students has been creating sessions and awareness programs to educate people on reusing, upcycling, and using compost for their food waste. The group partnered with Keep Williamson Beautiful and organized park cleanups in the community, as well as teaching kids in the public library how to reuse and create items from household goods (Williamson County, n.d.).
<u>Keep Tennessee Beautiful App and Social Media</u>	Tennessee (State)	a free mobile tool designed to help residents reduce litter, recycle properly, and find local cleanup events and disposal sites for hazardous items like batteries and paint. It promotes volunteer opportunities, educational resources, and statewide beautification efforts through platforms like Facebook and Instagram (Keep Tennessee Beautiful, 2025).
<u>Keep Tennessee Beautiful Litter Law in TN Course</u>	Tennessee (State)	Online brochure serves as a quick reference for the laws related to littering in Tennessee (Keep Tennessee Beautiful, n.d.).
<u>Recycling Education & Contamination Reduction</u>	Nashville, TN (Local)	Through consistent education and outreach, Nashville reduced recycling contamination by nearly 18% in one year. Tools include a multilingual Waste Wizard app, videos, and virtual workshops (Metropolitan Nashville-Davidson County Government, n.d.).
<u>Nobody Trashes Tennessee</u>	Tennessee (State)	The campaign, led by the Tennessee Department of Transportation (TDOT), tackles the state's litter problem, over 88 million pieces on roadways, through community-driven waste management initiatives. Programs like Adopt-A-Highway, No Trash November, and the Litter Grant support cleanup efforts, education, and citizen reporting to reduce environmental impact and promote stewardship statewide (TDOT, n.d.).
<u>Tennessee Environmental Council Recycling Roundups</u>	Tennessee (State)	A community event where residents may drop off certain hard-to-recycle items like waste tires, mattresses, scrap metal, and Styrofoam to be recycled, free of charge (TEC, n.d.).
<u>Three Grand Divisions Scholarship Program</u>	Tennessee (State)	Includes nine annual \$1,000 scholarships to graduating Tennessee high school seniors who demonstrate a strong commitment to environmental, social, and economic sustainability through academic pursuits. It supports students planning to attend a Tennessee college, university, or trade school and encourages future environmental stewards across East, Middle, and West Tennessee (Keep Tennessee Beautiful, 2024).

Education and outreach are critical for Tennessee due to challenges like illegal dumping, limited rural recycling access, and the need to divert organic waste. These campaigns help residents understand proper waste practices and support statewide goals for sustainable solid waste management, fostering environmental literacy, encouraging community collaboration, and promoting BMPs that have been tailored to local needs.

Technologies

Geosyntec conducted a technology evaluation to support improvements to Tennessee’s solid waste management infrastructure. The assessment focused on identifying safe, proven, and cost-effective methods for waste diversion and disposal, including recycling, composting, and energy recovery. The full technology review process is detailed in **Attachment C: Review of Technologies**.

Solid Waste Technology Screening

A broad range of technology categories was reviewed and assessed based on the criteria listed below, using a screening framework that emphasized practical implementation and performance rather than hypothetical models or vendor claims.

- **Maturity:** Technologies are well-established with a strong global market presence.
- **Market Presence:** Technologies are in commercial use in regions with infrastructure and waste management needs similar to Tennessee's.
- **Tennessee Objectives:** Technologies have the potential to help the state meet its solid waste management goals.

In the next step, technologies that demonstrated commercial maturity, active market presence in comparable regions, and alignment with state objectives were prioritized for further review. Technologies not meeting the screening criteria were excluded from broad consideration but may still offer value for targeted applications.

Assessment of Selected Technologies

Following an initial screening process, nine technologies were selected for detailed evaluation. These were grouped into four categories:

- Materials handling facilities
- Organics management
- WTE and ash reuse
- Other specialized solutions, including emerging technologies such as gasification, pyrolysis, and molecular recycling, were included due to their increasing relevance and presence in Tennessee.

Each technology was assessed based on its ability to support TDEC's solid waste management goals, with a focus on both technical performance and financial feasibility. Key criteria included diversion potential, facility footprint, capital investment (CAPEX), operating costs (OPEX), and tipping fees per ton. These financial metrics provided a straightforward basis for comparing technologies.

A structured rating system was used to assign scores, incorporating both quantitative data and qualitative assessments. Qualitative ratings were informed by professional engineering judgment, contextual understanding, and available data. Technologies were scored across performance and financial criteria, with higher ratings preferred for performance and lower ratings preferred for cost-related factors.

Scores were averaged to produce an overall score for each technology, which was then categorized using a priority key:

- **High Priority:** Scores ≥ 8 and ≤ 10
- **Medium Priority:** Scores ≥ 6 but < 8
- **Low Priority:** Scores < 6

These priority levels reflect the relative promise of each technology in advancing TDEC's objectives. High- and medium-priority technologies show strong potential for near-term implementation, while low-priority technologies, though more emergent, may contribute to long-term progress.

In addition to core performance and financial metrics, each technology's diversion potential was evaluated, aligning with TDEC's strategic goal to increase diversion rates and strengthen recovered material markets across Tennessee's solid waste management system.

Technology Assessment Conclusions

This section summarizes the evaluation of key solid waste technologies based on their potential to support Tennessee's diversion goals, operational efficiency, and long-term sustainability. Technologies were assessed across multiple criteria, including scalability, regulatory fit, environmental impact, and alignment with statewide infrastructure needs. The overall scoring results are presented in **Table 22**, which ranks each technology by priority level.

Table 22: Overall Technology Assessment Scoring

Parameter	Materials Handling Facilities			Organics Management		WTE and Residual Ash Management		Other	
	Convenience Centers	Transfer Stations	MRF	Composting	AD	WTE	Beneficial Ash Reuse	Gasification / Pyrolysis	Molecular Recycling
Scoring by Primary Assessment Type									
Performance Score	10	10	9	10	8	10	6	6	6
Financial and Economic Score	9	6	5	7	5	4	5	3	3
Overall Assessment (Average of Primary Assessments)									
Overall Score	9.5	8	7	8.5	6.5	7	5.5	4.5	4.5
Priority Assessment	High	High	Med	High	Med	Med	Low	Low	Low

Convenience centers, transfer stations, and composting facilities are identified as high-priority infrastructure due to their critical role in improving logistics, enabling source separation, and diverting organic materials from the waste stream. Transfer stations support co-located services and offer revenue opportunities, while convenience centers enhance rural collection and benefit from Tennessee's strong operator training programs. Composting remains a scalable and accessible method for managing organics, with Tennessee hosting one of the world's largest in-vessel systems (Sevier Solid Waste, n.d.). Medium-priority technologies such as MRFs, anaerobic digestion (AD), and WTE offer additional diversion potential but require regulatory clarity and strategic coordination. Low-priority technologies, including ash reuse, gasification, pyrolysis, and molecular recycling, show promise but remain underdeveloped and should be explored through education, outreach, and pilot initiatives. Full details are provided in the attached assessment.

Funding and Contract Mechanisms for Local Governments

Local governments in Tennessee rely on a combination of funding tools and contractual structures to provide solid waste services, maintain regulatory compliance, and invest in infrastructure. These mechanisms directly influence service reliability, affordability, financial risk, and long-term system resilience. Because community size, market access, and infrastructure needs vary widely across the state, no single approach is universally applicable. Instead, successful systems intentionally combine funding sources and contract structures that reflect local conditions while meeting state regulatory requirements.

This chapter identifies the primary funding mechanisms available to Tennessee local governments; outlines state, federal, and nonprofit support programs; and describes contracting models commonly used for financial assurance for waste collection, processing, disposal, and landfill facilities.

Local Government Revenue Sources

Most local governments fund solid waste services through a mix of general revenues and user-based charges. A 2024 review of Development District Needs Assessments found that property taxes, tipping and disposal fees, and user charges collectively account for more than half of solid waste program revenues statewide, with most jurisdictions relying on two to three primary sources.

Property taxes are used by approximately 69% of jurisdictions, while tipping and disposal fees represent the majority revenue source for about 60%. Collection charges, sales taxes, host fees, grants, and revenues from recyclable material sales typically serve as supplemental sources. Despite this diversity, many counties report annual funding gaps of 5–10%, particularly in rural areas where waste infrastructure may not be available and economies of scale are limited.

As discussed in the **Funding and Economic Conditions** section, the average local spending for solid waste management is approximately \$30-45 per capita, totaling more than \$300 million statewide. Rising labor, transportation, compliance, and capital costs continue to place pressure on local budgets, underscoring the need for adaptive revenue strategies.

Common Funding Mechanisms

Local governments commonly use the following mechanisms, often in combination:

- **Property and Sales Taxes** – Provide stable, predictable funding suitable for baseline operations, convenience centers, and long-term capital needs. Environmental or tourism-related surcharges may be earmarked for solid waste programs where permitted.
- **User Fees and Collection Charges** – Directly link service costs to users and are widely applied for collection and disposal. PAYT systems offer an incentive for waste reduction but require administrative capacity and public education.
- **Tipping Fees** – Support facility operations and capital repayment. Fee variability across jurisdictions can complicate long-term planning and regional coordination.

- **Revenue from Recyclables or Energy Recovery** – Includes sale of recovered materials or revenue from landfill gas-to-energy projects. These sources can offset costs but are highly sensitive to commodity markets.
- **Debt Financing** – Municipal bonds and lease-purchase agreements allow large capital projects—such as landfills, transfer stations, or processing facilities—to be financed over time. These instruments require strong credit capacity and long-term revenue commitments.
- **Public-Private Partnerships** – Enable private investment and operational expertise while preserving public oversight. Public-Private Partnerships are commonly used for collection services, landfill operations, MRFs, and energy recovery projects.

Local governments are encouraged to pursue diversified funding portfolios that use a mix of funding mechanisms to balance revenue stability, affordability, and scalability, particularly in anticipation of future regulatory and infrastructure needs.

State Funding

The SWMF is Tennessee’s primary state-level funding source for solid waste initiatives. It is supported by a surcharge on each ton of MSW disposed and a fee on new tire sales, as authorized under TCA §68-211-835 and TCA §67-4-1603.

SWMF-administered grants and rebates support local governments in expanding recycling, improving collection sites, managing special wastes, and reducing disposal volumes. Programs currently include convenience center grants, HHW facility grants, organics management grants, recycling equipment grants, recycling rebates, technical assistance grants, tire environmental programs, used oil grants, and waste reduction grants.

These programs have demonstrated measurable impacts statewide. For example, in 2019, more than \$1 million in Waste Reduction Grants supported diversion projects across 14 jurisdictions. In 2024, TDEC awarded approximately \$7 million across 84 grants for recycling equipment, HHW, used oil, and technical assistance initiatives (TDEC, 2024a). Grant availability and eligibility are subject to legislative changes, and communities are encouraged to coordinate directly with TDEC’s Division of Solid Waste Management.

Federal and Non-Governmental Organization (NGO) Funding

Federal programs play a critical role in supporting solid waste infrastructure and planning, particularly for small and rural communities. USDA Rural Development programs provide grants and loans for communities under 10,000 population, supporting planning, feasibility studies, and infrastructure development for waste systems.

Additional federal resources include HUD’s Community Development Block Grant program, FEMA’s Hazard Mitigation Grant Program, and competitive EPA grants administered under the Bipartisan Infrastructure Law and Inflation Reduction Act. These programs increasingly emphasize recycling infrastructure, resilience, and data-driven planning.

NGOs complement public funding by supporting targeted material streams and pilot initiatives. Programs offered by the Glass Recycling Foundation and The Recycling Partnership focus on glass recovery, residential recycling infrastructure, and market development, often paired with technical assistance and education.

Contract Mechanisms

Contract mechanisms define how solid waste services are delivered, financed, and regulated. They allocate operational responsibility, financial risk, and performance accountability between public and private entities. Selecting an appropriate contract structure is essential for cost control, regulatory compliance, and service quality.

Common mechanisms include:

- **Interlocal Agreements** – Formal agreements between two or more government entities that allow shared service delivery, joint facilities, or regional planning. These agreements are commonly used to pool resources, reduce costs, and achieve economies of scale, particularly in rural areas.
- **Exclusive Contracts** – Assign a single service provider to a defined geographic area or service type. Exclusive contracts simplify oversight, enable standardized service levels, and often reduce costs through scale efficiencies, but require strong performance monitoring to protect public interests.
- **Non-Exclusive Contracts** – Allow multiple service providers to operate within the same jurisdiction under standardized terms. This model promotes competition and customer choice but increases administrative and enforcement complexity.
- **Franchise Agreements** – Grant private haulers the right to operate within a jurisdiction under specified conditions, including service standards, pricing structures, reporting requirements, and customer protections. Franchises balance public control with private-sector efficiency.
- **Fee-for-Service Contracts** – Compensate service providers based on the volume or type of services delivered, such as tons collected or households served. These contracts offer flexibility but require accurate tracking and billing systems.
- **Performance-Based Contracts** – Tie contractor compensation to measurable outcomes such as diversion rates, customer satisfaction, or service reliability. These contracts incentivize efficiency and innovation but depend on clear metrics and reliable data systems.
- **Public-Private Partnerships** – Long-term contractual arrangements that combine public oversight with private financing, construction, or operation of facilities and services. PPPs are commonly used for landfills, transfer stations, MRFs, and energy recovery projects and require careful risk allocation.
- **Design-Build Contracts** – Combine facility design and construction under a single contract, reducing project timelines and coordination risks. These contracts are often used for transfer stations and processing facilities.
- **Design-Build-Operate Contracts** – Extend design-build contracts to include long-term operation by the same entity, aligning construction decisions with operational performance and lifecycle costs.
- **Construction Manager at Risk** – Engage a contractor early in the design phase to manage construction costs and schedule while assuming financial risk for overruns. CMAR is typically used for large or technically complex projects.

- **Concession Agreements** – Grant a private entity the right to finance, operate, and maintain a facility, such as a MRF or transfer station, often in exchange for revenue sharing or lease payments. Ownership may remain public or private depending on contract terms.
- **Cooperative Purchasing Agreements** – Allow multiple jurisdictions to jointly procure services or equipment under a single contract, reducing administrative burden and achieving better pricing.
- **Open-Market Systems** – Permit residents or businesses to select from approved private haulers. This model maximizes consumer choice but may result in fragmented service delivery and uneven pricing.
- **Subscription-Based Private Contracting** – Common in rural areas, this model requires residents to contract directly with private haulers or self-haul waste to public facilities. It reduces municipal administrative responsibility but can limit service consistency.

Each mechanism presents trade-offs in cost control, service quality, complexity, and accountability. Selection should reflect community goals, available resources, and regulatory context.

Interlocal Agreements and Regional Authorities

Tennessee's Interlocal Cooperation Act (TCA §12-9-101) enables counties and municipalities to jointly provide solid waste services. Interlocal solid waste authorities can centralize planning, permitting oversight, and funding while achieving economies of scale.

Regional authorities, such as interlocal solid waste authorities, typically oversee 10-year planning, facility coordination, and educational programs. This model is especially effective in rural regions where individual jurisdictions may lack the resources to operate independently.

A notable example is the Interlocal Solid Waste Authority (ISWA), formed by Franklin, Giles, and Lincoln Counties. ISWA oversees regional waste collection, disposal, recycling, and public education, ensuring compliance with the Solid Waste Management Act (ISWA, 2007).

Private Contracting and Subscription-Based Systems

In areas not covered by municipal collection systems, residents may contract directly with private haulers or self-haul waste to county facilities. This model offers flexibility and consumer choice but can result in inconsistent service coverage and increased enforcement needs. Hybrid systems, municipal collection in incorporated areas and private service elsewhere, remain common across Tennessee.

Public-Private Partnerships

Public-private partnerships are foundational to Tennessee's solid waste system. Private entities commonly operate landfills, transfer stations, collection services, and processing facilities under municipal or authority contracts. These partnerships leverage private capital and expertise while maintaining public accountability through contractual performance standards.

Stakeholder feedback indicates that financial assistance and access to funding remain the most valued forms of state support, reinforcing the importance of structured public-private partnerships that align public goals with private investment incentives.

Landfill Financial Assurance and Contract in Lieu of Bonds

State law requires landfill operators to demonstrate financial assurance sufficient to cover closure, post-closure care, 30-day operating costs, and corrective action. Under TCA §68-211-116, Tennessee allows Contracts in Lieu of Bonds as an alternative to traditional surety bonds or other financial assurance instruments for landfills owned or controlled by local governments.

A Contract in Lieu of Bond is a legally binding agreement between the landfill owner/operator and a local government or solid waste authority that commits the public entity to ensure closure and post-closure obligations are met. This mechanism may be appropriate where the local government:

- Owns the landfill or controls its operation through a contractual agreement;
- Has the financial capacity and legal authority to assume closure obligations; or
- Seeks to reduce bonding costs or address limited access to commercial surety markets.

When used, the contract must clearly define responsibilities, funding mechanisms, and contingency provisions to ensure compliance with regulatory requirements. While this approach can offer cost savings and flexibility, it also shifts long-term financial risk to the public entity and should be evaluated carefully.

However, a Contract in Lieu of Bond does not eliminate landfill financial assurance requirements; rather, it transfers responsibility from a third-party financial instrument to the local government itself, as authorized under TCA §68-211-116. If a county or municipality fails to meet its contractual obligations, the obligation to fund closure and post-closure care remains and may require the use of public revenues or alternative financial assurance mechanisms to maintain permit compliance. As a result, this option is most appropriate for jurisdictions with stable revenues, clear operational control, and a thorough understanding of the long-term financial and legal commitments being assumed.

Funding Gaps and Strategic Considerations

Despite the availability of multiple funding and contracting tools, many Tennessee communities, particularly small and rural jurisdictions, continue to face revenue constraints, rising costs, and infrastructure investment barriers. Addressing these challenges will require greater use of regional collaboration, state and federal programs, innovative contracting structures, and long-term financial planning.

Financial Analysis

Financial Modeling and Scenario Analysis

A modeling and analysis process was conducted to evaluate Tennessee's solid waste management system under both current conditions (calendar year [CY] 2021–2024) and the planning period (CY2025–2035). A state-level waste flow, capacity, and cost model was developed in Microsoft Excel to assess population trends, waste generation and diversion, infrastructure and capacity, capital and operating costs, and system performance relative to planning goals. Model inputs included state and federal data, county-level needs assessments from Tennessee Development Districts, stakeholder input collected during statewide outreach, and guidance from TDEC. Scenario analysis examined economic and demographic trends, disaster debris events, regulatory changes, and policy options, within the constraints of available funding, infrastructure, and program capacity. A financial analysis estimated the costs required to align system capacity with service levels ranging from current conditions to the targets established in the updated 2035 Plan.

Model Boundaries and Assumptions

Boundaries

The model was primarily structured at the statewide level but incorporated analysis by Grand Division, Planning District, county, Solid Waste Planning Region, and selected facility-level metrics. Baseline conditions reflect CY2021–2024, with projections extending through CY2025–2035. Data gaps in the baseline years required certain assumptions, such as estimating residential recycling capacity at MRFs. Similarly, while all Planning Districts provided goals and action plans, only some reported detailed cost and revenue estimates. Where available, reported unmet needs informed model inputs; otherwise, projections relied on the best available data and professional judgment.

Assumptions

Model assumptions were informed by state and federal reports, District-level needs assessments, statewide stakeholder input, and TDEC guidance. Key assumptions addressed population growth, waste generation and disposal volumes, disposal capacity, system costs, and stakeholder funding priorities. Solid waste-related costs were assumed to increase at a rate exceeding general inflation. A minimum system condition assumed full attainment of the statewide goal to reduce per capita disposal at Class I MSW landfills and incinerators by 25 percent, and scenario evaluations were guided by the eight planning objectives established in the 2035 Plan.

Development of Conceptual Model

The conceptual model began with defining a framework that segmented waste flow into five primary activities: generation, collection and transport, transfer and management, processing, and disposal. A simplified flow map (**Figure 13**) was developed using U.S. Census and TDEC permit data to trace materials from residential and non-residential sources through reuse or final disposal. Facility counts were based on the best available data at the time of development and may be subject to change. Waste flow volumes were integrated using TDEC data, with the map incorporating key simplifications such as private sector diversion and interstate waste

movement. The dashed lines in the figure below illustrate the flow of diverted materials toward end markets. This distinction helps clarify where materials exit the system and highlights the importance of local reuse pathways in Tennessee's solid waste management strategy.

This framework, combining facility census and volume data, was used to build a pro forma model of Tennessee's solid waste management system in Microsoft Excel for scenario analysis. The model includes six core sections: (1) Population, (2) Diversion, (3) Disposal, (4) Scenario Assumptions, (5) Facility Census, and (6) Scenario Metrics, which cover per capita calculations, percentage metrics, and disposal capacity. The model structure is illustrated in **Figure 14**.

Figure 13: Waste Flow Volume Map (with Permitted Facility Census)

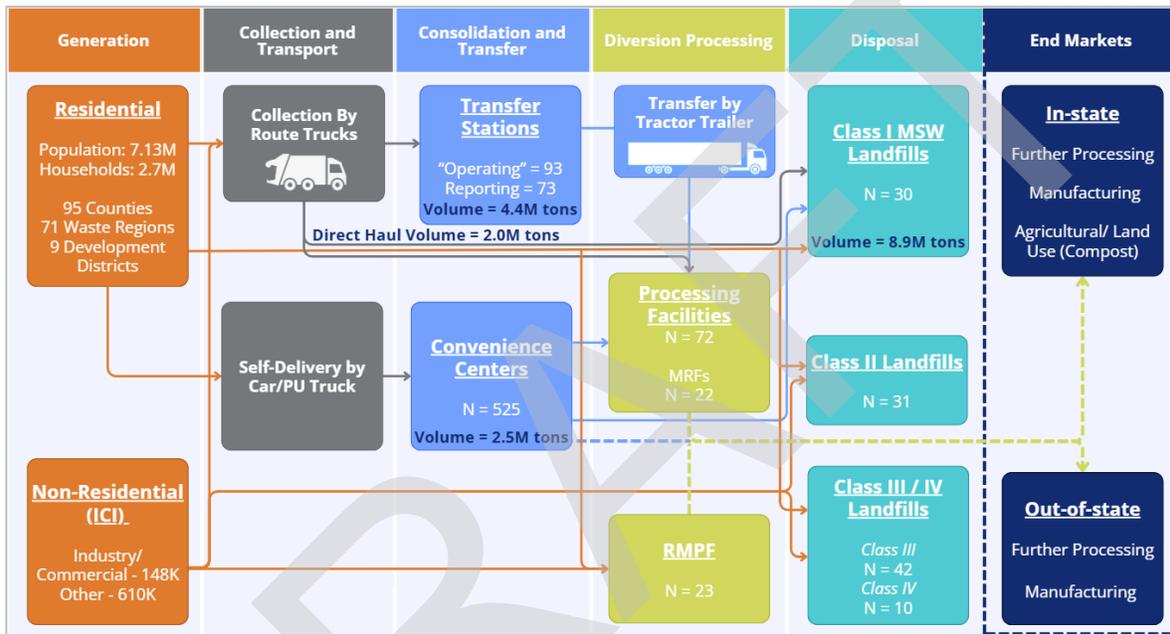


Figure 14: Image of Financial Pro Forma Model (MS Excel Based)

Model Key

- Planning/ Forecast Period
- White cells with black font is reported data; sources appear in column AG
- Assumption cell blue text is estimate and red is preliminary
- Cell will not have data
- Projected cells
- Calculated - Green font indicates calculation in another section

BASELINE - PRO FORMA MODEL

	Base Yr 2024	Planning Period						
		2025	1 2026	2 2027	3 2028	10 2035		
1.0 Population								
1.1 Forecast (2022 TN State Data Ctr)	7,117,168	7,181,570	7,242,733	7,300,003	7,355,209	7,410,264	7,738,908	
Yr-Yr % Chg.		0.9%	0.9%	0.9%	0.8%	0.8%	0.7%	0.5%
1.2 Reported US Census	7,126,489							
2.0 Generation - Reported Total Waste (SWOR Disposal + Diversion)	19,167,748	19,341,193	19,505,916	19,660,154	19,808,833	19,957,105	20,842,200	
3.0 Disposal - Reported in SWOR (Tons Class I - IV?)	9,097,946	9,180,271	9,258,457	9,331,665	9,402,236	9,472,613	9,892,722	
4.0 Diversion - Reported in SWOR	10,069,802	10,160,922	10,247,459	10,328,488	10,406,597	10,484,492	10,949,478	
5.0 Disposal								
5.1 Class I Tons Reported Disposed (8,539,530	8,616,803	8,690,189	8,758,904	8,825,143	8,891,201	9,285,524	
5.2 Class III Tons Reported Disposed	1,850,576	1,867,322	1,883,225	1,898,116	1,912,470	1,926,786	2,012,238	
5.3 Total Class I, III and IV Reported Disposed	10,390,106	10,484,124	10,573,414	10,657,020	10,737,614	10,817,987	11,297,763	

Scenario Analysis

To evaluate Tennessee's future solid waste management needs, two primary scenarios were modeled: a Baseline Scenario and a Capacity Investment and Growth Scenario. Both scenarios used consistent assumptions for population growth and waste generation and were built using a state-level waste flow, capacity, and cost model developed in Microsoft Excel.

Baseline Scenario Results

Under the baseline scenario, Tennessee's projected 8% population growth is expected to drive a proportional increase in solid waste generation, placing added pressure on existing infrastructure while also creating opportunities to expand diversion and reuse. Landfills remain the backbone of the state's disposal system, and statewide Class I landfill capacity is projected to be sufficient through the planning period if current diversion levels are maintained. As of FY2023, reported Class I capacity ranged from 260 to 340 million cubic yards, representing up to 30 years of disposal capacity. By FY2035, remaining statewide capacity is estimated at approximately 205 million cubic yards, equivalent to 15–17 years of disposal capacity. However, capacity constraints are unevenly distributed, with Middle Tennessee projected to fall below 10 years of remaining capacity by FY2025, indicating a need for additional disposal, transfer, or diversion investments. The estimated statewide diversion rate for the FY2024 base year was 53%, exceeding the state's per capita disposal reduction goal. This performance is driven primarily by industrial diversion, which, in FY2024, accounted for 85% of diverted material and is influenced by market conditions and inconsistent reporting. In contrast, combined residential and commercial diversion was approximately 13%, with residential diversion at 5% and commercial diversion at 24%, highlighting significant opportunity for improvement in residential programs.

Recycling service availability remains limited. Only 20% of municipalities reported curbside recycling programs, and 27% of counties reported curbside single-stream recycling volumes for CY2021. Of those counties, only three reported more than 15,000 tons annually. Total single-stream recycling was approximately 91,000 tons, while residential recycling totaled 229,000 tons, most of which was collected at convenience centers and drop-off facilities. Commercial and institutional recycling totaled 1.3 million tons, and industrial recycling and diversion reached 6.3 million tons, underscoring the scale disparity between residential and non-residential diversion.

Two key infrastructure constraints were identified in the baseline scenario:

1. Program capacity for residential recycling collection: Residential recycling volume in CY2021 was approximately 220,000 tons, with the majority collected via drop-off/convenience centers and an estimated 40% from single-stream curbside programs.
2. Processing capacity for recycling and organics: Combined residential and commercial MRFs and composting facilities had an estimated processing capacity of 450,000 to 550,000 tons per year. This level of capacity is insufficient to support higher diversion rates during the planning period.

Capacity Investment and Growth Scenario Results

Impact of Population Growth

As detailed in the **Existing Conditions** section, Tennessee is projected to experience an 8% population increase between CY2024 and CY2035. This growth is the most significant driver of increased waste generation in the Capacity Investment and Growth Scenario. However, growth is not evenly distributed across the state. The Western Region is expected to remain flat or decline, while the Central Region is projected to grow by 12%. These regional differences directly influence the demand for solid waste services and infrastructure. The anticipated growth will place added pressure on MSW programs, infrastructure, and budgets, particularly at the county and city levels.

Capacity Investments

Regional Disposal or Transfer Capacity

Middle Tennessee faces a shortfall in landfill capacity and will require additional infrastructure to manage between 1.5 million and 3.0 million tons of waste annually. The lower end of this range assumes successful waste reduction, reuse, and diversion efforts. The higher end reflects a scenario where existing regional disposal capacity is depleted without significant local diversion, requiring transfer infrastructure to move waste to facilities outside the region.

Combined State-wide Commercial and Residential MSW Diversion Capacity

To meet a 25% real-time diversion rate for residential and commercial MSW, Tennessee must double its current diversion capacity, from 1.2 million tons to 2.6 million tons annually. This increase will require expanded program capacity (e.g., reuse, reduction, collection) and infrastructure investments. Historically, industrial waste diversion has driven the state's reported diversion rates above 50%. While this demonstrates strong private sector engagement, these volumes fluctuate significantly year to year due to market conditions. This volatility was also noted in the 2024 Development District Needs Assessments, particularly in relation to residential recycling.

State-wide Circular Economy End-Market Material Demand Capacity

To support future diversion goals and mitigate market volatility, Tennessee must invest in regional end-market capacity for recovered materials. An additional 1.5 million tons of residential and commercial diversion capacity, combined with historic industrial swings, underscores the need for in-state demand development. Transportation costs often exceed disposal or processing costs and can hinder reuse and diversion. Therefore, regional end-market development is essential to absorb increased supply and reduce reliance on long-haul transport.

Data Capture and Reporting Capacity Challenges

Data gaps and inconsistencies presented challenges during scenario development. Improved data collection and reporting systems are needed to identify trends, monitor progress, and support informed decision-making. Without these improvements, planning efforts may be hindered by incomplete or unreliable information.

Impact of Economic Growth

Tennessee's economy is expected to continue growing, though at a slower pace than the previous five years (Tennessee Department of Labor & Workforce Development, 2025). In 2024, the state's

gross product was \$432.3 billion, with a five-year growth rate of 3.2% (IBISWorld, 2024). Employment reached 3.3 million, with a five-year growth rate of 1.2%. Key employment sectors include manufacturing, real estate, and healthcare. The top economic drivers for Tennessee are manufacturing, healthcare, agriculture, tourism, and government (Tennessee Department of Labor and Workforce Development, 2024).

For this scenario, employment is projected to grow by 12%, adding approximately 423,000 jobs by 2035. While this may increase waste generation, population growth remains the dominant factor at the state level. However, regional impacts may vary.

Economic growth will also drive construction activity, generating significant quantities of C&D waste. These materials are often event-driven and highly localized. Additionally, Tennessee's industrial base combined with supportive policies, presents opportunities to develop in-state end-markets for plastics, metals, and fiber.

Impact of Natural Disaster Events

Natural disasters are occurring with increasing frequency in Tennessee, generating large volumes of vegetative, C&D, and soil-based debris. Since 2010, the state has experienced 72 major events, causing \$20–\$40 billion in damage (National Centers for Environmental Information, 2024). The average frequency has risen from 1–2 events per year (1980–2009) to approximately eight annually over the past five years.

A recent example is Tropical Storm Helene, which impacted eastern Tennessee from September 2024 to March 2025. The storm generated over six million cubic yards of debris (TEMA, 2024), equivalent to 1.5 million tons or 10–15% of total annual waste generation. Debris was managed through reduction and processing, with some material disposed of in Class I and Class III landfills. The event affected seven counties and required coordinated support from TDOT, TEMA, and federal agencies. A certain amount of disaster debris is already reflected in baseline generation estimates and will remain a planning challenge into the future.

Impact of Tourism

Tourism is a major contributor to waste generation and diversion opportunities. In the base years, tourism accounted for approximately 8% of residential and commercial MSW disposal. In the growth scenario, visitor days are projected to grow by 21% during the planning period, adding roughly 1% or 145,000 tons of MSW annually. This growth will be most impactful in high-traffic destinations such as Nashville, Gatlinburg, and state and national parks.

In 2024, Tennessee welcomed 147 million visitors, generating \$31.7 billion in direct spending, \$3.3 billion in state and local taxes, and supporting over 194,000 jobs (TDTD, 2024c). This equates to 310 million visitor days (TDTD, 2024d), comparable to an additional population of 850,000 generating 700,000 tons of MSW annually, about 8% of the total residential and commercial MSW disposed. While this additional estimated 8% is impactful at the state level, in areas like Gatlinburg, Pigeon Forge, and Sevierville, tourism magnifies local residential waste generation by a factor of 3.5 (350%). These areas will continue to face challenges in managing higher material volumes and may benefit from targeted diversion strategies.

Summary of Findings and Recommendations

Tennessee's projected 8% population growth will lead to a proportional increase in solid waste generation, with tourism and construction-heavy regions facing the greatest impact. The state's solid waste management system remains heavily reliant on landfills, and while statewide Class I landfill capacity is expected to be sufficient statewide through 2035, Middle Tennessee is projected to face a regional shortfall with less than 10 years of remaining capacity in 2025. Without additional investment, transferring waste from Middle Tennessee to other regions could raise disposal costs by \$20–\$40 per ton, resulting in an annual impact of \$40–\$80 million.

Diversification performance in 2024 was driven by the industrial sector, achieving an estimated 58% recycling and organics diversion, but residential and commercial rates remain low. These sectors lack sufficient program and infrastructure capacity, and industrial volumes, while significant, are outside municipal control and subject to market volatility. Data gaps and inconsistent reporting further limit the reliability of diversion metrics.

Counties across Tennessee report unmet funding needs and capital project priorities, with a statewide \$10–\$20 million annual shortfall in operating expenses. The primary funding source, property tax revenue, is constrained by infrequent appraisal cycles and political resistance to rate increases. Since 2017, waste collection costs have outpaced inflation by 1.5% annually (5% vs. 3.5%), straining public sector budgets (**Figure 15**).

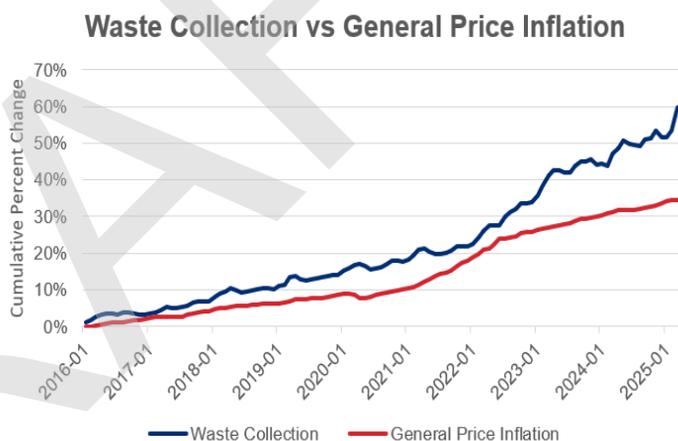
Without new funding sources, local governments may be forced to reduce service levels, particularly in rural areas.

To address these challenges, Tennessee must pursue coordinated policy, program, and infrastructure adjustments over multiple years.

Key recommendations include:

- **PPPs:** Both sectors can expand program and infrastructure capacity. The private sector can scale quickly where financial returns and regulatory certainty exist, while public-sector leadership is critical in rural areas.
- **Regional planning:** Tennessee's 95 counties and 71 planning regions, most of which are single-county, should consolidate operations to leverage economies of scale, diversify revenue, and improve service delivery.
- **Supply chain investments:**
 - **Upstream:** Expand reuse, recycling, and organics programs via state, federal, private, and NGO funding.

Figure 15: Waste Collection vs General Price Inflation



- **Downstream:** Develop in-state end-markets for recovered materials through policy incentives and demand-side support.
- **Infrastructure:** Build 1.5–2.5 million tons of new capacity for MSW and C&D recycling, organics processing, and transfer facilities.

Population growth, tourism, and construction activity will continue to compound financial and operational challenges. Addressing these pressures will require coordinated policy, program, and infrastructure adjustments over multiple years.

Contract in Lieu of Bond Exposure

An additional analysis was conducted based on December 2025 data to assess the financial risks associated with solid waste closure and post-closure liabilities to the State of Tennessee. This assessment examined potential exposure if counties or municipalities are unable to meet closure and post-closure care obligations for municipally or county-owned Class I landfills under existing Contract in Lieu of Bond agreements. The analysis also evaluated potential exposure for publicly owned landfills where closure and post-closure care responsibilities are contractually assigned to private operators, but where the municipality or county may retain residual liability in the event of operator default. Locally owned Class III liabilities and liabilities associated with Class I landfills already in post-closure care were not included in the scope of analysis. The review included analysis of contract documentation, 30-day operating closure and post-closure cost estimates, and financial data for publicly owned landfills. Annual Comprehensive Financial Reports were examined to identify established liability accounts and assess each county's solid waste fund.

For counties without dedicated liability accounts, bond ratings were obtained from credit agencies, such as S&P and Moody's, and reviewed to gauge credit strength and the ability to raise funds if reserves prove insufficient. Financial, operational, and credit-based metrics were then integrated into a risk matrix to compare projected liabilities with each municipality's future financial capacity, identify counties where obligations may exceed available resources, and highlight elevated near-term risks.

Summary of Findings

The results indicate that:

- The total exposure to 30-day operating, corrective action, and closure and post-closure obligations modeled is approximately \$293 million (in 2025 dollars).
- Excluding the modeled exposure covered by counties that maintain liability accounts for closure and post-closure activities, the exposure drops to approximately \$214 million.
- Considering the counties that have a positive net position in their fund balance and that could therefore use a portion of these funds to closure and post-closure care, the net exposure drops further to approximately \$182 million.
- Excluding the liabilities of counties and cities that have private contracts with operators who are responsible for closure and post closure costs (Bradley, Rhea, Iris Glen, Loudon), the net exposure drops to approximately \$91 million.
- All counties without a liability account or a positive net position have strong credit ratings (AA- and above) and therefore could potentially mitigate the net exposure further.

Recommendations, Diversion Metrics Reporting Update, and Economic Modeling Tool

This chapter integrates the key components needed to support strengthening Tennessee’s waste management systems. It presents targeted recommendations that operationalize the 2035 Plan’s objectives by addressing capacity constraints, data limitations, uneven access to recycling, and funding pressures. Updated diversion reporting expectations refine how counties measure and track performance by incorporating sector-specific data, improving accuracy, transparency, and alignment with local conditions. In parallel, the Economic Model Tool provides a practical financial modeling framework that enables communities to benchmark their all-in system costs. By building on The Plan’s analytical foundation, the tool supports informed planning, cost-scenario evaluation, and long-term investment decision-making.

Recommendations

This section provides a concise, action-focused roadmap aligned to the eight objectives of the 2035 Plan. It responds to the Plan’s findings on capacity constraints, uneven access to recycling, data gaps, disaster risk, and funding pressures across Tennessee. Each recommendation begins with a brief rationale followed by practical actions that TDEC, state and local governments, private industry, educational institutions, and nonprofits can implement collaboratively to deliver measurable results.

Objective 1: Ensure Long-term Environmentally Protective Disposal Capacity

Tennessee must maintain reliable, environmentally protective disposal options for materials that cannot be reduced, reused, or recycled. This objective is critical because disposal capacity underpins every other part of the waste system, collection, recycling, diversion, emergency response, and public health protection. The state faces both rapid growth and strong regional disparities, with Middle Tennessee experiencing significant pressure and limited remaining Class I capacity. Declining public ownership, increasing disaster debris, and reduced landfill counts heighten the need for consistent, forward-looking planning to avoid costly disruptions, long hauling distances, and emergency siting decisions.

Table 23: Objective 1 Recommendations and Key Actions

Recommendation	Purpose / Rationale	Key Actions
<p>Develop and Maintain a Comprehensive Statewide Landfill Capacity Monitoring and Forecasting System</p>	<p>A single, standardized view of Class I landfill capacity enables timely siting decisions, targeted investments, and credible public communication.</p>	<p>Establish a uniform reporting framework for all Class I landfill operators (e.g., tonnage received, fill rates, remaining permitted capacity, projected closure dates). Continue annual statewide and regional capacity assessments; publish results to improve transparency and guide infrastructure planning. Apply scenario modeling (population growth, disaster debris surges, increased diversion) to stress-test capacity and sequence investments.</p>
<p>Strengthen Regional Planning and Shared Capacity Frameworks</p>	<p>Coordinated regional planning reduces stranded capacity, lowers costs, improves equity of access, and prevents county-by-county disposal crises.</p>	<p>Organize annual workshops in each Grand Division to identify cross-county disposal challenges, infrastructure gaps, and opportunities for sharing.</p>

Table 23: Objective 1 Recommendations and Key Actions – Continued

Recommendation	Purpose / Rationale	Key Actions
Strengthen Regional Planning and Shared Capacity Frameworks	Coordinated regional planning reduces stranded capacity, lowers costs, improves equity of access, and prevents county-by-county disposal crises.	Develop customizable interlocal agreement templates (with legal guidance and examples) for shared disposal, hauling, and co-investment.
		Implement grants to incentivize joint capacity planning (feasibility studies, waste-flow modeling, shared transfer stations or convenience centers).
		Target infrastructure funding using landfill capacity data and collaboration-based criteria.
Promote Operational BMPs at Existing Landfills	Operational improvements are the fastest, lowest-cost way to extend landfill life, reduce risk, and delay new siting.	Enhance TDEC operator certification with advanced modules on compaction, alternative daily cover, and gas/leachate optimization (online and in-person).
		Create a recognition program for facilities that meet or exceed BMP benchmarks, linked to performance-based grant eligibility.
		Provide technical assistance and matching grants for pilot projects (liners, alternative covers, methane capture), requiring performance and cost-benefit documentation.
		Publish Tennessee-based case studies highlighting operational data and lessons learned.
Engage Stakeholders Early and Consistently in Disposal Capacity Planning	Early, structured engagement improves siting outcomes, builds trust, and ensures plans reflect community priorities.	Establish a standing advisory group (local governments, private haulers, environmental and community representatives) meeting quarterly on data and priorities.
		Conduct biennial listening sessions in each Grand Division to inform statewide and regional plan updates.
		Produce plain language, visual summaries of capacity data and forecasts (maps, charts) to improve public understanding.
		Document how stakeholder input influenced the 10-year plan and permitting guidance to enhance accountability.

Objective 2: Advance Material Processing Infrastructure and Market Development

Robust, modern processing infrastructure is essential for Tennessee to increase diversion, support economic growth, and ensure that recyclable and organic materials can be efficiently recovered and beneficially used. Current infrastructure is uneven, with large differences in access between urban and rural areas. Limited in-state end markets raise transportation costs and reduce program viability, particularly for smaller communities. Strengthening processing capacity and expanding market demand are necessary to reduce landfill reliance, stabilize program economics, and promote a more resilient statewide materials management system.

Table 24: Objective 2 Recommendations and Key Actions

Recommendation	Purpose / Rationale	Key Actions
Expand and Modernize Processing and Recovery Infrastructure	Modern RMPFs, composting, and ancillary assets close access gaps, lower hauling costs, improve material quality, and increase recovery at scale.	Continue grants and low-interest loans for new or upgraded RMPFs, composting, and other processing infrastructure, prioritizing underserved regions.
		Incentivize co-location with landfills, transfer stations, and convenience centers, and enable brownfield reuse through leases and public-private partnership tools.
		Offer grants or tax incentives for businesses investing in processing infrastructure and equipment.
		Facilitate interlocal collaboration to share processing assets and reduce transportation needs through compaction, consolidation, and other scaling practices.

Table 24: Objective 2 Recommendations and Key Actions – Continued

Recommendation	Purpose / Rationale	Key Actions
Strengthen End Markets for Recovered Materials	End markets pull material through the system; without sustained demand, diversion slows and costs increase.	<ul style="list-style-type: none"> Prioritize incentives for manufacturers that use Tennessee-sourced recycled content. Partner with economic development entities to recruit end-market businesses and recognize in-state manufacturers using recycled content. Support pilot and demonstration projects for new material uses, such as glass in construction and compost in agriculture. Adopt procurement preferences with realistic recycled-content targets. Publish tools that match material generators to processors and connect manufacturers with in-state recycled-content suppliers, including hard-to-recycle streams.
Improve Access to Recycling and Organics Collection	Participation increases when recycling and organics services are convenient and affordable, particularly for multifamily, rental, and rural communities.	<ul style="list-style-type: none"> Expand curbside and drop-off programs using tailored approaches for single-family, multifamily, and rental-heavy communities. Provide technical and funding support for source-separated organics collection, including food scraps and yard waste. Develop model ordinances addressing recycling and organics siting and operations, including mandates and zoning updates. Target education and outreach efforts where they will yield the greatest reductions in contamination and increases in participation.
Foster Regional Collaboration and Shared Services	Shared facilities and coordinated purchasing lower costs and improve throughput for small and rural programs.	<ul style="list-style-type: none"> Facilitate interlocal agreements to support shared processing, hauling, and marketing of recovered materials. Coordinate regional grant applications for shared infrastructure development and system upgrades. Develop regional diversion centers using a hub-and-spoke service model. Use cooperative purchasing mechanisms or state contracts to reduce costs and administrative burden for equipment and services.
Support Innovation and Technology Adoption	Technology reduces contamination, improves system economics, and helps programs adapt to changing markets.	<ul style="list-style-type: none"> Partner with universities, industry, and state programs to evaluate, pilot, and scale innovative technologies in coordination with relevant coalitions and councils. Create technology demonstration grants targeted to local governments and nonprofit organizations. Host annual showcases or workshops to disseminate best practices and recognize high-performing programs. Issue guidance and streamlined permitting pathways for innovative pilot projects and consider limited waivers for qualifying small-scale demonstrations.

Objective 3: Increase Diversion of Organic Waste

Organic waste represents Tennessee’s largest opportunity to reduce landfill disposal, cut methane emissions, and generate beneficial products such as compost. Despite its high share in residential, commercial, and institutional waste streams, infrastructure and participation lag behind need. Limited composting access, inconsistent collection programs, and underutilized prevention and rescue strategies constrain progress. Improving organics management is essential to extending landfill life, lowering emissions, reducing disposal costs, and creating new economic opportunities for local and regional markets.

Table 25: Objective 3 Recommendations and Key Actions

Recommendation	Purpose / Rationale	Key Actions
Expand Composting Infrastructure and Programs	Building a progression from backyard and community composting to full-scale facilities expands access quickly while supporting long-term, sustainable system growth.	Target grant funding for new or expanded composting programs and facilities in underserved and high-opportunity areas.
		Launch and support backyard and community composting programs to build participation, familiarity, and readiness for larger-scale facilities.
		Pilot curbside organics collection in urban and suburban areas and establish rural drop-off options where curbside service is not feasible.
		Develop regional organics hubs using a hub-and-spoke model for collection, transfer, and processing.
Promote Food Waste Prevention and Rescue	Prevention and rescue deliver the largest and fastest waste reductions per dollar while simultaneously addressing food insecurity.	Continue and refresh statewide food waste prevention campaigns, using tools such as EPA's Excess Food Opportunities Map to target high-impact areas.
		Support food rescue organizations and partnerships and clarify liability protections under the Bill Emerson Good Samaritan Food Donation Act.
		Provide toolkits and technical assistance to schools, hospitals, universities, and local governments to track, measure, and reduce food waste.
		Encourage local ordinances that enable organics facilities by using tailored zoning approaches such as U.S. Composting Council model ordinances.
Encourage Organics Diversion in the Commercial Sector	Targeting large generators accelerates diversion volumes and supports the economic viability of organics processing facilities.	Incentivize source separation and diversion by large food businesses and institutions through phased thresholds tied to proximity to available processing capacity.
		Offer grants or tax incentives to support investment in organics collection equipment and diversion programs.
		Develop recognition programs that highlight and reward commercial leaders in organics diversion.
Integrate Organics Diversion into Local and Regional Planning	Embedding goals, metrics, and reporting requirements ensures sustained attention and resourcing for organics diversion efforts.	Require regional solid waste plans to include explicit organics diversion goals and strategies alongside recycling objectives.
		Support regionalization and interlocal agreements for organics processing and marketing, using needs assessments to guide infrastructure investments.
		Add organics-specific metrics to annual reporting with clear instructions, including guidance for jurisdictions without existing programs.
Support Research and Demonstration Projects for Organics Management	Research and demonstration projects help identify best practices and innovative solutions for managing organic waste at scale.	Partner with universities and extension services to evaluate composting, AD, and food rescue models.
		Fund pilot projects that enhance processing efficiency or develop end-product markets for compost and digestate.
		Share results through statewide workshops and publications and foster public-private-academic collaborations to accelerate learning and adoption.

Objective 4: Strengthen Goals and Data-Driven Performance Metrics

Clear goals and reliable data are fundamental to evaluating performance, identifying trends, and making informed decisions across Tennessee's solid waste system. Current reporting is inconsistent across sectors and regions, particularly among ICI generators and private operators. These data gaps limit the state's ability to track material flows, measure progress toward the 25% reduction goal, and target investments effectively. Modernizing data systems and establishing

measurable, sector-specific goals will enable stronger accountability, improved planning, and more strategic use of state and local resources.

Table 26: Objective 4 Recommendations and Key Actions

Recommendation	Purpose / Rationale	Key Actions
Modernize Data Collection and Reporting Systems	Real-time data and standardized reporting reduce errors, close information gaps, and support evidence-based planning and funding decisions.	Upgrade MyTDEC Forms, RecycleBin, and Wastebin to support real-time data entry, validation, and analytics dashboards.
		Standardize reporting requirements across all permitted facilities, including private operators, by aligning formats, frequency, and content.
		Provide ongoing training, technical support, and user guides to improve data quality, consistency, and compliance.
		Create a public-facing dashboard, such as RecycleBin or the DSWM Data Viewer, incorporating GIS tools to visualize diversion, capacity, participation, and service coverage.
Set Clear, Measurable Goals for Diversion and Reduction	Time-bound, sector-specific targets align actions statewide and make progress transparent, manageable, and measurable.	Define sector-specific targets for residential, commercial, institutional and commercial, and C&D streams using baseline data and realistic benchmarks.
		Require regional solid waste plans to include quantifiable goals, timelines, and strategies with periodic updates.
		Incorporate performance metrics into grant eligibility criteria and scoring methodologies.
		Conduct periodic formal reviews to adjust targets and strategies based on updated data and market conditions and publish an annual statewide report on progress.
Expand Data Collection to Cover All Waste Streams	Data gaps in institutional, commercial, and C&D streams obscure system performance and hide diversion opportunities.	Incentivize reporting from private haulers, processors, and large generators through regulatory updates or permit conditions.
		Facilitate voluntary reporting by offering incentives, recognition programs, and technical assistance.
		Adopt standardized estimation protocols for unreported or underreported streams and fund regional waste characterization studies.
Promote Transparency and Public Engagement with Data	Transparent and understandable data builds trust, improves participation, and strengthens accountability across stakeholders.	Publish user-friendly summaries such as infographics, fact sheets, and dashboards tailored to different audiences.
		Host recurring webinars, workshops, and listening sessions to explain findings and collect stakeholder feedback.
		Solicit input on data priorities, presentation formats, and tools, and encourage local governments to share information through websites and newsletters.
		Recognize communities and programs that demonstrate leadership in data transparency and public engagement.

Objective 5: Manage Problematic or Hard-to-Manage Waste

HHW, tires, batteries, electronics, and emerging waste streams require specialized handling to prevent environmental contamination, reduce illegal dumping, and protect public health. Limited access to collection programs, uneven regulatory compliance, and evolving product types create growing challenges for local governments. Improving management of these materials is essential to reduce risks, support safe disposal, and ensure Tennessee can adapt to new waste types and technologies.

Table 27: Objective 5 Recommendations and Key Actions

Recommendation	Purpose / Rationale	Key Actions
Expand Collection and Safe Disposal Programs for Problematic or Hard-to-Manage Wastes	Access to convenient and compliant disposal options is the most effective deterrent to improper disposal and illegal dumping.	Increase HHW collection events, prioritizing rural and low-access communities, and promote them through targeted outreach.
		Provide grant funding for permanent HHW infrastructure, including facilities or container systems as well as staffing and operational support.
Expand Collection and Safe Disposal Programs for Problematic or Hard-to-Manage Wastes	Access to convenient and compliant disposal options is the most effective deterrent to improper disposal and illegal dumping.	Collaborate with businesses to expand take-back programs for batteries, electronics, paint, and similar materials, offering technical guidance and incentives.
		Conduct statewide and region-specific outreach campaigns on proper disposal methods for HHW and other problematic wastes.
Strengthen Regulatory Oversight and Enforcement	Consistent oversight and enforcement prevent noncompliant actors from undercutting compliant programs and reduce improper handling and dumping.	Implement the Waste Tire Hauler Rule with clear registration requirements, manifest tracking, and financial assurance, supported by training for haulers and inspectors.
		Expand inspections focused on illegal dumping and high-risk handling activities and publish enforcement outcomes to reinforce accountability.
		Require standardized annual reporting from tire, battery, and electronics handlers to support planning, oversight, and enforcement efforts.
Promote Innovation and Market Development for Problematic or Hard-to-Manage Wastes	Emerging products require new end-of-life solutions, and pilots and market development reduce long-term reliance on disposal.	Fund pilot projects that recycle or beneficially use solar panels, wind turbine blades, and other emerging waste streams, using clear performance metrics.
		Offer competitive grants to universities, startups, and municipalities to advance scalable technologies and support regional market development.
Build Partnerships for Education and Outreach	Coordinated education and outreach reduce contamination, increase participation, and improve public safety.	Support community partners with culturally relevant toolkits and funding to deliver targeted education and outreach.
		Develop K-12 curriculum in partnership with the Department of Education and provide teacher training and incentives to encourage adoption.
		Recognize businesses, schools, and communities annually for leadership in safe management and education related to problematic wastes.
Support Local and Regional Infrastructure for Problematic or Hard-to-Manage Wastes	Regional infrastructure ensures all communities can manage problematic materials safely, equitably, and cost-effectively.	Provide grant funding for regional facilities, covering planning, permitting, equipment, and disposal capacity.
		Use model interlocal agreements to support shared infrastructure, staffing, and operating costs across jurisdictions.
		Assist planning districts with development of regional strategies, forecasting tools, needs assessments, and stakeholder engagement efforts.

Objective 6: Disaster Debris Management

Increasing disaster frequency and severity across Tennessee has created significant operational and financial pressure on local governments. Large debris volumes can quickly overwhelm existing infrastructure, delay recovery, and jeopardize eligibility for federal reimbursement when debris operations are not preplanned. Integrating debris management into emergency planning is necessary to protect public health, reduce costs, speed recovery, and strengthen statewide resilience.

Table 28: Objective 6 Recommendations and Key Actions

Recommendation	Purpose / Rationale	Key Actions
Require and Support Local DDMPs	DDMPs clarify roles, sites, and documentation requirements, shortening response time and improving compliance during emergencies.	Implement and monitor inclusion of DDMPs in accordance with TCA §68-211-815, including clear deadlines, review protocols, and consequences for non-compliance.
		Provide standardized disaster DDMP templates and technical assistance and host biennial trainings for emergency management, public works, and solid waste staff.
Require and Support Local DDMPs	DDMPs clarify roles, sites, and documentation requirements, shortening response time and improving compliance during emergencies.	Require annual plan reviews and updates at least every ten years or following major disaster events, incorporating documented lessons learned.
		Expand funding for debris removal, equipment rental, and emergency staffing, with priority given to vulnerable and capacity-constrained counties.
Pre-identify and Permit Temporary Debris Management Sites	Pre-approved temporary debris management sites enable rapid and compliant operations when response time is most critical.	Work with local governments to identify and permit temporary debris management sites in advance using accessibility, environmental, and operational feasibility criteria.
		Establish site selection criteria that include protective safeguards, zoning compatibility, and documented community input, and require public notification processes.
		Maintain a centralized database of permitted temporary debris management sites, including information on capacity, allowable materials, and points of contact.
Build Regional Capacity for Debris Processing and Recycling	Regional assets and pre-event contracting increase diversion, control costs, and improve compliance with Federal Emergency Management Agency requirements.	Provide funding for mobile grinding, sorting, and other deployable equipment and develop regional debris recycling hubs staffed with trained personnel.
		Execute scalable, pre-event master services contracts for specialized debris management needs, such as hazardous materials and asbestos handling, that meet FEMA requirements.
		Adopt statewide debris sorting protocols and approved beneficial use options such as mulch, aggregate, and alternative fuel applications.
		Require documentation of debris volumes, diversion, and disposal and provide standardized tools and training to ensure accurate FEMA reporting.
		Deploy an interactive dashboard to visualize debris flows, site utilization, and operational progress in real time.
Train Local Officials and Contractors in Best Practices	Training builds local surge capacity and reduces reliance on outside contractors during disaster response and recovery.	Host biennial workshops incorporating tabletop exercises focused on debris collection, sorting, temporary site management, and documentation.
		Publish self-paced online courses covering DDMP development, FEMA compliance, and field operations, with optional certification pathways.
		Support participation in statewide and FEMA-led exercises and integrate documented lessons learned into local DDMPs.

Objective 7: Expand and Focus Education and Outreach

Public education is central to reducing contamination, increasing participation in recycling and diversion programs, and addressing persistent issues such as illegal dumping. While Tennessee has several successful outreach initiatives, participation remains uneven and contamination rates remain high. Clear, consistent messaging and expanded outreach—tailored to local community needs, are essential to improving program performance and sustaining long-term public support for solid waste services.

Table 29: Objective 7 Recommendations and Key Actions

Recommendation	Purpose / Rationale	Key Actions
Launch Statewide Public Education Campaigns	A unified statewide brand combined with localized delivery achieves consistent messaging and measurable behavior change.	Create a unified brand and messaging toolkit that can be adapted by local partners.
		Produce culturally relevant and translated materials such as flyers, videos, social media content, and frequently asked questions.
Launch Statewide Public Education Campaigns	A unified statewide brand combined with localized delivery achieves consistent messaging and measurable behavior change.	Use a mix of digital and traditional media channels tailored to regional access, infrastructure, and demographics.
		Equip community organizations, schools, and businesses with training and co-branded outreach assets.
		Measure participation, contamination rates, and public awareness, and publish annual results to track effectiveness.
Integrate Waste Education into K-12 and Higher Education	Early, hands-on education builds lifelong habits and cultivates future community leaders and professionals.	Develop standards-aligned lesson plans and educational activities in both digital and print formats.
		Provide funding to support school recycling and composting systems, including bin placement, signage, and student engagement.
		Establish scholarships and awards, and publicly highlight student and institutional achievements.
		Partner with higher education institutions on research initiatives, pilot programs, internships, and service-learning opportunities.
Support Local and Regional Outreach Initiatives	Locally tailored outreach increases trust and effectiveness while remaining aligned with statewide messaging and goals.	Offer funding and expert support for municipal and regional outreach campaigns using localized materials consistent with statewide branding.
		Maintain recognition programs and share case studies highlighting high-performing education and outreach efforts.
		Host regional workshops and forums to coordinate outreach activities across jurisdictions.
		Support local cleanups, hazardous waste roundups, and community fairs with promotional and logistical assistance.
Leverage Technology and Digital Tools for Engagement	Scalable digital tools empower residents to take correct actions anytime and anywhere.	Expand user-friendly applications that provide guidance on recycling, composting, and HHW, as well as collection schedules, illegal dumping reports, and facility locators.
		Host webinars, virtual town halls, and on-demand training sessions to broaden access to education.
		Highlight program champions and provide downloadable toolkits through websites, newsletters, and social media platforms.

Objective 8: Develop Sustainable Funding Sources for MSW Management Programs

Tennessee’s solid waste system faces rising costs, aging infrastructure, and declining reliance on disposal-based revenue. Many counties operate with persistent funding gaps that limit service levels, constrain infrastructure investment, and create long-term vulnerabilities. A more stable, diversified funding structure is necessary to maintain essential services, expand diversion programs, and ensure long-term financial sustainability, especially for rural and resource-constrained communities.

Table 30: Objective 8 Recommendations and Key Actions

Recommendation	Purpose / Rationale	Key Actions
Strengthen Local Government Capacity for Sustainable Funding	Tools, training, and technical assistance help local governments align revenues with service needs and long-term investment requirements.	Conduct a statewide review of tipping fee surcharges and recommend region-appropriate adjustments to support cost recovery and service expansion.
		Publish a Solid Waste Funding Toolkit addressing PAYT programs, environmental fees, enterprise funds, and rate-setting practices.

Table 30: Objective 2 Recommendations and Key Actions – Continued

Recommendation	Purpose / Rationale	Key Actions
<p>Strengthen Local Government Capacity for Sustainable Funding</p>	<p>Tools, training, and technical assistance help local governments align revenues with service needs and long-term investment requirements.</p>	<p>Host biennial trainings focused on funding mechanisms and financial planning for solid waste systems.</p>
		<p>Provide technical assistance for forecasting, capital planning, and rate modeling tailored to local waste streams and service configurations.</p>
		<p>Promote regional cost-sharing and cooperative purchasing arrangements to reduce administrative costs and improve affordability for small jurisdictions.</p>
		<p>Provide a “Cost Savings Through Diversion” calculator to help quantify avoided disposal costs.</p>
<p>Expand Access to Grants, Loans, and Public-Private Partnerships</p>	<p>External capital accelerates infrastructure upgrades and program expansion, particularly where local revenue capacity is limited.</p>	<p>Maintain a current, searchable database of state, federal, and philanthropic funding opportunities.</p>
		<p>Offer biennial grant-writing workshops and one-on-one technical assistance to support competitive applications.</p>
		<p>Prioritize underserved, rural, and high-need communities through targeted outreach and equity-based scoring criteria.</p>
		<p>Increase the number of local governments receiving TDEC grants by at least twenty-five percent above 2025 levels, with annual tracking and reporting.</p>
		<p>Publish model public-private partnership contracts and guidance for facilities, services, and pilot projects, and recognize exemplary partnerships on an annual basis.</p>
<p>Align Funding with Performance Metrics and Diversion Goals</p>	<p>Tying funding to measurable outcomes increases accountability and motivates continuous improvement.</p>	<p>Integrate diversion and recycling performance metrics into grant eligibility requirements and scoring, with additional consideration for improvement and innovation.</p>
		<p>Require annual performance reporting and peer benchmarking from grant recipients.</p>
		<p>Publish an annual statewide performance report comparing regional progress and highlighting successful programs.</p>

Diversion Metrics and Updated Reporting Expectations

In support of improving data accuracy and gaining a clearer understanding of actual diversion performance at the county level, TDEC has refined its approach to measuring and achieving waste diversion goals. By collecting and analyzing data at the sector-specific level (e.g., residential and ICI) TDEC can more precisely reflect the true composition of each county’s waste stream and identify targeted opportunities for improvement. These updates are designed to improve transparency, accountability, and alignment with local realities, while maintaining the state’s statutory commitment to reducing landfill dependency.

Dual Goals: Statewide Diversion and County-Level Recycling

To better capture both statewide progress and local performance, Tennessee will now operate under a two-tiered goal structure:

- Statewide Diversion Goal:** The state will continue to calculate its overall diversion rate using the established “Pink-n-Blue” methodology. This approach, which incorporates population and economic growth ratios, satisfies the requirements of TCA §68-211-861 and will remain the basis for evaluating statewide progress.
- County-Level Diversion Goal:** Each county will now be evaluated based on a real-time diversion goal that compares current performance to a selected base year. This approach allows for a more accurate assessment of year-over-year improvement and better reflects

actual recycling activity. It supports more targeted planning, investment, and accountability by breaking down performance into three key components:

- **Overall County Performance:** Measures total diversion activity across all sectors to provide a comprehensive view of county-wide progress.
- **Residential Sector Performance:** Tracks diversion rates from households, curbside programs, and drop-off centers to assess community engagement and service effectiveness.
- **ICI Sector Performance:** Evaluates diversion efforts from businesses, schools, hospitals, and other non-residential generators to identify opportunities for targeted outreach and infrastructure support.

Real-Time Recycling Metric Formulas

The following formulas will be used to calculate county-level recycling performance:

- **Real-Time Diversion Rate (Current Year):**
$$\text{Diversion}_{\text{Current}} = (\text{Diverted}_{\text{Current}} \div (\text{Diverted}_{\text{Current}} + \text{Disposed}_{\text{Current}})) \times 100$$
- **Base Year Diversion Rate:**
$$\text{Diversion}_{\text{Base}} = (\text{Diverted}_{\text{Base}} \div (\text{Diverted}_{\text{Base}} + \text{Disposed}_{\text{Base}})) \times 100$$
- **Change in Diversion Rate:**
$$\text{Change} = \text{Diversion}_{\text{Current}} - \text{Diversion}_{\text{Base}}$$
- **Percent Change in Diversion Rate:**
$$\% \text{ Change} = ((\text{Diversion}_{\text{Current}} - \text{Diversion}_{\text{Base}}) \div \text{Diversion}_{\text{Base}}) \times 100$$

These metrics will be used to track annual progress. Counties are expected to show yearly improvement in their diversion rates. If a county does not demonstrate progress, it must document steps taken to develop or improve its recycling infrastructure. When neither improvement nor infrastructure development is evident, the State will conduct a Quality Assurance Assessment to review the county's program efforts and compliance.

Tier-Based Infrastructure Expectations

To support this performance-based approach, TDEC will continue to use its tier system to evaluate the status of county-level solid waste infrastructure. As detailed in **Attachment D: Tier-Based Infrastructure Expectations**, this system categorizes counties based on existing infrastructure and outlines expectations for growth. Counties with more robust infrastructure will be expected to achieve higher recycling percentages by 2035. The tier system serves as both a planning tool and a benchmark for assessing readiness and capacity.

Economic Model Tool

An Economic Model Tool was prepared to support TDEC's statewide and regional solid waste planning. The purpose of the tool is to provide Tennessee's planning regions with a consistent, transparent framework for estimating the costs associated with managing MSW.

The model evaluates differences in solid waste management across Tennessee's three Grand Divisions, with an emphasis on public-sector activities. It incorporates solid waste system component-level cost ranges, index-based cost escalation factors, population-based projections, and regional variability to reflect the diversity of system configurations across the state.

Data Compilation and Review

Prior to developing the analyses and constructing the Economic Modeling Tool, a set of foundational inputs was compiled and reviewed for consistency across all system components. These inputs included:

- Facility inventories and key facility characteristics, where available;
- Population estimates and projections; and
- Consumer Price Index (CPI) factors used to support cost forecasting.

Together, these inputs provide the basis for cost standardization and support both current-year estimates and ten-year projections generated by the model.

Conceptual Framework of the Solid Waste System

The Economic Modeling Tool is structured around a four-component conceptual representation of Tennessee's solid waste system that reflects how materials move through the system:

- **Waste Collection:** Includes both curbside services and the extensive network of convenience centers that play a central role in Tennessee's rural waste management system.
- **Hauling and Transfer:** encompasses the movement of materials from collection points to downstream facilities, including the operation of transfer stations.
- **Diversion Processing:** includes composting and MRF operations that manage recyclable and organic materials.
- **Disposal:** represents landfill operations for waste disposal.

In addition to these four components, the framework accounts for key program management activities that support planning, administration, and oversight across the system. Together, these elements illustrate how Tennessee's solid waste system functions and provide the foundation for the analyses that follow.

Economic Context by Grand Division

The economic model inputs incorporate key demographic, geographic, and operational conditions that influence how the solid waste system functions within each of Tennessee's three Grand Divisions. Documenting these region-specific factors provides planning regions with important context for understanding why system design, service delivery, and cost structures vary across the state.

Key conditions influencing each Grand Division include:

- **East Tennessee:** Seasonal tourism in counties such as Sevier and Blount generates significant peak-season waste volumes that strain collection and disposal capacity. Mountainous terrain and dispersed development patterns further complicate service delivery and increase operational complexity.
- **Middle Tennessee:** Limited disposal capacity and recent facility closures create long-term constraints, increase reliance on out-of-region disposal facilities, and result in longer haul distances.
- **West Tennessee:** Lower population density and a predominantly rural profile contribute to higher per-capita collection costs and fewer curbside service opportunities. In some areas, localized population decline reduces route density and affects revenue stability.

These conditions result in regional differences in model inputs and demonstrate how local context can influence anticipated cost outcomes when the economic modeling tool is applied.

Standardized Cost Development

Standardized operating costs were developed for the four system components to provide Solid Waste Planning Regions with a basis for conceptually evaluating expenses. Cost development involved:

- Differentiating curbside collection costs by urban, suburban, and rural service areas;
- Grouping facility costs into small, medium, and large size categories to reflect economies of scale; and
- Distinguishing disposal costs by Grand Division, recognizing that landfill availability strongly influences disposal pricing, with more limited capacity generally resulting in higher costs.

These standardized values form the core inputs to the model.

Economic Modeling Tool (Input–Output Model)

The Economic Modeling Tool is structured as a high-level input–output model that translates system characteristics into estimated costs. The model allows Solid Waste Planning Regions to select system characteristics through an interactive interface, including collection method, transfer approach, and processing pathway. Using these selections, the model applies standardized cost inputs and forecast factors to calculate both a current-year cost estimate and a ten-year projection of future costs.

By linking system configuration choices to cost outcomes, the model provides planning regions with a structured method for evaluating how changes in system design, service delivery, or regional conditions may influence long-term solid waste management costs.

Availability and Use of the Economic Modeling Tool

The Economic Modeling Tool is not intended to replace budgetary efforts or to precisely predict all-in costs; rather, it is meant to conceptually support Solid Waste Planning Regions in comparing cost implications of different solid waste system configurations and planning scenarios. By applying standardized assumptions within an input–output modeling framework, the tool provides a consistent approach to cost estimation while allowing flexibility to reflect local conditions.

Municipalities or Solid Waste Planning Regions interested in utilizing the economic modeling tool, including receiving training or technical assistance, should contact TDEC’s DSWM for additional information and coordination.

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[DRAFT] Attachment A: Supplemental Data Tables

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Table A-1. Projected Population Growth (2015–2035)

Region of Interest		2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Growth Rate 2015-2025 (%)	Projected Growth Rate 2025-2035 (%)	Total Growth Rate (%)
East		2,384,690	2,477,169	2,589,177	2,662,599	2,709,720	0.7	8.6	4.7	13.6
East - Average		72,263	75,066	78,460	80,685	82,113				
Middle		2,641,824	2,893,203	3,112,067	3,325,500	3,522,997	1.7	17.8	13.2	33.4
Middle - Average		64,435	70,566	75,904	81,110	85,927				
West		1,564,656	1,557,532	1,541,489	1,525,658	1,506,191	-0.2	-1.5	-2.3	-3.7
West - Average		74,507	74,168	73,404	72,650	71,723				
State Total		6,591,170	6,927,904	7,242,733	7,513,757	7,738,908	0.9	9.9	6.9	17.4
State Average		69,381	72,925	76,239	79,092	81,462				
County	Classification	2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Growth Rate 2015-2025 (%)	Projected Growth Rate 2025-2035 (%)	Total Growth Rate (%)
East										
Anderson	Suburban	75,456	77,327	80,627	82,687	84,058	0.57	6.85	4.26	11.4
Bledsoe	Rural	14,601	14,955	15,248	15,800	16,201	0.55	4.43	6.25	11.0
Blount	Urban	126,954	135,656	144,400	150,249	154,647	1.09	13.74	7.10	21.8
Bradley	Suburban	103,774	108,831	113,913	118,555	122,486	0.90	9.77	7.53	18.0
Campbell	Suburban	39,772	39,306	39,385	38,764	37,908	-0.23	-0.97	-3.75	-4.7
Carter	Suburban	56,375	56,386	55,741	54,341	52,794	-0.32	-1.12	-5.29	-6.4
Claiborne	Rural	31,555	32,066	32,413	32,127	31,499	-0.01	2.72	-2.82	-0.2
Cocke	Suburban	35,138	36,043	37,242	37,357	37,013	0.27	5.99	-0.61	5.3
Cumberland	Suburban	58,217	61,372	65,861	68,249	68,793	0.91	13.13	4.45	18.2
Grainger	Rural	22,848	23,569	24,579	24,807	24,769	0.42	7.58	0.77	8.4
Greene	Suburban	68,586	70,348	72,656	73,542	73,285	0.34	5.93	0.87	6.9
Hamblen	Suburban	63,353	64,542	66,340	67,885	69,176	0.46	4.71	4.27	9.2
Hamilton	Urban	353,690	367,891	385,843	401,714	414,689	0.86	9.09	7.48	17.2
Hancock	Rural	6,577	6,626	6,810	6,677	6,483	-0.07	3.54	-4.80	-1.4

County	Classification	2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Growth Rate 2015-2025 (%)	Projected Growth Rate 2025-2035 (%)	Total Growth Rate (%)
East										
Hawkins	Suburban	56,370	56,721	58,537	58,560	57,815	0.13	3.84	-1.23	2.6
Jefferson	Suburban	53,011	54,917	58,783	60,935	61,624	0.81	10.89	4.83	16.2
Johnson	Rural	17,842	17,994	18,008	17,692	17,174	-0.19	0.93	-4.63	-3.7
Knox	Urban	451,297	480,530	508,654	530,212	550,368	1.10	12.71	8.20	22.0
Loudon	Suburban	50,916	55,136	61,596	65,897	67,778	1.66	20.98	10.04	33.1
Marion	Rural	28,397	28,905	29,265	29,269	29,009	0.11	3.06	-0.87	2.2
McMinn	Suburban	52,502	53,344	55,752	56,845	57,357	0.46	6.19	2.88	9.2
Meigs	Rural	11,804	12,809	13,769	14,348	14,683	1.22	16.65	6.64	24.4
Monroe	Suburban	45,625	46,399	48,951	49,983	49,855	0.46	7.29	1.85	9.3
Morgan	Rural	21,494	21,050	21,091	20,579	19,931	-0.36	-1.87	-5.50	-7.3
Polk	Rural	16,769	17,567	18,244	18,605	18,687	0.57	8.80	2.43	11.4
Rhea	Rural	32,373	33,287	33,948	34,138	34,089	0.27	4.87	0.42	5.3
Roane	Suburban	52,770	53,664	55,607	55,734	55,149	0.23	5.38	-0.82	4.5
Scott	Rural	21,893	21,876	21,975	21,754	21,394	-0.11	0.37	-2.64	-2.3
Sevier	Suburban	95,417	98,865	101,026	104,174	106,963	0.61	5.88	5.88	12.1
Sullivan	Urban	156,199	158,244	164,002	167,076	167,680	0.37	5.00	2.24	7.4
Unicoi	Rural	17,819	17,873	17,613	17,345	16,947	-0.24	-1.16	-3.78	-4.9
Union	Rural	19,159	19,845	20,745	20,991	20,939	0.46	8.28	0.94	9.3
Washington	Urban	126,137	133,225	140,553	145,708	148,477	0.89	11.43	5.64	17.7
Middle										
Bedford	Suburban	46,948	50,396	54,010	57,365	60,790	1.47	15.04	12.55	29.5
Cannon	Rural	13,740	14,561	15,075	15,393	15,518	0.65	9.72	2.94	12.9
Cheatham	Suburban	39,593	41,090	42,603	43,436	43,827	0.53	7.60	2.87	10.7
Clay	Rural	7,663	7,594	7,499	7,281	7,055	-0.40	-2.14	-5.92	-7.9
Coffee	Suburban	54,093	58,145	61,896	65,179	68,309	1.31	14.43	10.36	26.3
Davidson	Urban	679,793	716,095	728,443	762,912	797,342	0.86	7.16	9.46	17.3
DeKalb	Rural	19,292	20,191	21,727	22,647	23,249	1.03	12.62	7.01	20.5
Dickson	Suburban	51,334	54,453	57,739	60,389	62,443	1.08	12.48	8.15	21.6
Fentress	Rural	17,965	18,534	19,687	19,922	19,762	0.50	9.59	0.38	10.0
Franklin	Suburban	41,343	42,812	44,787	45,732	46,235	0.59	8.33	3.23	11.8
Giles	Rural	28,973	30,344	30,757	30,979	31,168	0.38	6.16	1.34	7.6
Grundy	Rural	13,337	13,548	13,743	13,590	13,352	0.01	3.04	-2.85	0.1
Hickman	Rural	24,373	24,970	25,688	25,788	25,624	0.26	5.40	-0.25	5.1

County	Classification	2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Growth Rate 2015-2025 (%)	Projected Growth Rate 2025-2035 (%)	Total Growth Rate (%)
Middle										
Houston	Rural	8,124	8,305	8,181	8,095	8,014	-0.07	0.70	-2.04	-1.4
Humphreys	Rural	18,157	18,996	19,372	19,587	19,611	0.40	6.69	1.23	8.0
Jackson	Rural	11,534	11,631	12,180	12,298	12,190	0.28	5.60	0.08	5.7
Lawrence	Suburban	42,592	44,179	46,311	47,496	48,451	0.69	8.73	4.62	13.8
Lewis	Rural	11,875	12,607	13,172	13,410	13,524	0.69	10.92	2.67	13.9
Lincoln	Suburban	33,609	35,338	36,570	37,327	37,876	0.63	8.81	3.57	12.7
Macon	Rural	23,076	25,269	27,378	29,126	30,684	1.65	18.64	12.08	33.0
Marshall	Suburban	31,590	34,472	37,788	40,356	42,329	1.70	19.62	12.02	34.0
Maury	Suburban	87,425	101,836	116,119	128,574	140,086	3.01	32.82	20.64	60.2
Montgomery	Urban	192,398	221,309	251,815	279,340	306,526	2.97	30.88	21.73	59.3
Moore	Rural	6,261	6,466	6,795	6,863	6,900	0.51	8.53	1.55	10.2
Overton	Rural	22,067	22,587	23,336	23,605	23,660	0.36	5.75	1.39	7.2
Perry	Rural	7,852	8,386	8,952	9,255	9,398	0.98	14.01	4.98	19.7
Pickett	Rural	5,139	4,999	5,048	4,946	4,837	-0.29	-1.77	-4.18	-5.9
Putnam	Suburban	75,074	80,078	85,418	89,465	92,582	1.17	13.78	8.39	23.3
Robertson	Suburban	68,687	72,962	77,700	81,003	84,087	1.12	13.12	8.22	22.4
Rutherford	Urban	298,197	343,302	388,909	432,774	473,052	2.93	30.42	21.64	58.6
Sequatchie	Rural	14,641	15,847	17,603	18,551	19,220	1.56	20.23	9.19	31.3
Smith	Rural	19,308	19,966	20,715	20,956	21,134	0.47	7.29	2.02	9.5
Stewart	Rural	13,187	13,709	14,231	14,418	14,426	0.47	7.92	1.37	9.4
Sumner	Suburban	175,326	197,420	215,234	232,956	247,339	2.05	22.76	14.92	41.1
Trousdale	Rural	8,051	11,634	12,512	13,025	13,520	3.40	55.41	8.06	67.9
Van Buren	Rural	5,695	6,175	6,604	6,825	6,973	1.12	15.96	5.59	22.4
Warren	Suburban	40,262	41,059	42,888	43,888	44,491	0.53	6.52	3.74	10.5
Wayne	Rural	16,767	16,225	16,112	15,692	15,203	-0.47	-3.91	-5.64	-9.3
White	Rural	26,342	27,446	28,569	29,216	29,683	0.63	8.45	3.90	12.7
Williamson	Urban	211,605	249,616	277,193	304,573	333,948	2.89	31.00	20.47	57.8
Wilson	Urban	128,536	148,651	171,708	191,267	208,579	3.11	33.59	21.47	62.3

County	Classification	2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Growth Rate 2015-2025 (%)	Projected Growth Rate 2025-2035 (%)	Total Growth Rate (%)
West										
Benton	Rural	16,220	15,853	15,837	15,453	14,998	-0.38	-2.36	-5.30	-7.5
Carroll	Rural	27,982	28,428	28,559	28,531	28,374	0.07	2.06	-0.65	1.4
Chester	Rural	17,123	17,385	17,741	17,812	17,774	0.19	3.61	0.19	3.8
Crockett	Rural	14,586	13,905	13,818	13,664	13,506	-0.37	-5.27	-2.26	-7.4
Decatur	Rural	11,600	11,433	11,549	11,435	11,239	-0.16	-0.44	-2.68	-3.1
Dyer	Suburban	37,753	36,709	36,105	35,381	34,571	-0.42	-4.37	-4.25	-8.4
Fayette	Suburban	39,280	41,865	44,948	46,519	47,361	1.03	14.43	5.37	20.6
Gibson	Suburban	49,329	50,447	51,352	52,022	52,678	0.34	4.10	2.58	6.8
Hardeman	Rural	25,817	25,438	25,028	24,115	23,176	-0.51	-3.06	-7.40	-10.2
Hardin	Rural	25,754	26,958	27,405	27,621	27,505	0.34	6.41	0.36	6.8
Haywood	Rural	18,036	17,825	17,222	16,586	15,857	-0.60	-4.51	-7.93	-12.1
Henderson	Rural	28,078	27,831	27,958	27,792	27,479	-0.11	-0.43	-1.71	-2.1
Henry	Rural	32,127	32,146	32,439	32,267	31,864	-0.04	0.97	-1.77	-0.8
Lake	Rural	7,602	6,985	6,376	6,051	5,754	-1.22	-16.13	-9.76	-24.3
Lauderdale	Rural	26,903	25,125	24,139	22,937	21,671	-0.97	-10.27	-10.22	-19.4
Madison	Suburban	97,569	98,834	99,089	98,070	96,436	-0.06	1.56	-2.68	-1.2
McNairy	Rural	25,864	25,858	26,089	26,023	25,794	-0.01	0.87	-1.13	-0.3
Obion	Rural	30,561	30,775	30,207	29,666	28,998	-0.26	-1.16	-4.00	-5.1
Shelby	Urban	937,067	929,788	911,049	900,267	889,457	-0.25	-2.78	-2.37	-5.1
Tipton	Suburban	61,533	61,047	62,044	61,955	61,267	-0.02	0.83	-1.25	-0.4
Weakley	Rural	33,872	32,897	32,535	31,491	30,432	-0.51	-3.95	-6.46	-10.2

Notes:

1. U.S. Census Bureau. (n.d.). *Explore Census Data*. Retrieved January 1, 2025, from <https://data.census.gov/>
2. Total Growth Rate (%) reflects the total projected population growth rate from 2015 to 2035. Conditional formatting highlights trends, with red indicating more negative growth and green indicating more positive growth over time.
3. Counties are classified by the following criteria: Urban = populations > 115,000, Suburban = populations from 35,001 to 115,000, Rural = populations 35,000 or fewer.

Table A-2. Projected Population Density Growth (2015-2035)

Region of Interest		Area (Sq. Miles)	2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Total Growth Rate (%)
East		13,298	7,837	8,061	8,337	8,516	8,626	0.5	10.1
East - Average		403	237	244	253	258	261		
Middle		17,278	7,453	7,959	8,387	8,795	9,168	1.2	23.0
Middle - Average		421	182	194	205	215	224		
West		10,656	2,483	2,467	2,444	2,418	2,385	-0.2	-3.9
West - Average		507	118	117	116	115	114		
State Total		41,233	17,772	18,487	19,168	19,728	20,180	0.7	13.5
State Average		434	187	195	202	208	212		

County	Classification	Area (Sq. Miles)	2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Total Growth Rate (%)
East									
Anderson	Suburban	337.2	224	229	239	245	249	0.57	11.4
Bledsoe	Rural	406.6	36	37	38	39	40	0.55	11.0
Blount	Urban	558.8	227	243	258	269	277	1.09	21.8
Bradley	Suburban	328.8	316	331	346	361	373	0.90	18.0
Campbell	Suburban	480.2	83	82	82	81	79	-0.23	-4.7
Carter	Suburban	341.3	165	165	163	159	155	-0.32	-6.4
Claiborne	Rural	434.6	73	74	75	74	72	-0.01	-0.2
Cocke	Suburban	436.1	81	83	85	86	85	0.27	5.3
Cumberland	Suburban	681.3	85	90	97	100	101	0.91	18.2
Grainger	Rural	280.6	81	84	88	88	88	0.42	8.4
Greene	Suburban	622.2	110	113	117	118	118	0.34	6.9
Hamblen	Suburban	161.2	393	400	412	421	429	0.46	9.2
Hamilton	Urban	542.2	652	679	712	741	765	0.86	17.2
Hancock	Rural	222.3	30	30	31	30	29	-0.07	-1.4
Hawkins	Suburban	487.1	116	116	120	120	119	0.13	2.6
Jefferson	Suburban	275.1	193	200	214	222	224	0.81	16.2
Johnson	Rural	298.4	60	60	60	59	58	-0.19	-3.7
Knox	Urban	508.3	888	945	1,001	1,043	1,083	1.10	22.0
Loudon	Suburban	229.3	222	240	269	287	296	1.66	33.1
Marion	Rural	498.3	57	58	59	59	58	0.11	2.2
McMinn	Suburban	430.1	122	124	130	132	133	0.46	9.2
Meigs	Rural	195.1	60	66	71	74	75	1.22	24.4
Monroe	Suburban	635.8	72	73	77	79	78	0.46	9.3
Morgan	Rural	522.2	41	40	40	39	38	-0.36	-7.3
Polk	Rural	434.6	39	40	42	43	43	0.57	11.4
Rhea	Rural	315.5	103	106	108	108	108	0.27	5.3
Roane	Suburban	360.8	146	149	154	154	153	0.23	4.5
Scott	Rural	532.3	41	41	41	41	40	-0.11	-2.3
Sevier	Suburban	592.5	161	167	171	176	181	0.61	12.1
Sullivan	Urban	413.4	378	383	397	404	406	0.37	7.4
Unicoi	Rural	186.1	96	96	95	93	91	-0.24	-4.9
Union	Rural	223.6	86	89	93	94	94	0.46	9.3
Washington	Urban	326.5	386	408	430	446	455	0.89	17.7

County	Classification	Area (Sq. Miles)	2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Total Growth Rate (%)
Middle									
Bedford	Suburban	473.6	99	106	114	121	128	1.47	29.5
Cannon	Rural	265.6	52	55	57	58	58	0.65	12.9
Cheatham	Suburban	302.5	131	136	141	144	145	0.53	10.7
Clay	Rural	236.5	32	32	32	31	30	-0.40	-7.9
Coffee	Suburban	429.0	126	136	144	152	159	1.31	26.3
Davidson	Urban	503.7	1,350	1,422	1,446	1,515	1,583	0.86	17.3
DeKalb	Rural	304.4	63	66	71	74	76	1.03	20.5

County	Classification	Area (Sq. Miles)	2015	2020	2025	2030	2035	Average Annual Growth Rate (%)	Total Growth Rate (%)
Middle									
Dickson	Suburban	489.9	105	111	118	123	127	1.08	21.6
Fentress	Rural	498.6	36	37	39	40	40	0.50	10.0
Franklin	Suburban	554.5	75	77	81	82	83	0.59	11.8
Giles	Rural	610.9	47	50	50	51	51	0.38	7.6
Grundy	Rural	360.4	37	38	38	38	37	0.01	0.1
Hickman	Rural	612.5	40	41	42	42	42	0.26	5.1
Houston	Rural	200.3	41	41	41	40	40	-0.07	-1.4
Humphreys	Rural	530.8	34	36	36	37	37	0.40	8.0
Jackson	Rural	308.8	37	38	39	40	39	0.28	5.7
Lawrence	Suburban	617.1	69	72	75	77	79	0.69	13.8
Lewis	Rural	282.1	42	45	47	48	48	0.69	13.9
Lincoln	Suburban	570.3	59	62	64	65	66	0.63	12.7
Macon	Rural	307.1	75	82	89	95	100	1.65	33.0
Marshall	Suburban	375.5	84	92	101	107	113	1.70	34.0
Maury	Suburban	613.1	143	166	189	210	228	3.01	60.2
Montgomery	Urban	539.2	357	410	467	518	569	2.97	59.3
Moore	Rural	129.2	48	50	53	53	53	0.51	10.2
Overton	Rural	433.5	51	52	54	54	55	0.36	7.2
Perry	Rural	414.8	19	20	22	22	23	0.98	19.7
Pickett	Rural	163.0	32	31	31	30	30	-0.29	-5.9
Putnam	Suburban	401.1	187	200	213	223	231	1.17	23.3
Robertson	Suburban	476.3	144	153	163	170	177	1.12	22.4
Rutherford	Urban	619.3	482	554	628	699	764	2.93	58.6
Sequatchie	Rural	265.9	55	60	66	70	72	1.56	31.3
Smith	Rural	314.3	61	64	66	67	67	0.47	9.5
Stewart	Rural	459.8	29	30	31	31	31	0.47	9.4
Sumner	Suburban	529.5	331	373	407	440	467	2.05	41.1
Trousdale	Rural	114.3	70	102	109	114	118	3.40	67.9
Van Buren	Rural	273.4	21	23	24	25	26	1.12	22.4
Warren	Suburban	432.7	93	95	99	101	103	0.53	10.5
Wayne	Rural	734.1	23	22	22	21	21	-0.47	-9.3
White	Rural	376.7	70	73	76	78	79	0.63	12.7
Williamson	Urban	582.9	363	428	476	523	573	2.89	57.8
Wilson	Urban	570.9	225	260	301	335	365	3.11	62.3
West									
Benton	Rural	394.3	41	40	40	39	38	-0.38	-7.5
Carroll	Rural	597.7	47	48	48	48	47	0.07	1.4
Chester	Rural	285.7	60	61	62	62	62	0.19	3.8
Crockett	Rural	265.5	55	52	52	51	51	-0.37	-7.4
Decatur	Rural	333.9	35	34	35	34	34	-0.16	-3.1
Dyer	Suburban	512.4	74	72	70	69	67	-0.42	-8.4
Fayette	Suburban	704.8	56	59	64	66	67	1.03	20.6
Gibson	Suburban	602.8	82	84	85	86	87	0.34	6.8
Hardeman	Rural	667.8	39	38	37	36	35	-0.51	-10.2
Hardin	Rural	577.5	45	47	47	48	48	0.34	6.8
Haywood	Rural	533.1	34	33	32	31	30	-0.60	-12.1
Henderson	Rural	520.0	54	54	54	53	53	-0.11	-2.1
Henry	Rural	561.9	57	57	58	57	57	-0.04	-0.8
Lake	Rural	165.8	46	42	38	36	35	-1.22	-24.3
Lauderdale	Rural	471.9	57	53	51	49	46	-0.97	-19.4
Madison	Suburban	557.2	175	177	178	176	173	-0.06	-1.2
McNairy	Rural	562.8	46	46	46	46	46	-0.01	-0.3
Obion	Rural	544.9	56	56	55	54	53	-0.26	-5.1
Shelby	Urban	760.6	1,232	1,223	1,198	1,184	1,169	-0.25	-5.1
Tipton	Suburban	455.6	135	134	136	136	134	-0.02	-0.4
Weakley	Rural	580.4	58	57	56	54	52	-0.51	-10.2

Notes:

1. U.S. Census Bureau. (n.d.). Explore Census Data. Retrieved January 1, 2025, from <https://data.census.gov/>

Table A-3. Housing Type

Region of Interest		Total Housing Units	Single Family Housing	Multi Family Housing
East		1,180,492	981,058	199,434
East - Percentage			83.1%	16.9%
Middle		1,208,263	949,397	258,866
Middle - Percentage			78.6%	21.4%
West		691,117	550,382	140,735
West - Percentage			79.6%	20.4%
State Total		3,079,872	2,480,837	599,035
State - Percentage			80.6%	19.4%
County	Classification	Total Housing Units	Single Family Housing	Multi Family Housing
East				
Anderson	Suburban	35,570	29,759	5,811
Bledsoe	Rural	5,895	5,607	288
Blount	Urban	60,912	54,564	6,348
Bradley	Suburban	45,411	37,494	7,917
Campbell	Suburban	20,370	17,842	2,528
Carter	Suburban	27,982	24,305	3,677
Claiborne	Rural	15,437	14,218	1,219
Cocke	Suburban	17,883	16,356	1,527
Cumberland	Suburban	31,037	28,044	2,993
Grainger	Rural	11,746	11,230	516
Greene	Suburban	32,470	29,755	2,715
Hamblen	Suburban	27,805	22,783	5,022
Hamilton	Urban	165,605	124,952	40,653
Hancock	Rural	3,667	3,360	307
Hawkins	Suburban	27,299	24,882	2,417
Jefferson	Suburban	25,223	23,044	2,179
Johnson	Rural	8,755	8,152	603
Knox	Urban	214,606	161,332	53,274
Loudon	Suburban	25,415	23,538	1,877
Marion	Rural	24,027	21,758	2,269
McMinn	Suburban	43,919	34,675	9,244
Meigs	Rural	6,164	6,009	155
Monroe	Suburban	21,555	19,526	2,029
Morgan	Rural	8,550	8,235	315
Polk	Rural	8,856	8,433	423
Rhea	Rural	15,311	13,614	1,697
Roane	Suburban	25,560	23,258	2,302

County	Classification	Total Housing Units	Single Family Housing	Multi Family Housing
East				
Scott	Rural	9,851	9,134	717
Sevier	Suburban	57,809	47,646	10,163
Sullivan	Urban	75,917	63,323	12,594
Unicoi	Rural	8,740	7,803	937
Union	Rural	9,719	9,431	288
Washington	Urban	61,426	46,996	14,430
Middle				
Bedford	Suburban	20,129	17,722	2,407
Cannon	Rural	6,384	6,192	192
Cheatham	Suburban	17,171	15,911	1,260
Clay	Rural	3,987	3,718	269
Coffee	Suburban	25,187	21,913	3,274
Davidson	Urban	345,026	208,831	136,195
DeKalb	Rural	10,033	9,165	868
Dickson	Suburban	23,198	21,223	1,975
Fentress	Rural	9,228	8,706	522
Franklin	Suburban	19,815	18,163	1,652
Giles	Rural	14,104	12,815	1,289
Grundy	Rural	6,213	5,855	358
Hickman	Rural	10,588	10,218	370
Houston	Rural	3,960	3,819	141
Humphreys	Rural	8,868	8,282	586
Jackson	Rural	5,832	5,673	159
Lawrence	Suburban	18,699	16,944	1,755
Lewis	Rural	5,746	5,619	127
Lincoln	Suburban	16,124	14,957	1,167
Macon	Rural	10,845	9,906	939
Marshall	Suburban	14,521	13,398	1,123
Maury	Suburban	12,278	11,830	448
Montgomery	Urban	90,226	71,724	18,502
Moore	Rural	2,996	2,882	114
Overton	Rural	10,368	10,021	347
Perry	Rural	4,830	4,690	140
Pickett	Rural	3,362	3,216	146
Putnam	Suburban	35,991	27,091	8,900
Robertson	Suburban	29,263	26,914	2,349
Rutherford	Urban	135,336	104,650	30,686
Sequatchie	Rural	6,951	6,538	413
Smith	Rural	8,649	8,086	563
Stewart	Rural	6,698	6,503	195

County	Classification	Total Housing Units	Single Family Housing	Multi Family Housing
Middle				
Sumner	Suburban	81,376	67,274	14,102
Trousdale	Rural	3,866	3,543	323
Van Buren	Rural	2,915	2,804	111
Warren	Suburban	18,343	15,993	2,350
Wayne	Rural	7,205	6,861	344
White	Rural	12,158	11,510	648
Williamson	Urban	94,418	80,311	14,107
Wilson	Urban	60,976	52,550	8,426
West				
Benton	Rural	8,544	8,319	225
Carroll	Rural	13,107	11,803	1,304
Chester	Rural	7,251	6,811	440
Crockett	Rural	6,114	5,661	453
Decatur	Rural	6,588	6,337	251
Dyer	Suburban	16,296	13,978	2,318
Fayette	Suburban	18,087	17,295	792
Gibson	Suburban	22,500	19,362	3,138
Hardeman	Rural	10,708	10,210	498
Hardin	Rural	15,096	14,331	765
Haywood	Rural	8,247	7,151	1,096
Henderson	Rural	12,944	12,141	803
Henry	Rural	17,044	15,652	1,392
Lake	Rural	2,497	1,864	633
Lauderdale	Rural	10,697	9,493	1,204
Madison	Suburban	13,837	13,311	526
McNairy	Rural	44,841	37,199	7,642
Obion	Rural	14,343	12,713	1,630
Shelby	Urban	403,144	291,294	111,850
Tipton	Suburban	24,204	22,822	1,382
Weakley	Rural	15,028	12,635	2,393

Notes:

1. U.S. Census Bureau. (2023b). *Table B25010: Average Household Size of Occupied Housing Units by Tenure [Data set]. American Community Survey 1-Year Estimates.* Retrieved from <https://data.census.gov/table?q=b25010>
2. Counties are classified by the following criteria: Urban = populations > 115,000, Suburban = populations from 35,001 to 115,000, Rural = populations 35,000 or fewer.

Table A-4. Average Household Size				
Region of Interest		Average Household Size (All Households)	Owner-Occupied Units	Renter-Occupied Units
East		2.43	2.47	2.34
Middle		2.56	2.58	2.49
West		2.46	2.48	2.38
State		2.49	2.52	2.41
County	Classification	Average Household Size (All Households)	Average - Owner Occupied	Average - Renter Occupied
East				
Anderson	Suburban	2.40	2.48	2.19
Bledsoe	Rural	2.85	2.74	3.27
Blount	Urban	2.49	2.50	2.46
Bradley	Suburban	2.55	2.63	2.39
Campbell	Suburban	2.33	2.36	2.27
Carter	Suburban	2.27	2.30	2.19
Claiborne	Rural	2.30	2.36	2.15
Cocke	Suburban	2.39	2.44	2.27
Cumberland	Suburban	2.26	2.26	2.22
Grainger	Rural	2.49	2.58	2.14
Greene	Suburban	2.46	2.48	2.37
Hamblen	Suburban	2.49	2.54	2.39
Hamilton	Urban	2.39	2.49	2.20
Hancock	Rural	2.40	2.40	2.40
Hawkins	Suburban	2.46	2.47	2.43
Jefferson	Suburban	2.54	2.59	2.38
Johnson	Rural	2.29	2.28	2.32
Knox	Urban	2.41	2.55	2.15
Loudon	Suburban	2.41	2.38	2.58
Marion	Rural	2.47	2.52	2.31
McMinn	Suburban	2.40	2.45	2.31
Meigs	Rural	2.45	2.45	2.44
Monroe	Suburban	2.41	2.50	2.18
Morgan	Rural	2.65	2.65	2.65
Polk	Rural	2.45	2.52	2.07
Rhea	Rural	2.46	2.49	2.37
Roane	Suburban	2.39	2.43	2.22
Scott	Rural	2.51	2.65	2.14

County	Classification	Average Household Size (All Households)	Average - Owner Occupied	Average - Renter Occupied
East				
Sevier	Suburban	2.49	2.47	2.57
Sullivan	Urban	2.30	2.37	2.11
Unicoi	Rural	2.22	2.34	1.91
Union	Rural	2.57	2.46	3.02
Washington	Urban	2.31	2.45	2.07
Middle				
Bedford	Suburban	2.67	2.69	2.63
Cannon	Rural	2.55	2.47	2.83
Cheatham	Suburban	2.59	2.56	2.73
Clay	Rural	2.35	2.3	2.5
Coffee	Suburban	2.56	2.56	2.56
Davidson	Urban	2.19	2.3	2.07
DeKalb	Rural	2.38	2.41	2.32
Dickson	Suburban	2.58	2.61	2.47
Fentress	Rural	2.44	2.44	2.4
Franklin	Suburban	2.41	2.46	2.23
Giles	Rural	2.54	2.59	2.4
Grundy	Rural	2.64	2.71	2.27
Hickman	Rural	2.58	2.56	2.67
Houston	Rural	2.54	2.57	2.39
Humphreys	Rural	2.73	2.7	2.82
Jackson	Rural	2.49	2.47	2.63
Lawrence	Suburban	2.66	2.81	2.17
Lewis	Rural	2.43	2.46	2.3
Lincoln	Suburban	2.41	2.45	2.29
Macon	Rural	2.77	2.71	2.94
Marshall	Suburban	2.63	2.6	2.74
Maury	Suburban	2.61	2.62	2.59
Montgomery	Urban	2.65	2.74	2.50
Moore	Rural	2.47	2.53	2.2
Overton	Rural	2.51	2.48	2.62
Perry	Rural	2.77	2.67	3.04
Pickett	Rural	2.36	2.3	2.68
Putnam	Suburban	2.36	2.47	2.19
Robertson	Suburban	2.65	2.65	2.64
Rutherford	Urban	2.76	2.85	2.57
Sequatchie	Rural	2.64	2.65	2.62
Smith	Rural	2.63	2.64	2.6
Stewart	Rural	2.65	2.65	2.66
Sumner	Suburban	2.59	2.68	2.36

County	Classification	Average Household Size (All Households)	Average - Owner Occupied	Average - Renter Occupied
Middle				
Trousdale	Rural	2.52	2.54	2.47
Van Buren	Rural	2.52	2.58	2.19
Warren	Suburban	2.54	2.59	2.42
Wayne	Rural	2.51	2.56	2.32
White	Rural	2.49	2.57	2.24
Williamson	Urban	2.8	2.93	2.29
Wilson	Urban	2.68	2.74	2.48
West				
Benton	Rural	2.28	2.29	2.23
Carroll	Rural	2.43	2.41	2.48
Chester	Rural	2.56	2.69	2.14
Crockett	Rural	2.5	2.56	2.37
Decatur	Rural	2.55	2.58	2.45
Dyer	Suburban	2.43	2.42	2.44
Fayette	Suburban	2.52	2.58	2.24
Gibson	Suburban	2.47	2.51	2.39
Hardeman	Rural	2.41	2.49	2.21
Hardin	Rural	2.45	2.45	2.44
Haywood	Rural	2.44	2.57	2.25
Henderson	Rural	2.52	2.53	2.5
Henry	Rural	2.41	2.45	2.31
Lake	Rural	2.23	1.99	2.43
Lauderdale	Rural	2.47	2.35	2.68
Madison	Suburban	2.5	2.56	2.24
McNairy	Rural	2.51	2.58	2.35
Obion	Rural	2.41	2.43	2.39
Shelby	Urban	2.52	2.6	2.41
Tipton	Suburban	2.69	2.64	2.86
Weakley	Rural	2.32	2.4	2.16

Notes:

1. U.S. Census Bureau. (2023b). *Table B25010: Average Household Size of Occupied Housing Units by Tenure [Data set]. American Community Survey 1-Year Estimates.* Retrieved from <https://data.census.gov/table?q=b25010>
2. Counties are classified by the following criteria: Urban = populations > 115,000, Suburban = populations from 35,001 to 115,000, Rural = populations 35,000 or fewer.

Table A-5. Housing Units and Type

Region of Interest		Number of Occupied Housing Units	Number of Owner-Occupied Units	Number of Renter-Occupied Units
East		1,043,773	731,573	312,200
<i>East - Percentage</i>			70.1%	29.9%
Middle		1,114,676	748,945	365,731
<i>Middle - Percentage</i>			67.2%	32.8%
West		610,294	375,275	235,019
<i>West - Percentage</i>			61.5%	38.5%
State Total		2,768,743	1,855,793	912,950
<i>State - Percentage</i>			67.0%	33.0%
County	Classification	Number of Occupied Housing Units	Number of Owner-Occupied Units	Number of Renter-Occupied Units
East				
Anderson	Suburban	32,069	22,785	9,284
Bledsoe	Rural	4,812	3,808	1,004
Blount	Urban	54,449	41,900	12,549
Bradley	Suburban	41,909	28,300	13,609
Campbell	Suburban	16,709	11,252	5,457
Carter	Suburban	24,188	17,916	6,272
Claiborne	Rural	13,456	9,635	3,821
Cocke	Suburban	15,123	10,762	4,361
Cumberland	Suburban	27,447	22,023	5,424
Grainger	Rural	9,566	7,525	2,041
Greene	Suburban	28,093	21,325	6,768
Hamblen	Suburban	25,758	17,602	8,156
Hamilton	Urban	151,316	97,369	53,947
Hancock	Rural	2,773	2,015	758
Hawkins	Suburban	23,090	18,350	4,740
Jefferson	Suburban	21,351	15,807	5,544
Johnson	Rural	7,172	5,637	1,535
Knox	Urban	197,298	128,142	69,156
Loudon	Suburban	23,438	18,972	4,466
Marion	Rural	21,471	16,046	5,425
McMinn	Suburban	39,534	24,705	14,829
Meigs	Rural	5,279	4,062	1,217
Monroe	Suburban	19,283	13,927	5,356
Morgan	Rural	7,188	6,060	1,128
Polk	Rural	7,144	6,011	1,133
Rhea	Rural	13,243	9,661	3,582
Roane	Suburban	22,539	17,492	5,047
Scott	Rural	8,638	6,201	2,437
Sevier	Suburban	39,221	28,230	10,991
Sullivan	Urban	68,408	49,889	18,519

County	Classification	Number of Occupied Housing Units	Number of Owner-Occupied Units	Number of Renter-Occupied Units
East				
Unicoi	Rural	7,803	5,678	2,125
Union	Rural	7,771	6,245	1,526
Washington	Urban	56,234	36,241	19,993
Middle				
Bedford	Suburban	18,953	13,301	5,652
Cannon	Rural	5,686	4,389	1,297
Cheatham	Suburban	15,908	13,036	2,872
Clay	Rural	3,201	2,483	718
Coffee	Suburban	22,794	16,012	6,782
Davidson	Urban	314,578	168,040	146,538
DeKalb	Rural	8,495	5,850	2,645
Dickson	Suburban	21,092	16,933	4,159
Fentress	Rural	7,706	6,208	1,498
Franklin	Suburban	17,097	13,059	4,038
Giles	Rural	11,710	8,664	3,046
Grundy	Rural	5,106	4,249	857
Hickman	Rural	9,180	7,130	2,050
Houston	Rural	3,190	2,589	601
Humphreys	Rural	6,864	5,457	1,407
Jackson	Rural	4,695	3,913	782
Lawrence	Suburban	16,704	12,718	3,986
Lewis	Rural	5,153	4,147	1,006
Lincoln	Suburban	14,589	11,238	3,351
Macon	Rural	9,200	6,610	2,590
Marshall	Suburban	13,268	10,275	2,993
Maury	Suburban	9,806	7,719	2,087
Montgomery	Urban	84,321	53,073	31,248
Moore	Rural	2,638	2,171	467
Overton	Rural	8,992	6,970	2,022
Perry	Rural	3,040	2,281	759
Pickett	Rural	2,106	1,734	372
Putnam	Suburban	33,057	20,058	12,999
Robertson	Suburban	27,755	21,431	6,324
Rutherford	Urban	125,861	81,828	44,033
Sequatchie	Rural	6,121	4,572	1,549
Smith	Rural	7,619	5,749	1,870
Stewart	Rural	5,173	4,323	850
Sumner	Suburban	76,706	55,400	21,306
Trousdale	Rural	3,658	2,725	933
Van Buren	Rural	2,462	2,086	376
Warren	Suburban	16,132	11,433	4,699
Wayne	Rural	5,734	4,674	1,060
White	Rural	11,001	8,553	2,448

County	Classification	Number of Occupied Housing Units	Number of Owner-Occupied Units	Number of Renter-Occupied Units
Middle				
Williamson	Urban	90,716	72,370	18,346
Wilson	Urban	56,609	43,494	13,115
West				
Benton	Rural	6,928	5,172	1,756
Carroll	Rural	11,258	8,422	2,836
Chester	Rural	6,333	4,853	1,480
Crockett	Rural	5,494	3,784	1,710
Decatur	Rural	4,439	3,328	1,111
Dyer	Suburban	14,884	9,285	5,599
Fayette	Suburban	16,730	13,509	3,221
Gibson	Suburban	20,098	13,422	6,676
Hardeman	Rural	9,049	6,439	2,610
Hardin	Rural	10,833	8,450	2,383
Haywood	Rural	7,166	4,109	3,057
Henderson	Rural	10,928	7,814	3,114
Henry	Rural	13,205	9,982	3,223
Lake	Rural	2,022	915	1,107
Lauderdale	Rural	9,214	5,759	3,455
Madison	Suburban	11,529	9,199	2,330
McNairy	Rural	41,260	29,410	11,850
Obion	Rural	12,516	8,402	4,114
Shelby	Urban	360,590	196,804	163,786
Tipton	Suburban	22,544	17,401	5,143
Weakley	Rural	13,274	8,816	4,458

Notes:

1. U.S. Census Bureau. (2023a). *American Community Survey 1-Year Estimates: Table S2502 – Demographic Characteristics for Occupied Housing Units*. Retrieved from <https://data.census.gov/table?q=S2502>
2. Counties are classified by the following criteria: Urban = populations > 115,000, Suburban = populations from 35,001 to 115,000, Rural = populations 35,000 or fewer.

Table A-6. Income Per Capita and Household Income				
Region of Interest	2023 Income Per Capita	2025 Income Per Capita¹	2023 Household Income	2025 Household Income²
East	\$1,593,422	\$1,673,571	\$1,900,052	\$1,995,625
East - Average	\$48,286	\$50,714	\$57,577	\$60,473
Middle	\$2,092,174	\$2,197,410	\$2,572,911	\$2,702,328
Middle - Average	\$51,029	\$53,595	\$62,754	\$65,910
West	\$1,031,579	\$1,083,467	\$1,140,485	\$1,197,851
West - Average	\$49,123	\$51,594	\$54,309	\$57,041
State Total	\$4,717,175	\$4,954,449	\$5,613,448	\$5,895,804
State Average	\$49,654	\$52,152	\$59,089	\$62,061
County	2023 Income Per Capita	2025 Income Per Capita¹	2023 Household Income	2025 Household Income²
East				
Anderson	\$56,260	\$59,090	\$63,171	\$66,349
Bledsoe	\$36,038	\$37,851	\$49,655	\$52,153
Blount	\$58,447	\$61,387	\$74,607	\$78,360
Bradley	\$50,014	\$52,530	\$63,789	\$66,998
Campbell	\$44,694	\$46,942	\$50,260	\$52,788
Carter	\$42,833	\$44,987	\$48,435	\$50,871
Claiborne	\$44,367	\$46,599	\$46,587	\$48,930
Cocke	\$42,387	\$44,519	\$48,416	\$50,851
Cumberland	\$48,091	\$50,510	\$58,475	\$61,416
Grainger	\$45,678	\$47,976	\$51,351	\$53,934
Greene	\$44,945	\$47,206	\$54,071	\$56,791
Hamblen	\$50,094	\$52,614	\$52,794	\$55,450
Hamilton	\$65,525	\$68,821	\$72,568	\$76,218
Hancock	\$33,223	\$34,894	\$31,995	\$33,604
Hawkins	\$44,192	\$46,415	\$55,278	\$58,058
Jefferson	\$48,184	\$50,608	\$63,084	\$66,257
Johnson	\$40,345	\$42,374	\$52,152	\$54,775
Knox	\$67,323	\$70,709	\$71,662	\$75,267
Loudon	\$70,063	\$73,587	\$80,296	\$84,335
Marion	\$51,590	\$54,185	\$58,103	\$61,026
McMinn	\$45,629	\$47,924	\$59,674	\$62,676
Meigs	\$41,017	\$43,080	\$58,395	\$61,332
Monroe	\$44,350	\$46,581	\$56,648	\$59,497
Morgan	\$40,237	\$42,261	\$57,408	\$60,296
Polk	\$42,519	\$44,658	\$60,227	\$63,256
Rhea	\$45,745	\$48,046	\$58,133	\$61,057
Roane	\$53,353	\$56,037	\$66,218	\$69,549
Scott	\$39,326	\$41,304	\$42,679	\$44,826
Sevier	\$57,533	\$60,427	\$63,829	\$67,040

County	2023 Income Per Capita	2025 Income Per Capita ¹	2023 Household Income	2025 Household Income ²
East				
Sullivan	\$54,453	\$57,192	\$56,802	\$59,659
Unicoi	\$45,593	\$47,886	\$50,381	\$52,915
Union	\$43,407	\$45,590	\$61,858	\$64,969
Washington	\$55,967	\$58,782	\$61,051	\$64,122
Middle				
Bedford	\$47,850	\$50,257	\$62,197	\$65,326
Cannon	\$48,732	\$51,183	\$58,092	\$61,014
Cheatham	\$59,907	\$62,920	\$82,015	\$86,140
Clay	\$39,424	\$41,407	\$44,712	\$46,961
Coffee	\$50,163	\$52,686	\$60,656	\$63,707
Davidson	\$92,496	\$97,149	\$75,664	\$79,470
DeKalb	\$50,940	\$53,502	\$48,484	\$50,923
Dickson	\$54,986	\$57,752	\$73,223	\$76,906
Fentress	\$43,102	\$45,270	\$50,865	\$53,424
Franklin	\$49,891	\$52,401	\$61,553	\$64,649
Giles	\$47,548	\$49,940	\$61,476	\$64,568
Grundy	\$40,453	\$42,488	\$45,573	\$47,865
Hickman	\$45,298	\$47,576	\$57,223	\$60,101
Houston	\$41,112	\$43,180	\$54,475	\$57,215
Humphreys	\$47,364	\$49,746	\$59,333	\$62,317
Jackson	\$40,132	\$42,151	\$41,475	\$43,561
Lawrence	\$43,273	\$45,450	\$53,233	\$55,911
Lewis	\$44,554	\$46,795	\$49,477	\$51,966
Lincoln	\$51,229	\$53,806	\$63,115	\$66,290
Macon	\$41,530	\$43,619	\$56,269	\$59,099
Marshall	\$50,555	\$53,098	\$70,829	\$74,392
Maury	\$57,191	\$60,068	\$74,162	\$77,892
Montgomery	\$52,478	\$55,118	\$72,365	\$76,005
Moore	\$51,017	\$53,583	\$66,687	\$70,041
Overton	\$42,000	\$44,113	\$46,159	\$48,481
Perry	\$37,048	\$38,912	\$50,489	\$53,029
Pickett	\$42,545	\$44,685	\$44,591	\$46,834
Putnam	\$51,132	\$53,704	\$56,537	\$59,381
Robertson	\$56,484	\$59,325	\$78,439	\$82,384
Rutherford	\$54,623	\$57,371	\$82,588	\$86,742
Sequatchie	\$48,254	\$50,681	\$52,260	\$54,889
Smith	\$50,388	\$52,923	\$62,799	\$65,958
Stewart	\$50,483	\$53,022	\$62,052	\$65,173
Sumner	\$67,865	\$71,279	\$86,005	\$90,331
Trousdale	\$40,015	\$42,028	\$63,190	\$66,368

County	2023 Income Per Capita	2025 Income Per Capita ¹	2023 Household Income	2025 Household Income ²
Middle				
Van Buren	\$36,828	\$38,680	\$60,281	\$63,313
Warren	\$44,375	\$46,607	\$54,088	\$56,809
Wayne	\$38,758	\$40,708	\$52,824	\$55,481
White	\$42,866	\$45,022	\$52,206	\$54,832
Williamson	\$128,610	\$135,079	\$131,202	\$137,801
Wilson	\$68,675	\$72,129	\$94,048	\$98,779
West				
Benton	\$43,832	\$46,037	\$50,435	\$52,972
Carroll	\$44,182	\$46,404	\$50,391	\$52,926
Chester	\$43,542	\$45,732	\$60,543	\$63,588
Crockett	\$50,106	\$52,626	\$59,049	\$62,019
Decatur	\$52,005	\$54,621	\$46,190	\$48,513
Dyer	\$53,828	\$56,536	\$54,973	\$57,738
Fayette	\$81,728	\$85,839	\$84,764	\$89,028
Gibson	\$49,536	\$52,028	\$59,009	\$61,977
Hardeman	\$36,966	\$38,825	\$46,173	\$48,496
Hardin	\$47,525	\$49,916	\$49,149	\$51,621
Haywood	\$40,397	\$42,429	\$43,513	\$45,702
Henderson	\$48,395	\$50,829	\$53,471	\$56,161
Henry	\$55,959	\$58,774	\$48,540	\$50,982
Lake	\$32,554	\$34,191	\$30,500	\$32,034
Lauderdale	\$41,198	\$43,270	\$49,205	\$51,680
Madison	\$55,537	\$58,331	\$58,189	\$61,116
McNairy	\$40,085	\$42,101	\$59,714	\$62,718
Obion	\$51,945	\$54,558	\$53,102	\$55,773
Shelby	\$61,979	\$65,097	\$62,337	\$65,473
Tipton	\$52,829	\$55,486	\$71,736	\$75,344
Weakley	\$47,451	\$49,838	\$49,502	\$51,992

Notes:

1. U.S. Census Bureau. (n.d.). *Explore Census Data*. Retrieved January 1, 2025, from <https://data.census.gov/>
3. ¹Income per Capita adjusted to maintain purchasing power in 2025 dollars
5. ² Median Household Income adjusted to maintain purchasing power in 2025 dollars

Table A-7. Employment Rates for Population Aged 16 and Over			
Region of Interest	Population Age 16+	Total Employed	Percent Employed
East	2,002,695	1,096,508	55%
East - Average	60,688	33,228	
Middle	2,202,275	1,363,134	62%
Middle - Average	53,714	33,247	
West	1,232,272	687,688	56%
West - Average	58,680	32,747	
State Total	5,551,644	3,213,805	58%
State - Average	58,438	33,830	
County	Population Age 16+	Total Employed	Percent Employed
East			
Anderson	62,065	32,420	52%
Bledsoe	12,916	5,963	46%
Blount	108,598	61,779	57%
Bradley	86,338	49,966	58%
Campbell	32,457	15,687	48%
Carter	47,362	23,166	49%
Claiborne	26,579	12,662	48%
Cocke	29,475	14,031	48%
Cumberland	50,875	21,850	43%
Grainger	19,364	9,896	51%
Greene	57,258	28,218	49%
Hamblen	51,320	26,929	52%
Hamilton	297,556	177,431	60%
Hancock	5,349	2,089	39%
Hawkins	46,902	22,001	47%
Jefferson	44,948	23,889	53%
Johnson	15,068	5,725	38%
Knox	379,072	233,540	62%
Loudon	44,045	23,059	52%
Marion	23,413	12,317	53%
McMinn	43,622	22,163	51%
Meigs	10,036	4,702	47%
Monroe	37,702	17,960	48%
Morgan	17,949	7,197	40%
Polk	13,983	7,351	53%
Rhea	26,422	13,031	49%
Roane	44,825	22,969	51%
Scott	17,442	8,203	47%
Sevier	80,293	47,086	59%
Sullivan	130,936	67,296	51%
Unicoi	15,293	7,606	50%

County	Population Age 16+	Total Employed	Percent Employed
East			
Union	15,970	7,815	49%
Washington	107,262	60,511	56%
Middle			
Bedford	37,757	22,517	60%
Cannon	11,663	6,304	54%
Cheatham	32,725	20,106	61%
Clay	6,218	2,708	44%
Coffee	44,239	25,679	58%
Davidson	560,745	383,444	68%
DeKalb	16,135	8,015	50%
Dickson	42,448	24,592	58%
Fentress	15,104	7,102	47%
Franklin	34,624	18,315	53%
Giles	24,103	12,694	53%
Grundy	10,859	5,385	50%
Hickman	20,515	10,445	51%
Houston	6,678	3,158	47%
Humphreys	15,031	7,546	50%
Jackson	9,916	4,661	47%
Lawrence	34,040	16,960	50%
Lewis	9,842	4,804	49%
Lincoln	27,417	15,536	57%
Macon	18,706	10,793	58%
Marshall	26,776	15,292	57%
Maury	74,918	45,851	61%
Montgomery	155,404	85,780	55%
Moore	5,321	2,789	52%
Overton	17,912	9,545	53%
Perry	6,366	2,862	45%
Pickett	4,166	1,868	45%
Putnam	63,891	35,753	56%
Robertson	56,074	34,904	62%
Rutherford	253,295	171,935	68%
Sequatchie	12,484	6,137	49%
Smith	16,007	9,030	56%
Stewart	11,092	5,622	51%
Sumner	148,655	94,770	64%
Trousdale	9,119	4,747	52%
Van Buren	4,838	2,406	50%
Warren	32,579	17,790	55%
Wayne	14,081	6,151	44%
White	21,765	10,914	50%

County	Population Age 16+	Total Employed	Percent Employed
Middle			
Williamson	177,600	117,937	66%
Wilson	111,167	70,287	63%
West			
Benton	13,215	5,645	43%
Carroll	22,414	11,544	52%
Chester	14,028	6,522	46%
Crockett	11,281	6,221	55%
Decatur	9,461	4,377	46%
Dyer	29,297	16,376	56%
Fayette	33,860	17,885	53%
Gibson	38,680	20,236	52%
Hardeman	21,117	8,329	39%
Hardin	21,035	9,990	47%
Haywood	13,966	7,633	55%
Henderson	22,275	11,238	50%
Henry	26,357	12,493	47%
Lake	6,426	1,711	27%
Lauderdale	20,523	9,242	45%
Madison	78,377	42,686	54%
McNairy	20,973	9,540	45%
Obion	24,444	12,613	52%
Shelby	728,446	431,683	59%
Tipton	48,369	27,421	57%
Weakley	27,728	14,303	52%

Notes:

1. U.S. Census Bureau. (2020). *American Community Survey 5-Year Estimates (2016–2020)*. Retrieved from <https://www.census.gov/programs-surveys/acs/technical-documentation/table-and-geography-changes/2020/5-year.html>

Table A-8. Population Living in Poverty			
Region of Interest		Number in Poverty	Average Percent in Poverty
East		373,646	16%
Middle		325,507	14%
West		264,325	18%
State Total		963,478	15.7%
County	Classification	Number in Poverty	Percent in Poverty
East			
Anderson	Suburban	11,386	14.4%
Bledsoe	Rural	2,830	21.6%
Blount	Urban	13,528	9.7%
Bradley	Suburban	16,404	15.0%
Campbell	Suburban	8,147	20.6%
Carter	Suburban	9,386	16.9%
Claiborne	Rural	5,818	18.6%
Cocke	Suburban	7,563	20.4%
Cumberland	Suburban	9,385	14.6%
Grainger	Rural	3,800	15.5%
Greene	Suburban	10,430	14.8%
Hamblen	Suburban	11,359	17.3%
Hamilton	Urban	47,922	12.9%
Hancock	Rural	1,807	26.7%
Hawkins	Suburban	9,995	17.2%
Jefferson	Suburban	7,279	12.9%
Johnson	Rural	3,505	20.9%
Knox	Urban	67,213	13.8%
Loudon	Suburban	6,316	10.5%
Marion	Rural	8,141	14.9%
McMinn	Suburban	17,629	18.6%
Meigs	Rural	2,116	15.6%
Monroe	Suburban	7,706	16.0%
Morgan	Rural	3,191	16.2%
Polk	Rural	2,672	15.0%
Rhea	Rural	5,320	16.0%
Roane	Suburban	7,448	13.4%
Scott	Rural	4,596	21.0%
Sevier	Suburban	12,045	12.2%
Sullivan	Urban	21,649	13.5%
Unicoi	Rural	2,153	12.3%
Union	Rural	3,262	15.9%
Washington	Urban	21,645	16.3%

County	Classification	Number in Poverty	Percent in Poverty
Middle			
Bedford	Suburban	6,882	13.3%
Cannon	Rural	2,150	14.4%
Cheatham	Suburban	3,625	8.7%
Clay	Rural	1,620	21.2%
Coffee	Suburban	8,657	14.5%
Davidson	Urban	85,007	12.3%
DeKalb	Rural	3,408	16.3%
Dickson	Suburban	5,522	9.9%
Fentress	Rural	3,653	18.9%
Franklin	Suburban	5,406	12.9%
Giles	Rural	4,570	15.3%
Grundy	Rural	3,127	22.8%
Hickman	Rural	3,900	15.9%
Houston	Rural	1,401	17.0%
Humphreys	Rural	2,763	14.7%
Jackson	Rural	2,427	20.0%
Lawrence	Suburban	6,770	14.9%
Lewis	Rural	2,075	16.1%
Lincoln	Suburban	5,176	14.5%
Macon	Rural	4,279	16.2%
Marshall	Suburban	3,917	10.7%
Maury	Suburban	3,994	15.5%
Montgomery	Urban	29,603	12.6%
Moore	Rural	662	9.9%
Overton	Rural	3,299	14.3%
Perry	Rural	1,521	17.5%
Pickett	Rural	842	16.6%
Putnam	Suburban	13,884	17.3%
Robertson	Suburban	7,511	9.9%
Rutherford	Urban	32,883	9.1%
Sequatchie	Rural	2,530	15.1%
Smith	Rural	2,371	11.7%
Stewart	Rural	1,797	12.9%
Sumner	Suburban	18,409	8.9%
Trousdale	Rural	1,535	15.8%
Van Buren	Rural	942	14.7%
Warren	Suburban	7,424	17.6%
Wayne	Rural	2,563	18.0%
White	Rural	3,884	13.7%
Williamson	Urban	12,845	4.9%

County	Classification	Number in Poverty	Percent in Poverty
Middle			
Wilson	Urban	10,673	6.6%
West			
Benton	Rural	2,800	17.6%
Carroll	Rural	4,803	17.4%
Chester	Rural	2,740	16.7%
Crockett	Rural	2,045	14.9%
Decatur	Rural	2,207	19.2%
Dyer	Suburban	6,368	17.7%
Fayette	Suburban	5,588	12.8%
Gibson	Suburban	7,373	14.7%
Hardeman	Rural	4,687	21.5%
Hardin	Rural	5,262	19.7%
Haywood	Rural	3,592	21.0%
Henderson	Rural	3,865	14.0%
Henry	Rural	5,898	18.3%
Lake	Rural	1,573	34.0%
Lauderdale	Rural	5,614	24.6%
Madison	Suburban	4,405	15.1%
McNairy	Rural	11,685	10.7%
Obion	Rural	5,791	19.3%
Shelby	Urban	163,297	18.2%
Tipton	Suburban	9,010	14.8%
Weakley	Rural	5,722	18.6%

Notes:

1. U.S. Census Bureau. (2020). *American Community Survey 5-Year Estimates*
2. Counties are classified by the following criteria: Urban = populations > 115,000, Suburban = populations from 35,001 to 115,000, Rural = populations 35,000 or fewer.

Table A-9. Limited English Proficiency (LEP) and Most Common Non-English Languages

Region of Interest		Average Population With LEP (%)	Most Common Other Primary Languages
East		1.42	Spanish or Spanish Creole, Chinese, Vietnamese, French (Patois, Cajun)
Middle		1.68	Spanish or Spanish Creole, Arabic, African Languages, Chinese
West		1.31	Spanish or Spanish Creole, Vietnamese, African Languages, Chinese
State Average		1.51	Spanish or Spanish Creole, Vietnamese, African Languages, Chinese
County	Classification	Population With LEP (%)	Other Primary Languages
East			
Anderson	Suburban	1.57	Spanish or Spanish Creole, Chinese, Korean, French (incl. Patois, Cajun)
Bledsoe	Rural	1.15	Spanish or Spanish Creole, German, Other Asian langs., Japanese
Blount	Urban	1.56	Spanish or Spanish Creole, Chinese, Other Indo-European langs., Japanese
Bradley	Suburban	3.00	Spanish or Spanish Creole, Other Slavic langs., Chinese, Gujarati
Campbell	Suburban	0.62	Spanish or Spanish Creole, Korean, French (incl. Patois, Cajun), Chinese
Carter	Suburban	0.40	Spanish or Spanish Creole, German, French (incl. Patois, Cajun), Vietnamese
Claiborne	Rural	0.57	Arabic, Tagalog, Japanese, Korean
Cocke	Suburban	0.73	Spanish or Spanish Creole, Chinese, Persian, German
Cumberland	Suburban	1.25	Spanish or Spanish Creole, Russian, Hungarian, Italian
Grainger	Rural	0.67	Spanish or Spanish Creole, Portuguese/Portuguese Creole, Arabic, Other Asian langs.
Greene	Suburban	1.40	Spanish or Spanish Creole, French (incl. Patois, Cajun), Tagalog, Korean
Hamblen	Suburban	5.48	Spanish or Spanish Creole, Chinese, Korean, German
Hamilton	Urban	3.16	Spanish or Spanish Creole, Vietnamese, Korean, Serbo-Croatian
Hancock	Rural	0.30	Korean, Spanish or Spanish Creole, Other Asian langs., Japanese
Hawkins	Suburban	0.60	Spanish or Spanish Creole, Tagalog, French (incl. Patois, Cajun), Italian
Jefferson	Suburban	1.42	Spanish or Spanish Creole, Scandinavian langs., Korean, Italian
Johnson	Rural	0.75	Spanish or Spanish Creole, French (incl. Patois, Cajun), Persian, African langs.
Knox	Urban	2.65	Spanish or Spanish Creole, Vietnamese, Chinese, Arabic

County	Classification	Population With LEP (%)	Other Primary Languages
East			
Loudon	Suburban	3.55	Spanish or Spanish Creole, French (incl. Patois, Cajun), Japanese, Gujarati
Marion	Rural	1.19	Spanish or Spanish Creole, Japanese, Laotian, Urdu
McMinn	Suburban	1.70	Spanish or Spanish Creole, Vietnamese, Hindi, Portuguese/Portuguese Creole
Meigs	Rural	0.00	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean
Monroe	Suburban	1.40	Spanish or Spanish Creole, Vietnamese, Chinese, French (incl. Patois, Cajun)
Morgan	Rural	0.80	Spanish or Spanish Creole, Laotian, French (incl. Patois, Cajun), Hebrew
Polk	Rural	0.62	Spanish or Spanish Creole, Tagalog, French (incl. Patois, Cajun), Portuguese/Portuguese Creole
Rhea	Rural	0.94	Spanish or Spanish Creole, Arabic, German, Hungarian
Roane	Suburban	0.54	Spanish or Spanish Creole, Other Pacific Island langs., Vietnamese, French (incl. Patois, Cajun)
Scott	Rural	0.16	French (incl. Patois, Cajun), German, Japanese, Other Asian langs.
Sevier	Suburban	2.92	Spanish or Spanish Creole, Russian, Gujarati, Other Indic langs.
Sullivan	Urban	0.78	Spanish or Spanish Creole, Chinese, African langs., Thai
Unicoi	Rural	3.21	Spanish or Spanish Creole, Other Indic langs., French Creole, Chinese
Union	Rural	0.51	Spanish or Spanish Creole, French (incl. Patois, Cajun), African langs., Hebrew
Washington	Urban	1.32	Spanish or Spanish Creole, Chinese, Gujarati, German
Middle			
Bedford	Suburban	6.56	Spanish or Spanish Creole, Japanese, African langs., Chinese
Cannon	Rural	0.77	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean
Cheatham	Suburban	0.92	Spanish or Spanish Creole, Other Indo-European langs., Persian, Gujarati
Clay	Rural	0.98	Spanish or Spanish Creole, Korean, French (incl. Patois, Cajun), Hebrew
Coffee	Suburban	2.22	Spanish or Spanish Creole, Chinese, Korean, Japanese
Davidson	Urban	7.47	Spanish or Spanish Creole, Arabic, African langs., Vietnamese
DeKalb	Rural	5.10	Spanish or Spanish Creole, Serbo-Croatian, Japanese, Other Indo-European langs.
Dickson	Suburban	1.27	Spanish or Spanish Creole, Portuguese/Portuguese Creole, German, Russian
Fentress	Rural	0.38	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean

County	Classification	Population With LEP (%)	Other Primary Languages
Middle			
Franklin	Suburban	1.13	Spanish or Spanish Creole, Korean, Russian, Gujarati
Giles	Rural	1.45	Spanish or Spanish Creole, Other West Germanic langs., German, Gujarati
Grundy	Rural	0.28	Vietnamese, Spanish or Spanish Creole, French (incl. Patois, Cajun), Hebrew
Hickman	Rural	0.40	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean
Houston	Rural	0.16	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean
Humphreys	Rural	0.55	Spanish or Spanish Creole, German, French (incl. Patois, Cajun), Hebrew
Jackson	Rural	0.13	Spanish or Spanish Creole, Other Indic langs., French Creole, Chinese
Lawrence	Suburban	1.64	Spanish or Spanish Creole, German, Other West Germanic langs., Chinese
Lewis	Rural	1.00	Gujarati, Chinese, Spanish or Spanish Creole, Portuguese/Portuguese Creole
Lincoln	Suburban	0.96	Spanish or Spanish Creole, Other Indo-European langs., Korean, Other Asian langs.
Macon	Rural	2.61	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean
Marshall	Suburban	2.80	Spanish or Spanish Creole, German, Japanese, French (incl. Patois, Cajun)
Maury	Suburban	1.33	Spanish or Spanish Creole, German, Gujarati, Portuguese/Portuguese Creole
Montgomery	Urban	3.25	Spanish or Spanish Creole, Korean, African langs., German
Moore	Rural	0.12	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean
Overton	Rural	0.36	Spanish or Spanish Creole, German, Thai, Other Asian langs.
Perry	Rural	0.22	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean
Pickett	Rural	0.53	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean
Putnam	Suburban	3.75	Spanish or Spanish Creole, Chinese, Other Indic langs., Korean
Robertson	Suburban	3.10	Spanish or Spanish Creole, Gujarati, Japanese, Korean
Rutherford	Urban	3.62	Spanish or Spanish Creole, Laotian, Chinese, Arabic
Sequatchie	Rural	0.54	Spanish or Spanish Creole, Other Asian langs., Japanese, Korean
Smith	Rural	1.03	Spanish or Spanish Creole, French (incl. Patois, Cajun), Gujarati, Tagalog
Stewart	Rural	0.63	Korean, Spanish or Spanish Creole, German, Other Indo-European langs.

County	Classification	Population With LEP (%)	Other Primary Languages
Middle			
Sumner	Suburban	1.93	Spanish or Spanish Creole, Chinese, Gujarati, Other Indo-European langs.
Trousdale	Rural	0.54	Spanish or Spanish Creole, Laotian, Other Asian langs., Japanese
Van Buren	Rural	0.17	Spanish or Spanish Creole, Other Indic langs., French Creole, Chinese
Warren	Suburban	4.36	Spanish or Spanish Creole, Vietnamese, Mon-Khmer(Cambodian), Polish
Wayne	Rural	1.02	Spanish or Spanish Creole, Laotian, Serbo-Croatian, Other Indo-European langs.
White	Rural	0.54	Spanish or Spanish Creole, Other West Germanic langs., French (incl. Patois, Cajun), Hebrew
Williamson	Urban	1.76	Spanish or Spanish Creole, Korean, Chinese, Other Asian langs.
Wilson	Urban	1.50	Spanish or Spanish Creole, Vietnamese, Gujarati, French (incl. Patois, Cajun)
West			
Benton	Rural	1.01	Spanish or Spanish Creole, Other Indic langs., Korean, French Creole
Carroll	Rural	0.42	Spanish or Spanish Creole, Portuguese/Portuguese Creole, Russian, Other Indic langs.
Chester	Rural	1.62	Spanish or Spanish Creole, French (incl. Patois, Cajun), Tagalog, Korean
Crockett	Rural	4.39	Spanish or Spanish Creole, African langs., French (incl. Patois, Cajun), Arabic
Decatur	Rural	1.18	Spanish or Spanish Creole, Arabic, Other Asian langs., Japanese
Dyer	Suburban	1.02	Spanish or Spanish Creole, African langs., Tagalog, Persian
Fayette	Suburban	0.80	Spanish or Spanish Creole, Korean, Scandinavian langs., Arabic
Gibson	Suburban	0.45	Spanish or Spanish Creole, German, French (incl. Patois, Cajun), Japanese
Hardeman	Rural	0.44	Spanish or Spanish Creole, Laotian, Hmong, Mon-Khmer(Cambodian)
Hardin	Rural	0.46	Spanish or Spanish Creole, Thai, Other Pacific Island langs., Other Native North American
Haywood	Rural	2.04	Spanish or Spanish Creole, French (incl. Patois, Cajun), African langs., Hebrew
Henderson	Rural	0.66	Spanish or Spanish Creole, Tagalog, French (incl. Patois, Cajun), German
Henry	Rural	0.60	Spanish or Spanish Creole, German, African langs., Chinese

County	Classification	Population With LEP (%)	Other Primary Languages
West			
Lake	Rural	1.45	Spanish or Spanish Creole, Korean, German, Vietnamese
Lauderdale	Rural	0.84	Spanish or Spanish Creole, Mon-Khmer(Cambodian), Gujarati, Other Native North American
Madison	Suburban	0.35	Spanish or Spanish Creole, French (incl. Patois, Cajun), Chinese, Gujarati
McNairy	Rural	2.29	Spanish or Spanish Creole, French (incl. Patois, Cajun), Tagalog, German
Obion	Rural	1.91	Spanish or Spanish Creole, Arabic, Thai, German
Shelby	Urban	3.96	Spanish or Spanish Creole, Vietnamese, African langs., Chinese
Tipton	Suburban	1.09	Spanish or Spanish Creole, Chinese, Tagalog, Other Pacific Island langs.
Weakley	Rural	0.54	Spanish or Spanish Creole, Arabic, French (incl. Patois, Cajun), German

Notes:

1. U.S. Department of Justice. (n.d.). *Language Map App 2015. Limited English Proficiency*. Retrieved from https://www.lep.gov/maps/lma2015/Final_508

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Table A-10. Average Educational Attainment					
Region of Interest	Less Than Highschool Diploma	High School Diploma or Equivalent	Bachelor's Degree	Graduate or Professional Degree	Other
East	13.5%	38.7%	12.1%	7.4%	28.3%
Middle	13.1%	39.2%	13.6%	7.4%	26.8%
West	14.4%	42.6%	10.9%	6.3%	25.8%
State	13.5%	39.8%	12.5%	7.1%	27.1%
County	Less Than Highschool Diploma	High School Diploma or Equivalent	Bachelor's Degree	Graduate or Professional Degree	Other
East					
Anderson	8.7%	33.2%	15.2%	11.1%	31.8%
Bledsoe	20.4%	50.5%	5.0%	3.8%	20.3%
Blount	9.3%	35.4%	17.1%	9.6%	28.6%
Bradley	11.6%	30.8%	15.1%	9.6%	32.9%
Campbell	17.2%	41.6%	7.8%	5.4%	28.0%
Carter	11.3%	37.9%	13.8%	6.8%	30.2%
Claiborne	16.9%	39.9%	9.7%	7.7%	25.8%
Cocke	16.3%	47.4%	7.5%	4.1%	24.7%
Cumberland	10.4%	39.8%	10.8%	7.7%	31.3%
Grainger	16.2%	42.6%	8.5%	6.4%	26.3%
Greene	13.3%	42.9%	11.1%	6.5%	26.2%
Hamblen	12.8%	38.7%	11.8%	8.3%	28.4%
Hamilton	8.8%	23.3%	23.2%	13.8%	30.9%
Hancock	21.2%	41.7%	4.4%	4.2%	28.5%
Hawkins	13.6%	42.9%	11.1%	5.7%	26.7%
Jefferson	11.0%	36.4%	12.8%	8.2%	31.6%
Johnson	18.7%	38.3%	11.2%	4.5%	27.3%
Knox	7.7%	24.6%	24.4%	15.7%	27.6%
Loudon	11.0%	30.8%	17.8%	10.8%	29.6%
Marion	9.5%	37.1%	14.8%	6.1%	32.5%
McMinn	12.6%	48.5%	7.8%	4.0%	27.1%
Meigs	17.1%	45.3%	8.0%	3.9%	25.7%
Monroe	13.7%	40.9%	10.6%	5.2%	29.6%
Morgan	16.5%	43.2%	8.4%	5.3%	26.6%
Polk	14.3%	38.0%	9.2%	5.5%	33.0%
Rhea	15.9%	41.4%	11.8%	5.6%	25.3%
Roane	10.6%	37.4%	12.8%	9.3%	29.9%
Scott	19.5%	48.3%	5.8%	4.4%	22.0%
Sevier	12.2%	35.3%	14.5%	6.9%	31.1%
Sullivan	10.3%	32.6%	17.7%	8.9%	30.5%
Unicoi	12.0%	37.6%	12.4%	7.6%	30.4%
Union	16.6%	43.4%	9.0%	5.6%	25.4%
Washington	8.9%	29.4%	19.0%	14.6%	28.1%
Middle					
Bedford	15.3%	41.2%	11.8%	5.1%	26.6%

County	Less Than Highschool Diploma	High School Diploma or Equivalent	Bachelor's Degree	Graduate or Professional Degree	Other
Middle					
Cannon	15.8%	41.5%	11.7%	5.2%	25.8%
Cheatham	9.7%	36.8%	16.6%	8.4%	28.5%
Clay	16.2%	48.1%	6.3%	5.7%	23.7%
Coffee	12.6%	37.9%	13.0%	9.9%	26.6%
Davidson	9.7%	20.1%	29.3%	18.1%	22.8%
DeKalb	17.3%	39.4%	12.9%	7.1%	23.3%
Dickson	10.8%	39.0%	14.0%	7.4%	28.8%
Fentress	16.8%	42.2%	9.8%	5.5%	25.7%
Franklin	9.1%	40.5%	14.3%	8.7%	27.4%
Giles	12.4%	42.4%	12.6%	6.7%	25.9%
Grundy	20.0%	44.8%	6.0%	6.4%	22.8%
Hickman	15.5%	42.4%	9.4%	4.1%	28.6%
Houston	12.7%	46.0%	8.8%	4.9%	27.6%
Humphreys	12.3%	42.2%	10.2%	6.2%	29.1%
Jackson	17.4%	46.0%	9.9%	3.6%	23.1%
Lawrence	14.5%	42.2%	9.5%	6.0%	27.8%
Lewis	14.6%	39.8%	7.7%	3.2%	34.7%
Lincoln	13.1%	43.3%	11.5%	7.8%	24.3%
Macon	13.8%	39.0%	11.4%	6.1%	29.7%
Marshall	9.7%	34.7%	15.9%	10.1%	29.6%
Maury	7.5%	34.0%	18.6%	7.9%	32.0%
Montgomery	5.7%	27.3%	19.4%	12.4%	35.2%
Moore	10.9%	36.8%	16.3%	8.4%	27.6%
Overton	18.2%	45.0%	8.9%	4.6%	23.3%
Perry	17.6%	47.3%	9.7%	3.0%	22.4%
Pickett	18.6%	40.0%	10.6%	6.5%	24.3%
Putnam	11.3%	33.1%	18.4%	10.8%	26.4%
Robertson	11.2%	39.6%	15.5%	5.6%	28.1%
Rutherford	7.6%	28.1%	23.4%	10.9%	30.0%
Sequatchie	18.3%	37.5%	12.2%	6.7%	25.3%
Smith	12.6%	41.5%	12.6%	5.4%	27.9%
Stewart	10.1%	46.5%	11.6%	4.6%	27.2%
Sumner	8.2%	29.0%	22.0%	10.6%	30.2%
Trousdale	14.9%	52.2%	6.4%	3.7%	22.8%
Van Buren	15.8%	42.8%	8.6%	5.3%	27.5%
Warren	15.2%	47.3%	10.3%	4.8%	22.4%
Wayne	16.5%	46.1%	8.4%	4.1%	24.9%
White	16.6%	40.0%	9.5%	4.6%	29.3%
Williamson	4.1%	13.2%	38.3%	23.5%	20.9%
Wilson	6.5%	28.8%	24.9%	12.3%	27.5%
West					
Benton	12.7%	48.3%	7.5%	4.9%	26.6%
Carroll	11.3%	41.9%	11.0%	7.9%	27.9%
Chester	14.3%	40.0%	11.8%	7.4%	26.5%

County	Less Than Highschool Diploma	High School Diploma or Equivalent	Bachelor's Degree	Graduate or Professional Degree	Other
West					
Crockett	14.0%	42.20%	10.60%	5.10%	28.1%
Decatur	15.8%	45.30%	12.50%	2.50%	23.9%
Dyer	10.9%	40.60%	13.30%	8.30%	26.9%
Fayette	9.1%	33.00%	18.20%	8.70%	31.0%
Gibson	11.6%	41.30%	12.20%	6.90%	28.0%
Hardeman	17.3%	44.10%	7.30%	4.00%	27.3%
Hardin	15.6%	44.00%	9.30%	5.50%	25.6%
Haywood	17.2%	46.20%	8.20%	4.90%	23.5%
Henderson	10.7%	49.60%	9.80%	4.60%	25.3%
Henry	11.6%	45.30%	12.00%	6.60%	24.5%
Lake	28.2%	43.10%	5.20%	4.20%	19.3%
Lauderdale	17.2%	48.00%	6.90%	4.10%	23.8%
Madison	18.4%	49.30%	7.90%	3.90%	20.5%
McNairy	17.7%	37.90%	10.10%	6.40%	27.9%
Obion	15.0%	44.30%	10.90%	7.10%	22.7%
Shelby	10.2%	27.40%	20.10%	14.10%	28.2%
Tipton	10.7%	36.40%	11.70%	6.70%	34.5%
Weakley	12.1%	45.40%	13.20%	8.50%	20.8%

Notes:

1. U.S. Department of Justice. (n.d.). *Language Map App 2015. Limited English Proficiency*. Retrieved from https://www.lep.gov/maps/lma2015/Final_508

Table A-11. Population Distribution by Age Group

Region of Interest		Population under 5	Population 5-13	Population 14-17	Population 18-24	Population 25-44	Population 45-64	Population above 65	Total Population Estimate
East		136,965	264,586	130,602	233,815	651,635	686,400	530,176	2,634,179
<i>East - Percentage of Population</i>		5.2%	10.0%	5.0%	8.9%	24.7%	26.1%	20.1%	37%
Middle		172,659	323,558	154,323	262,862	818,973	694,490	431,696	2,858,561
<i>Middle - Percentage of Population</i>		6.0%	11.3%	5.4%	9.2%	28.6%	24.3%	15.1%	41%
West		97,389	186,118	87,728	132,225	409,721	378,298	265,845	1,557,324
<i>West - Percentage of Population</i>		6.3%	12.0%	5.6%	8.5%	26.3%	24.3%	17.1%	22%
State Total		407,013	774,262	372,653	628,902	1,880,329	1,759,188	1,227,717	7,050,064
<i>State - Percentage of Population</i>		5.8%	11.0%	5.3%	8.9%	26.7%	25.0%	17.4%	100%
County	Classification	Population under 5	Population 5-13	Population 14-17	Population 18-24	Population 25-44	Population 45-64	Population above 65	Total Population Estimate
East									
Anderson	Suburban	4,232	8,354	4,254	6,121	20,208	20,900	16,165	80,234
Bledsoe	Rural	629	1,118	572	929	4,002	4,528	3,282	15,060
Blount	Urban	6,797	14,071	7,001	10,526	34,027	38,633	30,401	141,456
Bradley	Suburban	6,040	12,163	5,952	10,153	28,098	29,297	19,876	111,579
Campbell	Suburban	2,222	4,072	1,971	2,931	9,582	11,175	8,270	40,223
Carter	Suburban	2,379	4,852	2,616	4,637	13,496	15,888	13,154	57,022
Claiborne	Rural	1,606	3,040	1,584	3,015	7,882	8,806	6,721	32,654
Cocke	Suburban	1,924	3,786	1,931	2,497	8,394	10,584	8,288	37,404
Cumberland	Suburban	2,728	5,597	2,601	3,708	12,383	16,703	21,040	64,760
Grainger	Rural	1,256	2,226	1,256	1,779	5,494	7,268	5,402	24,681
Greene	Suburban	3,324	6,783	3,572	6,297	16,256	20,171	16,174	72,577
Hamblen	Suburban	4,036	7,877	3,864	5,516	15,984	17,360	11,579	66,216
Hamilton	Urban	22,154	39,331	18,589	31,373	104,387	92,896	71,134	379,864
Hancock	Rural	330	768	362	467	1,583	1,865	1,581	6,956
Hawkins	Suburban	2,701	5,486	2,919	4,209	13,342	17,002	12,941	58,600
Jefferson	Suburban	2,718	5,579	2,793	4,802	13,248	16,593	12,105	57,838
Johnson	Rural	771	1,471	785	1,271	4,318	5,349	4,410	18,375
Knox	Urban	27,114	52,055	24,952	60,035	134,685	118,955	82,873	500,669
Loudon	Suburban	2,853	5,724	2,741	3,892	12,214	16,143	17,024	60,591
Marion	Rural	3,112	5,899	2,838	4,424	13,148	14,816	11,441	55,678

County	Classification	Population under 5	Population 5-13	Population 14-17	Population 18-24	Population 25-44	Population 45-64	Population above 65	Total Population Estimate
East									
McMinn	Suburban	5,925	10,998	5,263	10,043	24,379	24,300	18,285	99,193
Meigs	Rural	674	1,410	662	980	3,067	3,939	2,959	13,691
Monroe	Suburban	2,505	4,888	2,474	3,462	10,838	13,505	10,922	48,594
Morgan	Rural	1,001	2,166	1,054	1,665	5,679	5,858	4,150	21,573
Polk	Rural	880	1,625	873	1,299	4,013	5,592	3,751	18,033
Rhea	Rural	1,873	3,666	1,801	2,847	8,039	8,996	6,702	33,924
Roane	Suburban	2,561	5,299	2,679	3,876	12,600	15,718	13,363	56,096
Scott	Rural	1,314	2,530	1,276	1,860	5,397	5,932	3,862	22,171
Sevier	Suburban	5,388	10,125	5,121	7,251	23,512	27,158	20,860	99,415
Sullivan	Urban	7,673	15,172	7,907	11,814	38,862	44,277	36,430	162,135
Unicoi	Rural	773	1,614	793	1,256	4,038	5,049	4,233	17,756
Union	Rural	1,140	2,112	1,098	1,477	5,004	5,912	3,998	20,741
Washington	Urban	6,332	12,729	6,448	17,403	33,476	35,232	26,800	138,420
Middle									
Bedford	Suburban	3,561	6,506	3,281	4,741	13,940	13,027	7,999	53,055
Cannon	Rural	947	1,633	725	1,014	3,797	4,141	2,806	15,063
Cheatham	Suburban	2,332	4,366	2,273	3,047	11,290	11,974	6,972	42,254
Clay	Rural	368	762	394	515	1,565	2,132	1,978	7,714
Coffee	Suburban	3,771	7,210	3,586	4,593	15,312	15,392	10,769	60,633
Davidson	Urban	45,660	68,978	30,699	69,697	249,041	153,239	95,020	712,334
DeKalb	Rural	1,259	2,216	1,093	1,572	5,149	5,902	4,034	21,225
Franklin	Suburban	2,256	4,288	2,069	5,386	9,804	11,446	9,405	44,654
Giles	Rural	1,568	3,167	1,572	2,559	7,011	8,311	6,533	30,721
Grundy	Rural	825	1,442	736	1,018	3,287	3,765	2,882	13,955
Hickman	Rural	1,464	2,673	1,290	1,997	6,760	6,898	4,744	25,826
Houston	Rural	424	881	446	611	1,998	2,313	1,720	8,393
Humphreys	Rural	972	1,854	1,132	1,368	4,661	5,294	3,928	19,209
Jackson	Rural	553	1,181	530	786	2,768	3,592	2,953	12,363
Lawrence	Suburban	2,940	5,846	2,776	3,528	11,119	11,735	8,170	46,114
Lewis	Rural	676	1,444	729	952	3,090	3,362	2,813	13,066
Lincoln	Suburban	2,039	3,892	2,173	2,694	8,394	9,569	7,408	36,169
Macon	Rural	1,701	3,474	1,481	2,063	6,913	6,886	4,275	26,793
Marshall	Suburban	2,242	4,367	2,053	2,784	9,758	9,616	6,141	36,961

County	Classification	Population under 5	Population 5-13	Population 14-17	Population 18-24	Population 25-44	Population 45-64	Population above 65	Total Population Estimate
Middle									
Maury	Suburban	1,451	2,739	1,430	2,063	5,997	7,030	5,453	26,163
Montgomery	Urban	18,095	32,182	13,452	24,335	79,003	48,085	24,720	239,872
Moore	Rural	319	671	324	462	1,558	1,892	1,522	6,748
Overton	Rural	1,287	2,371	1,221	1,755	5,458	6,427	4,808	23,327
Perry	Rural	553	990	452	594	2,116	2,280	1,906	8,891
Pickett	Rural	214	414	222	333	966	1,506	1,473	5,128
Putnam	Suburban	4,515	8,655	4,224	12,219	21,007	19,203	14,021	83,844
Robertson	Suburban	4,837	9,092	4,428	5,882	20,461	20,264	11,812	76,776
Rutherford	Urban	22,511	45,340	22,052	42,555	106,467	85,950	42,226	367,101
Sequatchie	Rural	976	1,607	867	1,259	3,958	4,726	3,768	17,161
Smith	Rural	1,146	2,343	1,087	1,498	5,214	5,633	3,617	20,538
Stewart	Rural	694	1,512	720	1,044	3,288	3,963	3,001	14,222
Sumner	Suburban	11,722	23,879	11,757	15,897	55,064	54,158	35,517	207,994
Trousdale	Rural	633	1,169	516	1,219	4,316	2,806	1,612	12,271
Van Buren	Rural	331	693	310	418	1,336	1,851	1,554	6,493
Warren	Suburban	2,621	4,816	2,384	3,377	10,633	11,046	7,761	42,638
Wayne	Rural	694	1,249	730	1,196	4,352	4,616	3,229	16,066
White	Rural	1,535	3,149	1,436	2,037	6,808	7,774	5,953	28,692
Williamson	Urban	13,412	35,214	18,531	21,510	61,046	74,003	40,744	264,460
Wilson	Urban	9,555	19,293	9,142	12,284	44,268	42,683	26,449	163,674
West									
Benton	Rural	822	1,647	779	1,071	3,402	4,472	3,910	16,103
Carroll	Rural	1,503	3,197	1,553	2,824	6,537	7,441	5,805	28,860
Chester	Rural	919	1,940	951	2,324	4,134	4,270	3,068	17,606
Crockett	Rural	793	1,589	826	1,162	3,393	3,553	2,666	13,982
Decatur	Rural	564	1,174	637	802	2,557	3,192	2,730	11,656
Dyer	Suburban	2,382	4,360	2,063	2,950	9,033	9,189	6,521	36,498
Fayette	Suburban	2,224	3,741	1,960	2,890	9,951	12,977	10,432	44,175
Gibson	Suburban	3,016	6,337	3,067	3,992	12,795	12,901	8,937	51,045
Hardeman	Rural	1,306	2,453	1,264	2,170	7,149	6,413	4,812	25,567
Hardin	Rural	1,345	2,720	1,405	1,891	5,879	7,399	6,590	27,229
Haywood	Rural	972	1,919	952	1,375	3,922	4,440	3,748	17,328
Henderson	Rural	1,520	3,158	1,611	2,138	6,855	7,362	5,426	28,070

County	Classification	Population under 5	Population 5-13	Population 14-17	Population 18-24	Population 25-44	Population 45-64	Population above 65	Total Population Estimate
Middle									
Henry	Rural	1,536	3,217	1,729	2,212	6,982	8,961	7,917	32,554
Lake	Rural	280	467	238	617	1,998	1,663	1,084	6,347
Lauderdale	Rural	1,460	2,613	1,368	2,180	6,525	6,256	4,208	24,610
Madison	Suburban	1,539	2,986	1,455	2,100	6,784	8,162	6,356	29,382
McNairy	Rural	6,875	12,531	5,811	7,913	30,894	27,066	19,670	110,760
Obion	Rural	1,777	3,334	1,553	2,284	7,174	7,807	6,482	30,411
Shelby	Urban	61,391	116,350	53,311	78,638	250,163	210,887	139,302	910,042
Tipton	Suburban	3,526	7,313	3,692	4,955	16,297	16,183	10,049	62,015
Weakley	Rural	1,639	3,072	1,503	5,737	7,297	7,704	6,132	33,084

Notes:

1. U.S. Census Bureau. (n.d.). *Explore Census Data*. Retrieved January 1, 2025, from <https://data.census.gov/>

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Table A-12. Daily Waste Generation by Tourists Across Global Destinations	
Source/Destination	Waste per Tourist per Day (lbs.)
UNEP – Europe	2.20
UNEP – USA	4.40
Koh Phayam, Thailand	5.95
Menorca, Spain	2.89
Crete, Greece	2.65
Global Median	2.43
Global Mean	3.68

Notes:

1. United Nations Environment Programme. (2011). *Towards a green economy: Pathways to sustainable development and poverty eradication – Tourism chapter*. United Nations Environment Programme. https://sustainabledevelopment.un.org/content/documents/126GER_synthesis_en.pdf
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3. Kissinger, M., & Kasper, D. (2021). *Tourism waste generation and the circular economy in island destinations: A framework for policy and planning*. *Sustainability*, 13(17), 9926. <https://doi.org/10.3390/su13179926>
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5. Gössling, S., Peeters, P., Hall, C. M., Ceron, J. P., Dubois, G., Lehmann, L. V., & Scott, D. (2012). *Tourism and water use: Supply, demand, and security. An international review*. *Tourism Management*, 33(1), 1–15. <https://doi.org/10.1016/j.tourman.2011.03.015>
6. Palatty, M., & Swan, D. (2021). *Tourism waste management practices in Southeast Asia: Case studies from Thailand and the Philippines*. *Asia Pacific Journal of Tourism Research*, 26(9), 980–995.
7. Tibbetts, J. (2002). *Coastal cities: Living on the edge*. *Environmental Health Perspectives*, 110(7), A390–A397. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240914>

Table A-13. Permitted and Operating Transfer Stations by County

County	Facility Name	Domain (Public or Private)	Permittee/Owner	Avg. Daily Tons (2023, estimated)	Tons Accepted (2023)
East					
Anderson	Aftermath Services LLC	Private	Aftermath Services LLC	Unknown	Unknown
Anderson	Oak Ridge Transfer Station	Private	Waste Connections of Tennessee, Inc.	0.0	0.0
Bradley	Waste Connections Of Tenn., Inc. Transfer Station	Private	Waste Connections of Tennessee, Inc.	Unknown	Unknown
Campbell	Campbell County Transfer Station	Public	Campbell County Government	66.9	20,551.4
Carter	Carter County Landfill Transfer Station	Public	Carter County Government	Unknown	Unknown
Claiborne	Claiborne County Solid Waste Transfer Facility	Public	Claiborne County Government	52.4	16,100.2
Cocke	City of Newport Solid Waste Transfer Station	Public	City of Newport	Unknown	Unknown
Cumberland	WM Crossville Transfer Station	Private	Cumberland Waste Disposal	Unknown	Unknown
Cumberland	Cumberland Waste Disposal Transfer Station - Crossville Site	Private	Waste Connections of Tenn., Inc. Dba Cumberland Waste Disposal	Unknown	Unknown
Greene	Greeneville/Greene County Transfer Station	Public	Town of Greeneville	122.1	37,488.9
Greene	Mountain Laurel Environmental Corporation	Private	Mountain Laurel Environmental Corporation	Unknown	Unknown
Hamilton	Signal Mountain Transfer Station	Public	Town of Signal Mountain	Unknown	Unknown
Hamilton	Collegedale Transfer Facility	Public	City of Collegedale	Unknown	Unknown
Hamilton	Bfi Chattanooga Transfer Station	Private	Bfi Waste Services, LLC	512.1	157,223.4
Hamilton	Global Envirotech, LLC	Private	Global Envirotech, LLC	Unknown	Unknown
Hamilton	Chattanooga Transfer Station, Llc	Private	Chattanooga Transfer, LLC	Unknown	Unknown
Hamilton	City Waste, LLC	Private	City Waste Llc	126.8	38,933.1
Hamilton	Wisdom Properties, LLC Transfer Station	Private	Capital Waste Services, LLC	Unknown	Unknown
Hamilton	CWS - Soddy Daisy Transfer	Private	Capital Waste Services, LLC	Unknown	Unknown
Johnson	Johnson County Transfer Station	Public	Johnson County Government	18.7	5,745.7
Knox	Knoxville Transfer Station	Private	Waste Connections of Tennessee, Inc.	Unknown	Unknown
Knox	Sharps Medical Waste Services	Private	Sharps Medical Waste Services	Unknown	Unknown
Knox	Stericycle Inc.	Private	Stericycle, Inc.	Unknown	Unknown
Knox	Trilogy MedWaste Southeast, LLC	Private	Trilogy MedWaste Southeast, LLC	Unknown	Unknown
Loudon	Waste Connections Of Tennessee, Inc. Lenoir City	Private	Waste Connections of Tennessee, Inc. Lenoir City	153.0	46,965.1

County	Facility Name	Domain (Public or Private)	Permittee/Owner	Avg. Daily Tons (2023, estimated)	Tons Accepted (2023)
East					
Loudon	Hickory Creek Road Transfer Station	Private	Summit Medical Waste	Unknown	Unknown
Marion	Solid Waste Disposal, Inc. Transfer Station	Private	Solid Waste Disposal, Inc.	Unknown	Unknown
Monroe	Monroe County Transfer Station	Private	Waste Connections of Tennessee, Inc.	Unknown	Unknown
Morgan	Morgan County Flat Fork Transfer Station	Public	Morgan County Government	30.0	9,208.7
Sevier	City Of Gatlinburg Transfer Station	Public	City of Gatlinburg	52.0	15,957.1
Sullivan	Sullivan County Transfer Station, Bristol	Public	Sullivan County Government	7.8	2,382.7
Sullivan	Sullivan County Transfer Station, Kingsport	Public	Sullivan County Government	28.8	8,856.6
Sullivan	Waste Management Of Tri-Cities	Private	Waste Management of Tri-Cities	Unknown	Unknown
Washington	Stericycle, Inc. Transfer Station	Private	Stericycle, Inc.	Unknown	Unknown
Middle					
Bedford	Shelbyville City Transfer Station	Public	City Of Shelbyville	27.2	8,342.9
Bedford	Local Transfer, LLC	Private	Local Transfer, LLC	Unknown	Unknown
Cheatham	Sam's Creek Disposal	Public	Cheatham County Government	59.0	18,123.6
Coffee	CWS - Manchester Transfer	Private	Capital Waste Services, LLC	Unknown	Unknown
Davidson	Aftermath Services LLC-TN	Private	Aftermath Services LLC-Tn	Unknown	Unknown
Davidson	Bfi Waste Services Llc Freightliner Drive Transfer Station (AAA)	Private	Bfi Waste Services, LLC	Unknown	Unknown
Davidson	Reliable Pharmaceutical Returns, LLC	Private	Reliable Pharmaceutical Returns, LLC	Unknown	Unknown
Davidson	Stericycle, Inc.	Private	Stericycle, Inc.	Unknown	Unknown
Davidson	Antioch Pike Transfer Station	Private	Waste Connections of Tennessee, Inc.	Unknown	Unknown
Davidson	Music City Pick A Part, LLC	Public	Music City Transfer Station	1,059.0	325,098.5
Davidson	ProVira, LLC Transfer Station	Private	Provira, LLC	Unknown	Unknown
DeKalb	Dekalb County Transfer Station	Public	Dekalb County Government	78.2	24,008.9
Dickson	Dickson County Transfer Station	Public	Dickson County Government	203.6	62,516.8
Fentress	Fentress County (Woodyard) Transfer Station	Public	Fentress County Government	Unknown	Unknown
Franklin	Estill Springs Transfer Station	Public	Interlocal Solid Waste Authority	Unknown	Unknown
Giles	Bass Waste Removal & Recycling	Private	Bass Brothers, LLC	Unknown	Unknown
Hickman	Hickman County Transfer Station	Public	Hickman County Government	48.8	14,991.4
Houston	Houston County Transfer Station	Public	Houston County Government	15.6	4,785.2
Lawrence	Lawrence County Transfer Station	Public	Lawrence County Government	Unknown	Unknown
Lewis	Lewis County L-1 Transfer Station	Public	Lewis County Government	80.7	24,785.9

Table A-13. Permitted and Operating Transfer Stations by County

County	Facility Name	Domain (Public or Private)	Permittee/Owner	Avg. Daily Tons (2023, estimated)	Tons Accepted (2023)
Middle					
Lincoln	Fayetteville Transfer Station	Public	Interlocal Solid Waste Authority	107.7	33,074.8
Macon	Macon County Solid Waste Transfer Station	Public	Macon County Government	4.9	1,518.5
Montgomery	Bi-County Highway Drive Transfer Station	Public	Bi-County Solid Waste Management	Unknown	Unknown
Montgomery	TriHaz Solutions Medical Waste Transfer Station	Private	TriHaz Solutions, LLC	Unknown	Unknown
Maury	Maury County Sanitary Transfer Station	Public	Maury County Government	Unknown	Unknown
Maury	UDP Mt. Pleasant Disposal, LLC	Private	UDP Mt. Pleasant Disposal, LLC	Unknown	Unknown
Overton	Overton County Transfer Station	Public	Overton County Government	44.1	13,528.4
Perry	Perry County Tennessee	Public	Perry County Government	0.0	0.0
Pickett	Pickett County Transfer Station	Public	Pickett County	11.0	3,376.1
Putnam	Putnam County Solid Waste Transfer Station	Public	Putnam County Government	229.0	70,295.6
Robertson	Robertson Co Rdf Facility	Public	Robertson County Government	267.0	81,954.3
Rutherford	Rockwood Recycling - Murfreesboro Transfer Station	Public	Rockwood Recycling, LLC	Unknown	Unknown
Rutherford	Rutherford County Transfer Station	Public	Rutherford County Government	Unknown	Unknown
Sumner	Rasco Transfer Station	Public	Resource Authority in Sumner County	Unknown	Unknown
Sumner	UDP Cottontown Disposal, LLC	Private	Udp Cottontown Disposal, LLC	Unknown	Unknown
Sumner	Priority-OneLT LLC	Private	Priority-OneLT LLC	214.0	65,708.9
Sumner	Gallatin Transfer	Private	Technical Rail Services, LLC	Unknown	Unknown
Warren	McMinnville Transfer Station	Public	City Of McMinnville	1.3	396.5
Warren	CWS - McMinnville Transfer Station	Private	Capital Waste Services, LLC	Unknown	Unknown
Wayne	Wayne County Solid Waste Facility	Public	Wayne County Government	Unknown	Unknown
White	City Of Sparta Transfer Station	Public	City Of Sparta	16.0	4,908.1
Williamson	Williamson County Solid Waste Transfer Station	Public	Williamson County Government	Unknown	Unknown
Williamson	City Of Franklin Transfer Station	Public	City Of Franklin	267.0	81,968.9
West					
Carroll	Republic Services McKenzie Transfer Station	Private	Barker Brothers Waste, Inc.	Unknown	Unknown
Chester	Henderson Transfer Station	Public	Chester County Government	7.2	2,195.3
Decatur	UDP Bath Springs Disposal, LLC	Private	UDP Bath Springs Disposal, LLC	Unknown	Unknown
Haywood	Haywood County Transfer Station	Public	Haywood County Government	37.7	11,566.0
Henderson	Henderson County Transfer Station	Public	Henderson County Government	1.6	501.9
Henry	Paris Landfill Transfer Station	Public	City of Paris	Unknown	Unknown

Table A-13. Permitted and Operating Transfer Stations by County

County	Facility Name	Domain (Public or Private)	Permittee/Owner	Avg. Daily Tons (2023, estimated)	Tons Accepted (2023)
West					
Lauderdale	Lauderdale County Transfer Station	Public	Lauderdale County, Tennessee	Unknown	Unknown
Madison	Stericycle, Inc.	Private	Stericycle, Inc.	Unknown	Unknown
McNairy	McNairy County Transfer Station	Public	McNairy County Government	81.3	24,955.7
Shelby	Aftermath Services, LLC	Private	Aftermath Services, LLC - Memphis	Unknown	Unknown
Shelby	waste management of Tennessee Transfer Station	Private	Waste Management Inc. of Tennessee	Unknown	Unknown
Shelby	Liberty Tire Recycling, LLC	Private	Liberty Tire Recycling, LLC	Unknown	Unknown
Shelby	Medical Waste Services, LLC	Private	Medical Waste Services, LLC	Unknown	Unknown
Shelby	Trilogy MedWaste Southeast, LLC	Private	Trilogy MedWaste Southeast, LLC	Unknown	Unknown
Shelby	City Of Bartlett Solid Waste Complex	Public	City Of Bartlett	119.5	36,678.0
Shelby	City Of Memphis Farrisview Transfer Station	Public	City Of Memphis	83.8	25,727.7
Shelby	Collierville Transfer Station	Public	Town Of Collierville	57.9	17,768.8
Shelby	Scott Street Transfer Station	Public	City Of Memphis	37.7	11,573.5
Shelby	Waste Connections of Tenn.Inc. Transfer Station	Private	Waste Connections of Tennessee, Inc.	Unknown	Unknown

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Table A-14. Active Materials Recovery Facilities (MRFs)

County	Facility Name	Domain (Public or Private)	Permittee (if applicable)/Owner
East			
Cumberland	Crossville Super Center Convenience Center	Public	Cumberland County
Hamilton	WestRock Chattanooga Recycling Facility	Private	WestRock - Chattanooga
Knox	WestRock Knoxville Recycling Facility	Private	WestRock - Knoxville
Middle			
Davidson	Nashville RRC River Hills	Private	Waste Management of Tennessee
Marshall	Marshall County Solid Waste & Recycling Hub	Public	Marshall County
West			
Chester	West TN Recycling Hub	Public	Chester County
McNairy	MRF Transfer Station	Private	MRF Recycling
Shelby	Republic Services - Memphis TN MRF	Private	Republic Services

Notes:

TDEC. (2025). *Solid Waste Management Permit Database*. Retrieved from <https://dataviewers.tdec.tn.gov/dataviewers/f?p=19035:34001>



Table A-15. Permitted and Operating Composting and Organics Processing Facilities			
County	Facility Name	Domain (Public or Private)	Permittee (if applicable)/Owner
East			
Sevier	Sevier Solid Waste Compost Facility	Public	Sevier Solid Waste, Inc.
Washington	Hoffman Composting Facility	Private	Hugo J. Hoffman
Middle			
Cheatham	The Compost Company, LLC	Private	Compost Company, LLC
Rutherford	Southeastern Tier 3 Compost Facility	Private	Southeastern Compost, LLC
West			
Madison	TWRA Region 1 Wildlife Health Facility - Composting Site	Public	TWRA Region 1 Wildlife Health Facility Composting Site
Shelby	Earth Complex City of Memphis	Public	City of Memphis

Notes:

TDEC. (2025I). *Solid Waste Management Permit Database*. Retrieved from <https://dataviewers.tdec.tn.gov/dataviewers/f?p=19035:34001>

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Table A-16. Remaining Capacity Overview of Active Class I Landfills

Region of Interest		Total Tons Accepted by Year (CY)			Permitted Remaining Airspace (CY)	
		2014	2023	Change	2023	
East		2,885,033	3,900,820		115,067,598	
East - Average		206,074	278,630	▲	3,486,897	
Middle		1,944,883	2,157,693		24,867,381	
Middle - Average		324,147	359,615	▲	606,521	
West		1,483,794	2,435,373		151,495,404	
West - Average		1,483,794	2,435,373	▲	7,214,067	
Total		6,313,710	8,493,885		291,430,383	
Total - Average		233,841	303,353	▲	3,067,688	

County	Facility Name	Domain (Public or Private)	Permittee/ Owner	Avg. Daily Tons	Total Tons Accepted by Year			Closure Estimate Information (as of 2023)	
					2014	2023	Change	Permitted Remaining Airspace (CY)	Estimated Closure Year
East									
Anderson	Chestnut Ridge	Private	Waste Management, Inc. of Tennessee	1,042	325,104	440,416	▲	16,445,775	2070
Blount	Alcoa- Maryville/Blount County	Public	City of Alcoa	200	62,400	128,856	▲	12,993,240	2042
Bradley	Bradley County	Public	Bradley County Government	1,100	343,200	357,360	▲	9,035,282	2042
Hamblen	Lakeway Recycling and Sanitation	Private	Lakeway Sanitation & Recycling MSW, LLC	475	148,200	227,825	▲	1,764,484	2030
Hamblen	Morristown Balefill Landfill	Public	Hamblen County/Morristown Solid Waste Board	Unknown	NA	Unknown	▬	2,842,731	2025
Hamilton	City of Chattanooga	Public	City of Chattanooga	304	94,848	33,623	▼	5,009,835	2073+
Hawkins	Carter Valley	Private	Bfi Waste Systems of Tennessee, Llc	795	248,040	115,135	▼	6,642,212	2073+
Jefferson	Jefferson County	Public	Jefferson County Government	80	24,991	26,320	▲	2,668,574	2073+
Loudon	Loudon County	Public	Loudon County Solid Waste Disposal Commission	923	287,976	146,959	▼	590,081	2026
McMinn	Meadow Branch	Private	Environmental Trust Company	1,330	414,960	803,316	▲	12,313,117	2034
Rhea	Rhea County	Public	Rhea County Government	668	208,416	355,361	▲	913,043	2025
Scott	Volunteer Regional	Private	Scott Solid Waste Disposal Company	1100	343,200	330,759	▼	8,418,285	2047
Sevier	Sevier Solid Waste Inc.	Private	Sevier Solid Waste, Inc.	5	1,560	18,976	▲	329,099	2030
Sullivan	Ecosafe Systems LLC	Private	Ecosafe Systems, Llc	459	143,146	568,752	▲	31,730,080	2073+
Washington	Iris Glen Environmental	Private	Iris Glen Environmental Center	689	214,968	176,951	▼	3,371,760	2040
Middle									
Clay	Upper Cumberland	Private	Upper Cumberland Solid Waste Management	60	18,720	35,926	▲	198,613	2025
Marshall	Cedar Ridge	Private	Cedar Ridge Landfill, Inc.	1590	496,080	707,261	▲	5,708,475	2032
Montgomery	Bi County Balefill	Public	Bi-County Solid Waste Management System	1000	312,000	317,168	▲	2,932,002	2032
Rutherford	BFI Middle Point Landfill	Private	Bfi Waste Systems of Tennessee, Llc	3,500	1,092,000	1,037,030	▼	7,432,727	2030
Smith	Smith County	Public	Smith County Government	107	33,384	230,442	▲	174,010	2024
White	White County	Private	WMWC, LLC	55	16,723	75	▼	26,666	2025
Williamson	Williamson County Landfill	Public	Williamson County Government	Unknown	NA	NA	▬	8,394,888	Unknown

County	Facility Name	Domain (Public or Private)	Permittee/ Owner	Avg. Daily Tons	Total Tons Accepted by Year			Closure Estimate Information (as of 2023)	
					2014	2023	Change	Permitted Remaining Airspace (CY)	Estimated Closure Year
West									
Benton	West Camden	Private	Waste Management, Inc. of Tennessee	770	240,240	526,365	▲	12,655,820	2042
Dyer	Dyersburg City	Public	City of Dyersburg	120	37,440	31,077	▼	2,940,177	2058
Hardeman	Boliver/Hardeman County	Public	Hardeman County Government	47	14,555	14,286	▼	522,835	Unknown
Madison	Madison County Dev LLC	Private	Madison County Development Llc	80	24,991	241,771	▲	11,181,061	2064
Obion	ECM of Ridgely LLC	Private	ECM of Ridgely, LLC	150	46,800	31,169	▼	21,485,381	2073+
Obion	Republic Services - NWTN EXT 1 & 2	Private	Northwest Tennessee Disposal Corporation	Unknown	NA	235,785	▬	7,858,956	2055
Shelby	BFI South Shelby	Private	Bfi Waste Systems of North America Llc	2,190	683,280	1,045,916	▲	35,547,305	2044
Shelby	BFI North Shelby	Private	Bfi Waste Systems of North America Llc	1399	436,488	309,003	▼	59,303,869	2024

Notes:

TDEC. (2024). 2023-Class I Disposal Facility Annual Engineering Report. Retrieved from https://dataviewers.tdec.tn.gov/dataviewers/BGSWM.GET_DOCUMENTS?p_file=598265819421299413

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TN

Department of
**Environment &
Conservation**

[DRAFT] Attachment B: Stakeholder Engagement and Public Outreach

Tennessee Department of Environment & Conservation | February 2026



Stakeholder Engagement and Public Outreach

Stakeholder Engagement

Successful solid waste planning and management hinges on effectively engaging stakeholders and the public. This engagement is crucial for gathering vital information, feedback, concerns, and ideas from stakeholders and the public, demonstrating how their participation directly influences The 2035 Plan. To ensure comprehensive engagement throughout this planning process a multi-faceted approach was implemented involving:

- Stakeholder Survey: A digital survey was distributed to collect detailed stakeholder insights and feedback.
- Stakeholder Engagement Workshops: In-person and virtual workshops were conducted to facilitate in-depth discussions and collaborative problem-solving.
- Underground Storage Tanks and Solid Waste Disposal Control Board (UST-SWDCB) Meeting: In-person presentation of the first draft of the 2035 Plan to the UST-SWDCB, to gather feedback and responded to inquiries prior to the development of the final Plan.

These engagement efforts were critical to shaping a comprehensive and actionable Plan, aligning it with community values, and fostering shared ownership of Tennessee's sustainable waste management future. Below, we describe these engagement methods in detail and provide a summary of the data and insights collected through each approach.

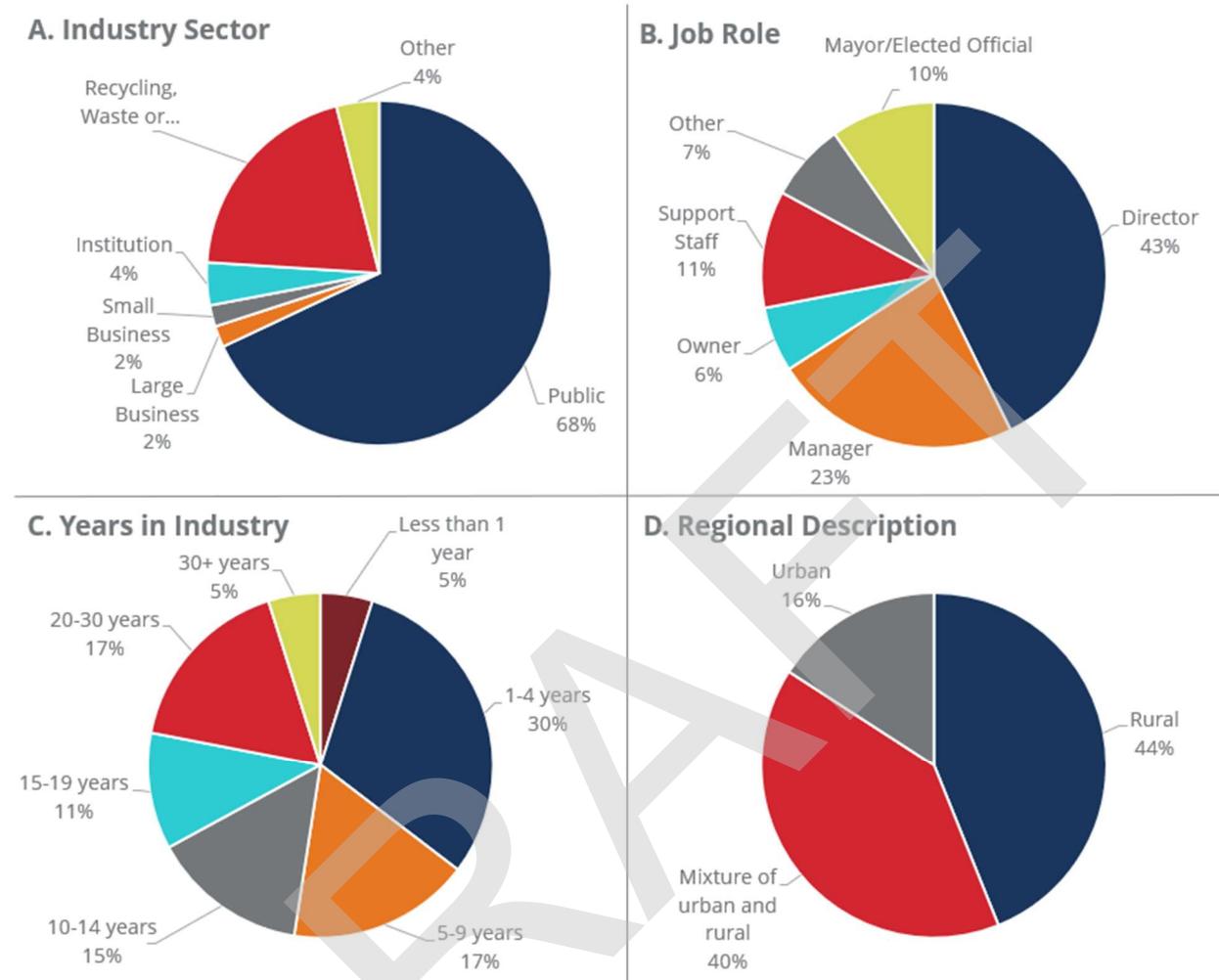
Stakeholder Survey

One key component of the stakeholder engagement strategy was the digital survey titled "Tennessee Solid Waste Management Plan Survey," distributed to over 400 individuals via email from December 2024 through January 2025. The survey consisted of thirteen multiple-choice, Likert scale, or open-ended questions covering solid waste management topics and demographic information. Its primary goal was to gather valuable insights from the solid waste sector to help shape an inclusive vision for the future of solid waste management in the state. Key survey results are described below.

Responses were collected from 82 individuals, representing a response rate of approximately 20%. **Figure B - 1** details the breakdown of the respondents' solid waste industry sector, job role, years of experience, and regional description.

Respondents indicated that their biggest concern about waste in Tennessee is "running out of landfill space" (36%). The next closest concerns were "lack of infrastructure to divert waste" (18%) and "lack of markets for recycling/composting" (18%), with these top three concerns accounting for 72% of the responses. The survey also revealed a significant lack of confidence in the existing infrastructure to handle future waste, with 52% of respondents being either "not very confident" or "not at all confident." Only 17% of respondents were "very confident" in the current infrastructure's ability to manage future waste.

Figure B - 1: Stakeholder survey respondents by solid waste industry sector (A), job role (B), years of experience (C), and regional description (D).



Most (94%) survey respondents believe that state and local governments should invest in infrastructure to keep trash out of landfills. Over three-quarters of these professionals indicated that it is “very important” (78%) for such investment to occur, while an additional 16% said it was “somewhat important.” When asked to select the top five most important priorities for managing waste in Tennessee, respondents prioritized: 1) waste reduction, 2) illegal dumping, 3) education for waste diversion, 4) rural recycling, and 5) waste-to-energy initiatives.

The survey included questions asking respondents to provide feedback and recommendations regarding the future of waste management in Tennessee. The most helpful component for respondents when planning waste management and diversion efforts was “financial assistance” (34%), followed by “best practices for waste processing” (15%) and “regional collaboration forums” (12%). Similarly, respondents identified “funding” (24%) as the top area where the state could assist with industry waste management. Other options that garnered significant interest for state assistance were “policy” (18%) and “infrastructure” (14%), with “markets,” “education,” and “communication” receiving less interest at 11%, 10%, and 8%, respectively.

Stakeholder Engagement Workshops

The stakeholder engagement workshops fostered collaboration, gathered diverse input, and achieved consensus. The interactive format encouraged open dialogue, focusing on identifying challenges, discussing solutions, and prioritizing actions. Geosyntec and Transformations PR, in coordination with TDEC, hosted five workshops in January 2025: four in-person and one virtual. The in-person workshops were conducted alongside TDEC’s Annual Progress Meetings. A total of 144 stakeholders participated, including professionals from various sectors familiar with solid waste management. Over half of the participants (57%) work for City or County governments as elected officials, public works employees, and other municipal decision-makers. Nearly a third (30%) represented private sector organizations and non-profits, with the remaining participants from higher education, TN Development Districts, and federal research labs. **Table B - 1** presents the distribution of workshops, attendees, and the sectors they represent.

Table B - 1. Summary of Stakeholder Workshop Attendees

Location	Date	No. Attendees	Industry Sector						
			Public	Large Business	Small Business	Recycling or Composting	Institution	Non-Profit	Other
Chattanooga	7-Jan-25	23	16	--	--	3	1	3	--
Morristown	8-Jan-25	19	15	--	1	2	--	1	--
Jackson	14-Jan-25	30	24	1	--	--	--	2	3
Nashville	16-Jan-25	39	25	7	2	1	3	--	1
Virtual	22-Jan-25	33	21	3	2	--	4	2	1

Each workshop followed a structured agenda that included an overview of existing conditions, live polling to capture participant perspectives, a SWOT analysis, a consensus-building activity, and goal setting. This format ensured comprehensive coverage of key topics while allowing time for open brainstorming and collaborative discussions.

The opening presentation outlined the existing conditions of Tennessee’s solid waste management system, highlighting key issues and setting the workshop’s objectives. This introduction provided essential context and a clear understanding of the session’s purpose. The presentation included live polling, allowing attendees to express their opinions and priorities in real time, efficiently capturing diverse perspectives and informing the discussions. One live polling question asked participants to describe the current direction for solid waste in Tennessee using one word, with the results illustrated in the word cloud presented as **Figure B - 2**. A word cloud visually represents text data, where the size and boldness of each word indicate its frequency or importance, helping to identify stakeholders' key themes and sentiments regarding solid waste management in Tennessee and highlighting areas of concern and focus for future planning and policy development.

Figure B - 2: Word cloud illustrating stakeholders' key themes and sentiments regarding solid waste management in Tennessee.



The results of the cumulative stakeholder engagement word cloud reveal several key themes:

Prominent Words: The most frequently mentioned words include "political," "complicated," "stagnant," "increasing," and "unsustainable." These words appear larger and bolder in the word cloud, indicating that respondents mentioned them more often.

Other Notable Words: Words like "expensive," "limited," and "bureaucratic" also stand out, though they are slightly smaller than the most prominent words. These words reflect additional concerns and sentiments among stakeholders.

Less Frequent Words: Smaller words such as "nimby (not in my backyard)," "messy," "tightrope," and "overbearing" were mentioned less frequently but still contribute to the overall sentiment.

Additional live polling results revealed that most respondents across all locations identified funding as the biggest challenge, with collaboration and infrastructure also significant challenges, though to a lesser extent. When asked about the biggest opportunities, most respondents highlighted policies and regional collaboration as the top opportunities, with infrastructure and education also important focus areas.

Participants conducted SWOT and consensus-building activities to evaluate and discuss potential improvements to the solid waste system, understanding priorities and needs among stakeholders. The workshops revealed key takeaways and major themes across Tennessee's grand divisions, focusing on compliance, infrastructure, programmatic and financial opportunities, innovation, data, organic programs, and recycling markets.

In East Tennessee (Chattanooga and Knoxville), strengths included maintaining operations and stakeholder commitment, while weaknesses centered around communication with policymakers and infrastructure funding. Opportunities were identified in increasing Class III

landfill airspace and reducing landfill volume through recycling and composting, with threats stemming from political influences and public trust issues.

In Middle Tennessee (Nashville), strengths were found in existing programs and a strong market, but weaknesses included a politically conservative environment and a lack of resident understanding of recycling. Opportunities focused on funding and equipment, additional landfill capacity, and better networking with end markets, while threats involved public perception of disposal costs and lack of airspace.

West Tennessee (Jackson) highlighted strengths in regional collaboration and major corporations wanting recycled material, with weaknesses in policy enforcement and funding issues. Opportunities were seen in educating the public and elected officials on operations and enforcing existing policies, while threats included running out of landfills and illegal dumping.

The virtual meeting, which included attendees from all divisions but primarily Middle Tennessee, identified strengths in composting opportunities and existing recycling programs. Weaknesses were consistent reporting and infrastructure issues, while opportunities included a mandated organics program statewide and boosting end markets within the state. Threats involved public participation and political will.

The SWOT analysis provided valuable insights into the strengths, weaknesses, opportunities, and threats related to solid waste management across the state. Key takeaways include the need for improved funding, enhanced collaboration, and better infrastructure. Stakeholders emphasized the importance of educating the public and policymakers, as well as the potential for regional collaboration and innovative solutions like organics processing and recycling mandates. These findings will inform future planning and policy development, ensuring a comprehensive approach to solid waste management in Tennessee.

Public Outreach

[To be completed during second draft 2035 Plan]



TN

Department of
**Environment &
Conservation**

[DRAFT] Attachment C: Review of Technologies

Tennessee Department of Environment & Conservation | February 2026



Technologies

Solid Waste Technology Screening

Geosyntec performed a technology review in support of Tennessee’s solid waste management system. The assessment focused on identifying safe, proven, and cost-effective methods for waste diversion and disposal, including recycling, composting, and energy recovery.

The analysis involved a survey of existing waste management technologies, followed by an initial screening and a multi-criteria assessment, as illustrated in the benchmarking process flow diagram **Figure C - 1**.

Figure C - 1: Overview of Technology Benchmarking



The evaluated technologies were categorized based on their primary role in the solid waste management system, allowing for a structured and consistent assessment (**Table C - 1**).

Table C - 1: Categories for Benchmarking of Technologies

Technology Type	The classification of technology by solid waste management activity
Generation / Source Reduction	Related to reducing and reusing products/materials at the source of waste generation and other consumer activities before the material is discarded.
Collection	Retrieval and consolidation of waste from the generation source, generally by hauling companies, where workers or equipment grasp, lift, and empty cans or bags into hoppers or buckets on a collection vehicle.
Convenience Centers	Public facilities with containers such as bins and roll-off boxes designated for the receipt of specified materials, such as solid waste and recyclable materials.
Transfer Stations	Facilities that receive and consolidate waste or recyclables from collection vehicles (or self-haulers) for loading onto tractor-trailers, railcars, or barges for long-haul transport to disposal facilities.
MRF & Recycling	MRFs and other sorting/processing processes transform waste products into raw materials for remanufacturing into new products.
Composting	Biological decomposition or decay of vegetative and organic waste (sometimes including mixed solid waste) under controlled aerobic conditions, typically occurring in open piles or containers.
AD / Other Organics Processing	The degradation of organics by microorganisms without oxygen releases gas that can be productively utilized for energy recovery and other applications. This includes other similar processes.
Landfill Disposal	Systems and technologies associated with long-term waste disposition and containment (cell construction, liners, maximizing capacity, etc.) within or above the ground surface.
Landfill Systems	Technologies associated with secondary/ancillary facilities or processes at landfills, including environmental controls (stormwater, leachate, LFG), safety, data acquisition and analysis, etc.
Thermal & Chemical Treatment	Controlled thermal/chemical processes that break down waste at the molecular level for its energy, often with intensive pre-processing and product recovery, including energy from waste and similar systems.
Other	Other technologies may include general environmental sampling, monitoring, analytics, niche waste streams for managing C&D, and others.

Technologies were screened using three primary criteria: maturity, market presence, and alignment with program objectives. Maturity was assessed based on the stage of development, ranging from pilot scale to established commercial use. Market presence is considered the geographic extent of deployment, from local to global. Each technology was evaluated for its potential to address Tennessee’s objectives, including disposal capacity, infrastructure

development, diversion of organics, performance metrics, management of problematic waste, and disaster debris. The detailed screening criteria are presented in **Table C - 2**.

Table C - 2: Screening Criteria Descriptions

Criterion #1: Maturity		
Maturity Classification	Bench or Pilot Scale	Emerging technologies and systems are in the initial stages of development and have not yet been deployed on a full or commercial scale. One or fewer North American operations with less than two years of a successful track record
	Emergent Commercial	Commercially available systems are present in certain markets and operational at full scale, but have not yet achieved widespread use. One or more North American operations with two to five years of successful track record
	Established Commercial	Technologies that are fully deployed at scale with relatively widespread implementation. Many facilities are constructed and active, and there is evidence of all if practicable 10+ years of proven performance history in North America
Criterion #2: Market Presence		
Market Classification	Local	Presence in a highly limited geographic area such as an individual locality or facility.
	Regional	Increased presence over a broader geographic area such as a multi-state area or individual country, but with limitations to global deployment.
	Global	Widespread presence and commercial deployment in both national and international markets.
Criterion #3: Tennessee Objectives		
Applicable Objective	Ensures Long-term Environmentally Protective Disposal Capacity	Helps maintain sufficient capacity for non-divertible waste. Promotes best practices in landfill operations and environmental monitoring. Safeguards public health and environmental quality. Supports the transition toward a more sustainable waste system.
	Advances in Material Processing, Infrastructure, and Market Development	Closes existing infrastructure gaps and supports investment in modern, regional processing capacity. Strengthens end markets for recovered materials through public-private collaboration and promoting education and awareness.
	Increases Diversion of Organic Waste	Supports strategies to reduce organic waste entering MSW landfills by promoting reuse, beneficial use, composting, and source reduction efforts. Supports regional collaboration by sharing best practices, establishing communication channels, and coordinating efforts to enhance resource sharing.
	Strengthens Goals and Data-Driven Performance Metrics	Establishes clear, measurable, and forward-looking goals for solid waste and materials management, supported by modernized data collection and reporting. Improves data accuracy, transparency, and timeliness to better track material flows, disposal trends, and diversion rate, informing strategic decision-making and progress reporting.
	Manages Problematic or Hard-to-Manage Waste	Provides guidance on managing problematic or hard-to-manage waste. Promotes proven emerging technologies. Establishes programs to prevent illegal dumping.
	Manages Disaster Debris	Prepares local governments to respond effectively to natural or man-made disasters by ensuring they have an updated Municipal Solid Waste Planning Region Plan that includes DDMP. Emphasizes incorporating the DDMP into larger emergency management plans for preparedness and response.

Assessment of Selected Technologies

Following the initial screening, nine technologies were selected and organized into four main groups: materials handling facilities, organics management, WTE and ash reuse, and other specialized solutions. Two technologies, gasification/pyrolysis and molecular recycling, were selected despite being deemed emergent and regional. These technologies are gaining attention for their potential to complement traditional waste management methods and are present within Tennessee’s current MSW management system. Additional material streams, including problematic or hard-to-manage wastes and disaster-related wastes, were also considered qualitatively.

These were then further evaluated based on two key considerations within the context of Tennessee’s solid waste management system:

1. **Performance:** Technical capabilities of the technology that enhance its potential to substantially contribute towards achieving TDEC’s objectives.

- Financial and Economic:** Net costs and feasibility of financing the technology in an economically sustainable manner with limited risks to the public sector-supported funding sources.

The detailed screening results are presented in **Table C - 3**.

Table C - 3: Screening Results for Selected Technologies

Selected Technology		Maturity			Market Presence			Helps Achieve Objectives?				
		Bench or Pilot Scale	Emergent	Established	Local	Regional	Global	Objective No.				
								1	2	3	4	5
Materials Handling Facilities	Convenience Center			X		X		X	X	X	X	X
	Transfer Station			X		X		X	X	X		X
	MRF			X		X		X	X		X	
Organics Management	Composting			X		X		X	X	X		X
	Anaerobic Digestion			X		X		X	X	X		X
WTE & Ash Reuse	Waste-to-Energy			X		X		X	X	X	X	X
	Beneficial Ash Reuse			X		X		X	X		X	
Other	Gasification/Pyrolysis		X				X	X	X	X	X	
	Molecular Recycling		X				X	X	X		X	

Quantitative Assessment

Various quantitative assessment criteria were used to further benchmark and compare key aspects of each technology's development and operations. The criteria, based on the two primary assessment categories, performance and financial and economic, are defined in **Table C - 4** and were applied consistently for comparison of similar technologies.

Table C - 4: Assessment Criteria and Descriptions

	Criterion	Description
Performance	Capacity	Range, in average capacity in tons) accepted or processed per year, typical in the Southeast
	Facility Footprint	Approximate footprint required for an average facility
	Diversion Potential	Percentage of the MSW stream that may be able to be diverted using technology
	Material Streams Accepted	Waste streams that may be accepted, whether they are diverted or not
Financial and Economic	Average Tipping Fee	Average charge per unit of waste accepted at the facility, reflecting disposal or processing costs typically paid by haulers or municipalities
	CAPEX	Total upfront investment required to construct and equip the facility, including site development, permitting, and infrastructure
	OPEX	Average ongoing annual costs to operate the facility, including labor, maintenance, utilities, and regulatory compliance

Qualitative Assessment

To supplement the quantitative assessment criteria, Geosyntec performed qualitative benchmarking to assess the state of practice of various technologies in Tennessee and the southeastern U.S. In addition to the nine selected technologies, qualitative benchmarking of problematic or hard-to-manage waste, emerging waste streams, and disaster debris management technologies was performed. The results of this assessment are summarized below, including case studies.

Materials Handling Facilities

Three types of intermediary materials-handling facilities for waste processing were evaluated. These facilities incorporate various combinations of mechanical sorting, separation, consolidation, and compaction techniques.

Convenience Centers

Convenience centers are local drop-off sites for household trash, recyclables, and sometimes bulky, or HHW. They are especially important in rural and suburban areas without curbside collection, helping reduce illegal dumping and improve access to proper disposal. Modern centers are designed for high throughput, diverse material collection, and safe, efficient traffic flow. They support Tennessee’s decentralized waste system by extending service coverage and promoting equitable access to waste services. Key innovations for consideration include:

- **Compaction Systems** like solar-powered units, cardboard balers, and single-stream compactors, which can improve collection and transport efficiency, especially in remote areas;
- **Metered Weighing**, which is a form of PAYT that uses an on-site scale to charge residents, often by weight for MSW, while offering free or discounted recycling to incentivize diversion; and
- **Modern Infrastructure**, such as retaining walls, bollards, container covers, permeable pavement, and self-contained compactor boxes, to improve safety, ergonomics, and environmental protection while maximizing limited space.

Transfer Stations

Transfer stations are key components of Tennessee’s “hub and spoke” waste management model. They function as local collection points (spokes) where waste is consolidated before

being transported in bulk to regional processing or disposal facilities (hubs). This model improves transportation efficiency, lowers hauling costs, and supports centralized infrastructure such as landfills, MRFs, and organics diversion facilities.

As Tennessee's needs evolve, transfer stations help address geographic service gaps and enhance system performance. Large stations (handling over 1,000 tons per day) are typically located in urban or suburban areas, while smaller stations serve rural communities. These facilities also give local governments more control over waste transport and disposal decisions, including access to discounted tipping rates.

Key innovations for consideration include:

- **Structural Enhancements** like tipping slab hard topping, push wall armoring, and waste separation pits extend facility life and improve material handling;
- **Tunnel Scales and Weighing Software** can reduce wait times and optimize trailer loads, increasing payloads and reducing trips; and
- **Public-Facing Improvements** such as architectural façades, odor control, and truck-wash systems improve cleanliness and community acceptance, potentially enabling extended hours or higher throughput.

Material Recovery Facilities (MRFs)

MRFs are specialized recycling facilities that receive, separate, and prepare recyclable materials from the waste or source-separated recycling streams for marketing to end-users. Given the significant proportion of potentially recyclable materials in Tennessee's waste stream, MRFs are expected to play a central role in achieving the state's diversion goals. Key types include the following:

- **Traditional MRFs** use a mix of manual and automated systems to produce high-quality, low-contamination outputs of source-separated or commingled recyclables (e.g., paper, plastics, metals, glass), typically collected through curbside programs;
- **C&D MRFs** process debris from C&D activities, recovering materials like wood, concrete, and metals, and are especially valuable in areas experiencing active development; and
- **Mixed Waste Processing Facilities** handle unsorted MSW using advanced sorting technologies to extract recyclables to boost diversion rates. However, they often face challenges such as high contamination, operational complexity, and large volumes of residual waste.

The newly launched East Tennessee MRF in Sullivan County is a \$3.5 million, 16,000-square-foot enclosed site designed to serve multiple counties, including underserved areas such as Unicoi County (Waste Advantage Magazine, 2025). Supported by approximately \$790,000 in state grants, the facility is equipped with advanced recycling technologies capable of processing a broad spectrum of materials. Its goal is to boost regional diversion rates through increased throughput and inter-county collaboration, establishing a strong model for future MRF development statewide.

In addition to traditional and specialized MRFs, Tennessee has adopted innovative forms of recovery infrastructure tailored to specific needs and contexts. These include temporary installations at large public events such as festivals, transitional facilities that bridge outdated

and modern systems, and compact 'Mini' MRFs designed for small-scale or pilot operations. These emerging models reflect a broader shift toward flexible, scalable solutions that enhance both recycling capacity and operational efficiency.

Modern MRFs increasingly incorporate AI, robotics, and imaging systems to automate material identification and recovery. For example:

- A Chicago MRF using Everest Labs' RecycleOS platform recovered 1.3 million additional aluminum cans in 2024 by optimizing upstream equipment and recalibrating sorting systems (Resource Recycling, 2025); and
- A Pacific Northwest facility used AI to identify \$43,300 per month in lost commodity value, prompting operational changes that improved recovery rates.

These technologies also support workforce transformation by shifting labor from manual sorting to technical roles in system monitoring, data analysis, and equipment maintenance. These "green collar" jobs are considered safer and more stable than traditional line-sorting positions. While specific injury reduction data is limited, industry consensus suggests automation reduces exposure to hazardous materials and repetitive motion injuries.

In Tennessee, MRFs are not always distinguished from smaller recycling facilities. While some facilities have adopted modern systems, others still rely on manual "picking lines," which limit efficiency. To meet diversion goals and reduce landfill pressure, Tennessee will likely need to expand and modernize its recycling infrastructure. Potential innovations for consideration include:

- **Separation Technologies** like ballistic separators, eddy current separators, air classifiers, and magnets help reduce contamination and reallocate manual labor;
- **AI-Driven Imaging and Robotics** can improve sort efficiency and reduce reliance on manual labor; and
- **Supplemental Systems** like "mini" MRFs, portable sort lines, foam densifiers, bale monitoring, and depackaging systems can serve areas where full-scale MRFs are not economically viable, or supplement existing larger-scale systems.

Organics Diversion

As Tennessee Solid Waste Planning Regions, local governments, and private sector partners work to expand diversion and reduce landfill dependency, organics processing technologies play a critical role in managing food scraps, yard trimmings, agricultural residues, and other biodegradable materials. Organics diversion remains a key state objective.

Composting

Composting is a controlled aerobic process that transforms organic waste such as food scraps, yard trimmings, and agricultural residues into a nutrient-rich product. It reduces landfill waste, lowers greenhouse gas emissions, and improves soil health. **Table C - 5** summarizes the three primary composting methodologies and some of the associated advantages and disadvantages of each.

Table C - 5: Composting Methodologies

Composting Method	Description	Advantages	Disadvantages
Windrow	Feedstock is arranged in long piles and turned regularly (3–6 months).	Minimal infrastructure, suitable for large volumes, easy to manage with basic training.	Requires significant space, is sensitive to weather, and is harder to manage in open-air systems
Covered Aerated Static Pile	Compost is placed over the aeration system using perforated pipes (3–6 weeks).	Faster decomposition, no turning needed, better moisture control, and precise aeration.	Requires equipment and monitoring, not ideal for very wet or dry materials, and needs careful oversight.
In-vessel	Composting in enclosed containers with controlled conditions (1–4 weeks).	Optimized conditions, minimized nuisances, and space-efficient.	High equipment and maintenance costs, less suitable for very large-scale operations.

Composting plays a vital role in Tennessee’s waste management strategy, delivering both environmental and economic benefits, including reduced methane emissions, job creation, and improved soil health. Composting methods vary depending on feedstock, available space, and operational scale, with large commercial facilities handling the majority of processing. However, smaller municipal and community-based programs are essential for expanding access and fostering public engagement.

At the University of Tennessee in Knoxville, a campus initiative collects food scraps and landscaping debris, processes them on-site, and uses the finished compost in campus landscaping (University of Tennessee Office of Sustainability, 2025). This reduces the need for synthetic fertilizers and promotes sustainable land management, while also serving as a hands-on educational tool for students and staff.

In Nashville, Compost Nashville partners with schools to integrate composting into daily routines (Compost Nashville, 2023). Through training, collection bins, and regular pickups, students learn about the environmental impact of food waste and the value of composting. These efforts reduce landfill contributions and foster a culture of sustainability among young learners.

Anaerobic Digestion (AD)

AD is a biological process that converts organic materials into renewable energy and nutrient-rich byproducts in the absence of oxygen. It involves four stages: hydrolysis, acidogenesis, acetogenesis, and methanogenesis. Microorganisms break down organic matter to produce biogas (primarily methane and carbon dioxide) and digestate. Common feedstocks include food waste, manure, and wastewater sludge. Biogas can be used for electricity, heat, or upgraded to renewable natural gas, while digestate can be applied as a soil amendment or further processed. Since 2015, over 600 new AD facilities have been built in the U.S. Examples include Bioenergy Devco’s facility in Maryland and Vanguard Renewables’ farm-based systems in Massachusetts. There is one notable Tennessee AD facility focusing on solid waste management (Bush Brothers and Company in Danridge, Tennessee). AD systems are primarily implemented at municipal wastewater treatment plants and agricultural operations. Modular and small-scale systems are expanding access, making them suitable for farms, food processors, and institutions with limited space. Their adaptability and scalability are helpful characteristics where the economics of operation are favorable, such as areas with high landfill tipping fees or incentives for biogas. These systems can also be expanded over time, helping to gradually scale operations.

Biochar

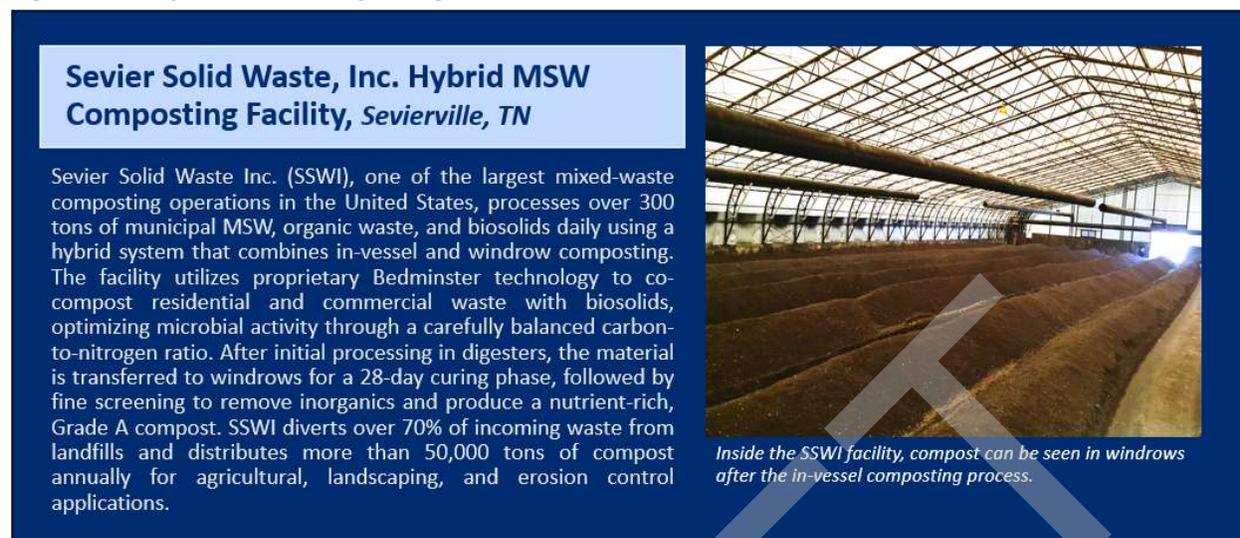
Biochar is a carbon-rich product created through pyrolysis, a thermal decomposition process that occurs without oxygen. It breaks down organic matter into solid (biochar), liquid (bio-oil), and gaseous (syngas) components (Modern Pumping Today, n.d.). Biochar production facilities, like composting operations, are scalable and divert source-separated organics from landfills. Feedstocks include forestry byproducts, wood chips, agricultural waste, and biosolids. The resulting charcoal-like material enhances soil nutrient uptake by plants, water retention, and microbial activity. Additional uses include stormwater filtration, soil remediation, carbon sequestration, and as a concrete additive. Federal support for biochar has increased through USDA programs like Environmental Quality Incentives Program and Regional Conservation Partnership Program, which help cover costs for farmers using biochar. Since 2010, the U.S. biochar industry has grown to include over 135 producers. Local governments are also adopting biochar strategies. Cincinnati turns urban wood debris into biochar for tree planting and carbon capture, and Minneapolis launched the first city-owned biochar facility in North America, processing 500 tons of ash tree waste annually.

Biosolids

Biosolids are stabilized organic byproducts of municipal wastewater treatment, processed to reduce pathogens and odors for safe reuse. In Tennessee, biosolids are increasingly repurposed for agriculture, composting, and energy generation. Advanced technologies have improved efficiency and safety. Thermal drying is a key method, using heat to evaporate moisture and produce dry, pelletized material that meets EPA Class A standards for unrestricted use. Most facilities use rotary drum dryers powered by natural gas or other fuels. Aerobic drying is an emerging alternative that uses aeration to generate internal heat, reducing moisture with lower energy input and fewer emissions.

Figure C - 2 illustrates a biosolids composting operation co-located with a convenience center in Sevierville, Tennessee, which also houses the largest mixed MSW composting facility in North America. In addition to processing biosolids, the facility handled 119,656 tons of MSW last year, diverting 71,794 tons of organic material from landfill through composting.

Figure C - 2: Hybrid MSW Composting at Sevier Solid Waste, Inc., Sevierville, TN



The resulting compost is distributed to farms, construction projects, and soil blending operations. The site serves over 39,000 households in Sevier County and accepts organic waste from commercial partners across the Southeast, including food manufacturing byproducts and unsold grocery store produce, further expanding its regional impact.

Waste-to-Energy (WTE) and Ash Management

WTE technologies recover energy from solid waste in the form of steam, heated water, or electricity. These systems fall under the broader category of thermomechanical treatment, which involves applying heat to waste to convert it into usable energy products as an alternative to landfilling. In contrast, waste conversion technologies rely solely on biological processes and do not involve thermal treatment are typically not classified as WTE or thermomechanical treatment. Some examples of thermomechanical treatment technologies include incineration, pyrolysis, gasification, alternative engineered fuel, and other thermal conversion methods like hydrothermal carbonization.

WTE is a well-established technology that produces energy while enabling the recovery of metals and other materials. Emissions are managed through advanced control systems, and the resulting ash, both bottom ash and fly ash, can be landfilled, stockpiled, or beneficially reused. Ash reuse is an increasingly important consideration, with applications in construction materials such as concrete, road base, and cement additives, offering opportunities to reduce landfill use and support circular economy goals (SWANA, 2012).

WTE facilities are most commonly found in urban areas where landfill space is limited. There are more than 60 active WTE facilities across the United States, with the highest concentrations in Florida and the Northeast (U.S. Energy Information Administration, 2022). The Southeast region includes 14 facilities, 10 in Florida, and 4 in Virginia (**Figure C - 3**).

Figure C - 3: WTE Facility Expansion in Pasco County, FL



WTE technologies include two primary types based on their feedstock:

- **Mass burn:** Mass burn involves the direct combustion of unprocessed MSW in a large furnace to generate steam, which is typically used to produce electricity. This widely adopted method can reduce the volume of waste by up to 90%. Advanced air pollution control systems are integrated into the process to capture particulates and neutralize acidic gases, ensuring compliance with environmental regulations. In addition to energy recovery, mass burn facilities can support material recovery through post-combustion metal extraction and the beneficial reuse of bottom ash in construction applications such as road base or concrete additives (Waste to Energy International, n.d.). The development of mass burn facilities in Tennessee could significantly reduce landfill dependency while contributing to base-load energy generation and economic goals.
- **Refuse Derived Fuel:** Refuse derived fuel involves preprocessing MSW to extract recyclables and convert the remaining high-calorific material into fuel for energy recovery. The process typically includes shredding, drying, and homogenizing carbon-rich waste to produce a fuel suitable for use in industrial boilers, cement kilns, or dedicated WTE facilities. One example of this approach in the Southeast is the RePower South facility in Montgomery, Alabama. This state-of-the-art plant receives mixed MSW and uses advanced sorting technology to recover recyclable materials. The remaining non-recyclable waste is converted into a fuel, which is a clean, low-carbon alternative to coal that can be used in industrial and utility boilers. By integrating material recovery with fuel production, the facility helps reduce landfill dependency and supports regional energy generation goals (RePower South, 2025). Refuse derived fuel systems are widely used in Europe and Asia and are gaining attention in the U.S. for their ability to reduce landfill dependency while supporting energy generation. A related technology, Mechanical Biological Treatment, combines mechanical sorting with biological or thermal stabilization to produce multiple outputs, including refuse derived fuel and recovered recyclables. These systems enhance recycling potential by separating valuable materials before thermal treatment. In the U.S., approximately a dozen WTE facilities currently use refuse derived fuel as their primary fuel source (KleanIndustries, 2016). These systems offer a flexible approach to waste management by integrating

material recovery with energy production, making them a potential fit for regions seeking to balance diversion goals with renewable energy generation.

Beneficial Ash Reuse

Combustion of solid fuels, such as fossil fuels and MSW, produces coal combustion residuals and other ash waste, which is traditionally disposed of in storage ponds or monofills. However, shifts in energy production practices and regulatory requirements are prompting the closure of legacy coal sites and encouraging the beneficial reuse of ash materials. In the U.S., coal combustion alone generates approximately 70 million tons of ash annually and includes an array of types, including boiler slag, gypsum waste, bottom ash, and fly ash (American Coal Ash Association, 2023). Bottom ash can be reused when properly treated in construction applications such as road base and concrete aggregate. Under controlled conditions, fly ash can also be recycled into cement and other building materials. These reuse pathways reduce the need for virgin resources and divert material from landfills, aligning with broader sustainability goals.

Other Waste Conversion Technologies

Other technologies with potential to process waste in Tennessee include other types of waste conversion, which refers to technologies that convert waste into energy and saleable byproducts through the application of biological, thermal, and mechanical processes. Other than composting, AD, and WTE, these methods are largely emergent and not used on a broad scale to dispose of MSW. Commonly discussed waste conversion technologies include gasification (e.g., plasma arc), pyrolysis, hydrothermal carbonization, thermal hydrolysis, etc. They are marketed as alternatives to traditional disposal methods and designed to align with sustainability goals by minimizing environmental impact, supporting renewable energy generation, and promoting circular economic principles. Gasification and pyrolysis, two of the more established thermomechanical treatment methods, have been in use for over a century, yet their integration into mainstream U.S. MSW management has been limited. High capital costs, regulatory complexity, and public concerns about emissions have slowed their adoption despite their potential to convert waste into valuable outputs.

Gasification/Pyrolysis

Gasification and Pyrolysis are advanced thermal technologies that convert waste into simpler molecular forms using high heat in oxygen-limited environments, producing outputs like syngas and biochar. While both processes resemble incineration in their use of heated chambers, they differ significantly in operating temperatures and the specific inputs of air, oxygen, or steam. In Tennessee, these thermomechanical treatment technologies are gaining attention as viable solutions for sustainable waste management. In Tennessee, these technologies are gaining attention as viable solutions for sustainable waste management. Gasification, in particular, has seen practical application through facilities such as the City of Lebanon's WTE plant, which utilizes downdraft gasification to process wood waste, scrap tires, and sewage sludge. This facility generates electricity for municipal operations and produces biochar for agricultural use, diverting thousands of tons of waste from landfills each year and demonstrating the potential of advanced thermal conversion to support both energy recovery and landfill diversion goals in the state (Waste Advantage Magazine, 2018).

Molecular Recycling (“Advanced” Recycling): Molecular recycling, sometimes called “advanced recycling,” refers to emerging processes that break down generally low-value waste plastics into their original molecular building blocks. Unlike traditional recycling processes, which use clean and sorted plastics, molecular recycling can process a much broader range of materials, including colored, multilayered, and mixed plastics that would otherwise end up in landfills or incinerators. By converting materials back into high-quality raw ingredients, molecular recycling enables the production of new materials with the same performance as virgin materials. Molecular recycling typically focuses on breaking down plastics into their original monomers and faces its own challenge in scalability and economic viability, particularly when dealing with mixed or contaminated waste streams (Eastman, n.d.). **Figure D - 4** provides a look at the world’s largest molecular recycling facility located in Kingsport, Tennessee.

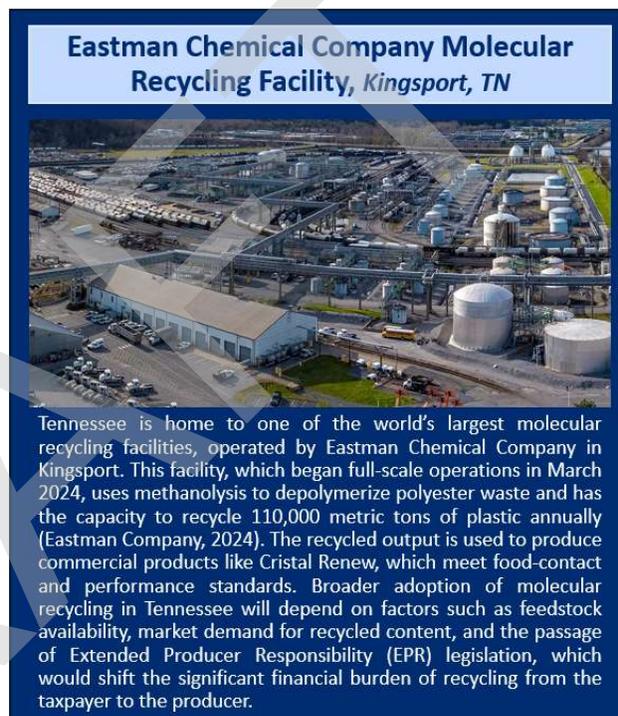
Other

Several other emerging thermochemical and hydrothermal technologies offer potential solutions for managing organic and mixed waste streams in Tennessee. These methods support landfill diversion, renewable energy generation, and circular material recovery. However, they were not fully assessed due to their bench scale or pilot status in the US.

- Hydrolysis uses water and heat to break down organic matter into fermentable sugars or other useful compounds. Hydrolysis supports biofuel production and enhances the efficiency of AD and is particularly suited for Tennessee’s abundant food waste and organic sludge.
- Hydrothermal carbonization mimics natural coal formation by converting wet biomass into hydrochar under heat and pressure and is ideal for processing municipal sludge, agricultural residues, and food waste.
- Plasticization of waste, such as that performed by Israeli-based UBQ Materials, uses a proprietary “plasticization” process to convert unsorted household waste, including organics and plastics, into a thermoplastic composite material usable in manufacturing.
- Hybrid processes, such as ECONWARD’s combined thermal hydrolysis technology to process organics from MSW into biomass for AD.

While these technologies are still emerging in the US, they offer potential options for managing diverse waste streams. Their broader adoption could enhance landfill diversion, renewable energy generation, and sustainable resource recovery across the state, especially as infrastructure and policy evolve to support a wider range of waste-to-value solutions.

Figure D - 4: Molecular Recycling Facility at Eastman Chemical Company, Kingsport, TN



Problematic or Hard-to-Manage Waste Management

Problematic or Hard-to-Manage Wastes are materials that pose unique challenges because of their environmental, health, or economic effects. These materials are often produced in small amounts but are expensive to manage and can pose risks to human health or the environment if not handled properly.

Problem Waste

Problem waste, as defined by TDEC, refers to specific types of solid waste that pose unique environmental, health, or economic challenges. These materials are often costly to manage per pound and may threaten human health or the environment if not handled properly. Examples include waste tires, used oil, lead-acid batteries, electronics, antifreeze, and HHW. Due to their potential to contaminate soil and water or create safety hazards, TDEC emphasizes the safe collection, diversion, and disposal of these materials through targeted programs and technical assistance to local governments. Problem waste includes household BOPAE and tires.

Household BOPAE

BOPAE is a category of HHW that requires special handling due to its potential environmental and health risks. If not managed properly, BOPAE can contaminate soil and water, pose fire hazards, and release harmful substances. Each BOPAE waste stream presents unique challenges and opportunities for disposal and diversion using processing technologies.

- Household batteries contain valuable metals such as cobalt, nickel, and lithium. Companies like Redwood Materials are advancing closed-loop battery recycling systems using hydrometallurgical processes to recover these metals efficiently. Additionally, direct recycling technologies are emerging that preserve battery cathodes for reuse, offering a less energy-intensive alternative to traditional methods.
- Used Motor Oil can be re-refined into new lubricants or used as industrial fuel. Newer innovations include solar-powered oil recycling systems that reduce emissions during processing.
- Paint, including latex-based paint, can be filtered and blended into new paint products, while oil-based paints require hazardous waste treatment. Some regions are piloting “paint-to-energy” systems, where unusable paint is converted into fuel for cement kilns.
- Antifreeze can be recycled through technologies such as vacuum distillation, filtration, reverse osmosis, or ion exchange, followed by the addition of new performance chemicals. These additives raise pH, inhibit rust and corrosion, reduce water scaling, and slow glycol degradation. Modern antifreeze recyclers are becoming more compact, efficient, and user-friendly, with some integrating IoT and automation for enhanced monitoring and performance. Key players in this space include Clean Harbors, Inc., Envirotech International, Inc., and Maratek Environmental, Inc., all of which offer scalable anti-freeze recycling solutions tailored to automotive, industrial, and marine applications (Sharma, 2025). These advancements are making on-site antifreeze recycling more accessible and cost-effective for service centers and municipal facilities, while also supporting compliance with increasingly stringent environmental regulations.
- Electronic waste, or e-waste, is rich in recoverable materials like gold, copper, and rare earth elements. Advanced recycling methods include robotic disassembly, AI-powered

sorting systems, and chemical leaching techniques that extract metals with minimal environmental impact. Bioleaching is a process that is gaining traction as a low-impact recycling method for electronics, specifically for parts like circuit boards that contain precious metals. The process of bioleaching uses microbes to break down electronic waste and extract valuable metals like copper and gold. The microbes produce acids or oxidizing agents that dissolve the metals from circuit boards into a liquid solution for recovery. Another promising electronic recycling technology is reverse vending machines, where consumers can deposit their old electronics in exchange for cash, and the electronics can then be refurbished for future use or properly recycled. EcoATM is a company that provides this service for cellphones, with over 6,500 locations across the U.S. They are responsible for the collection of over 50 million phones to date, which have been refurbished or recycled.

BOPAE waste is managed through a network of convenience centers that accept these materials for proper disposal or recycling. While the state has made progress in public education and infrastructure, access to these services varies by region. Enhancing access for households through adding and modernizing convenience centers and transfer stations will help divert additional BOPAE from Tennessee's landfills.

Tires

The United States generates over 250 million end-of-life tires annually, making tires one of the most recycled consumer products in the country. According to the U.S. Tire Manufacturers Association, 79% of end-of-life tires were directed to beneficial end-use markets in 2023, up from 71% in 2021. The largest of these markets includes ground rubber (28%), tire-derived fuel, and rubber-modified asphalt, the latter of which has seen a 17% increase in use since 2021. Rubber-modified asphalt is gaining traction for its durability, cost-effectiveness, and environmental benefits, such as reduced CO₂ emissions and improved road performance. These trends highlight the growing economic and environmental value of tire recycling and the importance of expanding end markets for recovered materials (U.S. Tire Manufacturers Association, n.d.). Tire recycling and disposal technologies encompass a range of methods, each with unique benefits and challenges. Common methods for recycling end-of-life tires include mechanical grinding, which reduces tires into crumb rubber for use in playground surfaces, athletic fields, and modified asphalt; pyrolysis, a process that thermally decomposes tires in the absence of oxygen to produce oil, gas, and recoverable carbon black; cryogenic processing, which involves freezing tires with liquid nitrogen and subsequently fracturing them into fine particles; and the incineration of tires for energy recovery. Additionally, devulcanization employs chemical or thermal techniques to break the sulfur bonds in vulcanized rubber, thereby enabling the material to be reprocessed into new products. However, this method has not yet been adopted within the state of Tennessee.

In Tennessee, these technologies vary in applicability based on infrastructure, environmental goals, and state support. Crumb rubber production is widely used and supported through the state's Tire Environmental Act Program, making it a practical and scalable option. While there are currently no active tire pyrolysis facilities in Tennessee, state grants have encouraged exploration of pyrolysis projects, particularly those focused on alternative fuel and carbon black

recovery. Tire-derived aggregate is also promoted for civil engineering applications like roadbeds, drainage systems, and landfill construction (TDEC, 2025h). While tire-derived fuel is used to some extent, concerns related to air permitting, emissions, and public opposition have limited its expansion in Tennessee. Overall, Tennessee's focus on sustainability and grant-backed innovation makes mechanical recycling, pyrolysis, and tire-derived aggregate the most viable and impactful options for tire waste management in the state. TDEC recognizes a variety of beneficial end uses for tires, including landfill construction or closure applications and drain field aggregate for public works projects, all of which are eligible for grant reimbursement under the Tire Environmental Act Program. Investing in these solutions and exploring emerging technologies such as devulcanization and advanced pyrolysis can help Tennessee boost waste diversion, prevent illegal dumping, and advance a circular economy for tires.

Emerging Waste Streams

Emerging waste streams, including spent electric vehicle batteries, end-of-life solar photovoltaic panels, and retired wind turbine blades, are expected to grow significantly in the coming decades, creating unique management challenges.

Electric Vehicle Batteries

As electric vehicles become more common, the U.S. is experiencing a rise in used lithium-ion batteries that need to be managed safely and sustainably. These batteries typically last between 8 and 20 years, but many are now reaching end-of-life due to age, recalls, or damage (Frio & Montoya, 2024). Addressing this growing waste stream presents several challenges, including battery toxicity, limited recycling infrastructure, and high transportation costs, all of which complicate proper handling and disposal. At the same time, battery production is ramping up, generating large volumes of manufacturing scrap. This has led to a sharp increase in demand for recycled battery materials, especially nickel, cobalt, and lithium, which are essential for producing new batteries. This demand is further driven by the Inflation Reduction Act, which provides financial incentives for sourcing these materials domestically, including through the recycling of electric vehicle batteries.

Companies are responding by building out U.S.-based recycling infrastructure. For example, Ascend Elements' Massachusetts facility, originally a pilot, is shipping commercial quantities of recycled battery material, and a larger billion-dollar plant project is underway in Kentucky (Domonoske, 2024). In 2024, Tennessee Tech University received a \$4.8 million federal grant to develop a mobile electric vehicle battery preprocessing hub, a first-of-its-kind system designed to travel to rural communities and safely disassemble and shred batteries on-site (Tennessee Tech University, 2024). This approach addresses a major barrier in rural areas: the lack of access to centralized recycling facilities. By reducing transportation costs and enabling local processing, Tennessee Solid Waste Planning Regions, local governments, and private sector partners can make battery recycling more accessible and economically viable across the state. The project also supports a circular economy by preparing recovered materials for reuse in new batteries, helping to conserve critical minerals.

There are three primary technologies currently used to recover electric vehicle batteries:

- *Pyrometallurgical* processing involves high-temperature smelting. It is the least efficient and most environmentally burdensome method, often resulting in the loss of valuable materials and the release of harmful emissions.
- *Hydrometallurgical* processing uses acid-based chemical solutions to extract critical minerals. It is currently the most effective and widely adopted method, capable of recovering up to ninety-nine percent of essential materials with minimal waste (Dunn, J. , 2023).
- *Direct recycling* is an emerging approach that aims to preserve battery components in their original form. This method shows particular promise for newer battery chemistries such as lithium iron phosphate.

Tennessee's current focus on preprocessing provides a strong foundation but expanding into hydrometallurgical or direct recycling technologies could unlock greater environmental and economic benefits.

Solar Panels

As solar energy rapidly expands across the U.S., solar photovoltaic panels have become a cornerstone of the clean energy transition, reducing reliance on fossil fuels and supporting sustainable economic growth. However, with the fast-paced adoption of solar technology comes a growing wave of decommissioned panels reaching end-of-life. By 2030, the U.S. is projected to have approximately one million tons of solar waste (International Renewable Energy Agency, 2016). These panels can pose environmental risks, as some contain cadmium, telluride, selenium, and other materials that may leach into soil and water if improperly disposed of. Currently, the EPA is developing a proposal to regulate solar panels as universal waste, following California and Hawaii, to have clearer disposal guidelines and safety standards nationwide (EPA, 2025g). SolarCycle®, a Texas-based company, is addressing this challenge by scaling up its solar panel recycling operations with the goal of processing 1 million panels annually. Backed by \$30 million in financing, the company uses advanced proprietary technology to recover up to 95% of valuable materials such as aluminum, glass, silver, and silicon (Kart, Solarcycle plans to recycle 1 million panels a year with help from \$30 million in financing, 2023). These materials are reintroduced into the supply chain, supporting domestic manufacturing and reducing reliance on imported raw materials. According to Rystad Energy, the global solar panel recycling market is projected to reach \$2.7 billion by 2030, driven by the increasing value of recovered materials, especially silver and polysilicon (Rystad Energy, 2023). This highlights the economic potential of solar recycling as a growing industry.

While Tennessee has foundational strengths, it is not yet equipped with dedicated infrastructure for solar panel recycling. With solar adoption growing across the Southeast, the state will soon face a surge in solar waste. By supporting regional recycling facilities or mobile processing units, similar to Tennessee Tech's mobile electric vehicle battery hub, the state can ensure efficient, localized handling of solar panels. Recovered materials could feed into Tennessee's strong manufacturing base, creating new end markets and job opportunities. Integrating solar panel recycling into existing state programs would enhance environmental

outcomes and diversion rates, reduce waste, and position Tennessee to benefit from a rapidly growing global market, turning solar waste into a valuable economic resource.

Wind Turbine Blades

Wind turbine blades present a growing waste management challenge as the first generation of wind farms reaches the end of their service life. By 2050, the United States is expected to generate millions of tons of wind turbine blade waste, with projections ranging from 200,000 to 370,000 tons annually, depending on component lifespans and repowering rates (National Renewable Energy Laboratory, 2022). While most components of a wind turbine, such as steel, copper, and concrete, are readily recyclable, the blades themselves are made from composite materials like fiberglass and epoxy resin, which are difficult to break down and reuse. As a result, blade disposal has become a pressing issue in the renewable energy sector. Several recycling and repurposing strategies are currently in use or under development. One of the most widely adopted methods is cement co-processing, where shredded blades are used as a substitute for raw materials and fuel in cement kilns. This process reduces the need for virgin materials and fossil fuels while safely incorporating the blade's fiberglass content (American Clean Power, 2024). Mechanical recycling is another option, which involves taking decommissioned blades and breaking them down into small fragments and pellets through shredding, crushing, or milling. The pellets can then be used as fillers or reinforcement in other composite and cement products, although this usually results in lower-value outputs. More advanced approaches include thermochemical processing methods like pyrolysis and solvolysis, which break down composite materials into reusable fibers and resins. These technologies are still emerging, but show promise for higher-value material recovery (Jacoby, 2022).

Wind turbine blades, traditionally difficult to recycle due to their composite fiberglass construction, are increasingly being repurposed through innovative programs that support sustainability and circular economy goals.

The Re-Wind project, a multinational collaboration involving Georgia Tech and Queen's University Belfast, is pioneering the reuse of decommissioned blades in infrastructure applications (Georgia Institute of Technology, 2025). Using a GIS-based decision framework and structural modeling, the team evaluates the feasibility of repurposing blades as pedestrian bridges, utility poles, and architectural elements. Their work emphasizes cradle-to-cradle design and life-cycle sustainability assessments, aligning with EPA and European Union waste management hierarchies.

In the U.S., Canvas, an Ohio-based startup, is transforming retired blades into functional public infrastructure such as benches, picnic tables, and bus stop shelters (Markham, 2024). Canvas not only reshapes blades for these uses but also incorporates other recycled materials like composite lumber and rubber from tires. The company handles logistics from blade decommissioning to manufacturing, and even processes unusable blade segments into aggregate for cement or fuel for kilns.

Disaster Debris Management

As severe storms leave large quantities of C&D, vegetative debris, sediment, and other waste in their wake, it is critical to leverage technology to manage disaster debris more effectively.

Debris management requires specialized equipment at multiple stages, from initial clearing and handling of various debris types to transfer, processing, and disposal. During disasters, state and municipal resources work to clear debris to restore access to essential services and minimize public health risks. Key technologies for debris management are as follows.

Mulch/Grinding

Mulching and grinding have become essential components of disaster debris management, especially in the aftermath of severe weather events. These methods focus on processing vegetative debris, such as fallen trees and branches, into reusable mulch or woodchips. This not only decreases the volume of waste but also creates a product that can be reused for landscaping, erosion control, or even as fuel in biomass energy facilities. TDEC, in collaboration with TEMA and TDOT, has integrated mulching and grinding into its broader debris management plans. These efforts were particularly visible in 2025, when FEMA and the state allocated \$9.6 million for debris removal following Tropical Storm Helene, which generated over 90,000 cubic yards of vegetative debris (FEMA, 2025). By utilizing grinding and mulching to size-reduce material for efficient transport and handling, Tennessee has been able to accelerate recovery timelines.

Air curtain incineration

Air curtain incineration is a controlled method of incinerating waste material with the addition of forced air to reduce emissions, usually in the field as part of temporary operations. It is being used as a strategic method for managing large volumes of vegetative and structural debris following natural disasters such as tornadoes and tropical storms. For example, in the Town of Selmer, Tennessee, in April 2025, recovery operations from an EF-3 tornado included the lease of land at Knight's Sawmill to stage and sort debris, followed by air curtain incineration of vegetative materials like tree stumps and branches (Stephenson, 2025). The process involves using a high-velocity curtain of air to trap smoke and particulate matter over a combustion trench or box, allowing for more complete and cleaner combustion of debris. This method reduces the environmental impact compared to open burning, making it a preferred option when other disposal methods are not feasible. The Tennessee Division of Air Pollution Control has issued specific guidance for implementing air curtain incineration in disaster scenarios (TDEC, n.d.). In practice, this method has been deployed in rural or heavily impacted areas where vegetative debris is abundant, and rapid clearance is essential for public safety and recovery. Modular technologies such as Air Burners' mobile pyrolysis units allow small-scale biochar production with minimal infrastructure.

Assessment Results

Quantitative and qualitative factors were used to develop "Low," "Medium," and "High" designations for each of the criteria from **Table C - 2**. Each technology was assessed based on its ability to support TDEC's solid waste management goals, with a focus on both technical performance and financial feasibility. Key criteria included diversion potential, facility footprint, CAPEX, OPEX, and tipping fees per ton. These financial metrics provided a straightforward basis for comparing technologies.

A structured rating system was used to assign scores, incorporating both quantitative data and qualitative assessments. Qualitative ratings were informed by professional engineering

judgment, contextual understanding, and available data. Technologies were scored across performance and financial criteria, with higher ratings preferred for performance and lower ratings preferred for cost-related factors.

Scores were averaged to produce an overall score for each technology, which was then categorized using a priority key:

- High Priority: Scores ≥ 8 and ≤ 10
- Medium Priority: Scores ≥ 6 but < 8
- Low Priority: Scores < 6

These priority levels reflect the relative promise of each technology in advancing TDEC's objectives. High- and medium-priority technologies show strong potential for near-term implementation, while low-priority technologies, though more emergent, may contribute to long-term progress.

In addition to core performance and financial metrics, each technology's diversion potential was evaluated, aligning with TDEC's strategic goal to increase diversion rates and strengthen recovered material markets across Tennessee's solid waste system. **Table C - 6** summarizes the performance assessment results and the financial/ economic assessment results.

Table C - 6: Technology Assessment

Assessment Criteria		Materials Handling Facilities			Organics Management		WTE and Residual Ash Management		Other	
		MRFs	Convenience Centers	MRFs	Composting	AD	WTE	Beneficial Ash Reuse	Gasification / Pyrolysis	Molecular Recycling
Performance Criteria	Scalability	High	High	Low	High	Med	Low	Low	Low	Low
	Facility Footprint Efficiency	High	High	High	Med	High	High	High	High	High
	Diversion Potential	Med	Low	High	High	Med	High	Low	Low	Low
	Material Streams Accepted	High	High	Med	Med	Low	High	Low	Low	Low
Financial / Economic Criteria	Average Tipping Fee	Low	Med	Med	Low	Med	High	Med	High	High
	Average Tipping Fee	Low	Med	Med	Low	Med	High	Med	High	High
	CAPEX	Low	Med	High	Med	High	High	High	High	High
	OPEX	Low	Med	Med	Med	Med	Med	Med	High	High

In addition to the primary assessments, each technology's diversion potential was evaluated given TDEC's priority to increase diversion and improve recovered material markets within the existing waste management system. **Table C - 7**, below, presents the evaluated technologies by the material streams they address, factoring in their potential for source separation and/or

processing as an alternative to landfill, either through diversion efficiency gains (handling or transfer) or direct processing.

Table C - 7: Technology Diversion Potential by Major Material Stream

Material Stream	Materials Handling Facilities			Organics Management		Waste to Energy and Ash Management		Other	
	Convenience Centers	Transfer Stations	MRFs	Composting	AD	WTE	Beneficial Ash Reuse	Gasification / Pyrolysis	Molecular Recycling
Paper / Cardboard	X	X	X	X	X	X		X	
Plastic	X	X	X			X		X	X
Yard Waste	X	X		X	X	X		X	
Food Waste	X	X		X	X	X		X	
Other Organics	X	X		X	X	X		X	
Metal	X	X	X						
Glass	X	X	X						
Special Waste	X	X				X		X	
Storm Debris / C&D / Industrial	X	X	X	X	X	X	X	X	

Technology Assessment Conclusions

The assessment highlights clear opportunities for investment and innovation within Tennessee’s solid waste system. High- and medium-priority technologies offer actionable pathways for improving diversion, enhancing infrastructure, and supporting environmental goals. While low-priority technologies may require further development or validation, they represent emerging solutions that could contribute to long-term progress. Overall, the scoring framework provides a valuable foundation for data-informed decision-making and future program development.

Table C - 8 summarizes the final performance and assessment scores across technology categories, with further details provided in the following sections.

Table C - 8: Overall Technology Assessment Scoring

Parameter	Materials Handling Facilities			Organics Management		WTE and Residual Ash Management		Other	
	Convenience Centers	Transfer Stations	MRFs	Composting	AD	WTE	Beneficial Ash Reuse	Gasification / Pyrolysis	Molecular Recycling
Scoring by Primary Assessment Type									
Performance Score	10	10	9	10	8	10	6	6	6
Financial and Economic Score	9	6	5	7	5	4	5	3	3
Overall Assessment (Average of Primary Assessments)									
Overall Score	9.5	8	7	8.5	6.5	7	5.5	4.5	4.5
Priority Assessment	High	High	Med	High	Med	Med	Low	Low	Low

Convenience Centers: High Priority

Like transfer stations, they are intermediary facilities that do not directly divert materials. However, they enhance the logistics of waste collection and transport (especially in rural areas) and provide opportunities for source separation of materials for diversion. This yields relatively clean material streams compared to single-stream recycling. Transfer stations also provide opportunities for co-located infrastructure to provide other materials management service lines on the same site.

Tennessee is already at the forefront of convenience center operations relative to other states due to its operator training and certification programs. TDEC should continue to support the implementation of a transfer station for their service to citizens, environmental stewardship potential, and economic benefits.

Transfer Stations: High Priority

Though their direct diversion potential is relatively low, they significantly improve the logistics of waste transport, especially as average transport distances grow between generation and end use. They also offer a possible revenue stream for public programs, helping to free up funds for new initiatives and infrastructure. Transfer stations also create opportunities for co-located infrastructure to offer additional materials management services on the same site, increasing diversion, and limited recycling of tipped materials may also take place. Although transfer stations dedicated to single-material streams, such as C&D debris or recyclables, exist, they may have specific material considerations, such as the high impacts on tipping floors from inert debris or the ease with which light plastics can become windblown litter.

Transfer stations vary in size and format, but regulations should clearly distinguish them from similar facilities such as MRFs and convenience centers. Informal or uncovered transfer operations should be discouraged. Since municipal transfer stations are often co-located with other solid waste facilities (collection, organics processing, administrative operations, etc.), consider permitting for the most intensive solid waste management activity, rather than permitting multiple types at the same site to simplify permitting.

Composting: High Priority

Due to its relative simplicity and scalability, composting is increasingly used by public solid waste managers to divert waste organics that make up approximately 30 to 40% of the disposal

stream, a "low-hanging fruit" for achieving diversion goals. Key methodologies for large-scale operations, including covered aerated static pile and windrow composting, although Tennessee is unique in that it hosts one of the world's largest-scale in-vessel systems. While larger-scale in-vessel composting is only suitable for certain applications and geographies, backyard and community-scale composting present opportunities for direct citizen involvement.

Similar to MRFs and processing facilities, TDEC issues composting permits to facilities using various methodologies and accepting a variety of materials, so consistently regulating them can be a challenge. Given organics' potential for diversion of materials from landfills, composting should be a high priority for non-regulatory educational and technical assistance programs.

MRFs: Medium Priority

MRFs are the backbone infrastructure for large-scale residential and commercial recycling of traditional commodity recyclables. Educational programs should encourage residents to recycle materials collected curbside, particularly in urban and suburban areas. All commingled recycling streams must be sorted at MRFs to maintain successful recycling systems, and they benefit significantly from economies of scale. MRFs are currently not required to be permitted in Tennessee, but may be registered or permitted as a processing or other facility type.

As TDEC looks towards enhancing its permitting system to capture MRFs, it should continue to clearly distinguish between transfer stations and recycling-related facilities from legislative, regulatory, and enforcement perspectives. MRFs often requires coordination between localities, and TDEC could serve as an intermediary to encourage cross-jurisdictional collaboration.

AD: Medium Priority

Advancements in AD technology in recent years have increased the scalability and modular ability of AD. "Backyard"-scale AD units have recently been marketed to individual households, for example. AD systems in the US, in general, still primarily use high-volume agricultural or municipal wastewater feedstocks and are not commonly used for food scraps. However, they do provide an opportunity to divert certain organic waste streams, such as contaminated industrial organics, that composting systems cannot.

Since AD is often confused with other processing methods (e.g., composting), regulations and communications with legislators should clearly distinguish the technologies. Explore synergies between the two processes, such as sending materials to AD that could negatively impact compost microbes or using digestate in composting.

WTE: Medium Priority

WTE is most common in highly populated areas with limited remaining MSW landfill airspace. It is being rebranded as thermomechanical treatment by major waste management companies that operate in the space. Emphasis is being increasingly shifted from incineration (and volume reduction) to the potential for recovery of valuable materials both at the front and back ends of the combustion process, as well as the technology's potential to prolong the life of landfills. WTE is relatively established in the southeast. WTE could be a potential avenue to increase the landfill life in Tennessee.

WTE may help extend the life of landfills in the state, especially in Middle Tennessee. Although it appears unlikely to develop as a primary waste management method in the near future, TDEC

should continue to position the state for the potential development of thermochemical treatment facilities or other waste conversion technologies should the availability of landfill airspace in populated areas continue to decline.

Beneficial Ash Reuse: Low Priority

If all material in the state were combusted using WTE or other waste conversion technologies, only about 80% of the input by mass (90% by volume) is reduced. The remaining solid residuals, mainly ash, must be disposed of in landfills or diverted from the waste stream. There is nationwide demand for ash reuse through beneficiation for industrial and construction applications. This could potentially address the remaining 10 to 20% of the waste stream that has traditionally been considered necessary to landfill.

Beneficial use of ash residuals and similar materials is being explored to reduce reliance on landfills and to potentially reuse old ash storage pond sites. Although there is demand for coal combustion residuals, WTE ash reuse is still relatively new. Because of the large amount of legacy stockpiles, ash reuse could free up land now used for containment.

Gasification/ Pyrolysis: Low Priority

Gasification, pyrolysis, and waste conversion are broadly emerging technologies. Although they have been in use for over a century and were previously applied to fossil fuels, they have not yet been successfully deployed at a large scale for processing MSW in the US. Recent attempts to gasify wood and biosolids waste in the state have also failed. These facilities often require highly specific, high-energy-value waste streams that can be obtained at relatively high tipping fees to ensure high performance and economic viability.

Provide education and outreach about these technologies, which are relatively unknown to both traditional industry personnel and the public. It should also review lessons learned from previous Tennessee gasifier projects to help strategically reduce financing risks, especially for the public.

Molecular Recycling: Low Priority

Global recycling and commodity markets have been disrupted, reducing the marketability of certain low-grade plastics that were traditionally shipped overseas for recycling. Molecular or "advanced" recycling offers a more promising approach to recycling hard-to-recycle plastics, an alternative to conventional methods.

This technology is used at Eastman Chemical's Kingsport plant, which received a multi-million-dollar EPA grant to support further development. Given Tennessee's strong position in the field, more exploration is justified.



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[DRAFT] Attachment D: Tier-Based Infrastructure Expectations

Tennessee Department of Environment & Conservation | February 2026



Table E-1: Four Tiers of an Integrated Waste Management System									
Tier 1 - Small Rural Counties									
	Population Served	Collection Systems	Disposal Systems	Waste Reduction	Problem Waste Management	Education/ Awareness	Staff	Composting/ Mulching	Economic and Mgmt.
Target- Minimum Level of Solid Waste/ Materials Management	<ul style="list-style-type: none"> Very rural counties Population of 25,000 or less 	<ul style="list-style-type: none"> At least one staffed convenience center 	<ul style="list-style-type: none"> At least one Class I (MSW) disposal facility available to the county either locally or regionally At least one Class III/IV disposal facility available to the county either locally or regionally 	<ul style="list-style-type: none"> Recycling program includes at least two material types Preferred materials include cardboard and metals (steel and/or aluminum) 	<ul style="list-style-type: none"> Maintain/secure public or private sites to manage batteries, tires, oil, and other automotive fluids 	<ul style="list-style-type: none"> Adequate signage provided at convenience center(s) Handouts/ mailers provided to user of Center(s) and/or by mail/email Provide K-12 education and promotion on core message 	<ul style="list-style-type: none"> A solid waste director or recycling coordinator oversees materials management Duties are at least 55% solid waste/waste reduction related 	<ul style="list-style-type: none"> Some composting or mulching may take place at county or residential level Website with information and references to composting methods 	<ul style="list-style-type: none"> Full cost accounting approach through a county enterprise fund for all waste and materials management services
Tier 1 - Small Rural Counties									
Preferred Level of Solid Waste/ Materials Management	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> Recycling program includes at least three recyclable commodities Preferred materials include cardboard and metals (steel and/or aluminum) plus any of the following: newspaper, magazines, mixed paper, plastic (#1 and #2 bottles), or glass 	<ul style="list-style-type: none"> Maintain/secure public or private sites to collect/ manage batteries, tires, oil, and other automotive fluids At least one mobile HHW collection event provided every other year sponsored by the State 	<ul style="list-style-type: none"> Same as above plus county Website contains up-to-date information on recycling drop-off sites and HHW collection events and BOPAE 	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> Same as above Website includes information about grasscycling and backyard composting 	<ul style="list-style-type: none"> Same as above
Tier 2 - Larger Rural Counties									
Targeted- Minimum Level of Solid Waste/ Materials Management	<ul style="list-style-type: none"> More developed rural counties with low to moderate populations Population of 25,001 - 50,000 	<ul style="list-style-type: none"> More densely populated areas of county have additional convenience center sites 	<ul style="list-style-type: none"> At least one Class I (MSW) disposal facility available to the county either locally or regionally At least one Class III/IV disposal facility available to the county either locally or regionally 	<ul style="list-style-type: none"> Recycling program includes at least three recyclable commodities Preferred materials include cardboard, metals (steel and aluminum) Plastics (#1 and #2) 	<ul style="list-style-type: none"> Maintain/secure public or private sites to collect/ manage batteries, tires, oil, and other automotive fluids Host at least one mobile HHW collection event every other year, sponsored by the State Implement program to manage BOPAE 	<ul style="list-style-type: none"> Adequate signage provided at convenience centers Handouts/mailers with core materials management/ recycling information distributed K-12 education/ promotion on core message provided County website provides recycling information 	<ul style="list-style-type: none"> A solid waste director or recycling coordinator oversees materials management Duties are at least 75% solid waste/ materials management-related 	<ul style="list-style-type: none"> Some county/municipal composting/ mulching occurs County and/or municipal websites have information about backyard composting and grasscycling 	<ul style="list-style-type: none"> Full cost accounting approach employed through a county enterprise fund for all waste and materials management services
Tier 2 - Larger Rural Counties									
Preferred Level of Solid Waste/ Materials Management	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> Convenience Centers located throughout county, with higher level of service available in more densely populated areas 	<ul style="list-style-type: none"> At least one Class I (MSW) disposal facility available to the county either locally or regionally At least one Class III/IV facility available to the county either locally or regionally 	<ul style="list-style-type: none"> Recycling program includes at least four materials 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 	<ul style="list-style-type: none"> Maintain/secure public or private sites to collect and manage batteries, tires, oil and other auto fluids Implement a program to manage BOPAE Counties host at least one mobile HHW collection event per year, sponsored by the State 	<ul style="list-style-type: none"> As above, plus increased usage of media materials, multimedia presentations, and social media BOPAE education and outreach provided Website includes up-to-date information on drop-off recycling locations, HHW and BOPAE 	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> At least one composting/ mulching facilities operating in county 	<ul style="list-style-type: none"> Same as above
Tier 3 - Suburban/Rural Counties									
Targeted- Minimum Level of Solid Waste/ Materials Management	<ul style="list-style-type: none"> More developed rural counties transitioning to suburban Population of 50,001-100,000 	<ul style="list-style-type: none"> Minimally required number of County Convenience Center (based on Solid Waste Management Act of 1991) Additional County Convenience Centers located throughout county, with higher level of service available in more densely populated areas Curbside collection in more densely populated communities 	<ul style="list-style-type: none"> At least one Class I (MSW) disposal facility available to the county either locally or regionally At least one Class III/IV disposal facility available to the county either locally or regional 	<ul style="list-style-type: none"> Recycling program includes full spectrum of fiber, metals, multiple types of plastics, and glass recycling Some non-traditional recyclables like textiles, and pallets recovered 	<ul style="list-style-type: none"> At least one Mobile HHW collection event per year Gas cylinder management program provided BOPAE collection provided Cooperative marketing of materials, or strong markets independently 	<ul style="list-style-type: none"> Adequate signage at convenience 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 	<ul style="list-style-type: none"> Full-time solid waste director/ public works director oversees materials management dept. Full time recycling coordinator actively promotes waste reduction/ recycling 	<ul style="list-style-type: none"> At least one composting/mulching facility operating in county Promote backyard composting/ grasscycling At least one demonstration/ pilot compost program including food residuals 	<ul style="list-style-type: none"> Full cost accounting approach through a county enterprise fund for all materials management services

Tier 3 - Suburban/Rural Counties									
	Population Served	Collection Systems	Disposal Systems	Waste Reduction	Problem Waste Management	Education/ Awareness	Staff	Composting/ Mulching	Economic and Mgmt.
Preferred Level of Solid Waste/ Materials Management	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Recycling program includes full spectrum of fiber, metals, multiple types of plastics, and glass recycling Some non- traditional recyclable materials such as textiles and pallets also recovered 	<ul style="list-style-type: none"> Expand BOPAE program to include gas cylinders Market e-scrap through cooperative marketing and industry provided programs 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> At least two composting facilities in County Promote back yard composting Multiple demonstration/pilot composting projects including food residuals Supporting establishment of food residuals composting facility, as appropriate 	<ul style="list-style-type: none"> Same as above County and some municipalities have some green purchasing guidelines/contract sin place
Tier 4 - Urban Counties									
	Population Served	Collection Systems	Disposal Systems	Waste Reduction	Problem Waste Management	Education/ Awareness	Staff	Composting/ Mulching	Economic and Mgmt.
Targeted - Minimum Level of Solid Waste/ Materials Management	<ul style="list-style-type: none"> Large to very large suburban and urban areas Population over 100,001 	<ul style="list-style-type: none"> Mandatory, countywide curbside collection service for MSW Curbside collection of recyclable materials at no extra cost to residents in more densely populated areas 	<ul style="list-style-type: none"> At least one Class I (MSW) disposal facility available to the county either locally or regionally At least one Class III/IV disposal facility available to the county either locally or regional Alternative technologies explored 	<ul style="list-style-type: none"> Full spectrum of fiber, metals, multiple types of plastics, and glass recycling available Some communities have financial incentives to minimize waste (PAYT, Rewards) Non- traditional materials recycled, e.g., textiles, pallets, mattresses, etc. Some communities implement pro-recycling ordinances 	<ul style="list-style-type: none"> At least one and preferably 2 mobile HHW collection events per year Work with the state to determine cost effectiveness of local permanent HHW facility Comprehensive BOPAE management program operated by County. County may manage more difficult problem wastes through an advanced problem waste management system 	<ul style="list-style-type: none"> County and municipalities provide a comprehensive K-12 and adult education/out- reach program County and/or municipalities fully utilize multi and social media outlets to deliver message directly to targeted audiences 	<ul style="list-style-type: none"> A full-time solid waste/public works director oversees materials management department One or more full time recycling coordinator(s) employed 	<ul style="list-style-type: none"> At least one composting and mulching operation County and municipalities promote back yard composting At least one pilot or demonstration food residuals compost project in County 	<ul style="list-style-type: none"> Full cost accounting approach through a county enterprise fund for all materials management services Coordination/ communication between municipal and county staff, shared programs where mutually beneficial Actively seek opportunities for public/ private partnership County and larger municipalities have some green purchasing contracts/ guidelines in place
Tier 4 - Urban Counties									
	Population Served	Collection Systems	Disposal Systems	Waste Reduction	Problem Waste Management	Education/ Awareness	Staff	Composting/ Mulching	Economic and Mgmt.
Preferred Level of Solid Waste Management	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> Most residents have economic incentive to reduce amount of waste disposed (through PAYT, rewards programs, etc.) Explore Curbside collection of organics provided where population density and generation dictate 	<ul style="list-style-type: none"> Exploration of alternative disposal system technologies 	<ul style="list-style-type: none"> Implement one or more advanced waste reduction strategy such as landfill bans, PAYT collection service, local product stewardship, waste exchanges, Leadership in Energy and Environmental Design construction, etc. Consideration given to food residuals collection, particularly in areas with large quantities of commercial generators 	<ul style="list-style-type: none"> County has permanent HHW facility which accepts materials from other counties within the region for a fee Market e-scrap through cooperative marketing and industry provided programs. County may manage more difficult problem wastes through an advanced problem waste management system 	<ul style="list-style-type: none"> Public education materials are available in multi-lingual formats as needed County and municipalities educate businesses/ in- situations on waste reduction strategies including WasteWise, Leadership in Energy and Environmental Design construction, etc. 	<ul style="list-style-type: none"> Work with local college or university to hire part- time interns to assist with waste reduction and recycling activities 	<ul style="list-style-type: none"> At least two composting and mulching operations At least one non open-windrow facility or pilot/ demonstration project in County County and municipalities promote back yard composting Public facilities explore feasibility of bagging and selling finished compost and/or mulch 	<ul style="list-style-type: none"> Same as above County and municipalities have environmentally preferable purchasing program in place



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[DRAFT] Appendix 1: TN Statewide Waste Characterization Study

Tennessee Department of Environment & Conservation | February 2026



Tennessee Statewide Waste Characterization Study: Season One Data Summary

Tennessee Department of Environmental Conservation
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SCS ENGINEERS

02224033.00 | September 18, 2025

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Appendices

Appendix A	MSW Sort Categories
Appendix B	Recyclable Material Sort Categories
Appendix C	Visual Characterization Categories

1 MUNICIPAL SOLID WASTE

OVERALL

Figure 1. Overall Waste Composition Summary

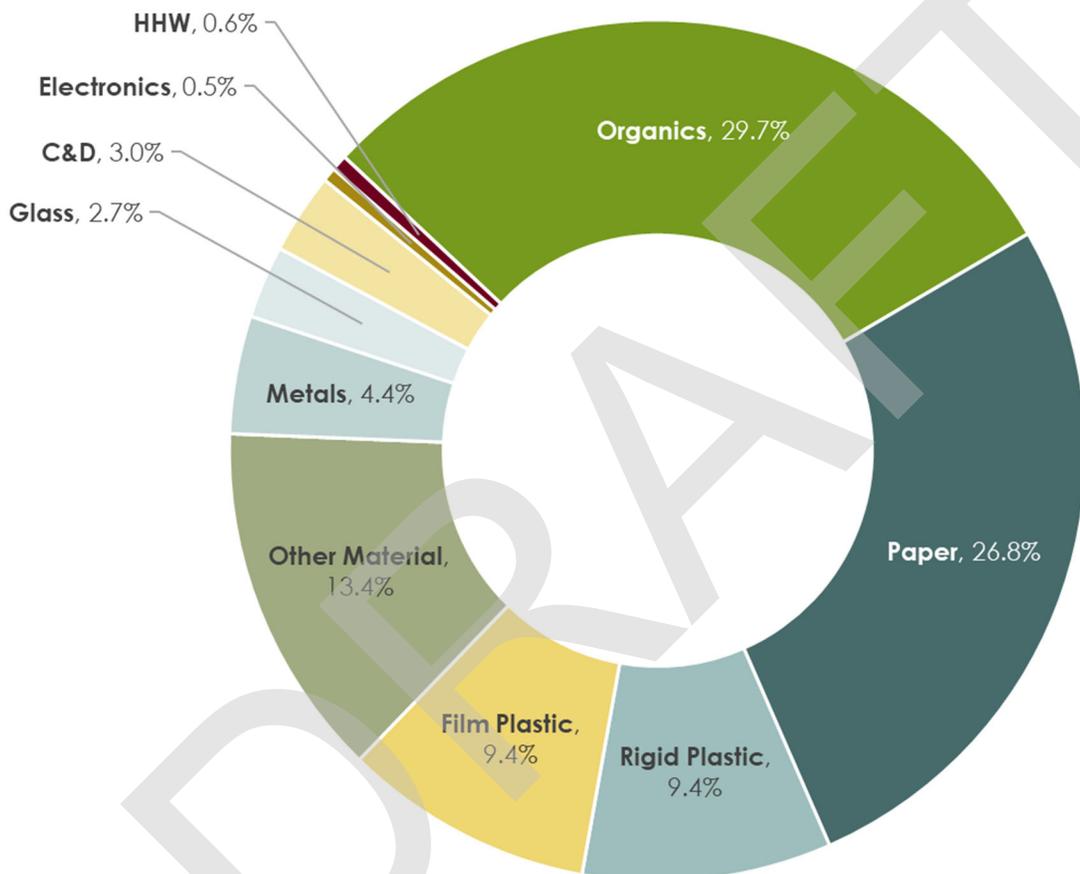


Table 1. Overall Waste Composition Detailed

Material Components	Mean Composition	Standard Deviation	95% Confidence Limits	
			Lower	Upper
PAPER				
Sorted Office Paper	1.6%	2.0%	1.4%	1.9%
Newspaper and Magazines	0.8%	1.0%	0.7%	0.9%
Mixed Paper	2.2%	2.4%	1.9%	2.5%
Compostable Paper	7.1%	3.3%	6.7%	7.6%
Old Corrugated Cardboard	8.5%	7.8%	7.4%	9.6%
Paperboard	4.3%	2.2%	4.0%	4.6%
Other Paper (non-recyclable)	2.3%	6.6%	1.3%	3.2%
Total Paper		26.8%		
RIGID PLASTIC				
PET #1	2.7%	1.4%	2.5%	2.9%
HDPE #2	1.1%	0.8%	1.0%	1.2%
PVC #3	<0.1%	0.3%	<0.1%	<0.1%
LDPE #4	<0.1%	<0.1%	<0.1%	<0.1%
PP #5	1.4%	0.9%	1.3%	1.5%
PS #6	1.5%	1.2%	1.3%	1.7%
Durable Plastics	1.8%	1.7%	1.6%	2.1%
#7 and Other Rigid Plastics	0.8%	0.5%	0.7%	0.9%
Total Rigid Plastic		9.4%		
FILM PLASTIC				
Garbage Bags	3.3%	1.8%	3.0%	3.5%
Retail Bags	1.3%	0.7%	1.2%	1.4%
Other Film Plastics	4.8%	3.6%	4.3%	5.3%
Total Film Plastic		9.4%		
ORGANICS				
Edible Food Waste	13.4%	8.6%	12.2%	14.7%
Inedible Food Waste	4.7%	5.1%	3.9%	5.4%
Yard Waste	3.1%	8.3%	1.9%	4.3%
Wood (Non-C&D)	0.3%	1.2%	0.1%	0.4%
Textiles and Shoes	5.7%	10.3%	4.3%	7.2%
Other Organics	2.5%	4.8%	1.8%	3.1%
Total Organics		29.7%		

Material Components	Mean	Standard	95% Confidence Limits	
	Composition	Deviation	Lower	Upper
METALS				
Steel and Tin Cans	1.0%	1.0%	0.8%	1.1%
Aluminum Cans	1.2%	0.7%	1.1%	1.3%
Aerosol Cans	0.2%	0.3%	0.2%	0.3%
Other Ferrous Metal	1.3%	2.7%	0.9%	1.7%
Other Non-Ferrous Metal	0.7%	0.9%	0.5%	0.8%
Total Metals		4.4%		
GLASS				
Clear Glass	1.6%	1.5%	1.4%	1.8%
Green Glass	0.2%	0.5%	0.2%	0.3%
Amber Glass	0.5%	1.2%	0.3%	0.7%
Blue Glass	<0.1%	0.1%	<0.1%	<0.1%
Other Glass	0.4%	1.2%	0.2%	0.5%
Total Glass		2.7%		
C&D MATERIAL				
Drywall	0.1%	0.6%	<0.1%	0.2%
Wood	1.4%	3.5%	0.9%	1.9%
Carpet	0.5%	1.6%	0.2%	0.7%
Other C&D Waste	1.0%	3.9%	0.5%	1.6%
Total C&D Material		3.0%		
HOUSEHOLD HAZARDOUS WASTE				
Batteries	<0.1%	<0.1%	<0.1%	<0.1%
Oil	<0.1%	0.3%	<0.1%	<0.1%
Paint	<0.1%	0.4%	<0.1%	0.1%
Anit-freeze	<0.1%	0.3%	<0.1%	<0.1%
Other HHW	0.4%	1.9%	0.1%	0.7%
Total HHW		0.6%		
ELECTRONICS				
Electronics	0.5%	1.1%	0.4%	0.7%
Total Electronics		0.5%		
OTHER				
Tires	0.8%	4.8%	<0.1%	1.5%
Other	7.1%	7.6%	6.1%	8.2%
Fines	5.5%	4.3%	4.8%	6.1%
Total Other		13.4%		
TOTALS		100.0%		

Note: Composition based on 190 samples.

RESIDENTIAL

Figure 2. Residential Waste Composition Summary

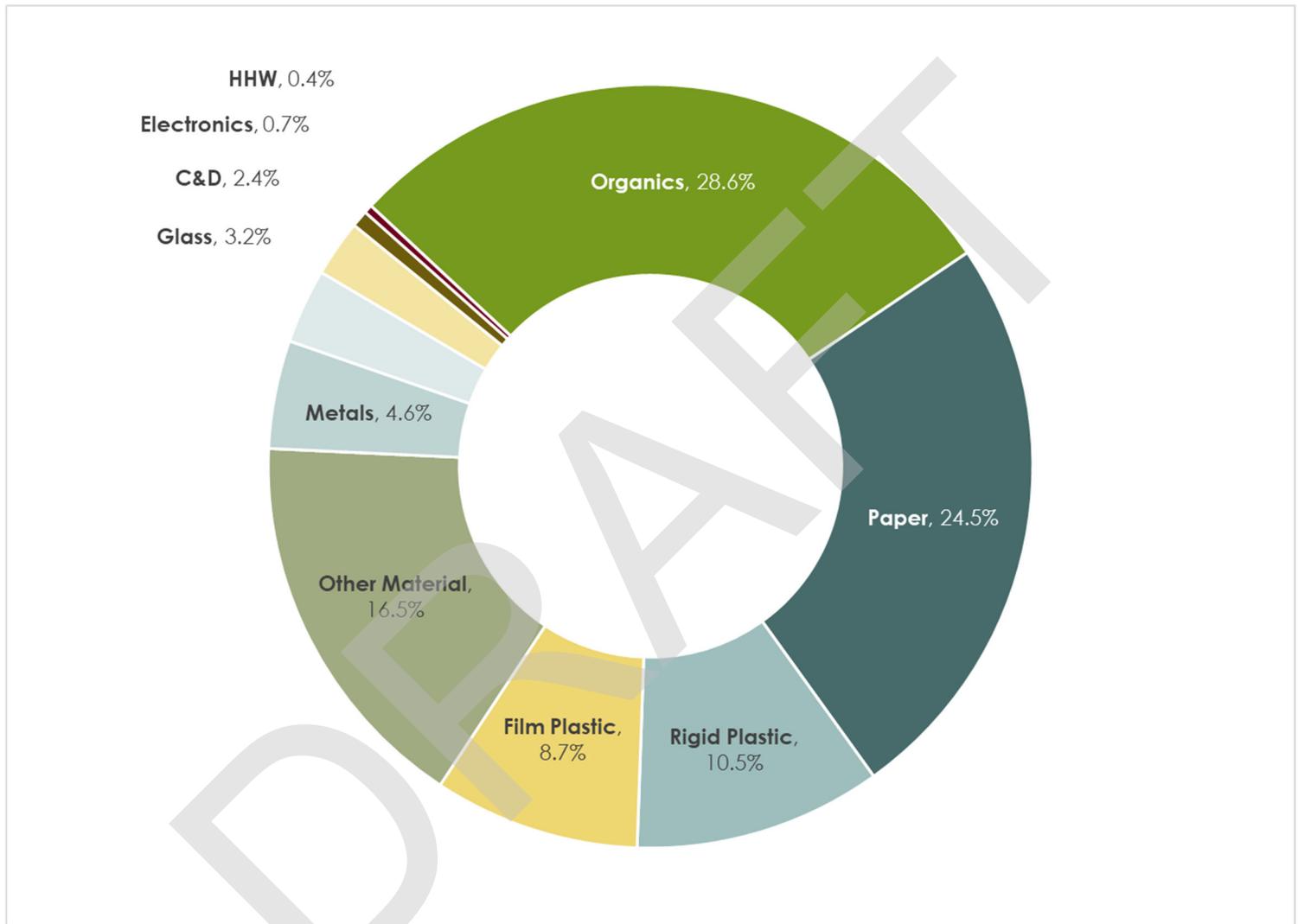


Table 2. Residential Waste Composition Detailed

Material Components	Mean Composition	Standard Deviation	95% Confidence Limits	
			Lower	Upper
PAPER				
Sorted Office Paper	1.9%	2.0%	1.4%	2.3%
Newspaper and Magazines	1.2%	1.1%	0.9%	1.4%
Mixed Paper	1.9%	1.3%	1.6%	2.1%
Compostable Paper	7.3%	2.6%	6.7%	7.8%
Old Corrugated Cardboard	5.3%	2.9%	4.7%	5.9%
Paperboard	5.7%	1.5%	5.4%	6.0%
Other Paper (non-recyclable)	1.4%	1.4%	1.1%	1.7%
Total Paper		24.5%		
RIGID PLASTIC				
PET #1	3.2%	1.0%	3.0%	3.4%
HDPE #2	1.2%	0.6%	1.1%	1.3%
PVC #3	<0.1%	0.1%	<0.1%	<0.1%
LDPE #4	<0.1%	<0.1%	<0.1%	<0.1%
PP #5	1.5%	0.9%	1.3%	1.7%
PS #6	1.5%	0.7%	1.4%	1.7%
Durable Plastics	2.1%	1.8%	1.7%	2.5%
#7 and Other Rigid Plastics	0.9%	0.5%	0.8%	1.0%
Total Rigid Plastic		10.5%		
FILM PLASTIC				
Garbage Bags	2.9%	1.0%	2.7%	3.2%
Retail Bags	1.6%	0.6%	1.5%	1.8%
Other Film Plastics	4.1%	1.4%	3.8%	4.4%
Total Film Plastic		8.7%		
ORGANICS				
Edible Food Waste	12.2%	5.7%	11.0%	13.4%
Inedible Food Waste	3.4%	1.9%	3.0%	3.8%
Yard Waste	3.9%	8.2%	2.2%	5.6%
Wood (Non-C&D)	0.2%	0.4%	0.1%	0.3%
Textiles and Shoes	5.4%	4.0%	4.6%	6.2%
Other Organics	3.5%	5.8%	2.3%	4.7%
Total Organics		28.6%		

Material Components	Mean	Standard	95% Confidence Limits	
	Composition	Deviation	Lower	Upper
METALS				
Steel and Tin Cans	1.1%	0.5%	1.0%	1.2%
Aluminum Cans	1.5%	0.6%	1.4%	1.7%
Aerosol Cans	0.2%	0.2%	0.2%	0.3%
Other Ferrous Metal	1.1%	1.3%	0.8%	1.3%
Other Non-Ferrous Metal	0.7%	0.6%	0.5%	0.8%
Total Metals		4.6%		
GLASS				
Clear Glass	2.0%	1.6%	1.6%	2.3%
Green Glass	0.3%	0.4%	0.2%	0.4%
Amber Glass	0.5%	0.6%	0.4%	0.6%
Blue Glass	<0.1%	0.2%	<0.1%	<0.1%
Other Glass	0.4%	1.1%	0.1%	0.6%
Total Glass		3.2%		
C&D MATERIAL				
Drywall	<0.1%	0.4%	<0.1%	0.2%
Wood	1.0%	1.8%	0.6%	1.3%
Carpet	0.3%	1.1%	<0.1%	0.5%
Other C&D Waste	1.0%	4.4%	0.1%	2.0%
Total C&D Material		2.4%		
HOUSEHOLD HAZARDOUS WASTE				
Batteries	<0.1%	<0.1%	<0.1%	<0.1%
Oil	<0.1%	0.1%	<0.1%	<0.1%
Paint	<0.1%	0.5%	<0.1%	0.2%
Anit-freeze	<0.1%	<0.1%	<0.1%	<0.1%
Other HHW	0.2%	0.4%	0.1%	0.3%
Total HHW		0.4%		
ELECTRONICS				
Electronics	0.7%	1.2%	0.5%	1.0%
Total Electronics		0.7%		
OTHER MATERIAL				
Tires	<0.1%	0.2%	<0.1%	<0.1%
Other	9.4%	7.7%	7.8%	11.0%
Fines	7.1%	4.9%	6.0%	8.1%
Total Other Material		16.5%		
TOTALS		100.0%		

Note: Composition based on 87 samples.

COMMERCIAL

Figure 3. Commercial Waste Composition Summary

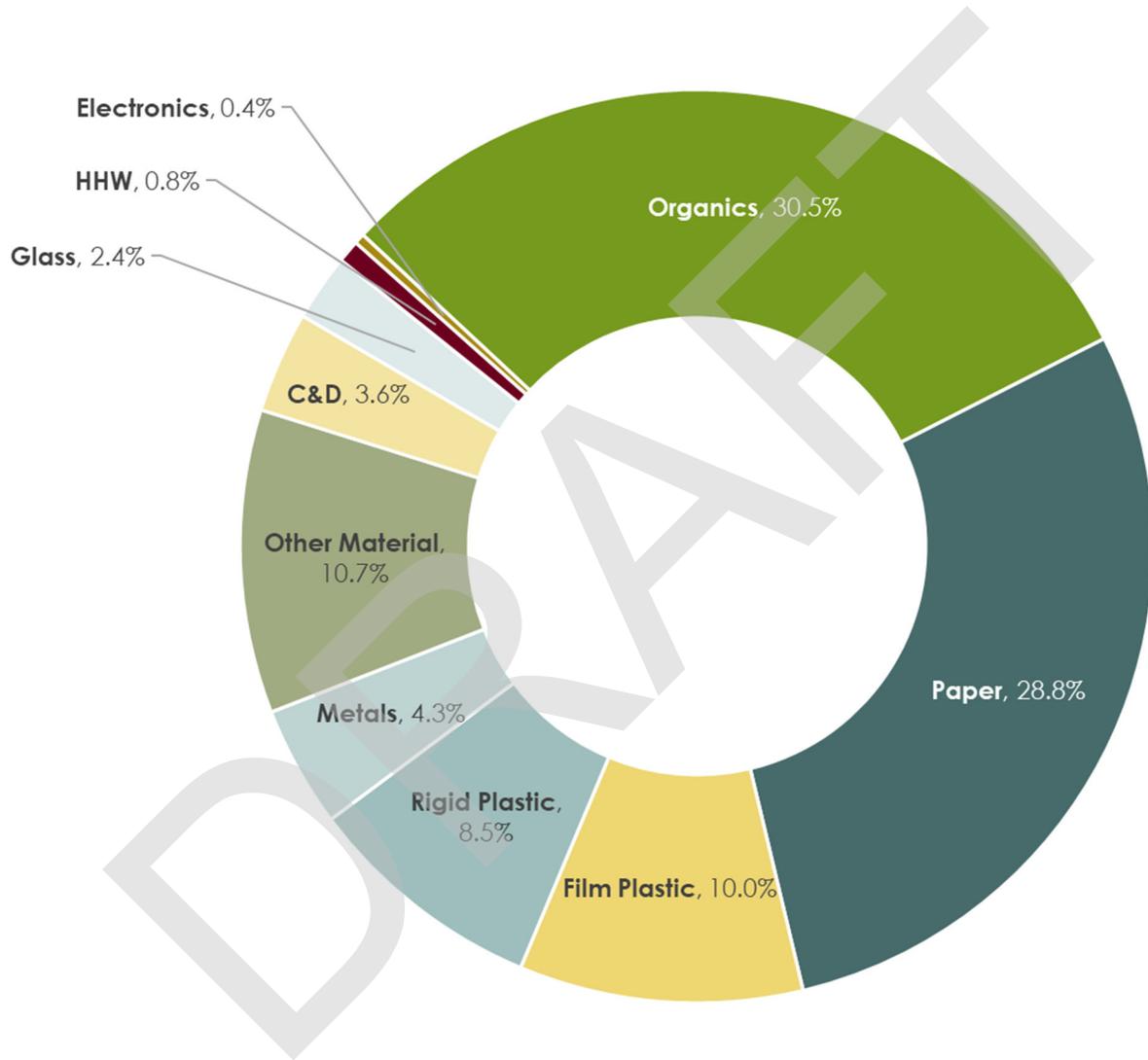


Table 3. Commercial Waste Composition Detailed

Material Components	Mean Composition	Standard Deviation	95% Confidence Limits	
			Lower	Upper
PAPER				
Sorted Office Paper	1.4%	1.9%	1.1%	1.8%
Newspaper and Magazines	0.5%	0.8%	0.4%	0.7%
Mixed Paper	2.5%	3.0%	1.9%	3.1%
Compostable Paper	7.0%	3.8%	6.3%	7.8%
Old Corrugated Cardboard	11.2%	9.5%	9.4%	13.0%
Paperboard	3.1%	2.0%	2.8%	3.5%
Other Paper (non-recyclable)	3.0%	8.9%	1.3%	4.7%
Total Paper		28.8%		
RIGID PLASTIC				
PET #1	2.3%	1.5%	2.0%	2.6%
HDPE #2	1.0%	0.9%	0.8%	1.2%
PVC #3	<0.1%	0.3%	<0.1%	0.1%
LDPE #4	<0.1%	<0.1%	<0.1%	<0.1%
PP #5	1.3%	1.0%	1.1%	1.5%
PS #6	1.5%	1.6%	1.1%	1.8%
Durable Plastics	1.6%	1.7%	1.3%	1.9%
#7 and Other Rigid Plastics	0.7%	0.5%	0.6%	0.8%
Total Rigid Plastic		8.5%		
FILM PLASTIC				
Garbage Bags	3.6%	2.2%	3.2%	4.0%
Retail Bags	1.0%	0.6%	0.9%	1.1%
Other Film Plastics	5.4%	4.6%	4.5%	6.3%
Total Film Plastic		10.0%		
ORGANICS				
Edible Food Waste	14.5%	10.3%	12.5%	16.5%
Inedible Food Waste	5.7%	6.5%	4.4%	6.9%
Yard Waste	2.4%	8.4%	0.8%	4.0%
Wood (Non-C&D)	0.3%	1.6%	<0.1%	0.6%
Textiles and Shoes	6.0%	13.6%	3.4%	8.6%
Other Organics	1.6%	3.5%	0.9%	2.3%
Total Organics		30.5%		

Material Components	Mean Composition	Standard Deviation	95% Confidence Limits	
			Lower	Upper
METALS				
Steel and Tin Cans	0.9%	1.3%	0.7%	1.2%
Aluminum Cans	1.0%	0.7%	0.9%	1.1%
Aerosol Cans	0.2%	0.3%	0.1%	0.3%
Other Ferrous Metal	1.5%	3.5%	0.8%	2.2%
Other Non-Ferrous Metal	0.7%	1.0%	0.5%	0.9%
Total Metals		4.3%		
GLASS				
Clear Glass	1.3%	1.3%	1.0%	1.5%
Green Glass	0.2%	0.5%	<0.1%	0.3%
Amber Glass	0.5%	1.5%	0.2%	0.8%
Blue Glass	<0.1%	<0.1%	<0.1%	<0.1%
Other Glass	0.4%	1.4%	0.1%	0.6%
Total Glass		2.4%		
C&D MATERIAL				
Drywall	0.1%	0.8%	<0.1%	0.3%
Wood	1.8%	4.5%	1.0%	2.7%
Carpet	0.6%	2.0%	0.2%	1.0%
Other C&D Waste	1.0%	3.5%	0.3%	1.7%
Total C&D Material		3.6%		
HOUSEHOLD HAZARDOUS WASTE				
Batteries	<0.1%	<0.1%	<0.1%	<0.1%
Oil	<0.1%	0.3%	<0.1%	<0.1%
Paint	<0.1%	0.4%	<0.1%	0.1%
Anit-freeze	<0.1%	0.4%	<0.1%	0.1%
Other HHW	0.6%	2.6%	0.1%	1.1%
Total HHW		0.8%		
ELECTRONICS				
Electronics	0.4%	0.9%	0.2%	0.5%
Total Electronics		0.4%		
OTHER MATERIAL				
Tires	1.4%	6.5%	0.1%	2.7%
Other	5.2%	6.9%	3.9%	6.6%
Fines	4.1%	3.3%	3.5%	4.7%
Total Other Material		10.7%		
TOTALS		100.0%		

Note: Composition based on 103 samples.

2 RECYCLABLE MATERIALS

Figure 4. Overall Recyclable Materials Composition Summary

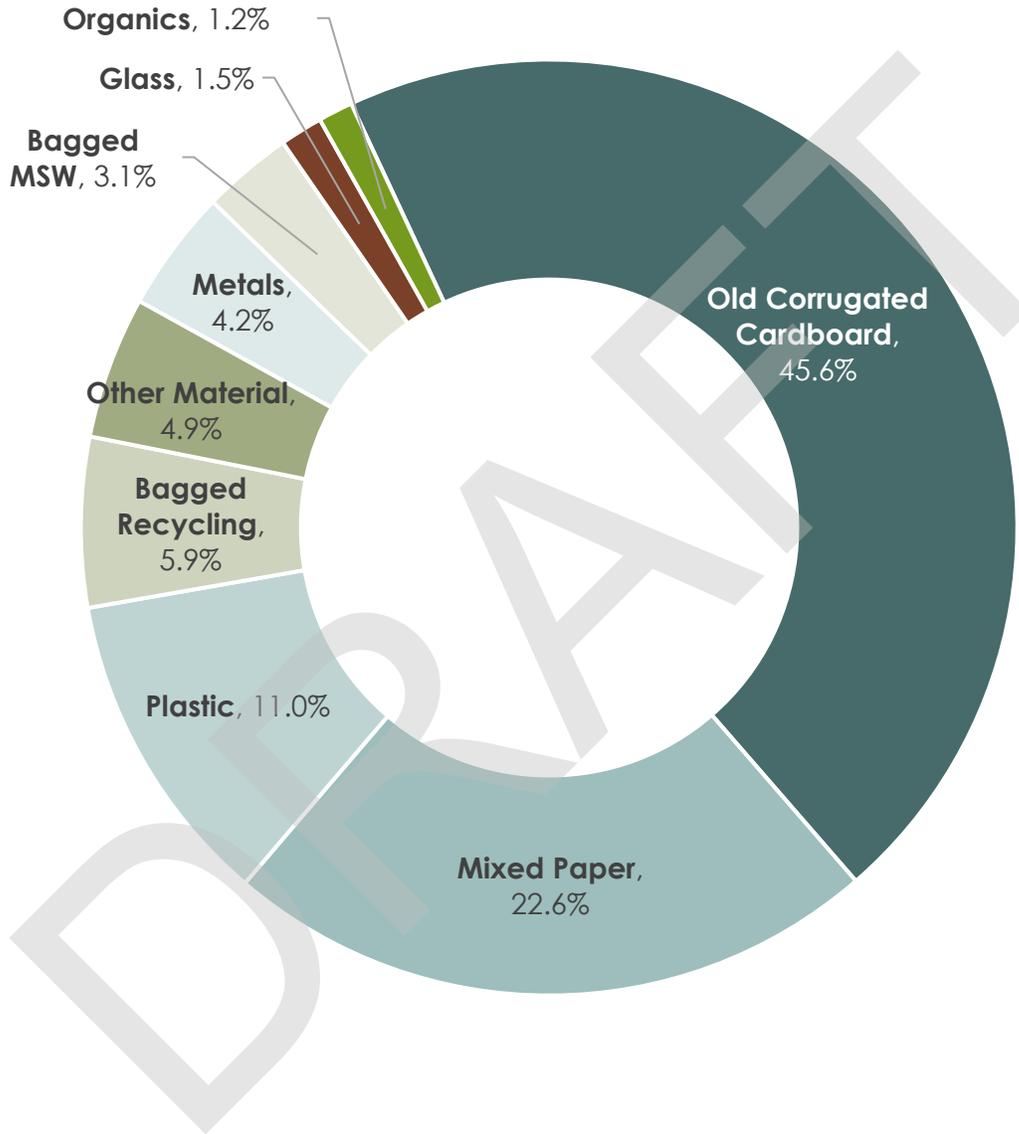


Table 4. Overall Recyclable Materials Composition Detailed

Material Components	Mean Composition	Standard Deviation	95% Confidence Limits	
			Lower	Upper
PAPER				
Mixed Paper	22.6%	12.3%	19.2%	26.1%
Old Corrugated Cardboard	45.6%	18.9%	40.2%	50.9%
Non-recyclable Paper	0.7%	1.5%	0.3%	1.1%
Total Paper		68.9%		
RIGID PLASTIC				
PET #1	5.1%	2.5%	4.4%	5.8%
HDPE #2 - Natural	0.8%	0.5%	0.6%	0.9%
HDPE #2 - Colored	1.5%	0.8%	1.2%	1.7%
PVC #3	<0.1%	<0.1%	<0.1%	<0.1%
LDPE #4	<0.1%	<0.1%	<0.1%	<0.1%
PP #5	0.7%	0.5%	0.6%	0.9%
PS #6 - Expanded	0.2%	0.3%	0.1%	0.3%
PS #6 - Rigid	<0.1%	0.2%	<0.1%	0.1%
Durable Plastics	1.1%	1.8%	0.6%	1.6%
#7 and Other Rigid Plastics	0.4%	0.3%	0.3%	0.5%
Film Plastics	1.1%	1.1%	0.8%	1.4%
Total Rigid Plastic		11.0%		
ORGANICS				
Food Waste	0.5%	0.9%	0.2%	0.7%
Yard Waste	<0.1%	0.1%	<0.1%	<0.1%
Textiles and Shoes	0.7%	1.4%	0.3%	1.1%
Total Organics		1.2%		
METALS				
Steel and Tin Cans	1.1%	1.3%	0.7%	1.5%
Aluminum Cans	2.4%	1.4%	2.0%	2.8%
Aerosol Cans	<0.1%	0.1%	<0.1%	<0.1%
Other Ferrous Metal	0.3%	0.7%	0.1%	0.5%
Other Non-Ferrous Metal	0.3%	0.9%	<0.1%	0.6%
Total Metals		4.2%		

Material Components	Mean Composition	Standard Deviation	95% Confidence Limits	
			Lower	Upper
GLASS				
Clear Glass	0.9%	1.1%	0.6%	1.2%
Green Glass	0.2%	0.4%	<0.1%	0.3%
Amber Glass	0.2%	0.5%	<0.1%	0.4%
Blue Glass	<0.1%	<0.1%	<0.1%	<0.1%
Other Glass	0.1%	0.7%	<0.1%	0.3%
Total Glass		1.5%		
OTHER				
Bagged MSW	3.1%	8.4%	0.8%	5.5%
Bagged Recycling	5.9%	10.3%	3.0%	8.8%
Tanglers	0.1%	1.0%	<0.1%	0.4%
Electronics	0.2%	0.8%	<0.1%	0.5%
C&D Waste	0.5%	1.0%	0.2%	0.8%
HHW	0.3%	1.5%	<0.1%	0.8%
Lithium Batteries	<0.1%	<0.1%	<0.1%	<0.1%
Tires	<0.1%	<0.1%	<0.1%	<0.1%
Other	0.5%	1.0%	0.3%	0.8%
Fines	2.5%	2.6%	1.7%	3.2%
Total Other		13.2%		
TOTALS		100.0%		

Note: Composition based on 48 samples.

3 BULKY MATERIAL

Figure 5. Overall Bulky Waste Composition Summary

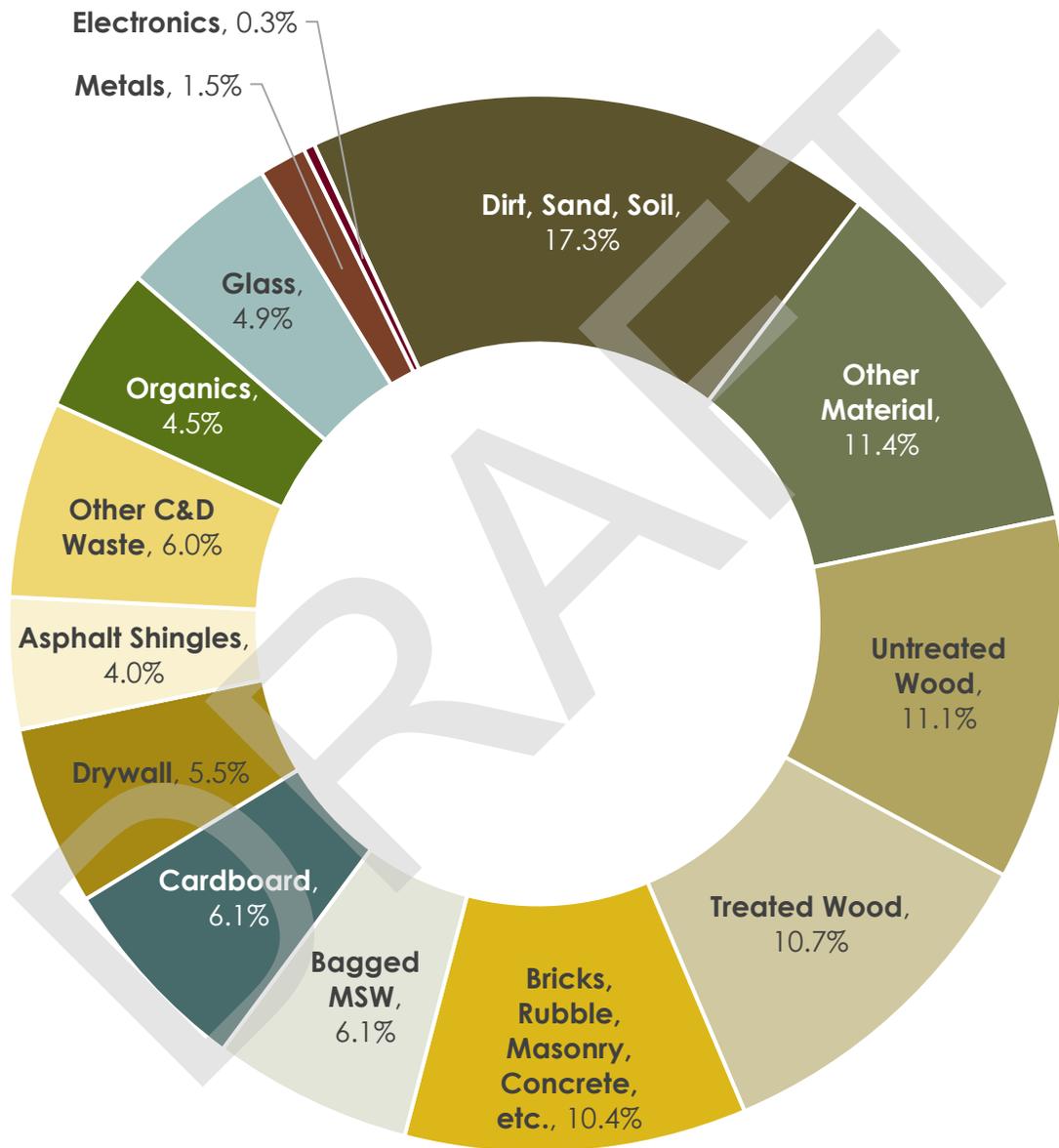


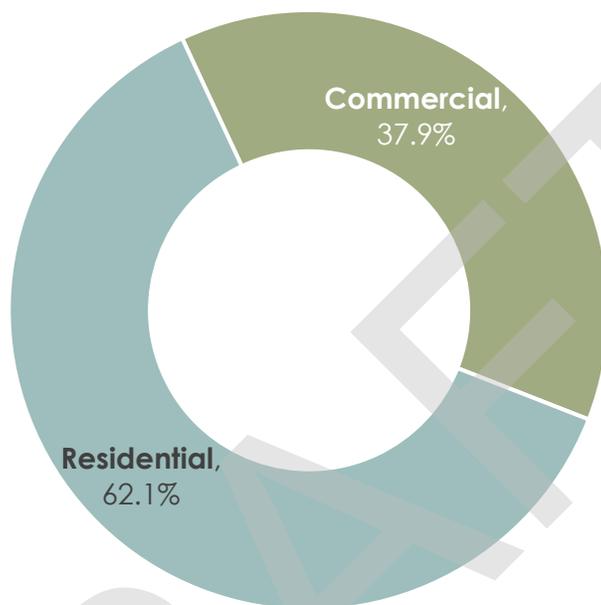
Table 5. Bulky Waste Composition Detailed

Material Components	Mean Composition
PAPER	
Old Corrugated Cardboard	6.1%
Total Paper	
	6.1%
ORGANICS	
Yard Waste	3.9%
Textiles and Shoes	0.6%
Other Organics	<0.1%
Total Organics	
	4.5%
METALS	
Ferrous Metals	1.0%
Non-Ferrous Metals	0.5%
White Goods	<0.1%
Total Metals	
	1.5%
GLASS	
Glass	4.9%
Total Glass	
	4.9%
CONSTRUCTION AND DEMOLITION DEBRIS	
Bricks, Rubble, Masonry, Concrete, etc.	10.4%
Drywall	5.5%
Untreated Wood	11.1%
Treated Wood	10.7%
Carpets	0.8%
Asphalt Shingles	4.0%
Insulation	0.4%
Other C&D Waste	4.7%
Total Construction and Demolition Debris	
	47.8%
ELECTRONICS	
Electronics	0.3%
Total Electronics	
	0.3%
OTHER MATERIAL	
Mattresses	1.4%
Tires	<0.1%
Furniture	2.9%
Durable Rigid Plastics	2.1%
Bagged MSW	6.1%
Dirt, Sand, Soil	17.3%
Other Material	4.9%
Total Other Material	
	34.8%
TOTALS	100.0%

Note: Composition based on 211 samples.

4 GATE SURVEYS

Figure 6. Overall Tonnage Distribution by Generating Sector



Appendix A
MSW Categories

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**Tennessee Statewide Waste Characterization Study
MSW Categories**

Major Material Category	Material Type	Definitions/Examples	
Paper	Sorted Office Paper	Bleached paper; white high-grade paper	
	Newspaper and Magazines	Daily/weekly/monthly newspapers	
	Mixed Paper	Construction paper, manila folders, junk mail, etc.	
	Compostable Paper	Napkins, tissues, and paper towels	
	Old Corrugated Cardboard	Shipping/pizza boxes	
	Paperboard	Boxboard, chipboard; brown or white inside color; beer/soda cases, cereal boxes	
	Other Paper (non-recyclable)	Composite paper; waxed cardboard; other paper not fitting another paper category	
Plastic	Rigid	PET #1	Rigid containers with #1; water, soda bottles and containers
		HDPE #2	Rigid containers with #2; milk cartons, jars/tubs, cups, bottles, natural or pigmented
		PVC #3	Rigid containers with #3; food/drink
		LDPE #4	Rigid containers with #4; squeeze bottles
		PP #5	Rigid containers with #5; food containers/cups, auto parts, industrial fibers
		PS #6	Rigid containers with #6; utensils, cups/lids, video cassettes, clamshells, expanded PS
		Durable Plastics	Laundry baskets, toys, buckets, PVC, flooring, etc.
	#7 and Other Plastic	Straws, cutlery, lids, etc.	
	Films	Garbage Bags	Trash can liners, bags used to hold MSW
		Retail Bags	Grocery bags, shopping bags, etc.
Other Film Plastic		Chip bags, storage bags, produce bags, plastic wrap, etc.	
Organics	Edible Food Waste	Food waste that could have been eaten or donated	
	Inedible Food Waste	Peels, egg shells, coffee grounds, FOGs, etc.	
	Yard Waste	Leaves, branches, grass clippings, garden waste, agricultural waste	
	Wood (Non-C&D)	Treated or untreated wood, packaging, wooden utensils, other non-C&D wood	
	Textiles and Shoes	Clothing, rags, sheets, towels, shoes, pillows, bags, belts, shoes	
	Other Organics	Food processing wastes, cat litter, animal by-product	
Metals	Steel and Tin Cans	Food and beverage cans	
	Aluminum Cans	Soda/beer/sparking water cans, cat food, paint/varnish cans, aerosol cans	
	Aerosol Cans	Metal spray cans for paint, body spray, whipped cream, etc.	
	Other Ferrous Metal	Cast iron and iron	
	Other Non-Ferrous Metal	Aluminum foil/trays/pans, copper, titanium, lead, zinc, brass/bronze	
Glass	Clear Glass	Clear food/beverage bottles and jars	
	Green Glass	Green food/beverage bottles and jars	
	Amber Glass	Amber food/beverage bottles and jars	
	Blue Glass	Blue food/beverage bottles and jars	
	Other Glass	Lightbulbs, Pyrex, sheet glass; crushed, mixed glass	
C&D Material	Drywall	Clean or painted drywall sheets	
	Wood	Untreated or treated lumber, plywood, engineered wood	
	Carpet	Textiles with backing, padding	
	Other C&D Waste	Sinks, toilets, furniture, rubble, brick, masonry, ceramic	
HHW	Batteries	All household batteries and lead-acid batteries	
	Oil	Motor oil, lubricants	
	Paint	Water and oil based paints	
	Anti-freeze	Coolants	
	Other HHW	Pesticides, herbicides, poisons, oil filters, fluorescent light bulbs, etc.	
Electronics	Electronics	Toaster, microwave, electric toothbrush, toys, cellphone, keyboards, etc.	
Other	Tires	Car tires, bicycle tires, and other tires	
	Other	Other material not classified above; diapers	
	Fines	Other materials too small to sort (i.e. <2 inches)	

Appendix B
Recyclable Material Categories

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**Tennessee Statewide Waste Characterization Study
Recyclable Material Categories**

Major Material Category	Material Type	Definitions/Examples
Paper	Mixed Paper	Construction paper, manila folders, junk mail, newspaper, office paper, paper board etc.
	Old Corrugated Cardboard	Shipping/pizza boxes
	Non-Recyclable Paper	Composite paper; waxed cardboard; napkins; paper towels; other non recyclable paper
Plastic	PET #1	Rigid containers with #1; water, soda bottles, cups, and containers
	HDPE #2 - Natural	Natural rigid containers with #2; milk jugs, jars/tubs, cups, bottles
	HDPE #2 - Colored	Colored rigid containers with #2; milk jugs, jars/tubs, cups, bottles
	PVC #3	Rigid containers with #3; food/drink
	LDPE #4	Rigid containers with #4; squeeze bottles
	PP #5	Rigid containers with #5; food containers/cups, auto parts, industrial fibers
	PS #6 - Expanded	Expanded polystyrene, styrofoam; cups, takeout containers
	PS #6 - Rigid	Rigid containers with #6; utensils, cups/lids, video cassettes
	Durable Plastics	Laundry baskets, toys, buckets, PVC, flooring, etc.
	#7 and Other Plastic	Straws, cutlery, lids, and other unidentifiable plastics
Film Plastics	Shopping bags, garbage bags, produce bags, etc.	
Organic	Food Waste	Food waste/scrap; banana peel, egg shell, vegetables, bread, etc.
	Yard Waste	Leaves, branches, grass clippings, garden waste, agricultural waste
	Textiles and Shoes	Clothing, rags, sheets, towels, shoes, pillows, bags, belts, shoes
Metals	Steel and Tin Cans	Food and beverage cans
	Aluminum Cans	Soda/beer/sparking water cans, cat food, paint/varnish cans, aerosol cans
	Aerosol Cans	Metal spray cans for paint, body spray, whipped cream, etc.
	Other Ferrous Metal	Cast iron and iron
	Other Non-Ferrous Metal	Aluminum foil/trays/pans, copper, titanium, lead, zinc, brass/bronze
Glass	Clear Glass	Clear food/beverage bottles and jars
	Green Glass	Green food/beverage bottles and jars
	Amber Glass	Amber food/beverage bottles and jars
	Blue Glass	Blue food/beverage bottles and jars
	Other Glass	Lightbulbs, Pyrex, sheet glass; crushed, mixed glass

Major Material Category	Material Type	Definitions/Examples
Other	Bagged Recycling	Bagged recyclable materials
	Bagged MSW	Bagged waste materials
	Tanglers	Hoses, extension cords, christmas lights
	Electronics	keyboards, etc.
	C&D Waste	flooring, etc.
	HHW	Oil, antifreeze, sharps, paint, batteries, etc.
	Lithium Batteries	Lithium ion batteries and devices containing them
	Tires	Car tires, bicycle tires, and other tires
	Other	Other material not classified above; diapers
	Fines	Other materials too small to sort (i.e. <2 inches)

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Appendix C

C&D and Bulky Material Categories

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**Tennessee Statewide Waste Characterization Study
C&D and Bulky Material Categories**

Major Material Category	Material Type	Definition/Examples
Paper	Old Corrugated Cardboard	Shipping/pizza boxes
Organics	Yard Waste	Leaves, branches, grass clippings, garden waste
	Textiles and Shoes	Clothing, sofas, bags, curtains
	Other Organics	Food processing wastes, animal by-product
Metals	Ferrous Metals	Iron, steel, stainless steel, etc.
	Non-Ferrous Metals	Aluminum, copper, lead, zinc, brass
	White Goods	Refrigerator, stove, washing machine, dryer
Glass	Glass	Windows, mirrors, glass bottles
Construction and Demolition Debris	Bricks, Rubble, Masonry, Concrete, etc.	Bricks, rubble, masonry, concrete, etc.
	Drywall	Clean or painted drywall sheets
	Untreated Wood	Lumber, plywood, wood with no paint, stain, chemical additives
	Treated Wood	Wood items with paint, stain and other chemical coatings/treatments
	Carpets	Textiles with backing, padding
	Asphalt Shingles	Roofing shingles
	Insulation	Fiberglass insulation
	Other C&D Waste	Sinks, toilets, porcelain, tile, insulation
Electronics	Electronics	Toaster, microwave, electric toothbrush, toys, cellphone, keyboards, etc.
Other	Mattresses	Mattresses and box springs
	Tires	Car tires, bicycle tires, and other tires
	Furniture	Primarily wood; upholstered; desks, chairs, sofas, etc.
	Durable Rigid Plastics	Buckets, playhouse, swing set, etc.
	Bagged MSW	Unknown bagged materials
	Dirt, Sand, Soil	Soil, dirt, fully composted materials
	Other Material	Other material not classified; note material type on data form