



Solid Waste Facility Inventory and System Assessment

CAPITOL REGION COUNCIL OF GOVERNMENTS
OCTOBER 2022

PREPARED BY:

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COMMISSIONED BY:

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Executive Summary

The Capital Region Council of Governments (CRCOG) contracted with Resource Recycling Systems (RRS) and Tetra Tech (Project Team) for consulting services on municipal solid waste (MSW) stream management. This Municipal Long Term Solid Waste Project (Project) includes an analysis on the viable long-term solutions, contingencies, and strategies for managing waste flow following the closure of the Materials Innovation and Recycling Authority (MIRA) waste-to-energy facility at South Meadows in Hartford in July 2022.

The Project has three tasks. Task 1 is to conduct a system assessment and an infrastructure inventory. Task 2 is to identify short-term (1-5 years) solutions for waste disposal and increasing waste diversion. Task 3 is a high level, long-term (10-year) plan for resource recovery and disposal options.

This document serves as the deliverable for Task 1. Delivery of the Task 2 report is scheduled for December 1, 2022. Approval for Task 3 is pending upon notice to proceed.

Key take aways for the Task 1 System Assessment and Infrastructure Inventory include the following:

- CRCOG communities are in critical need of additional transfer station and disposal capacity to meet waste generation rates.¹
- Lack of local and regional waste transfer and disposal facilities will result in high hauling costs until additional capacity can be developed.
- CRCOG can more than double the volume of waste diverted from landfill and waste to energy through increasing recycling, composting and anaerobic digestion, thereby reducing the volume of waste to be disposed and aligning with the CT DEEP 60% waste diversion goal.
- The system assessment identified strengths and gaps among six best practice areas. Opportunities for improvement were identified in all six attribute areas.
- Residential and commercial food waste diversion in CRCOG communities currently is minimal and represents a significant waste diversion opportunity.
- Opportunities also are available to increase the volume of recyclables collected through enhancing outreach, education, and regional partnerships, including technical assistance, to single family homes, multifamily homes, and businesses.

¹ Waste generation includes material sent to recycling, composting, anaerobic digestion, waste to energy and landfill from both commercial and residential sectors.

Introduction

Project Background

Following adoption of the 2016 Comprehensive Materials Management Strategy² (CMMS) as a roadmap, CRCOG aims to work toward the statewide goal of 60% diversion of waste from landfills and waste to energy facilities by 2024. The CMMS constitutes a component of the revised CT Solid Waste Management Plan required by Public Act 14-94.³ The strategic goals of the CMMS include:

- Modernization of solid waste and materials management infrastructure throughout the state.
- Management of (source) separated organic materials.
- Reuse and recycling of construction and demolition (C&D) materials.
- Development of recycling facilities, materials recovery facilities (MRFs), and other types of intermediate processing facilities.
- Recommendations for the development and implementation of regional and/or local recycling programs.
- Options for local compliance of municipalities with recycling requirements.

The Connecticut Solid Waste System (CSWS) is a hub-and-spoke model that services seventy (70) municipalities throughout the state⁴, including the majority of CRCOG communities. The hub of the system included a single-stream recycling facility and a resource recovery facility, both located in the South Meadows section of Hartford⁵. With the closure of MIRA's waste-to-energy (WTE) facility in Hartford and the state looking to develop long-term plans for managing MSW, there are rising concerns about future solid waste transportation cost and infrastructure investments.

In 2021, MIRA reported they had Municipal Service Agreements (MSAs) with forty-nine (49), forty-eight with term through June 2027 with an opt-out in each March, and one-year delivery agreements with 30 private haulers. With the closure of MIRA's waste-to-energy (WTE) facility in July 2022⁶ in Hartford and the state looking to develop long-term plans for managing MSW, there are rising concerns about future solid waste transportation cost and infrastructure investments.

Project Objectives

The Capital Region Council of Governments (CRCOG) contracted with Resource Recycling Systems (RRS) and Tetra Tech to conduct a three-phase project. Task 1 is to conduct a system assessment and an infrastructure inventory. Task 2 is to identify short-term (1-5 years) solutions for waste disposal and

²Connecticut Department of Energy and Environmental Protection. (n.d.). Final Adopted Comprehensive Materials Management Strategy, Revised 12-14-2016. Retrieved September 23, 2022, from https://portal.ct.gov/-/media/DEEP/waste_management_and_disposal/Solid_Waste_Management_Plan/CMMSFinalAdoptedComprehensiveMaterialsManagementStrategy.pdf

³ Public Act No. 14-94 An Act Concerning Connecticut's Recycling and Materials Management Strategy, The Underground Damage Prevention Program and Revisions to Energy and Environmental Statutes. 2014. Retrieved October 16, 2022, from <https://www.cga.ct.gov/2014/act/pa/pdf/2014PA-00094-R00SB-00357-PA.pdf>

⁴ Materials Innovation and Recycling Authority (MIRA). (n.d.). Who We Are. Retrieved October 16, 2022, from <https://www.ctmira.org/about/>

⁵ IBID

⁶ Materials Innovation and Recycling Authority (MIRA). (2021). MIRA's Waste to Energy Facility Current Status and Permit Modification. <https://www.ctmira.org/wp-content/uploads/2021/12/MIRA-Presentation-informational-meeting-12-15-21.pdf>

increasing waste diversion. Task 3 is a high level, long-term (10-year) plan for resource recovery and disposal options. This document serves as the deliverable for Task 1.

Capitol Region Council of Governments Overview

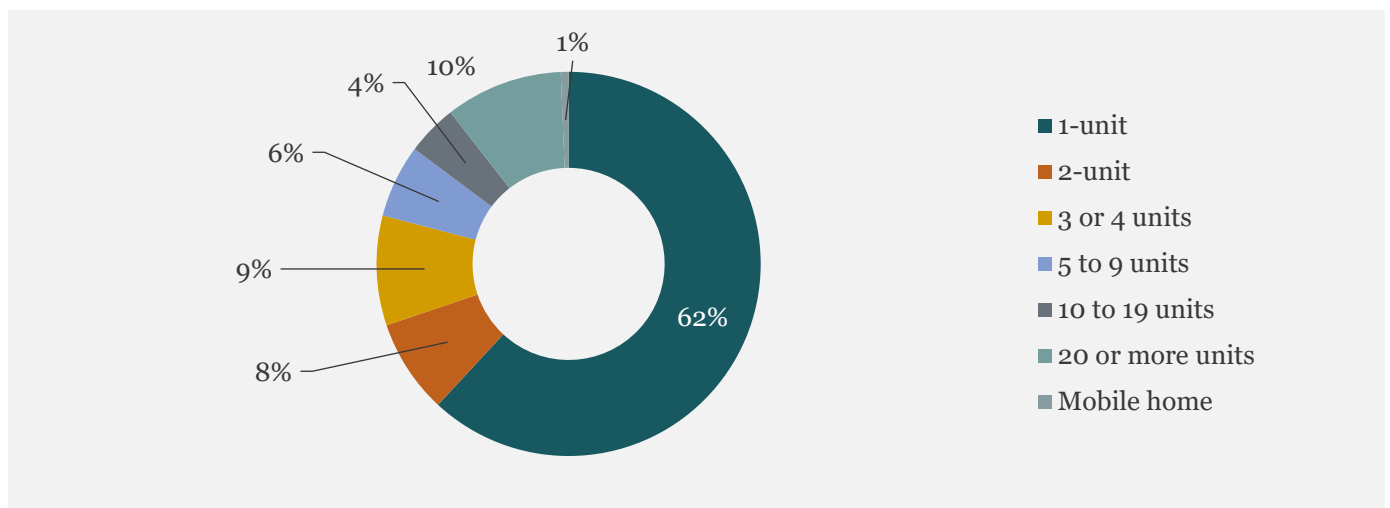
The largest of Connecticut’s nine regional planning organizations, the Capitol Region Council of Governments (CRCOG) is a voluntary Council of Governments formed to initiate and implement regional programs⁷ to service Hartford and 37 surrounding communities. CRCOG represents approximately one million residents over a 1,047 square foot area that includes communities from both Hartford and Tolland counties.

Demographics

Combined, CRCOG communities have an estimated population of 971,871 or 381,183 households (2019 data). The population is estimated to reach 1,073,000 by 2050 based on growth projections provided by CRCOG. Population densities are 1,224 and 365 per square mile in Hartford County and Tolland County, respectively. Hartford, which is a part of Hartford County, represents 13% of the population of CRCOG with a population density of 6,966 residents per square mile, significantly higher than the surrounding region.

Of the total housing units in the counties of Hartford and Tolland, 62% are single family homes and 37% are multifamily. In Hartford, only 15% of residents live in single family homes.

Figure 1 Hartford and Tolland Counties Housing Structures by Number of Units



Average annual employment for CRCOG in 2019 was 467,518 and is projected to grow by 4.9% between 2019 and 2028 assuming that growth parallels the projected state employment growth. Sectors with

⁷ Capital Region Council of Governments. (n.d.). About. Retrieved October 16, 2022, from <https://crcog.org/about/>

greatest employment in Tolland County include government (33%), retail (16%), and manufacturing (7%). In Hartford County, sectors with the largest employment include health care (16%), government (13%), manufacturing (11%), finance (10%), and retail (9%).⁸

Figure 2 Employment Sectors in Tolland County

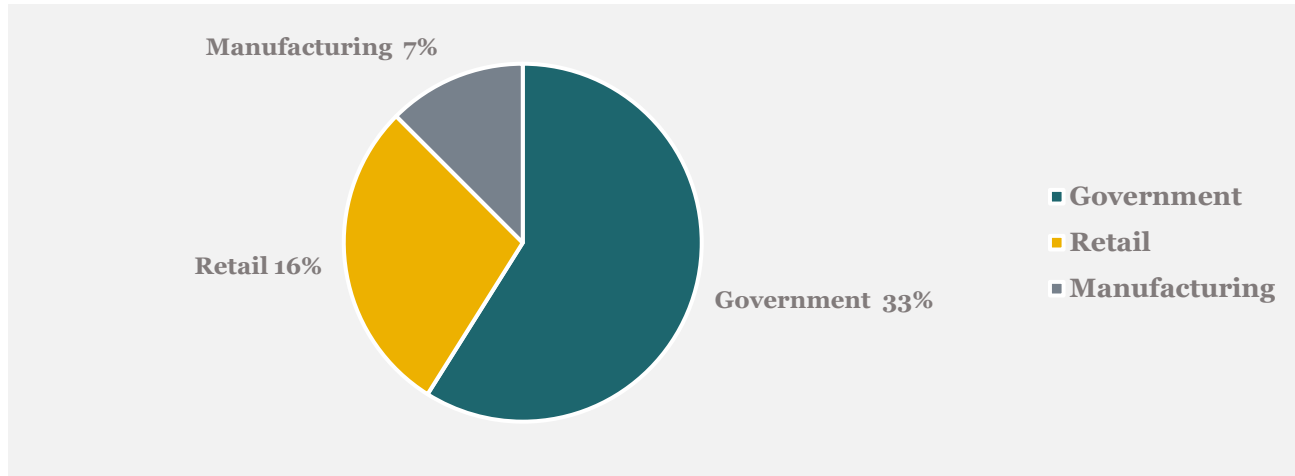
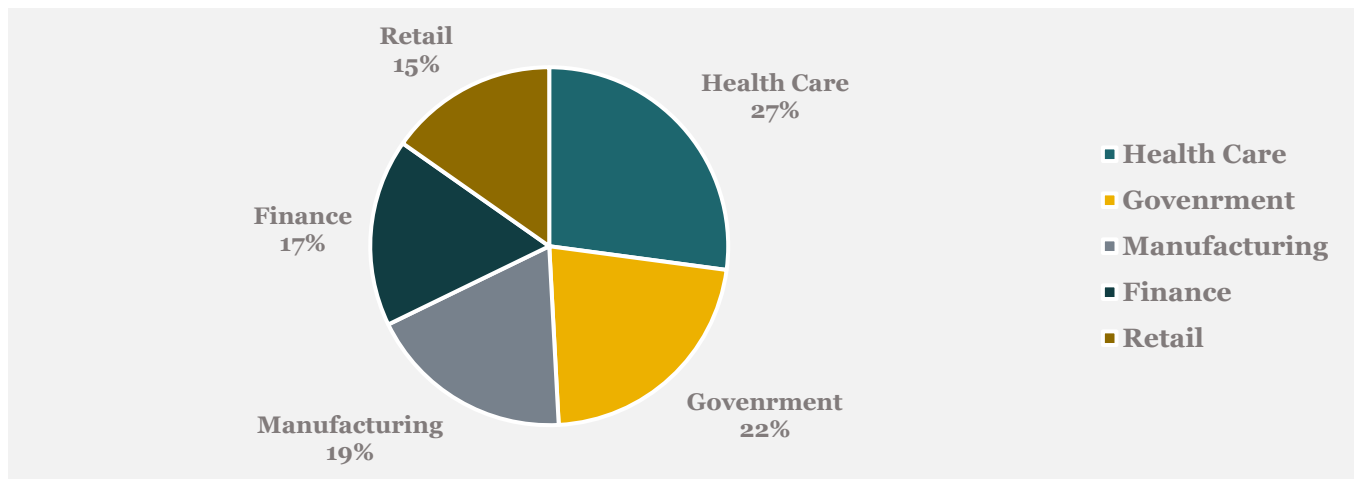


Figure 3 Employment Sectors in Hartford County



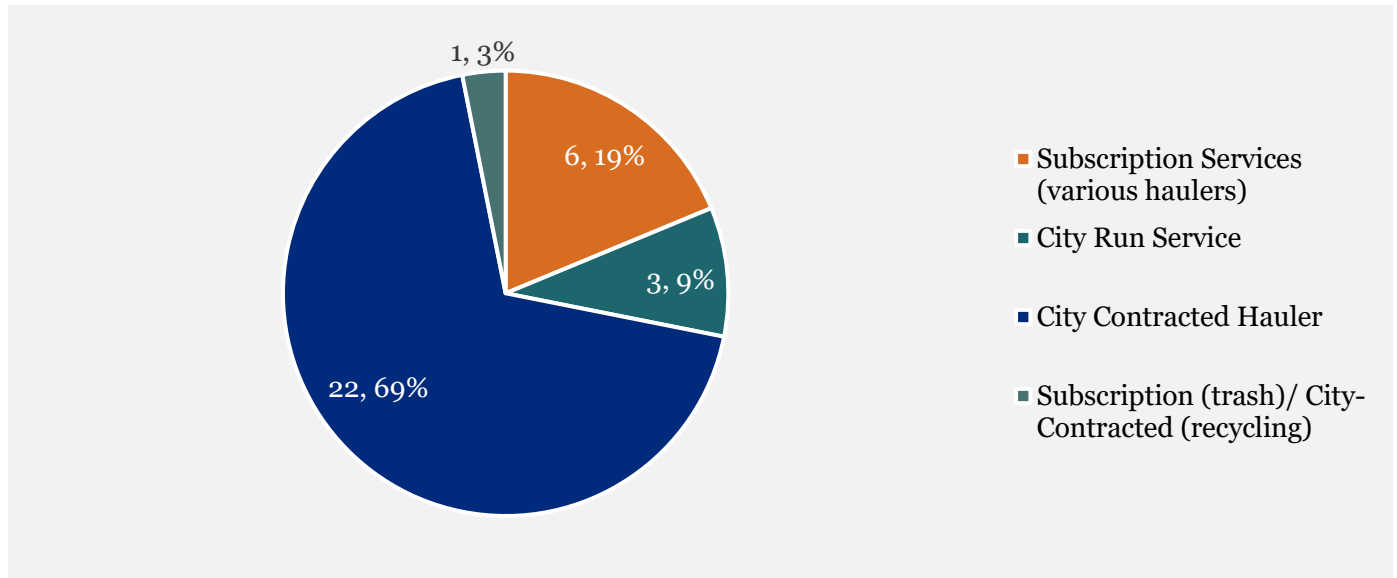
Solid Waste Program Management and Funding

A survey was conducted by RRS to gain an understanding of the waste collection services provided by each jurisdiction, including how they are managed and funded. Full data tables are included as an accompanying spreadsheet to this report, and more detail on the specific services provided are summarized in the system assessment section of this report.

⁸ Connecticut Department of Labor’s Office of Research. (n.d.). *2020-2030 Connecticut Occupational Projections*. Retrieved September 23, 2022, from <https://www1.ctdol.state.ct.us/lmi/projections.asp>

Enfield, Hartford, and Vernon perform the collection of trash and recyclables with its own staff. Windsor utilizes subscription services for trash and a city contract hauler for recycling. Six communities utilize subscription services for trash and recycling. 22 communities utilize a city contracted hauler for both trash and recycling.

Figure 4 CRCOG Community Trash and Recycling Collection Service Providers⁹



MID-NORTHEAST RECYCLING OPERATING COMMITTEE (NEROC) INTERCOMMUNITY AGREEMENT

Andover, Bolton, Columbia, Coventry, Ellington, Mansfield, Tolland, and Willington are members of the Northeast Recycling Operating Committee along with seven other jurisdictions that are not members of CRCOG. These communities jointly contract for the processing of recyclables and bulky waste. The contract includes hauling of materials from local jurisdiction’s transfer stations.

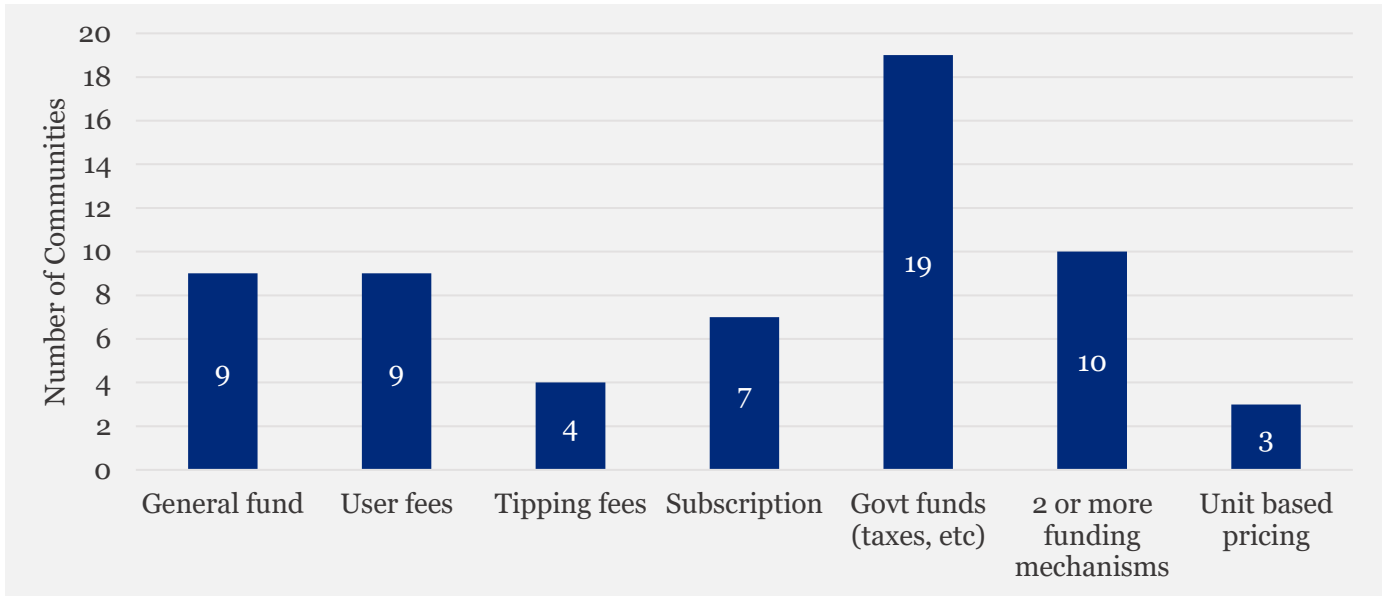
FUNDING MECHANISMS

CRCOG jurisdictions fund solid waste programs in myriad ways. Figure 5 details the number of CRCOG communities that utilize each funding type.¹⁰

⁹ 32 CRCOG communities responded to the survey.

¹⁰ 33 CRCOG communities responded to this question in the survey.

Figure 5 Solid Waste Funding Types Used by CRCOG Communities



COST PER HOUSEHOLD

The median cost per household for bundled trash and recycling collection and disposal services in 2021 was \$200 per year. This is based on responses from eighteen (18) CRCOG communities and does not include communities with unit-based pricing programs.

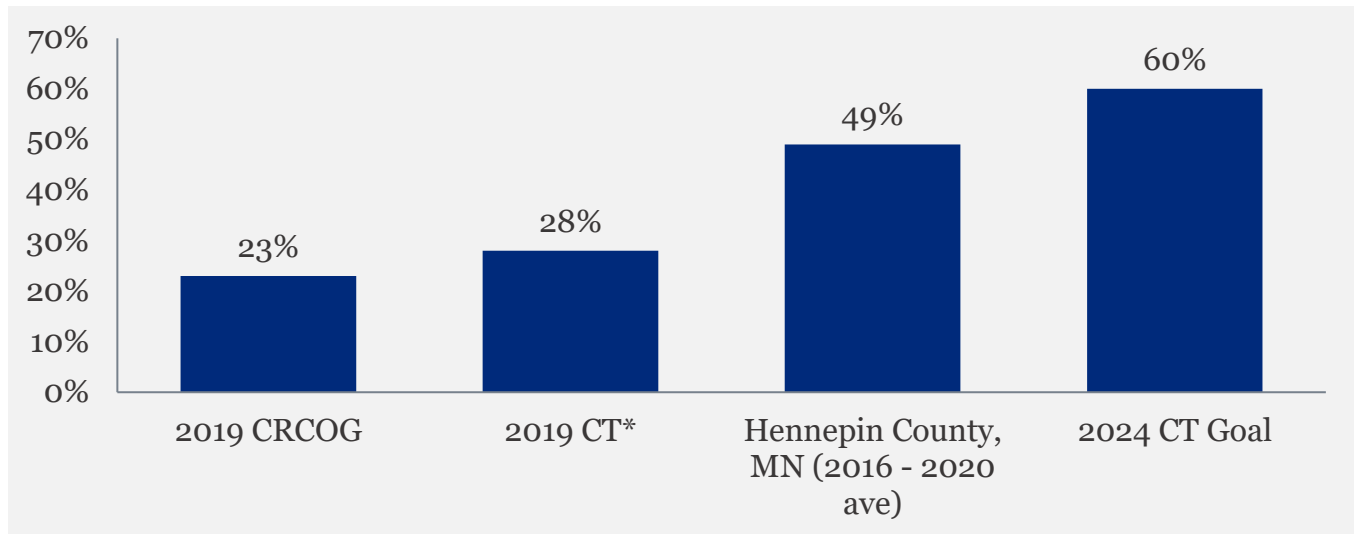
Program Performance

Waste Diversion Rates

The state of Connecticut has set a goal to achieve 60% waste diversion from disposal by 2024, though currently it is not on track to meet this target. CRCOG’s waste diversion rate is estimated to be 23%, not including materials diverted through statewide container deposit and extended producer responsibility programs. CRCOG waste diversion performance is approximately 18% below the state waste diversion rate when calculated similarly.

For comparison purposes, the 2016-2020 annual average for Hennepin County, MN has been included. Hennepin County, MN has ~1.4M residents and is comprised of 45 communities of various sizes. The majority of this diversion comes from recycling with about 38% of the total materials generated being recycled, and 11% organics diversion. Hennepin County currently is in the process of developing a zero waste plan.

Figure 6 CRCOG, CT, and Hennepin County Diversion Rates¹¹



Waste Generation and Fate

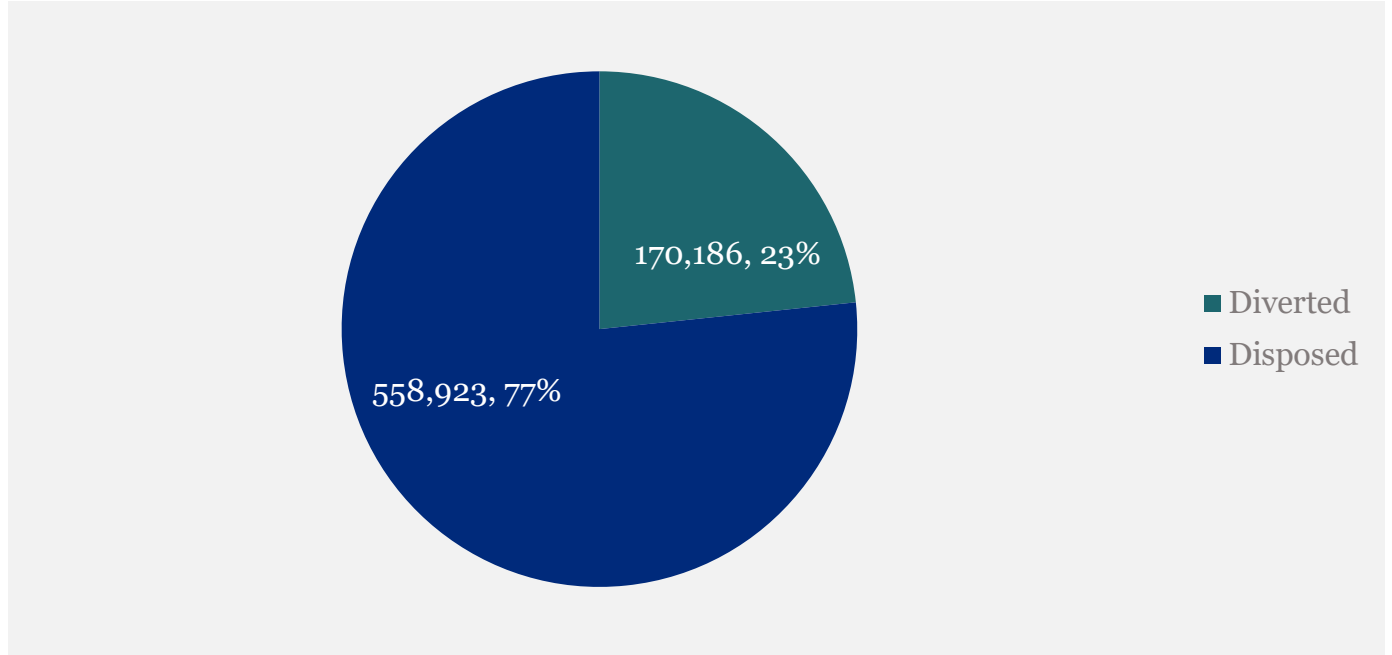
Utilizing community data provided by CT DEEP, CRCOG’s waste generation is estimated to be approximately 729,109 tons of residential and commercial MSW annually. The effective per capita waste generation is 4.1 lbs. per day, compared to the national average of 4.9 lbs. per person per day.¹² Waste generation includes material sent to recycling, composting, anaerobic digestion, waste to energy and landfill from both commercial and residential sectors.

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¹² Environmental Protection Agency. (2020). Advancing Sustainable Materials Management: 2018 Fact Sheet Assessing Trends in Materials Generation and Management in the United States. https://www.epa.gov/sites/default/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf.

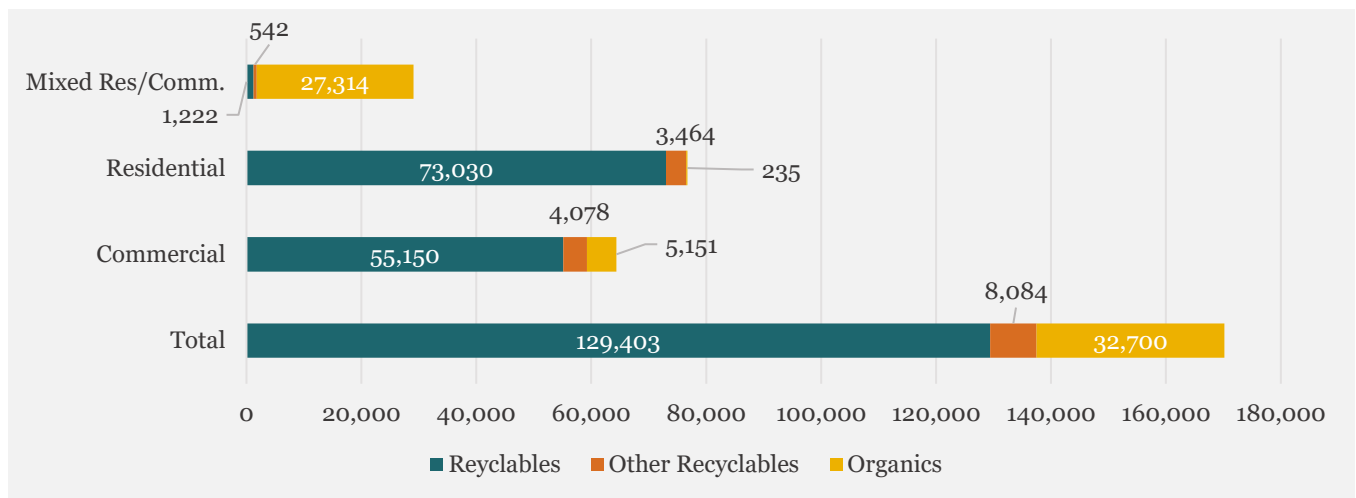
In 2019, 558,923 tons of MSW generated by CRCOG communities was disposed as trash and sent to waste to energy facilities or landfills and 170,186 tons was recycled or composted.¹³

Figure 7 2019 CRCOG Waste Generation and Fate (Tons Per Year)



Diverted waste can be further broken down by type and source. Recyclables refers to common recyclables typically accepted in curbside recycling programs whereas other recyclables refers to items that are recyclable through other channels, such as drop off programs, and includes items like scrap metal, appliances, and textiles.

Figure 8 2019 CRCOG Diverted Waste by Source and Type



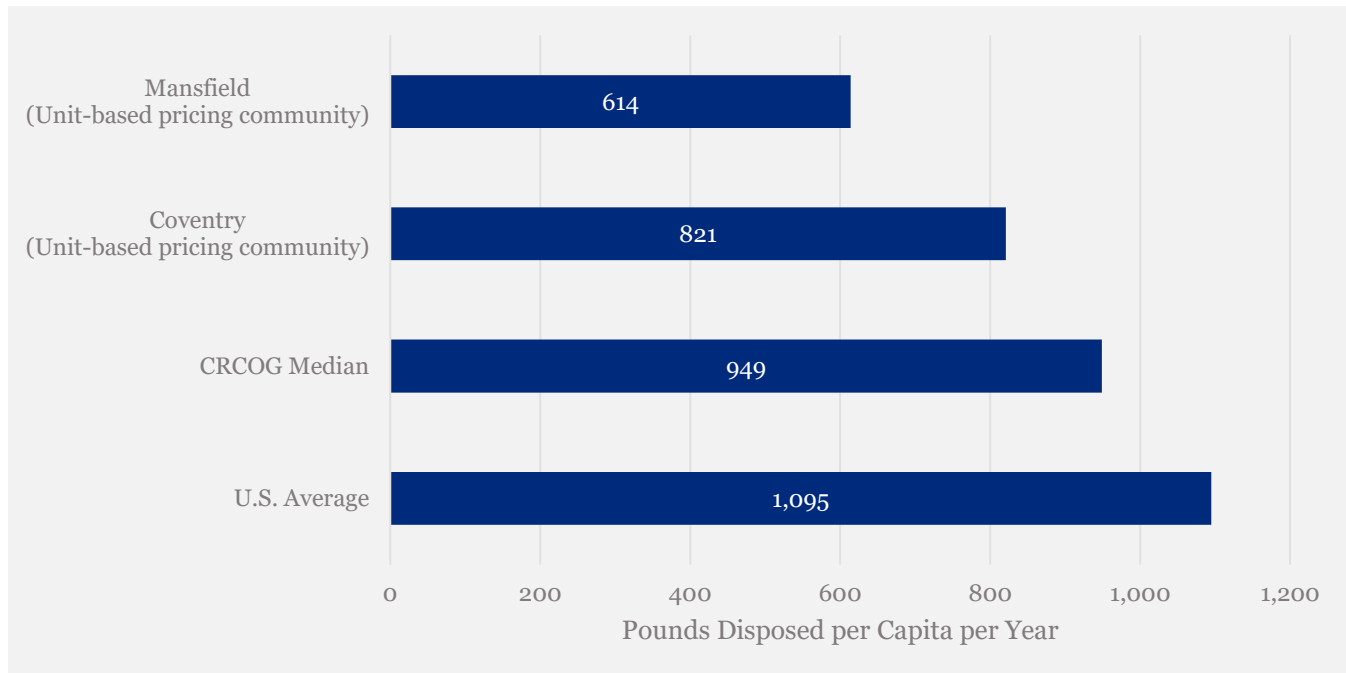
¹³ Connecticut DEEP 2019 data reported by CRCOG communities to DEEP was utilized to determine waste generation and tons diverted. Note that 2019 data reported by communities approximated facility reports for waste generated with less than a 5 percent difference in data reported between the sources.

Other Measures

PER CAPITA WASTE DISPOSAL

Another commonly used metric is waste disposed per capita. This metric, expressed as lbs. per person per day is utilized to compare only the waste that is sent to waste-to-energy (WtF) facilities or landfill. In 2019, the CRCOG median was 949 lbs. per person per year compared to a national average of 1,095. Waste disposed per capita for CRCOG communities with unit-based pricing programs in place were 821 lbs. per person per year for Coventry and 614 lbs. per person per year for Mansfield.

Figure 8 Pounds Disposed per Capita per Year

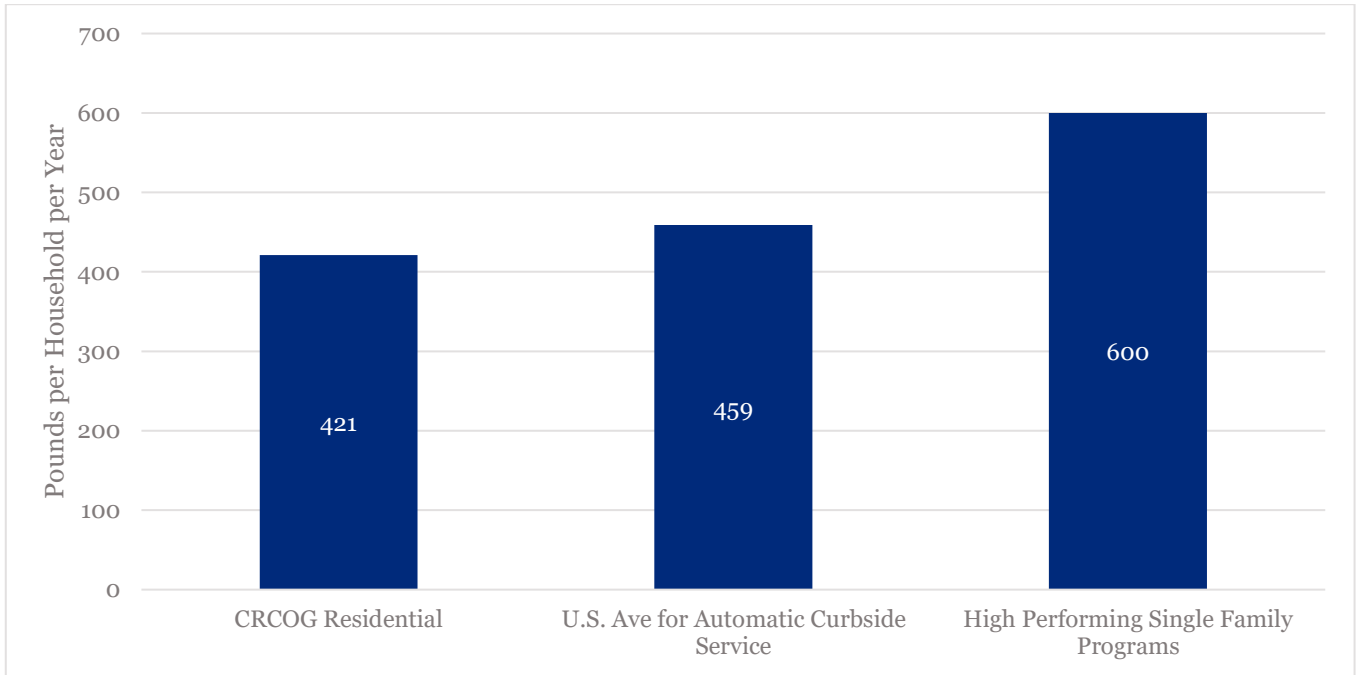


RESIDENTIAL CURBSIDE RECYCLABLES COLLECTED PER HOUSEHOLD PER YEAR

Another common measure for the efficacy of residential recycling programs is the pounds per year of recyclables collected per household. CRCOG communities’ average pounds of residential commingled recyclables collected per year was 421 lbs. According to the Recycling Partnership’s 2020 State of Curbside Report, the average pounds per households of recyclables collected per year for households with automatic curbside service is 459 lbs. per household per year.¹⁴ High performing programs can collect 550 - 600 lbs. of recyclables per year. It is important to note that the CRCOG figure may include tonnages collected from multi-family households which is not accounted for in other numbers.

¹⁴ The Recycling Partnership. (2020). 2020 State of Curbside Recycling Report.

Figure 9 Residential Curbside Recyclables Collected per Household per Year



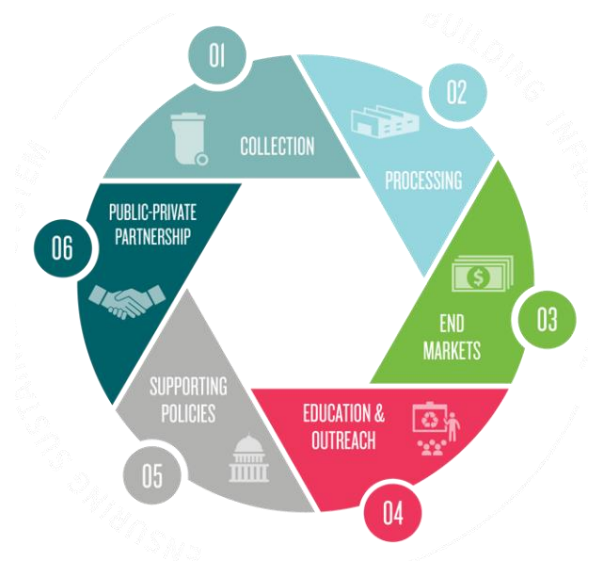
System Assessment and Infrastructure Inventory

Methodology

To complete the infrastructure inventory and system assessment, RRS and Tetra Tech:

- Conducted a survey of CRCOG member jurisdictions
- Reviewed data supplied by the CT DEEP
- Identified waste facilities and reviewed state recycling, composting, anaerobic digestion, landfill, waste to energy and transfer station facility data, in addition to data available from other sources.
- Conducted a focus group with five (5) CRCOG jurisdictions to learn more about education and outreach and partnerships within CRCOG.
- Conducted a high-level evaluation of the municipal solid waste management, from generation and processing through to disposal for CRCOG’s 38 member towns implementing a ‘mass balance’ approach comparing the processing capacity of transfer stations to the disposal capacity at landfills and at WTE facilities surrounding CRCOG.¹⁵
- Identified proximal disposal facilities with sufficient capacity to manage the current daily waste generation and to reduce transportation costs.

Figure 10 Six Areas of Best Practices



From a waste diversion perspective, the analysis identifies the potential system components that can be optimized or expanded and the gaps that may need to be addressed with new approaches to support reaching higher diversion rates. Collectively, these gaps are opportunities for targeted strategies to improve access, improve recovery and reuse, organics diversion, and waste minimization, support recycling market development, and form partnerships.

From a waste disposal perspective, the analysis identifies needed and available disposal capacity.

The project team utilized six best management ‘practice areas’ as an organizing structure for the system assessment. A highly functioning system requires all six practice areas to be working in concert, and no individual system component is significantly more important than another. For example, a community may have state-of-the-art processing for recyclables, but without education and outreach to instruct generators what should be recycled, that system will not be high performing. RRS identifies collection, processing, end-markets, policy, education, and financing partnerships as the six “key” areas of best management practices that must be integrated for system success. The six ‘key’ areas are:

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

¹⁵ Full methodology for transfer station and waste disposal capacity is provided in Appendix A.

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

Summary

Each key area has several components or categories of best practices that have been identified by the project team over nearly four decades in the industry. RRS utilized Harvey balls to represent relative uptake scores for each of the best practices (range from best (●) to worst (○) on the region’s relative uptake). The system assessment summary is presented in below.

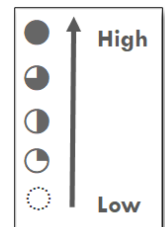


Figure 11 System Assessment Summary

COLLECTION

Uptake	Category
●	Multi-family Programming
●	Collection Containers
●	Commercial Programming
●	Drop-offs
●	Single Family Recycling Access
●	Weekly Collection of Recyclables
●	Yard waste Programming
●	Residential Food Scrap Collection
●	Hard to Recycle Items
●	Schools & Institutions

PROCESSING & FACILITIES

Uptake	Category
○	Advanced Solutions
●	Organics Facilities within 20 miles
●	Hard to Recycle
○	Waste Transfer & Disposal Capacity
●	MRF/Recycling Transfer Station within 30 Mi.

SUPPORTING POLICIES

Uptake	Category
●	Goals and Data Tracking
●	Mandatory Recycling Legislation
●	Mandatory Organics Legislation
●	Landfill Bans
●	Container Deposits
●	Unit-Based Pricing
●	Extended Producer Responsibility

EDUCATION & OUTREACH

Uptake	Category
●	Website with Educational Materials
●	General Outreach
●	Use of RecycleCT.com Resources
●	Regional Standardization
●	Governmental Leadership
●	K-12 Programs
●	Commercial and Multi-Family Social Marketing
○	Enforcement

END-MARKETS

Uptake	Category
●	Recycling End-Markets
○	End-Market Development
●	Composting End-Markets
●	Hard to Recycle
●	Access to Freight and Rail

PUBLIC PRIVATE PARTNERSHIPS

Uptake	Category
●	State Grants/Funding
●	Federal Grants/Funding
○	Partner with Municipalities/Counties for Grants
●	Leverage Private Sector Partnerships
●	Cooperative Public/Private Planning
●	Governmental Leadership & Coordination
○	Outside Group (The Recycling Partnership, Closed Loop, etc.)

Collection

Every household and business in a community needs easy access to recycling through curbside collection, commercial collection, and/or drop-off site locations. Recycling should be just as convenient as waste disposal.

Table 1 Collection Evaluation

Uptake	Category	Findings
●	Multi-family Programming	The majority of communities (22) service multifamily dwellings directly or through municipally contracts with recycling and trash service. Multifamily residents are required to recycle but are not required to compost.
●	Residential Collection Containers	<p>Rolling cart collection containers of the appropriate size result in a more efficient, cost-effective program. This was not identified as a gap.</p> <p>Twenty-one (21) communities provide 95/96-gallon recycling containers and 6 of community respondents provide 64–65-gallon recycling containers.</p> <p>Eighteen (18) provide 95/96-gallon trash carts, five communities provide 65-gallon trash containers, and two communities have a range of sizes for a unit-based pricing program.</p>
●	Commercial Programming	<p>Recycling is required for all commercial entities and source separated food waste collection is required for specific large quantity generators within 20 miles of a facility. While businesses in Hartford are covered by this requirement, many communities are outside of the 20-mile range of a facility collecting food waste which triggers participation in the program.</p> <p>Collection of food waste from both residents and businesses was 77 tons in 2019 indicating very minimal participation from all sectors.</p> <p>Only one hauler was identified providing commercial food waste collection indicating a potential gap in service providers.</p> <p>Opportunities exist for increased participation and compliance with the requirements as well as to extend the requirements to more business types.</p>
●	Drop-offs	Twenty-six (26) communities have some form of drop off program available for recyclables or organics. These range from one community that provides a cardboard only drop off to those that provide a suite of drop off services, including food waste and bulky and hard to recycle materials. Some require permits (mix of free and paid). A best practice is for households to have drop off facility access within 20 minutes' drive time in urban and suburban regions and along commonly driven routes in

		rural regions. Drop-off facilities have not been evaluated in terms of number of facilities and distance from households.
●	Single Family Recycling Access	All community respondents directly providing trash services also directly provided recycling services. Seven (7) communities noted subscription trash services and six (6) noted subscription recycling services.
●	Weekly Collection of Recyclables	Increased collection volumes are associated with weekly curbside collection of residential recyclables. Nine (9) communities collect recycling weekly. Eighteen (18) communities provide services every two weeks. Six (6) communities noted subscription recycling service.
●	Yard Waste Programming	More than twenty-five communities have yard waste collection programs. Ten (10) communities have curbside collection; however, the majority are only for a portion of the year. West Hartford is the only community known to utilizing curbside carts for collection, meaning that year-round food waste collection would require new carts (could not easily be added to existing yard waste bins). Utilizing the state’s waste composition and CRCOG community disposal numbers, CRCOG communities dispose approximately 24,000 tons of residential yard waste that could be collected for composting. ¹⁶
●	Residential Food Scrap Collection Programs	Curbside collection of residential food waste is a gap. Food scrap collection is available by subscription through Blue Earth composting. As of 2019, Blue Earth has ~300 residential customers in the Greater Hartford region. ¹⁷ Two communities provide food waste drop off programs. Two CRCOG communities are planning food waste collection pilots.
●	Hard to Recycle Items	EPR programs in place for electronic devices, paint, mattresses, and mercury thermostats. Four communities mentioned drop off for textiles. Six communities mentioned no drop off facilities.
●	Schools & Institutions	Two communities mentioned providing cafeteria food scrap composting programs. Additional information on recycling and composting at schools and institutions unknown.

¹⁶ Includes leaves and grass and trimmings and prunings totaling 8.7% of the disposed waste residential waste stream according to the 2015 waste characterization study. MSW Consultants. (2016). *Connecticut Department of Energy and Environmental Protection 2015 Statewide Waste Characterization Study Final Report*.

¹⁷ Hladky, G. (2019, March 28). Connecticut throws away 520,000 tons of food every year. Hartford-based Blue Earth Compost hopes to change that. *Hartford Courant*. <https://www.courant.com/news/connecticut/hc-news-blue-earth-compost-update-20190328-qwdwnn2a5veaxbqp6ztp2kxzq4-story.html>

Processing

The following section evaluates the current processing capabilities for trash, recyclables, and organic materials. Processing facilities include landfills, waste to energy facilities, material recovery facilities (MRFs), compost facilities, and anaerobic digestion facilities. Transfer stations and access to also are included as efficient transport is needed for cost-effective, environmentally sustainable operations.

Table 2. Processing Evaluation

Uptake	Category	Findings
○	Advanced Solutions (post-collection sorting, chemical recycling)	Represents a potential gap. No advanced solutions for addressing waste in the region.
●	Organics Facilities within 20 miles	<p>Excess capacity is available to increase residential and commercial food waste collection.</p> <p>Additional capacity and/or pretreatment technologies will be needed to ensure nearby processing if food waste is to be collected at scale from residential and commercial sources.</p> <p>Need for additional yard waste capacity is unknown at this time and may depend on whether composting facilities are needed to process digestate as well as interest and ability to capture the estimated 25k tpy of leaves, grass and trimmings discarded by the residential sector.</p> <p>Quantum’s Southington anaerobic digestion facility currently is permitted to process more than 90,000 tons per year; however, built capacity is approximately 40,000 tons per year and estimated available built capacity is greater than 10,000 tons per year.</p> <p>Five (5) farm-based anaerobic digestion facilities that accept food waste are within 50 miles of CRCOG; however, facilities typically require pre-processing technologies to handle residential and commercial food waste. Further vetting is needed to ascertain interest of the facilities in accepting the material and what facility upgrades are needed.</p> <p>New anaerobic digestion facilities are being considered in Southington, Coventry, and Manchester which could add more the 240,000 tons per year of additional capacity. These planned facilities becoming operational would trigger food waste requirements for generators currently outside of the radius of facilities currently accepting food waste.</p> <p>The Quantum Biopower anaerobic digestion (AD) facility in Southington is co-located with the Supreme Forest Products yard waste composting facility which has 200k cubic yard, or ~ 25k tpy capacity. CRCOG communities currently send about 4,000 tons per year to this facility. Many CRCOG communities have small-scale leaf composting operations. The WeCare composting facilities in Ellington and Farmington are within CRCOG. The capacities of these facilities are unknown at this time. There are approximately ten (10) yard waste composting facilities within 50 miles of</p>

		<p>CRCOG. If additional AD facilities are sited locally, additional composting facilities to process the digestate with yard waste could be needed.</p> <p>Compost facilities that currently accept commingled food and yard waste have not been identified.</p>
●	Hard to Recycle	<p>Drop-offs for source separated materials do not require processing, thus are not noted as a gap.</p> <p>Gap in ability of existing systems to recover textiles, plastic films, and smaller format plastics were identified, but are not unique to the region.</p>
○	Waste Transfer & Disposal Capacity	<p>2,020 TPD of disposal capacity is needed based on Tetra Tech alternative waste generation rate calculation.</p> <p>There is virtually no landfill disposal capacity identified within 100 miles of CRCOG. Between 100 miles and 150 miles minor airspace capacity is available that may serve small communities of limited waste streams, for example C&D debris. 74,000 TPD of landfill capacity is available within a 350-mile distance from CRCOG.</p> <p>There are 37 WTE facilities with approximately 3,450 TPD of available combined WTE capacity in a 350-mile radius.¹⁸</p> <p>Transfer station capacity within 50 miles of CRCOG is lacking with only 1,650 TPD available transfer waste capacity from 192 facilities with a median value of 8.6 TPD capacity per facility. Tetra Tech considers this a 'paper capacity' indicating that the region is lacking transfer station capacity.</p> <p>Methodology and more details on inventory findings can be found in Appendix A.</p>
●	MRF/Recycling Transfer Station within 30 miles	<p>There are multiple MRFs within 30 miles of CRCOG.</p> <p>Capacity exists to increase volumes of recycling collected and processed.</p> <p>MRF upgrades are underway which will allow for increased processing of residential and commercial recyclables. Automated Material Handling in Berlin is in the process of being upgraded from a 60k tpy to a 225k tpy MRF. The facility accepts residential and commercial single stream recycling. There is some interest in using the closed MIRA MRF in Hartford to transfer recyclables to Berlin.</p> <p>Casella's MRF in Willimantic has capacity to process approximately 100k tpy and currently is estimated to have approximately 10k tpy in excess capacity. An upgrade is scheduled to be completed in 2024 along with increasing from one to two shifts which will double the number of tons the MRF can process. The MRF accepts residential and commercial material</p>

¹⁸ From the data analysis evaluation for available WTE capacity, it was determined that there is approximately 4,600 TPD of available WTE waste capacity in a 350-mile radius from CRCOG. However due to the residue byproduct of waste incineration that still has to be disposed of, this number is further reduced by 25% leaving approximately 3,450 TPD of available WTE capacity.

	<p>All Waste Hartford in Hartford CT is a commercial MRF that accepts approximately 55,000 tons per year.</p> <p>Nature of upgrades and whether they can support the expansion of items accepted for recycling is not yet known. Planned upgrades provide opportunity for dialog regarding expanding the list of accepted recyclables.</p>
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End-Markets

The end-market is the manufacturing industry who recycles the commodity into a new product. The success of end-markets for the recycling that is collected leads to the success of a sustainable circular economy that can ultimately allow material to be diverted from landfills. The following section reviews the local and regional markets for recyclables.

Table 3. End-Markets Evaluation

Uptake	Category	Findings
●	Recycling End-Markets	End-markets and/or secondary processors exist in the state for Old Corrugated Cardboard, mixed paper, paper, industrial plastics, and glass containers collected through the deposit program. Metals, paper glass, cartons, and post-consumer plastics secondary sorting and/or end-markets are available in the region. A local processor, called a beneficiation facility for MRF glass is not locally available. MRF glass from the Willimantic MRF currently is railed out of state to be cleaned and sorted to be manufactured into new containers. Outlets for glass used by other MRFS is unknown.
○	End-Market Development	No activities identified to grow local end-markets. Though there are some statewide resources and regional loan programs for small businesses, there is not an economic development program dedicated exclusively to developing end-markets in the state. An incubator or accelerator program, such as NextCycle – which currently helps grows end-markets in Michigan, Washington, and Colorado – could benefit the Connecticut economy and build capacity for recyclable material.
●	Composting End-Markets	ConnDOT has adopted a materials specification for compost and a construction detail which allows the substitution of compost for peat in planting backfill. CRCOG community specifications or use of local compost unknown.
●	Hard to Recycle	End-markets for mattresses are unknown. Paint is reused at the New Britain Reuse store. Other paint processors are out of state. Number of electronics recyclers in the state is unknown.
●	Access to Freight and Rail	Being located on transportation routes is valuable for getting materials to market. CRCOG is located on major interstates and additionally has rail access.

Supporting Policies

To reach high waste diversion, policies are needed to ensure sustainable management of materials is the standard practice throughout the region and the state. A variety of policies that have contributed to success in other regions of the U.S. and around the world can be explored by CRCOG communities and the state of Connecticut. The following section reviews the existing state and local policies related to waste diversion and disposal, as well as any gaps that exist and would be beneficial to address in the future.

Table 4. Supporting Policies Evaluation

Uptake	Category	Findings
●	Goals and Data Tracking	The state of Connecticut has a target-based recycling goal of 60% diversion by 2024, though the data from surveyed communities does not show diversion goals for individual cities. The state also requires municipalities, haulers, and processing facilities to report data annually. The Comprehensive Materials Management Strategy recommends the state conduct waste characterization studies every five years.
●	Mandatory Recycling Legislation	Mandatory recycling legislation for designated items exists at the state level.
●	Mandatory Organics Legislation	There are statewide regulations to divert certain organic material (leaves are required to be composted and grass clippings are banned from landfill disposal), and many CRCOG communities currently have yard waste programs in place. Many CRCOG communities also expressed plans to expand their organics diversion programs to include food waste, but they also mentioned a need for increased capacity for organics processing. Furthermore, recent legislation enacted in 2022 requires <i>certain</i> commercial generators to source separate organic materials and ensure they are recycled at an authorized organic material composting facility that has available capacity.
●	Landfill Bans	Statewide regulations ban certain items from disposal: grass clippings, household covered electronics (televisions, monitors, printers, and computers) and lead acid battery or a motor vehicle battery.
●	Container Deposits	Connecticut has a deposit redemption system (bottle bill) to encourage the recycling of beverage containers. Updates to the state's bottle bill statute will be effective starting in 2023, with the addition of certain non-carbonated beverages, such as tea and sports drinks. Additionally, beginning in 2024, the refund value for bottles will increase to ten cents from five cents. Grant programs also have been established to support the establishment of redemption centers in underserved communities.
●	Unit-Based Pricing	Coventry and Mansfield have unit-based pricing programs.
●	Extended Producer Responsibility	Connecticut does not currently have a comprehensive statewide Extended Producer Responsibility program, but certain items are covered by product stewardship laws. These items include household covered electronic devices, paint, mattresses, and mercury thermostats. CRCOG communities have expressed a need for more comprehensive EPR legislation that includes more materials. EPR for printed paper and packaging is expected to be reintroduced during the next legislative session.

Education and Outreach

Recycling systems must be continually evaluated and adapted as material composition and technologies change. Simple, easy to understand information needs to be put in front of residents and employees across the CRCOG region through up-to-date and easy-to-navigate websites, social media, mailings, community engagement, school programs, and more. Education is powerful, but citizens are not the only ones that need educated. Communities will need to continue to educate front line staff (haulers and those answering phones) and elected officials to ensure informed decisions and achievement of diversion goals.

Table 5. Education and Outreach Evaluation

Uptake	Category	Findings
🕒	Website with Educational Materials	Most of the CRCOG communities maintain websites that contain information about solid waste services. However, this information can be hard to find and can require many click-throughs before residents locate information.
🕒	General Outreach	CRCOG jurisdictions expressed that it can be hard to prioritize funding and executing comprehensive and consistent education for their residents. There is a need for more staff specifically for recycling education and outreach. Many areas have high proportions of residents living in multi-family housing and transient populations, which can pose an outreach challenge and lead to increased contamination.
🕒	Use of RecycleCT.com Resources	RecycleCT.com contains resources available to help educators, municipalities, and recycling companies inform their communities on the state’s universal, residential recycling guidelines. Although many of the CRCOG jurisdictions are aware of these resources, they are not often used, and opportunity exists to maximize this website in hopes of greater regional standardization.
🕒	Regional Standardization	CRCOG jurisdictions have expressed the desire for increased regional collaboration on education and outreach materials. Many communities are currently creating their own educational material, despite resources offered through sites such as RecycleCT.com. Regional standardization can help reduce confusion with transient populations (renters, college students, etc.) and people who may work in one area and live in another.
🕒	Governmental Leadership	Some communities have a recycling coordinator, but there is a need for more staff specifically for recycling education and outreach. Some regional information sharing and collaboration occurs within the CRCOG region, though the area could benefit from increased collaboration and coordination through a region-specific network of solid waste professionals.
🕒	K-12 Programs	Some CRCOG communities engage in programming specifically for K-12 schools. At least two school districts in the region have in-school, cafeteria compost programs, and as organics capacity increases regionally, there is a huge opportunity for food waste programs to grow in schools. Additionally, opportunity exists to include recycling education in school programming. Many resources already exist that can be easily integrated into K-12 education (e.g., Waste in Place, EcoRise). Additionally, resources for educators are available through CT DEEP, the Recycling Partnership, and other groups.

○	Commercial and Multi-Family	Connecticut DEEP maintains a business recycling assistance webpage with resources for business owners. The Center for Ecotechnology provides limited assistance for businesses required to compost. In general, there is limited technical assistance for businesses or the multifamily sector and no public campaigns or activities targeted toward commercial generators.
●	Social Marketing	Many CRCOG communities use social media: Facebook and Twitter for two-way engagement.
○	Enforcement	Enforcement of recycling and composting programs was not identified.

Public Private Partnerships

The CRCOG region, the state of Connecticut, and the business community will all need to work closely together to find solutions and funding for waste diversion issues. These partnerships can be found through funding opportunities with private companies, shared owner/operator agreements for MRFs and composting facilities, marketing and educational campaigns, and everything in between. Many retailers and packaging companies are realizing that local governments are responsible for the end of life for their products and are partnering to ensure products are recyclable. Additionally, federal infrastructure funding that will be coming online from EPA presents a unique opportunity to potentially finance some of the solutions to the capacity issues identified in this report.

Table 6. Public Private Partnerships Evaluation

Uptake	Category	Findings
●	State Grants/ Funding	State grant funding is available for municipalities and regional entities to fund materials management initiatives. Some CRCOG communities have applied for and received funding from the CT DEEP Sustainable Materials Management grant fund. Solid waste funding for municipalities is also available through an update to the statewide bottle deposit redemption system, which imposed a nickel surcharge on “nips” 1.5-ounce plastic alcohol containers. This addition to the program began in October 2021 and in the first six months, the program netted more than \$1.8 million in environmental cleanup and solid waste management fees that will eventually be passed to municipalities and towns where the containers were sold. Additionally, funding specifically for projects that promote food waste diversion and composting programs is available through Sustainable CT, with a \$1-\$1 match up to \$15,000.
○	Federal Grants/ Funding	Communities can receive federal grants from entities such as the Environmental Protection Agency (EPA) and the US Department of Agriculture (USDA), though the CRCOG communities surveyed did not mention receiving federal funds in the past to enhance their diversion programs. This will be a key opportunity moving forward, as the availability of federal funds increases through infrastructure funding from EPA. CRCOG will be well positioned to apply for federal funding to build out diversion infrastructure (particularly for organics) with the results of this system assessment.
○	Partner with Municipalities	CRCOG jurisdictions currently are partnering through CRCOG to complete this system assessment and identification of near-term

	/Counties for Grants	strategies to increase waste diversion. This will position CRCOG well if it to decide to pursue grant funding at a future date. To our knowledge, CRCOG jurisdictions as a whole or in part have not previously pursued recycling or composting related grant funding from CRCOG.
●	Leverage Private Sector Partnerships	There are few partnerships and private/public sector collaboration at this time, both in the CRCOG region and in the rest of CT. For example, the Housatonic Resources Recovery Authority's (HRRA) filled a recycling gap by starting a glass recycling program. HRRA partners with Strategic Materials (glass beneficiator) and Urban Mining (creates a concrete substitute using recycled glass) to recycle glass beverage and food containers from drop off sites in Western CT. Another example of a private/public partnership in CT is the City of Middletown's "Feed the Earth" program that began in 2021. The city partners with Blue Earth Compost to help restaurants and schools minimize the amount of food waste that is sent to landfills. There is no charge for restaurants who are city sanitation department customers to take advantage of the program.
●	Cooperative Public/Private Planning	There are a few professional organizations in Connecticut dedicated to advancing recycling and materials management through stakeholder engagement and education. The Connecticut Recyclers Coalition is a statewide nonprofit that puts on events and provides resources on recycling. Additionally, the Connecticut Product Stewardship Council (CTPSC) is an unincorporated entity that recognizes product stewardship as an approach to managing environmental impacts. The CRCOG jurisdictions of Avon, Hartford, and Mansfield are members of the CTPSC, and there is opportunity for both CRCOG, as a regional entity, and more CRCOG communities to become active in this group, especially given that EPR was identified as a need in the state.
●	Governmental Leadership & Coordination	Connecticut DEEP and more than 90 municipalities from across the state formed the Connecticut Coalition for Sustainable Materials Management (CCSMM) to explore ways to reduce the amount of waste that is generated in the state, improve reuse, recycling, organics collection, support EPR legislation, and consider other innovative solutions. As part of this initiative, four work groups were created focused on EPR, food scraps/organics collection, improving reuse and recycling, and unit-based pricing (PAYT). Additionally, Sustainable CT is a nonprofit organization that was created by CT municipalities to foster inclusive, resilient, and vibrant CT cities. The initiative includes a voluntary certification program for municipalities, as well as a wide-ranging menu of best practices and funding opportunities. Eight CRCOG communities are certified bronze municipalities, and nine CRCOG communities are certified silver municipalities.
○	Outside Group (The Recycling Partnership, Closed Loop, etc.) Financing	No outside financing or funding partnerships were identified.

Conclusions

Throughout the Northeast, disposal capacity is limited. Connecticut faces a significant shortfall of in-state disposal capacity with the closure of the Materials Innovation and Recycling Authority (MIRA) WTE facility in Hartford. Dwindling disposal capacity has weakened the resiliency of Connecticut waste disposal infrastructure. In lieu of this, those charged with managing waste will be required to access disposal or processing options out-of-state as an alternative, which is likely to become an increasingly costly, unsustainable solution as other northeastern states will also seek to pursue increasingly aggressive diversion mandates.

According to the 2015 Connecticut Statewide Waste Characterization Study¹⁹, about 410,000 tons (18%) of recyclable materials remains in the state solid waste disposal stream. Over 925,000 tons (40%) of the state solid waste stream is organics, including food waste, yard waste, and compostable papers. Nearly 58% of the state solid waste stream could be recycled or composted.

While the CMMS goal of 60% diversion is achievable by CROCOG members, it is unlikely to be reached by CROCOG or the state by 2024. It is more practical for CROCOG, and the state, to put in place the plans and implementation of components for diversion infrastructure and programming, long-term contracting structures, as well as intergovernmental cooperation. CROCOG will need to adopt achievable milestones as part of their short-term planning efforts.

Task One Key Findings

DISPOSAL FACILITY INVENTORY & ASSESSMENT

- An alternative waste generation figure of 737,323 TPY or 2,020 TPD was calculated for disposal planning purposes.
- There is virtually no landfill disposal capacity identified within 100 miles of CROCOG. Between 100 miles and 150 miles, minor airspace capacity is available that may serve small communities of limited waste streams, for example C&D debris. It was determined that there is approximately 74,000 tons per day (TPD) of available landfill waste capacity in a 350-mile radius from CROCOG
- There are 37 waste-to-energy facilities with approximately 3,450 TPD of combined available WTE capacity in a 350-mile radius.
- Transfer station capacity within 50 miles of CROCOG is lacking with only 1,650 TPD available transfer waste capacity from 192 facilities with a median value of 8.6 TPD capacity per facility.²⁰ Tetra Tech considers this a 'paper capacity' indicating that the region is lacking transfer station capacity.

ORGANICS FACILITY INVENTORY

- Excess organics management capacity is available to increase residential and commercial food waste collection. As an example, Quantum's Southington anaerobic digestion facility currently is permitted to process more than 90,000 tons per year; however, built capacity is

¹⁹MSW Consultants. (2016). *Connecticut Department of Energy and Environmental Protection 2015 Statewide Waste Characterization Study Final Report*. https://portal.ct.gov/-/media/DEEP/waste_management_and_disposal/Solid_Waste_Management_Plan/CMMSFinal2015MSWCharacterizationStudy.pdf

²⁰ MIRA transfer station facilities, Casella of Holyoke Inc. Transfer Station, and UMass Amherst Intermedia Processing Facility are not included in the transfer station facility count.

approximately 40,000 tons per year and estimated available built capacity is greater than 10,000 tons per year.

- Additional built capacity and/or pretreatment technologies will be needed to ensure nearby processing if food waste is to be collected at scale from residential and commercial sources.
- Need for additional yard waste capacity is unknown at this time and may depend on whether composting facilities are needed to process digestate as well as interest and ability to capture the estimated 25k TPY of leaves, grass and trimmings discarded by the residential sector.
- No composting facilities that process commingled food and yard waste were identified. This is important as it informs residential collection opportunities.

RECYCLING FACILITY INVENTORY

- MRF capacity is sufficient to allow for continued growth of recycling programs given upgrades underway at AMH's Berlin MRF and Casella's Willimantic Facility.
- AMH's Berlin MRF may be interested in using the closed MIRA MRF for transfer.

WASTE DIVERSION GAPS/OPPORTUNITIES PRELIMINARY FINDINGS

- Volumes of recyclables collected from households were below the national average for single family homes and ~170 lbs. per household lower than high performing programs for single family homes.
- Food waste collection from both residential and commercial sectors is minimal.
- Opportunities exist for both technical assistance, outreach, and enforcement for commercial and multifamily sectors.
- Recycling access generally is strong but could be improved through converting subscription programs to automatic collection and potentially optimizing drop off programs.
- CRCOG can enhance its efforts by pursuing public-private partnerships to maximize its impact.

PRELIMINARY FINDINGS RELEVANT TO UNIT-BASED (PAY-AS-YOU-THROW) PRICING

- Median cost for communities with unit-based pricing was \$200 per year trash and recycling collection and disposal/processing services.
- Majority of communities utilize carts for curbside collection of trash and recycling.
- Majority of households in Hartford live in multi-family housing.
- There is significant variation in the funding mechanisms being utilized by CRCOG communities to fund waste and recycling programs.

Appendix A: Disposal Infrastructure Inventory and System Assessment Methodology and Findings

Tetra Tech evaluated waste processing and disposal capacities for present and near future municipal solid waste (MSW) generation in member municipalities of CRCOG. For the evaluation Tetra Tech was provided by RRS a listing of transfer stations (TS), waste-to-energy (WTE) facilities – i.e., waste incinerators, and landfills. Tetra Tech obtained permitted and actual waste management capacities for facilities that could reasonably be serving the CRCOG municipalities. Capacity information was obtained from public records, i.e., permits and statutory waste management reports, as well as industry-standard processing rates when site-specific documentation was not available.

The data analysis included a high-level evaluation of the municipal solid waste management, from generation and processing through to disposal for CRCOG’s 38 member towns implementing a ‘mass balance’ approach. The approach compares the processing capacity of transfer stations to the disposal capacity at landfills and at WTE facilities surrounding CRCOG. The analysis identifies proximal facilities with sufficient capacity to manage the current daily waste generation and to reduce transportation costs.

It was determined that some of the facility capacity numbers were not reliable numbers, therefore these numbers were set to zero for available average daily tonnage permitted or accepted.

Transportation

Selection criteria were determined based on the function of the facilities and their distance to CRCOG. For the high-level analysis, Tetra Tech has not determined driving distances, but used ‘as the crow flies’ distances between CRCOG headquarters in Hartford to the various facilities within a radius of up to 350 miles for disposal facilities, i.e., landfills and waste incinerators, and 50 miles for transfer stations. Actual driving distances (i.e., road miles) are expected to be about 30% longer. The distances were chosen based on the following considerations:

- **Transfer Stations:** Economically feasible transport to disposal facilities requires transloading of MSW from municipal collection vehicles to semi-trailer. The 50-mile radius around CRCOG headquarters covers the real extent of the CRCOG member municipalities and their immediate vicinity.
- **Waste Disposal:** Municipal waste from large urban centers is hauled long distance to out-of-state commercial landfills in New York, Pennsylvania, and Ohio. Hauling distances are generally limited to 14 consecutive hours. The 350-mile radius was chosen to allow one roundtrip per truck and driver without triggering the mandatory 10-hour rest period en route.

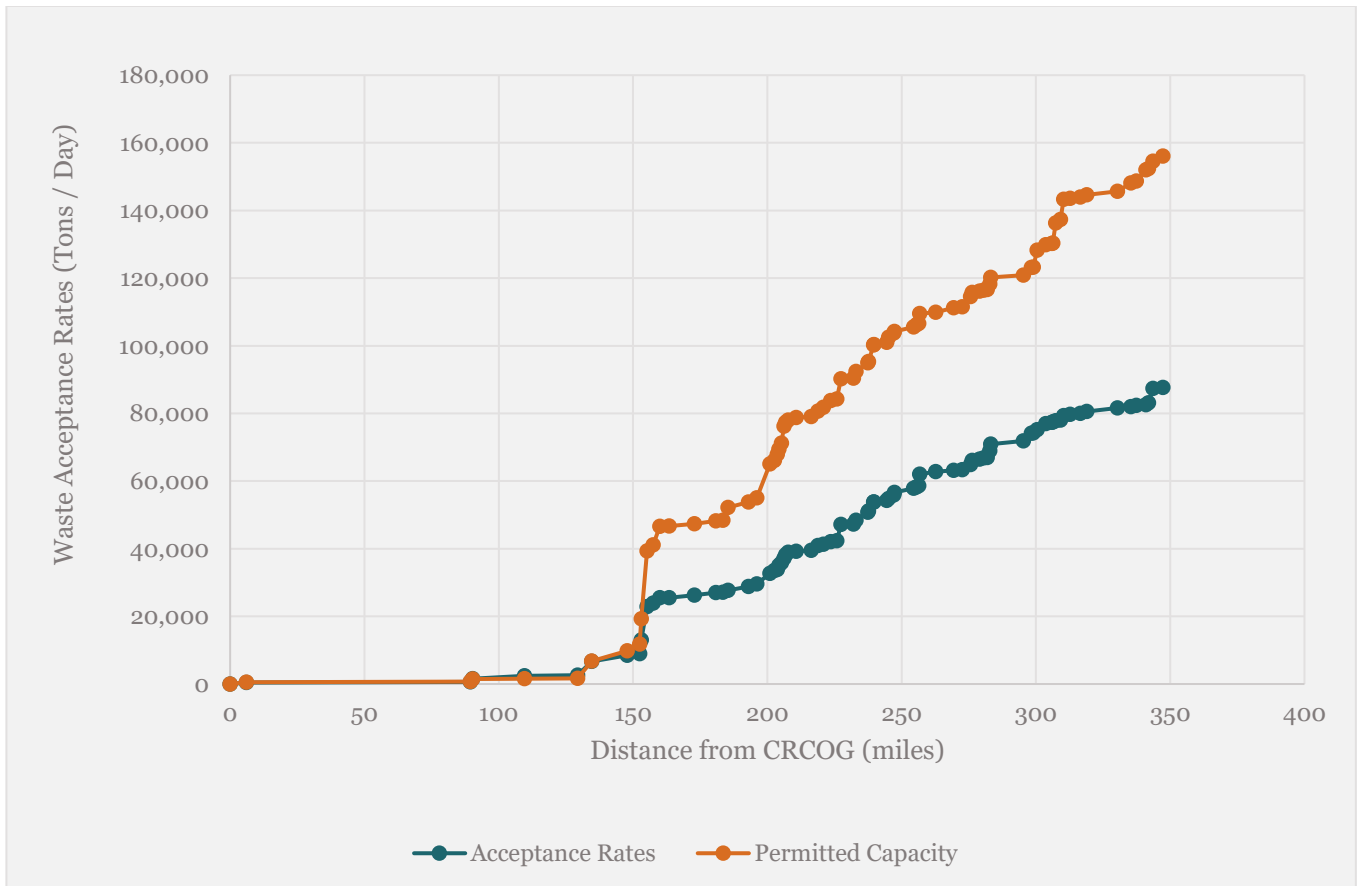
Landfills

Only commercially operating landfills were considered based on the assumption that local government-owned facilities generally reserve airspace for local generators absent long-term contractual commitments with non-local sources. Facilities in New Jersey and Massachusetts were removed from consideration as most facilities in these states are subject to waste flow controls restricting access for imported waste.

Permitted capacity data for considered landfills was compared to the EPA waste acceptance rate data. In the case that a permitted capacity could not be determined, the reported acceptance rate was assumed to be 80% of the permitted capacity. The available disposal capacity was calculated as the difference between the permitted capacity and the waste acceptance rates (in tons per day). Facilities with low waste acceptance rates of less than 20 TPD, and facilities with moderately low waste acceptance rates (less than 40 TPD) that are distanced more than 250 miles from CRCOG were also removed from the analysis as these options are likely not feasible and economic solutions.

There is virtually no disposal capacity was identified within 100 miles of CRCOG. Between 100 miles and 150 miles minor airspace capacity is available that may serve small communities of limited waste streams, e.g., C&D debris. Only at distances greater than 150 miles becomes significant disposal capacity available. Based on the available information the required disposal capacity is available within approximately 160 miles distance from CRCOG. Figure 12 shows the landfill capacity data.

Figure 12 Landfill Capacity Data

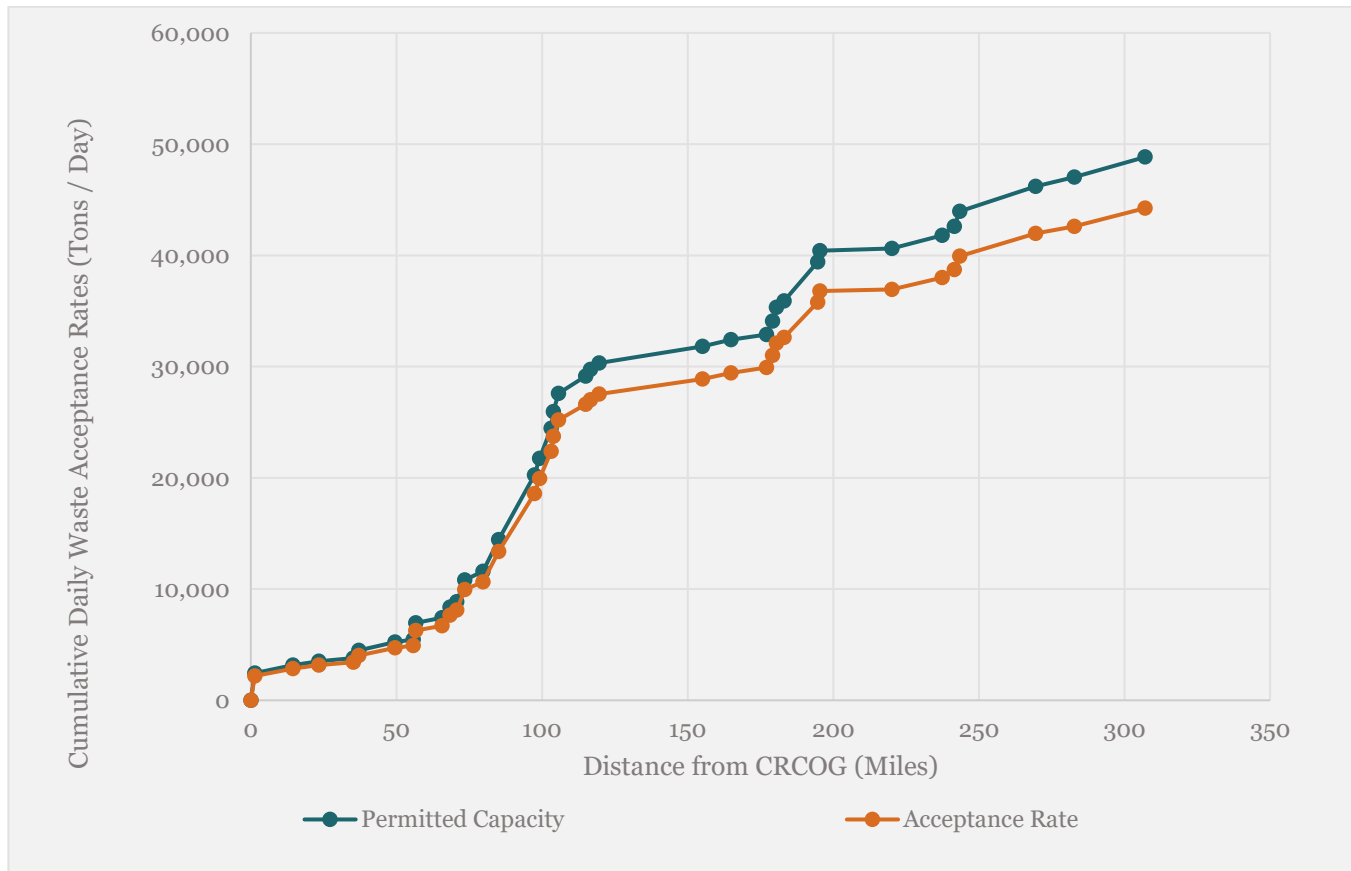


Waste-to-Energy Facilities

A similar analysis was conducted for the waste-to-energy (WTE) facilities. For facilities that waste acceptance rate data was unavailable for, it was assumed the waste acceptance rates were 90% of the permitted capacity. It was determined that there is approximately 4,600 TPD of available WTE waste capacity in a 350-mile radius from CRCOG. This number is further reduced by 25% due to the residue byproduct of waste incineration that still has to be disposed of, leaving approximately 3,450 TPD of available capacity.

There is approximately 4,600 TPD of available WTE waste capacity in a 350-mile radius from CRCOG. Approximately 2,660 TPD of incinerator capacity becomes available at a distance greater than approximately 125 miles from CRCOG, equivalent to 80% of the CRCOG average daily waste generation. Ash disposal by the WTE facility is likely to compete with landfilling. However, ash disposal is the responsibility of the WTE facility operator and represents less than 25% of the MSW. Figure 13 shows the WTE capacity and distance from CRCOG.

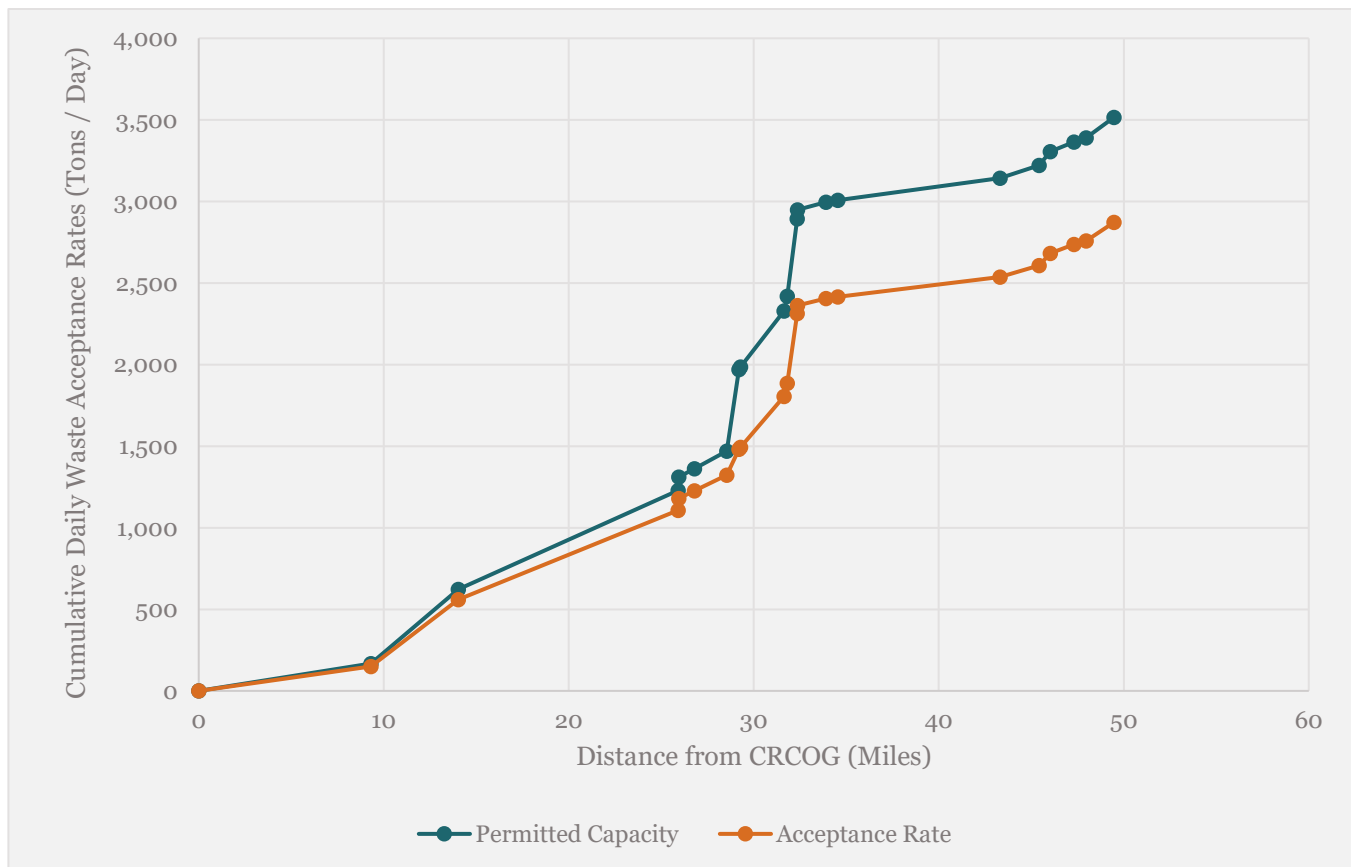
Figure 13 2019 Cumulative Waste-to-Energy Capacity vs. Distance



Transfer Stations

Transfer stations within 50 miles of CRCOG were also analyzed. As a closure plan was submitted for the Hartford MIRA facility it was removed from the data set. For transfer stations with inaccessible waste permitted capacity data, it was assumed that the permitted capacity of a facility was directly proportional to its footprint size. Facility footprints were measured using Google Earth, and permitted capacities were calculated assuming 0.033 TPD of permitted capacity per square foot of footprint (derived from an industry rule-of-thumb that a 1,000 TPD facility has a footprint of approximately 30,000 square feet). It was then assumed that waste acceptance rates were 90% of the permitted capacity. Through this analysis, it was determined that the median available daily capacity per facility was 8.6 TPD. Applying this number to the 192 facility data set it was determined that there is approximately 1,650 TPD of available transfer station waste capacity within a 50-mile radius from CRCOG, not including regional or MIRA owned facilities. Tetra Tech considers this a 'paper capacity' indicating that the region is lacking transfer station capacity.

Figure 14 Transfer Station Capacity Data



Waste Generation

Waste generation data was analyzed, looking at individual CRCOG member towns. Waste generation data was determined for each municipality using destination facility²¹ data for reporting years 2018 to 2020. Due to inconsistencies of the data, Tetra Tech also employed the CRCOG estimated per per-capita waste generation rate of 4.1 lbs./person/day (as compared to the U.S. national average of 4.9 lbs./person/day²²) to each municipality’s population to obtain an alternative waste generation figure. The greater of the two values was used in the analysis.

The table below shows surrounding transfer and disposal facility capacity and alternative waste generation data for CRCOG.

Table 7 Summary of CRCOG Municipalities Total Waste Generation

Facility Type	Average Daily Capacity (Tons / Day)	Total Available Annual Capacity (Tons / Year)
Landfills	74,050	27,028,329
WTE	3,462	1,263,729
Transfer Stations	1,663	607,068
Total	79,176	28,899,126
CRCOG Alternative Waste Generation	2,020 TPD	737,323 TPY

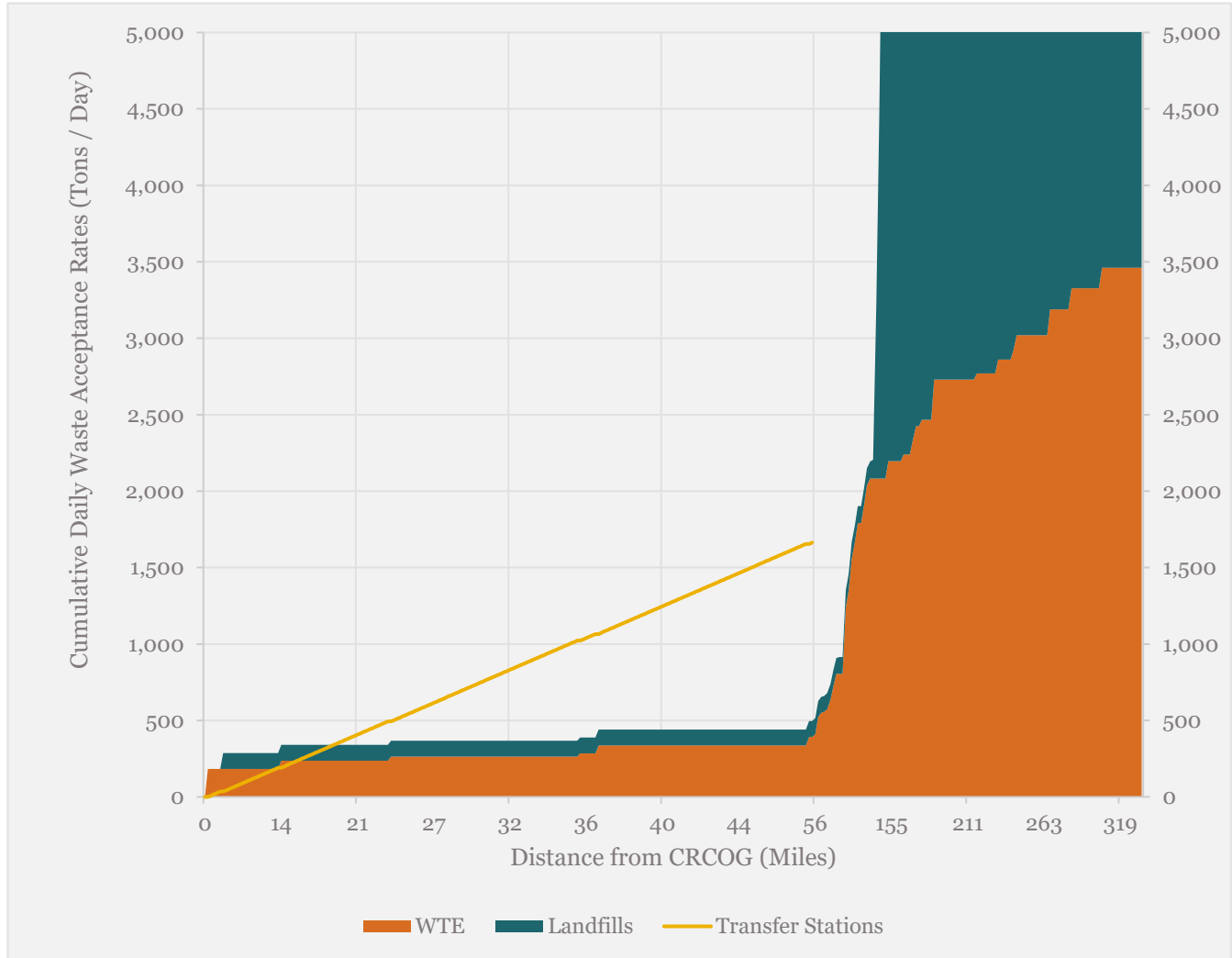
²¹ As noted in the data set information, destination facility represents the first destination for the waste material. Some of this material may end up going out of state as a subsequent destination, but it is difficult to attribute specific tonnages from specific towns as having been directed out of state unless it is sent from a transfer station that is unique to one municipality.

²² Environmental Protection Agency. (2020). Advancing Sustainable Materials Management: 2018 Fact Sheet Assessing Trends in Materials Generation and Management in the United States. https://www.epa.gov/sites/default/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf

Cumulative Disposal Capacity

The figure below shows cumulative disposal capacity at landfills and WTE facilities. Waste processing capacity at transfer station is plotted separately.

Figure 15 Cumulative Daily Waste Management Facility Capacity vs. Distance



Appendix B: Solid Waste Planning and Facility Siting – Relevant Policy

Solid Waste Management Working Group (Special Act 22-11)

As solid waste combustion has been the main method of municipal solid waste disposal in Connecticut. With the closing of the MIRA facility in Hartford, and overall capacity shortage across the Northeast, the Solid Waste Management Working Group is being tasked to consider potential in-state solutions.

Special Act No. 22-11²³ recently established a Solid Waste Management Working Group (Working Group) for the purpose of strategic planning for both short-term and long-term management and disposal of solid waste across the state. The Work Group is tasked to study and make recommendations related to solid waste management in the state. Their report to legislature is due not later than January 1, 2023. The Working Group held its initial meeting on August 17th, 2022. The Act states that the Working Group shall consist of members from the following sectors shown in the table.

Table 8 CT Solid Waste Management Working Group Members

CT Solid Waste Management Working Group	
1	Chairpersons of the joint standing committee of the CGA with knowledge related to the environment
2	Senate chairperson and House vice-chairperson of the CGA with knowledge related to energy
3	Ranking members of the joint standing committee of the CGA with knowledge related to the environment
4	Ranking members of the joint standing committee of the CGA with knowledge related to energy
5	Commissioner of Energy and Environmental Protection
6	Secretary of the Office of Policy and Management
7	Chairperson of the Public Utilities Authority
8	Town leader of a member town of Connecticut Conference of Municipalities
9	Town leader of a member town of Connecticut Council of Small Towns
10	Farming Industry representative
11	Owner of an Anaerobic Digester (AD) for food waste

²³ Substitute Bill No. 277, Special Act No. 22-11: An Act Establishing a Solid Waste Working Group. Retrieved September 23, 2022, from <https://www.cga.ct.gov/2022/act/Sa/pdf/2022SA-00011-R00SB-00277-SA.PDF>

12	Director of the Materials Innovation and Recycling Authority (MIRA)
13	Operator of a Material Recovery Facilities (MRF)
14	Operator of a MIRA regional transfer station (TS)
15	Operator of a trash-to-energy facility (WTE)
16	Member of the National Waste and Recycling Association (NWRA)

General Permit Requirements

The General Permit (GP) incorporates applicable goals of the CMMS and the Connecticut Coalition of Sustainable Materials Management (CCSMM). The GP authorizes construction and operation of eight (8) types of recycling and solid waste material facilities, and processing of over thirty-five (35) types of solid waste material streams.

The GP authorizes a Municipal Transfer Station to process a maximum of one thousand (1,000) TPD of solid waste, including recyclables but excluding clean wood, leaves, and grass. Universal wastes, including mixed batteries, mercury-containing lamps, mercury-containing equipment, and used electronics, are managed according to the terms and requirements established under a General Permit.

Municipal transfer stations operate under a general permit issued by DEEP for a specific facility (CGS sec. 22a-208a(i)(I) and sec. 22a-454(e)(I)). Any municipality, municipalities or regional authority can seek to construct and/or operate a municipal transfer station under the authority of a General Permit. Transfer Station is defined as any location or structure, whether located on land or water, where more than ten cubic yards of solid waste generated elsewhere may be stored for transfer, or transferred from transportation units and placed in other transportation units for movement to another location, whether or not such waste is stored at the location prior to transfer.

General Permit is also required for certain recycling facilities²⁴. These include:

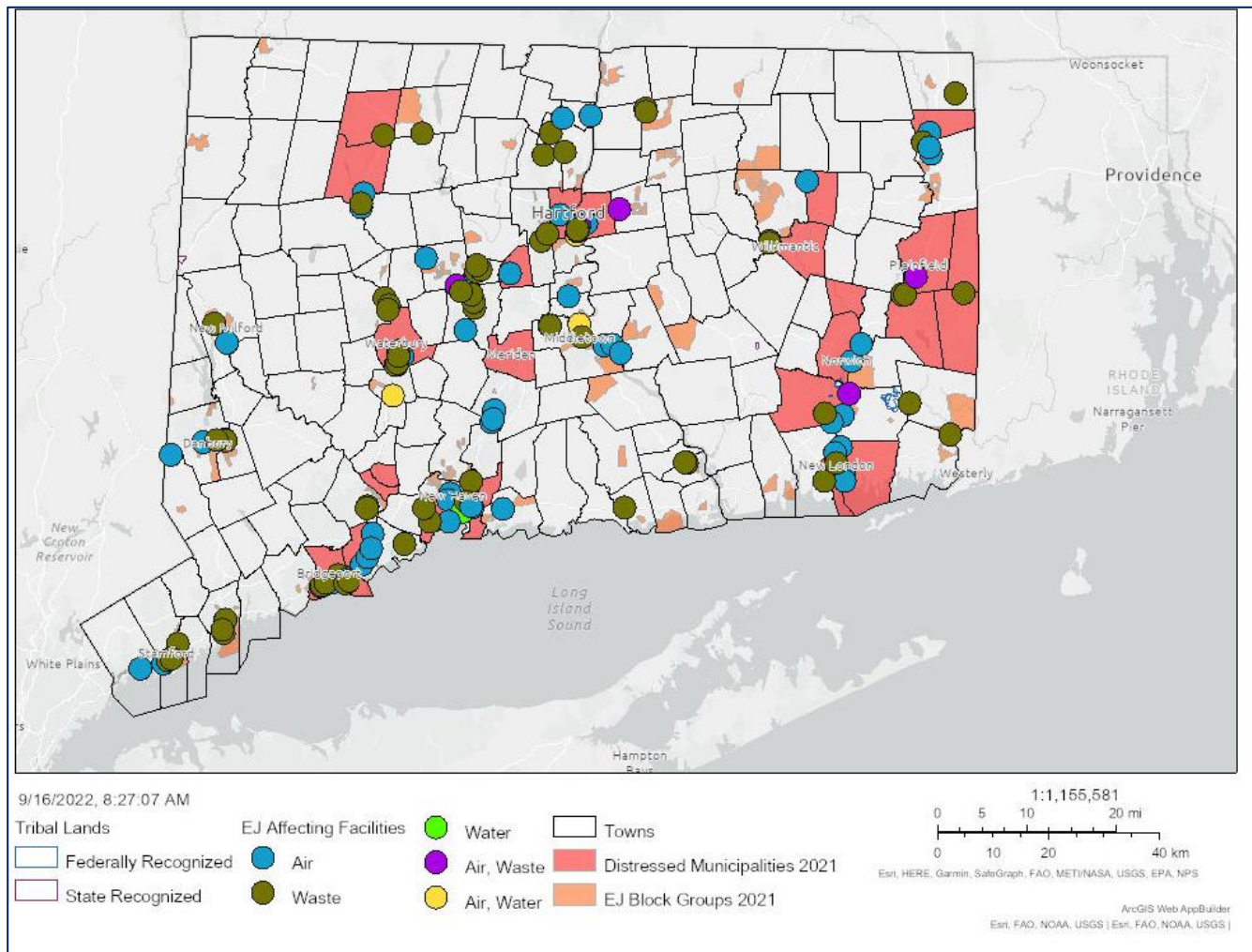
- **Satellite Drop-Site Facility** where source separated solid waste is collected but not processed and the total storage capacity of all collection containers does not exceed 100 cubic yards.
- **Drop-Site Facility** for source separated solid waste is collected but not processed; yard waste or brush is not accepted. The storage capacity of each collection container does not exceed 40 cubic yards, and the number of collection containers does not exceed three (3) per category of paper, glass, plastic, paper food and beverage containers, and two (2) per category of recyclable solid waste or scrap tires. Universal waste is not included. Approval of Registration and fee are required.
- **Recyclable Transfer Facility** is a solid waste facility that is used by solid waste collectors with incidental local residential use for the transfer of recyclables from collection vehicles into collection containers. No processing or sorting of recyclables other than transfer or compaction. The facility is not to exceed 120 cubic yards per category of recyclables may be stored. Approval of Registration and fee are required.
- **Limited Processing Recycling Facility** is a solid waste facility that can receive source separated solid waste or commingled recyclables that are collected, sorted and processed. The facility is not to exceed twenty (20) tons per day of accepted materials. Approval of Registration and fee are required.
- **Single Item Recycling Facility** is a solid waste facility that accepts a single category of recyclable solid waste for processing of no more than 100 tons per day of recyclables. Approval of Registration and fee are required.

²⁴ Connecticut Department of Energy and Environmental Protection. (n.d.-b). *General Permit to Construct and Operate Certain Recycling Facilities: An Environmental Permitting Fact Sheet*. Retrieved September 24, 2022 from <https://portal.ct.gov/DEEP/Permits-and-Licenses/Factsheets-Waste-and-Materials-Management/General-Permit-to-Construct-and-Operate-Certain-Recycling-Facilities>

Environmental Justice

The CT DEEP’s environmental justice (EJ) policy states that no population, due to racial or economic makeup should bear a disproportionate share of the risks and consequences of environmental pollution or denied access to environmental benefits.²⁵ Environmental justice affecting facilities includes sludge or MSW WTE, waste-water treatment facilities (WWTF), intermediate processing facilities, volume reduction facility or multi-town recycling facilities, new or expanded landfill (HB No. 7008)²⁶.

Figure 16 Environmental Justice Affecting Facilities



Source: CT DEEP

²⁵ Connecticut Department of Energy and Environment. (n.d.). *Environmental Equity Policy*. Retrieved September 23, 2022, from <https://portal.ct.gov/DEEP/Environmental-Justice/Environmental-Equity-Policy>

²⁶ House Bill 7008, September Special Session, Public Act 20-6: An Act Concerning Enhancements to the State’s Environmental Justice Law. Retrieved September 23, 2022, from <https://cga.ct.gov/2020/ACT/PA/PDF/2020PA-00006-R00HB-07008SS3-PA.PDF>

