



# ORANGE COUNTY NORTH CAROLINA

## Current Solid Waste Systems Review for the *SWMP – Road to Zero Waste Plan*

Prepared for:

Orange County, North Carolina  
Solid Waste Management Department  
1207 Eubanks Road  
Chapel Hill, NC 27516

Prepared by:

Jennifer Porter  
Vice President and Sustainability Officer  
Gershman, Brickner & Bratton, Inc.  
2010 Corporate Ridge, Suite 510  
McLean, VA 22102  
jporter@gbbinc.com

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[www.gbbinc.com](http://www.gbbinc.com)

Photo Credit: Town of Chapel Hill, NC

### Disclosure:

This Memo is a draft and was current as of June 2022. It serves as an Appendix for the Road to Zero Waste Plan which contains updated information.



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**Orange County, North Carolina**  
Current Solid Waste Systems Review

June 29, 2022

**GERSHMAN, BRICKNER & BRATTON, INC.**

2010 Corporate Ridge, Suite 510, McLean, Virginia 22102

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# 1 Introduction

The Orange County (County) Solid Waste Management Department contracted with Gershman, Brickner & Bratton Inc. (GBB) to create a *Solid Waste Master Plan – Road to Zero Waste* (Plan). The Current System Review herein is a first step in the project to lay the groundwork for public engagement efforts later in 2022 and the resulting Plan development by Summer 2023.

Orange County operates a robust waste management program serving its residents and community members. There are opportunities for further study as the GBB team moves ahead with Orange County and its stakeholders, using this Current Systems Review to identify needs and gaps, with a summary of options for consideration.

Subsequent discussions moving forward may include management topics, such as the selection of materials to be included for consideration in both the public engagement and the options analysis, the definition of diversion and the role of waste prevention in County planning, as well as operational specifics, such as input on consistent signage/messaging, and waste collection and processing options which may be advantageous to the County.

## 1.1 Overall goals of this project:

1. Goal 1 – Develop a comprehensive and easily understandable Solid Waste Master plan, with identifiable action items and a plan summary;
2. Goal 2- Develop a comprehensive strategy by 2045 that will lead to “Zero Waste,” as defined by the County;
3. Goal 3- Integrate the Plan’s efforts with the ongoing climate action plans of the County, the Municipalities, the University, and the University Health Care system.
4. Goal 4 – Select a sustainable business model that incorporates the financial, social, and environmental, including carbon footprint reduction impacts on our community;
5. Goal 5 – Identify future programs, initiatives, facilities, and infrastructure to achieve the Zero Waste goal, as defined by the County, while ensuring the long-term financial stability of the County’s solid waste and recycling program;
6. Goal 6 - Identify strategies to increase public education and participation in waste reduction and waste diversion programs through awareness of reduction, reuse, recycling, and composting, while addressing ordinance and enforcement requirements;
7. Goal 7 – Develop and include an equitable, comprehensive public engagement process that effectively includes input by the general public, including groups that historically have been marginalized, and key interest groups, including the municipal and university partners, and keeps the public informed and updated on the process; and
8. Goal 8 – Ensure all proposed programs and policies are in regulatory compliance with local, state, and federal requirements.

As defined by Orange County, Zero Waste is the reduction of solid waste to nothing, or as close to nothing as possible, by minimizing excess consumption by means of responsible production, consumption, and reuse and maximizing the recovery of solid wastes through recycling and composting.

## 2 County Background

### 2.1 Planning Service Area and County Governance

Orange County, North Carolina, is in the Durham-Chapel Hill metropolitan area and is home to the University of North Carolina at Chapel Hill, which is the flagship institution of the University of North Carolina system. The Towns of Hillsborough, Chapel Hill, and Carrboro, parts of the cities of Durham and Mebane, and several communities located in nearby unincorporated county areas make up the Orange County solid waste service area. The county seat is Hillsborough.

Orange County is responsible for the county's overall solid waste management, which includes oversight of the solid waste programs and services that are offered, the financing and fees (including rate setting), and the operation of the county-wide solid waste facilities. Additionally, the County coordinates recycling, reuse, and waste reduction services. While the County consistently seeks collaboration and assistance from staff in Hillsborough, Carrboro, Chapel Hill (the "Towns"), and its unincorporated areas, along with representatives from UNC Chapel Hill and UNC Healthcare as needed, it is the County itself that is accountable for the efficiency and effectiveness of its solid waste management. The County must adhere to the policies and requirements that are set forth by the North Carolina Department of Environmental Quality and, in doing so, places emphasis on the overall goals of waste reduction and increasing diversion of materials from landfills or incinerators when making its solid waste management planning decisions.

The County is not responsible for the management of its commercial solid waste; rather, each business arranges its own waste pickup and disposal. However, the County does handle a portion of the commercial recycling. In addition to commercial recycling, the County's Solid Waste Management Department provides residential curbside recycling services to all Towns and unincorporated areas.

The towns and county each maintain operational, financial, and environmental authority and responsibility for the municipal solid waste (MSW) that is generated, collected, and transferred within their respective jurisdictions. Each of the Towns manages its own collections of municipal solid waste, while other solid waste services, including the curbside recycling collection, recycling drop-off sites, household hazardous waste (HHW) collection, receipt and management of construction and demolition (C&D) waste, and solid waste convenience centers, are provided by Orange County via its Solid Waste Management Department.

#### 2.1.1 Town of Hillsborough

Hillsborough is in the central part of Orange County and serves as the county seat. The Public Works Division provides residential curbside solid waste collection services, including yard waste. Bulky waste items in Hillsborough, such as furniture, appliances, mattresses, etc., are collected once monthly via the Public Works Division. Other solid waste services, including recycling collection, are provided by the County.

Municipal solid waste collection in Hillsborough is provided once weekly to single-family residences. Each residence is provided one (1) solid waste rollout cart at no charge, and an optional cart can be obtained for a fee. Residents are charged for solid waste collection via their utility bills.

For multifamily housing communities, businesses, churches, and nonprofits, solid waste collection is provided through a franchise agreement that is negotiated by the town for pricing and services for the businesses. Each customer pays the provider directly, with rates based on their individual service level and frequency. As of March 2022, the waste service provider in Hillsborough is GFL Environmental.

### 2.1.2 Town of Chapel Hill

Chapel Hill is the 16<sup>th</sup> largest city in North Carolina and is considered part of the Raleigh-Durham-Cary statistical area known as the “Research Triangle<sup>1</sup>,” which is a metropolitan area in the Piedmont region of North Carolina that is anchored by the cities of Raleigh and Durham and the town of Chapel Hill and is home to three (3) tier-one research universities including North Carolina State University, Duke University, and the University of North Carolina at Chapel Hill, respectively.

The Town of Chapel Hill provides once-weekly trash and yard waste collection for its residents within Town limits. The service is paid through property taxes, and there are no fees or accounts for residents to set up or cancel. The town provides one (1) trash cart to each household at no charge, and additional carts may be purchased for \$60. Yard waste carts may be purchased for \$50.

Large household items such as furniture, appliances, and electronic equipment can be picked up through a service that residents request in advance. For a fee of \$15, paid ahead of time, up to three (3) large household bulky items will be collected by the town. Additionally, between the months of October and February each year, loose leaf collection is offered to all residents by the Town’s Streets Division.

As with Hillsborough, curbside recycling services are provided to Chapel Hill residents by Orange County’s Solid Waste Management Department.

### 2.1.3 Town of Carrboro

Located directly west of Chapel Hill, Carrboro is also part of the Raleigh-Durham-Cary area. Carrboro’s Public Works Solid Waste Division provides trash collection services for all single-family dwellings and duplexes, multi-unit housing, commercial entities, bulk waste items, as well as the collection of residential yard waste and loose leaves.

All household trash is collected in Town-issued 95-gallon roll-out containers. These containers may be purchased at Carrboro Town Hall or online through the Public Works website. Yard waste is collected in roll-out containers as well and/or via small yard waste piles placed curbside on collection days. Bulky items, such as furniture and appliances, are collected when placed curbside on trash collection day.

As with Hillsborough and Chapel Hill, curbside recycling services are provided to Carrboro residents by Orange County’s Solid Waste Management Department.

### 2.1.4 UNC Chapel Hill and UNC Healthcare

The University of North Carolina Chapel Hill and UNC Healthcare are important stakeholders in the County and the Towns’ planning for current and future solid waste management. While UNC-CH and UNC Healthcare’s materials are not serviced by the County, it is acknowledged by the County that these institutions play a vital role in solid waste management and are continuously invited and encouraged to participate in the County’s future planning and decision-making with respect to solid waste issues.

### 2.1.5 Unincorporated Orange County

An unincorporated area generally refers to the part of a county outside any municipality. In Orange County, there are twenty-three (23) communities, representing a population of over 30,000 individuals, who make

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<sup>1</sup> Source: Research Triangle Regional Partnership. Copyright 2022. Retrieved from: <https://www.researchtriangle.org/the-triangle/#our-counties> in March 2022.



up the unincorporated area. These communities, which are spread out throughout the County boundaries, include:

- Blackwood
- Buckhorn
- Caldwell
- Calvander
- Carr
- Cedar Grove
- Dodsons Crossroads
- Dogwood Acres
- Eno
- Eubanks
- Fairview
- Hurdle Mills
- Laws
- McDade
- Miles
- Oaks
- Orange Grove
- Piney Grove
- Rougemont
- Schley
- Teer
- University
- White Cross

In the Orange County system, these unincorporated areas are considered and treated as a community that receives solid waste and recycling services. The County’s Rural Recycling Collection program, which includes curbside collection to the unincorporated communities, occurs biweekly. Residents in the unincorporated portion of Orange County receive one 95-gallon wheeled cart for their every other week collection.

Residential curbside recycling is not mandated by law in Orange County and is, therefore, an optional service for its citizens. The County’s goal is to have as many people as possible participate in recycling; thus, the service is provided at no extra cost to the public. Funding for the recycling program, as well as other solid waste services, is provided by the Solid Waste Enterprise Fund, which is further described in [Section 2 - County Background](#) of this report. It should be noted, however, that the payment of the solid waste programs fee is due regardless of participation in curbside recycling. Additional details about MSW and recycling collections, including the facilities used, current waste quantities, and lists of acceptable materials, are discussed in [Section 4 - Solid Waste Management System Inventory](#) of this report.

## 2.2 Demographics: Projected Growth, Population & Economics

As of the 2020 US census, the population of Orange County, North Carolina, was 148,696 people, organized into 55,259 households within the County, representing a population increase of approximately 11% from the previous count in 2010 (see Table 1).

Table 1 - Population of Orange County Townships (2020)<sup>2</sup>

Municipality	Population (2020)
Bingham Township	6,972
Cedar Grove Township	5,251
Chapel Hill Township	96,006
Town of Carrboro	21,295
Town of Chapel Hill	59,054
Unincorporated	15,657
Cheeks Township	11,050
City of Mebane	3,171

<sup>2</sup> Population, Demographics, & Population Projections. Retrieved from: <http://www.orangecountync.gov/1467/Population-Demographics-Population-Proje>

Municipality	Population (2020)
Unincorporated	7,879
<b>Eno Township</b>	<b>8,437</b>
<b>Hillsborough Township</b>	<b>17,373</b>
Town of Hillsborough	9,660
Unincorporated	7,713
<b>Little River Township</b>	<b>3,607</b>
<b>TOTAL</b>	<b>148,696</b>

According to the North Carolina State Office of State Budget and Management<sup>3</sup>, Orange County’s population is projected to increase to approximately 170,000 between 2030 and 2040. The state population projections for the county, as displayed below, provide population estimates through 2050 adjusted to the 2020 Census estimate.<sup>4</sup>

Table 2 - Population Growth Estimates for Orange County<sup>1</sup>

Year	Population
<b>2030</b>	163,718
<b>2035</b>	171,201
<b>2040</b>	178,629
<b>2045</b>	186,004
<b>2050</b>	193,327

The County’s population and state and regional employment trends indicate that Orange County’s employment growth is also estimated to increase. According to the North Carolina Department of Commerce’s Labor & Economic Analysis Division (LEAD), the state is projected to have more than 302,000 new jobs between 2018 and 2028, over two-thirds, or 72%, of which are anticipated to take place in the Charlotte and Raleigh-Durham regions.<sup>5</sup> State employment projections and annual growth rate through 2028 are displayed in Table 3.

Table 3 - North Carolina Employment Projections<sup>6</sup>

	AAGR	2018	2028
<b>Total Employment</b>	0.6%	4,791,820	5,094,15

Population growth is one factor that can impact residential MSW generation. The County can manage increased residential solid waste through strategic planning indicated in the solid waste management plan.

### 2.3 Solid Waste Management Department

All of the County’s solid waste management programs are operated by the Solid Waste Management Department. These programs include recycling collection, operation of five (5) Waste & Recycling

<sup>3</sup> North Carolina State Office of State Budget and Management. *Projected Population of the State of North Carolina and Its Counties July 1, 2021 – July 1, 2050.* (February 2022). Retrieved from: <https://www.osbm.nc.gov/media/1547/download?attachment>

<sup>4</sup> North Carolina Employment Projections. (2019 – 2028). Retrieved from: [https://files.nc.gov/nccommerce/documents/Research-Publications/2028-Projections-Summary-Supplement-to-Press-Release\\_062821.pdf](https://files.nc.gov/nccommerce/documents/Research-Publications/2028-Projections-Summary-Supplement-to-Press-Release_062821.pdf)

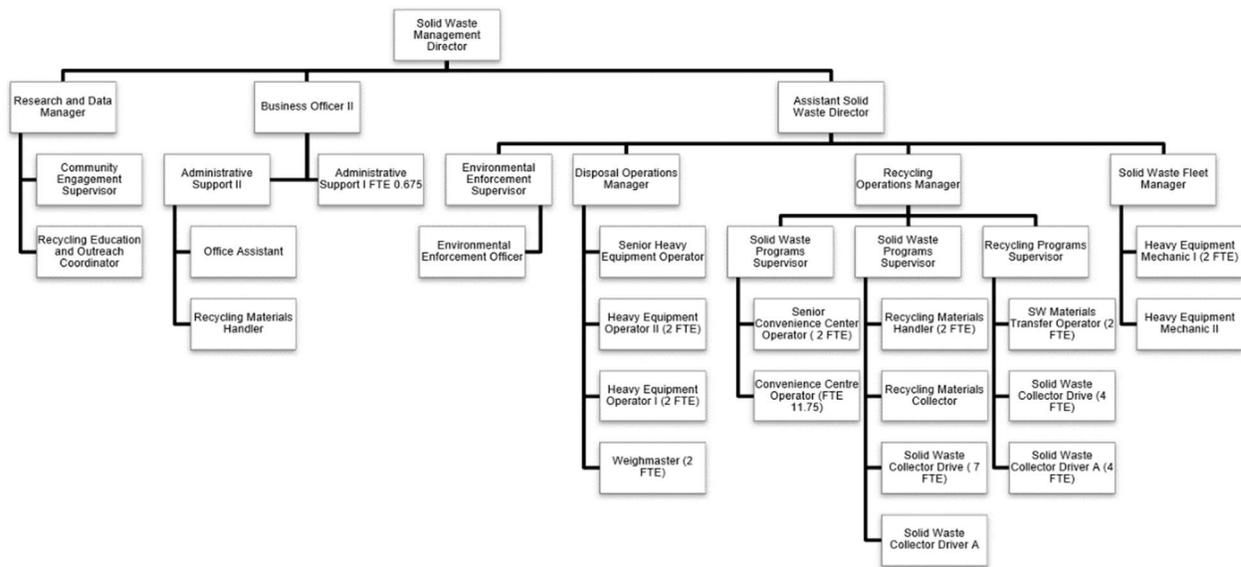
<sup>5</sup> North Carolina Employment Projections Summary. (2018-2028). Retrieved from: [https://files.nc.gov/nccommerce/documents/Research-Publications/2028-Projections-Summary-Supplement-to-Press-Release\\_062821.pdf](https://files.nc.gov/nccommerce/documents/Research-Publications/2028-Projections-Summary-Supplement-to-Press-Release_062821.pdf)

<sup>6</sup> NC Department of Commerce. *2018-2028 employment projections.* Retrieved from [https://tools.nccareers.org/employmentprojections/industry\\_employment\\_projections.html](https://tools.nccareers.org/employmentprojections/industry_employment_projections.html)

Convenience Centers (WRCs), and management of a Construction & Demolition Debris (C&D) landfill that provides other services as well. The other services provided by the C&D Landfill include yard waste management and the acceptance of tires, white goods (i.e., appliances), and HHW items (e.g., garden pesticides, pool chemicals). The Department is staffed by 62 Full-Time Equivalent (FTE) employees, a reduction of 3-4 FTEs in recent years (see organization chart below).

Figure 1 - Solid Waste Management Department Organization

## Solid Waste Management



FY 2022-2023 Manager Recommended

The Solid Waste Management Department is organized into four (4) distinct divisions: Environmental Support, Landfill-Disposal Operations, Recycling, and Sanitation. The major responsibilities<sup>7</sup> of each of the divisions are as follows. *Please note that the organizational chart above does not align with the four-division organization of the Department.*

### 1. Environmental Support

- Conducting development plan reviews for compliance with solid waste and Regulated Recyclable Materials Ordinance (RRMO).
- Inspecting construction sites for compliance with RRMO.
- Acting on RRMO complaints and enforcing violations.
- Coordinating safety compliance for the Department.
- Maintaining safe and efficient operation of the fleet management shop.

<sup>7</sup> Source: FY2021-22 Annual Operating Budget and Capital Investment Plan

- Providing support services to the Department, including planning, research, business administration, education, and outreach.

## 2. Landfill-Disposal Operations

- Operation and maintenance of the County’s C&D Landfill; monitoring the three (3) closed landfills for long-term environmental compliance.
- Managing the groundwater, stormwater, landfill gas, and air emissions of the closed landfills.
- Maintaining the two (2) HHW collection facilities, including monitoring and inspections, ensuring the availability of the three (3) storm debris sites.
- Using best management practices in the diversion and recycling of yard waste, scrap metal, pallets, clean wood waste, used appliances and tires, and used mattresses at the Landfill.
- Staffing the scale house and providing customer service for all disposal operations customers.

## 3. Recycling

- Urban Curbside Recycling<sup>8</sup> – Providing weekly contracted single-stream recycling collection to all eligible households and businesses in the three municipalities (Hillsborough, Carrboro, Chapel Hill).
- Rural Curbside Recycling – Providing a biweekly collection of curbside single-stream recycling collection to all eligible households and businesses in the unincorporated portion of the County.
- Multifamily Recycling – Providing weekly recycling collection service to all eligible multifamily properties throughout the County.
- Commercial and Organics Recycling Programs – Providing collection of recyclables from bars, restaurants, and other eligible businesses throughout the County, including the *Glass on the Side* (GOTS) program.
- Operating and overseeing the contractor-approved collection and composting of pre-and post-consumer organic materials from eligible food service establishments.
- Collecting single-stream and cardboard recyclables from all K-12 schools and government buildings.
- Operating and collecting recyclable materials from five (5) staffed WRCs and four (4) unstaffed 24-hour drop-off recycling sites.

## 4. Sanitation

- Providing MSW collection services for the WRCs, County government buildings, and County schools.
- Opening and staffing five (5) WRCs for residential customers of the County.
- Staffing two (2) HHW sites for County residential customers.

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<sup>8</sup> On February 18, 2014, the County entered into an agreement with GFL Environmental (formerly Waste Industries, LLC) to provide weekly Curbside Recycling Collection for approximately 18,750 units within the three Towns of the County – Carrboro, Chapel Hill, and Hillsborough. The agreement was amended twice, and now terminates on June 30, 2024. The charge for the service is currently \$3.50 per unit per month, with maximum compensation not to exceed \$2.5 million per year. The charge is set to increase by 2% per year for the remaining two years of the agreement. The County provides 95-gallon recycling carts for GFL’s service. GFL delivers collected material at the County’s material processing facility.

## 2.4 Interlocal Agreement & Solid Waste Work Group

On December 30, 2018, the County entered into an Interlocal Agreement (ILA) with the Towns of Carrboro, Chapel Hill, and Hillsborough concerning the “Provision of Services Related to and the Disposition of Solid Waste and Recyclables in Orange County.” The ILA laid out the relationship of the Towns and County concerning responsibilities for the provision of, and payment for, solid waste services and the governance of the solid waste programs by the parties. The ILA sought to establish procedures, policies, rights, and responsibilities for collecting, transporting, and disposing waste materials and recyclables and the facilities and programs to support those services. In particular, the ILA provided for the following:

- Gave the County overall responsibility for the financing, management, and regulation of existing solid waste facilities and programs; coordinating recycling and waste reduction services; providing services to the unincorporated areas of the County; and coordinating with UNC -Healthcare and UNC-Chapel Hill.
- Established the Solid Waste Advisory Group (SWAG), a multijurisdictional task force to articulate, investigate and propose collaborative solutions for solid waste issues of the County, Towns, UNC-Healthcare, and UNC-Chapel Hill. The SWAG is composed of two (2) representatives from the County and each of the Towns, and one (1) representative each from UNC-Healthcare and UNC-Chapel Hill.
- Created the Management Oversight Committee (MOC) consisting of the County Manager, the three Town Managers, and non-voting members from UNC-Healthcare and UNC-Chapel Hill. The functions of the MOC include the following:
  - Providing a forum to discuss issues, including ILA and staff issues;

### The initial 2018 charge to the SWAG was to involve itself in the following issues:

1. An inter-local agreement on solid waste;
2. Reducing solid waste that is not recycled;
3. Recycling opportunities and services;
4. Siting a transfer station or landfill within the county;
5. Supporting public education on solid waste issues;
6. Construction and demolition waste;
7. Assuring long-term partnership of the entities involved through an inter-local agreement on waste handling and disposal;
8. Addressing equitable funding and mechanisms for establishing fees and making future joint decisions;
9. Future use of closed landfill sites;
10. Investigation of partnership possibilities involving neighboring jurisdictions;
11. Feasibility of innovative and cost-effective, environmentally-sound methods of disposal of solid waste beyond burial;
12. Potential inclusion of bio-solids in long-range disposal plans;
13. Emergency storm debris planning; and
14. Treatment of communities impacted by siting of any facilities either within Orange County or beyond its borders to receive shipments of our waste.

- Supporting County staff regarding issues with respect to services, facilities, operations, and management; input on budget, rates, and debt issuance;
- Proposing SWAG discussion topics.
- The County will operate the C&D Landfill, Waste and Recycling Centers, storm debris management drop-off sites, as well as provide facilities for recycling (See [Section 4 - Solid Waste Management System Inventory](#) of this report);
- The County will monitor and regulate the landfill gas operation;
- The Towns will direct C&D waste to the C&D Landfill, as well as non-MSW waste materials to County sites;
- The Towns are responsible for MSW collection;
- The County will provide recycling services on behalf of the Towns (see [Section 2- County Background](#) of this report for service descriptions);
- The County will provide ancillary services, including code enforcement, planning, reporting, performance tracking, public education, and promotional activities;
- The County will establish a county-wide Solid Waste Programs Fee (SWPF) to pay for the services provided (see [Section 3 - Finances](#) of this report), as well as tipping fees.

## 2.5 State of North Carolina Department of Environmental Quality

Orange County’s Solid Waste Management Department works in support of the regulations, policies, and goals set forth by the State of North Carolina’s Department of Environmental Quality (DEQ), Waste Management Division. North Carolina’s statewide solid waste policies reflect the overall desire to reduce, reuse and recycle material before turning to disposal as a management option for solid waste<sup>9</sup>. As such, Orange County prioritizes diversion in its planning and operations, meaning the County values reusing, recycling, and/or composting materials over sending them to a landfill.

In 2020, the DEQ reported that Municipal Solid Waste (MSW) and Construction and Demolition Debris (C&D) generated in North Carolina amounted to 13,916,869 tons<sup>10</sup>. In Orange County, the total amount of MSW and C&D reported in 2020 amounted to 94,842 tons<sup>11</sup>, representing approximately 0.68% of the state’s total. The per capita rate of North Carolina waste disposed into MSW and C&D landfills during 2020 was 1.32 tons per person, while in Orange County, the per capita rate was much lower in 2020, at 0.64 tons<sup>12</sup> per person.

The DEQ’s Waste Management Division’s continuous objective for each of the counties in North Carolina, including Orange County, is to consider the increased recovery and recycling of wastes, which North Carolina manufacturers and material processors need, and better align limited local resources with a maximum environmental benefit<sup>13</sup> when making solid waste management policy and planning decisions.

<sup>9</sup> Source: <https://deq.nc.gov/about/divisions/waste-management/about-waste-management>

<sup>10</sup> Source: DEQ Solid Waste Management Annual Report FY19-20. <https://deq.nc.gov/media/18733/download>

<sup>11</sup> Source: <https://files.nc.gov/ncdeq/Waste%20Management/DWM/SW/Annual%20Reports/FY19-20-County-Per-Capita-Report.pdf>

<sup>12</sup> Source: <https://files.nc.gov/ncdeq/Waste%20Management/DWM/SW/Annual%20Reports/FY19-20-County-Per-Capita-Report.pdf>

<sup>13</sup> Source: <https://deq.nc.gov/about/divisions/waste-management/about-waste-management>

### 3 Finances

#### 3.1 Enterprise Fund

The activities and accounts of the Solid Waste Management Department are organized as an Enterprise Fund – the Solid Waste Landfill Fund. The Solid Waste Landfill Fund is one of two enterprise funds (Major Proprietary Funds) established by the County. The Solid Waste Landfill Fund is used to account for the revenues and expenses related to the provision of solid waste and recycling activities for the citizens of Orange County. It is intended to be self-supporting through charges made to users of the Department’s services. As an enterprise fund, the Solid Waste Landfill Fund carries its own fund balances. Surpluses are transferred to the General Fund, and, if needed, deficits are covered by the General Fund. For FY 2022, the County anticipates that the Solid Waste Landfill Fund will transfer a balance of over \$3 million to the General Fund<sup>14</sup>.

#### 3.2 Operations

The operating results for FY 2021 are presented in Table 4 below.

Table 4 - FY 2021 Operating Results

	Division				
	Env Support	Landfill	Recycling	Sanitation	Total
<b>Revenues</b>					
SW Programs Fee	\$2,312,168	\$1,343,180	\$3,242,011	\$2,525,829	\$9,423,188
Other	\$216,001	\$1,320,011	\$312,826	\$151,570	\$2,000,407
<b>Total</b>	<b>\$2,528,168</b>	<b>\$2,663,191</b>	<b>\$3,554,837</b>	<b>\$2,677,399</b>	<b>\$11,423,595</b>
<b>Operating Expenses</b>					
Personnel	\$1,280,936	\$628,129	\$1,266,605	\$1,231,328	\$4,406,998
Direct Expenses	\$506,335	\$759,108	\$2,180,990	\$985,956	\$4,432,389
<b>Total</b>	<b>\$1,787,270</b>	<b>\$1,387,237</b>	<b>\$3,447,596</b>	<b>\$2,217,284</b>	<b>\$8,839,387</b>
<b>Other Expenses</b>					
Transfers to General Fund	\$475,000				\$475,000
Transfers to R&R Fund	\$372,604	\$1,245,854		\$372,604	\$1,991,062
<b>Total Expenses</b>	<b>\$2,634,874</b>	<b>\$2,633,091</b>	<b>\$3,447,596</b>	<b>\$2,589,888</b>	<b>\$11,305,449</b>
<b>Net Income</b>	<b>\$(106,706)</b>	<b>\$30,100</b>	<b>\$107,242</b>	<b>\$87,511</b>	<b>\$118,146</b>

<sup>14</sup> Source: FY 2021-22 Annual Operating Budget and Capital Improvement Plan



For FY 2021, the Solid Waste Landfill Fund had a net operating income of \$118,146, including transfers to the General Fund and the R&R Fund totaling \$1.99 million. Each division ran a small surplus for the year, except for Environmental Support, which had a small deficit that included transfers out of the enterprise fund. Without those transfers, that division would also have had a surplus.

### 3.2.1 Revenues

The bulk of the revenues—82.5%—are derived from the Solid Waste Programs Fee, which is a single County-wide fee assessed on each improved parcel within the County in both the incorporated and unincorporated areas of the County, as well as the portion of Chapel Hill not in the County. The fee is set annually and intended to compensate the County for its services, programs, and facilities. The current fee is \$142.00 per annum, except for the City of Mebane, which has its fee set at \$94.72. The fee is included in the property owner’s property tax bill. The remainder of revenues comes from a variety of over 30 sources, including program fees, material sales, and tipping fees. The tipping fee at the C&D Landfill is currently \$42.00 per ton for C&D material.

### 3.2.2 Expenses

Operating expenses for the Department included personnel and other direct expenses, including supplies, maintenance and repairs, and utilities. They also include almost \$1.7 million for contract services, primarily for recycling collection and transportation services. See Table 5 for the summary of current contracts.

Table 5 - Existing Contracts in the Solid Waste Management Department

	Contractor	Purpose	Term	Compensation
1	City of Durham, NC Interlocal Agreement	County Disposal of MSW at City Transfer Station	Ongoing	\$49.00 tip fee
2	Crowder Gulf, LLC	Emergency Storm Debris Clearance and Removal	10/22/19-10/31/22	Various, according to fee schedule
3	Draper Aden Associates, Inc.	Engineering and Environmental Professional Services	3/1/17- 2/28/22	Various, depending on the task(s) required
4	GFL Environmental	Curbside Recycling Collection	2/18/14-6/30/24	\$3.62/unit/month as of July 1, 2022. The GFL rate increases annually.
5	Judy D. Brooks Contractor, Inc.	Commercial Organics Collections, Hauling, and Processing Services	6/1/18-6/30/23	\$15 minimum per unit, per collection. The collection of carts (65-gal or 35-gal) occurs weekly. Dumpsters-\$80/ton; Processing-\$22/ton; Compost Delivery- \$543.50/40 c.y.
6	New River Tire Recycling, LLC	Loading, Transporting, Recycling, or Disposal of Scrap Tires	5/1/17-4/30/22	\$175.00/ton if New River picks up (County loads tires); \$150.00/ton if tires are delivered; Higher prices per ton if tires are dirty, on rims, or oversized. Fuel surcharge per load: \$20-\$40 depending on fuel prices.

	Contractor	Purpose	Term	Compensation
7	Rehrig Pacific Company, Inc.	Vision Software: web-based cart system; RFID readers, 5 users	11/10/21-11/10/24	\$20,583/year
8	RLSL Walters Properties, LLC	Lease of Land for a Solid Waste Convenience Center	20 years starting 2/1/21	\$1,312.50/month
9	Tradebe Environmental Services, LLC	Collection, Recycling, and Disposal of HHW, Used Motor Oil and Filters, and Waste Antifreeze	7/1/19-6/30/24	\$0.58/lb HHW+ Others, plus testing and training
10	WM Recycle America Co., LLC & Waste Management of the Carolinas, Inc.	Recycling Processing and Trash Disposal	7/1/21-6/30-23	Processing: \$97.50/ton (w/revenue sharing) MSW Disposal: <ul style="list-style-type: none"> <li>● WM Raleigh Transfer Station @ \$47/ton</li> <li>● WM Great Oak Landfill @ \$28/ton</li> </ul>

### 3.2.3 Other

As of FY 2021, the County Solid Waste Landfill Fund had \$6,324,039 in outstanding debt and a requirement of \$7,346,899 for closure/post-closure of its landfills. The Fund expended about \$1.15 million in new capital expenditures, paid for primarily by transferring funds from the operating budget. At the close of FY 2021, the balance in the Solid Waste Landfill Fund was \$11,032,195.

## 4 Solid Waste Management System Inventory

### 4.1 Collections Policies and Practices

#### 4.1.1 Collections Route Description

The Orange County Solid Waste Management Department provides residential Every Other Week (EOW) single-stream recyclables collection to homes in the county’s unincorporated areas. The Department operates three (3) residential fully automated collection routes per day, Monday through Friday, for a total of thirty (30) collection routes based on the EOW level of service. The fully automated collection routes utilize 95-gallon carts provided to each serviced household by the County.

The Department also operates a source-separated OCC Front-end Load (FEL) route for commercial and government buildings five (5) days per week. In addition to the recycling collection services, the Department provides FEL MSW collection to government buildings, with the total number of collection routes varying from zero to two (0-2) routes per day. In addition to the above-described collection routes, the Department operates one to five (1-5) roll-off hook trucks daily to service the County’s Waste and Recycling Centers.

#### 4.1.2 Collections Fleet Information

The Orange County Solid Waste Department’s collection fleet consists of side-load, fully automated, real-load, front-end load, and roll-off hook collection trucks, which are listed in Figure 1. The age of the collection vehicles ranges from one to nine (1-9) years old. However, the front-line collection vehicles are generally less than five (5) years old, which is within the optimum fleet age for a collection operation.

Figure 1 - Orange County Collections



### 4.2 Residential Waste and Recycling Service

The Orange County Solid Waste Management Department operates the County’s Integrated Solid Waste Management facility, located at the 1514 Eubanks Road location, and contains the below-listed facilities and operations.

- Construction and Demolition Landfill
- Regulated Material Recycling Consolidation area
- Mulch/ Compost management area
- Equipment Maintenance facilities
- Department’s administrative offices
- Single-stream consolidation and transfer facility
- Rigid plastics consolidation and baling area
- Tires consolidation and transload site.

The Department also manages the County’s comprehensive Recycling Collection Programs for residential and commercial entities. A component of the residential recycling program includes the County’s operation of five (5) Solid Waste and Recycling Centers located throughout the County and are free to residents to

collect conventional single-stream recycling and corrugated cardboard. Four (4) of the Solid Waste and Recycling Centers are available to residents 24 hours per day. Two of the Centers include opportunities for residents to drop off HHW and food waste in addition to their single-stream items.

The collection of residential MSW is provided to County residents by the towns themselves. The specific programs offered, the service levels, the amount of material managed, and the collection costs vary by town. The residential collection services offered by each town are shown in Table 6. The towns deliver collected MSW to the Green For Life (GFL) transfer station, which then transfers the material to a landfill in Roseboro, NC (in Sampson County). The Towns of Carrboro and Chapel Hill self-operate their collection services, while the Town of Hillsborough provides collection services through a contract with GFL.

Operating transfer and disposal facilities used for managing residential MSW in the unincorporated areas of Orange County include the Waste Management (WM) transfer station located in Morrisville, NC, and the GFL transfer station located in Durham. The WM transfer station delivers the received MSW to the WM landfill located in Randolph County, NC, for disposal. The GFL transfer station transfers the received MSW to the prior mentioned GFL landfill in Sampson County. Currently, no operating landfills in Orange County are permitted to accept MSW. The current WM contract specifies that the County must deliver 75% of the MSW received by the County's Waste and Recycling Centers to the WM transfer station to be charged \$47.00/ton instead of the posted Gate Rate. The undiscounted Gate Rate for MSW at the WM Morrisville Transfer Station is \$48.76/ton, plus surcharges, including North Carolina state tax.

The County currently provides single-stream recycling collection services for residential households, multifamily units, commercial business locations, and government buildings (per the Interlocal Agreement) in the Towns of Carrboro, Hillsborough, and Chapel Hill through an agreement with GFL. Recycling carts are provided at no charge to each residence. Single stream recyclables are collected from these urban areas by GFL weekly and in rural areas (outside of the incorporated limits) on a biweekly basis by the Orange County Solid Waste Management Department. Both GFL and the County deliver the Single Stream Recyclables to the Eubank Road County's Waste and Recycling Centers for subsequent transfer to the WM MRF in Raleigh. See [Section 6 – Current Solid Waste Facilities Inventory](#) for details.

In addition to curbside collection, County residents can drop off household materials at one of the five (5) Waste and Recycling Centers (WRCs) that the County operates. These include the Eubanks Road Waste and Recycling Center in Chapel Hill, Walnut Grove Church Waste and Recycling Center in Hillsborough, Bradshaw Quarry Road Center in Mebane, Ferguson Road Center in Chapel Hill, and High Rock Road Center in Efland locations. These Centers are available for all Orange County residents to drop off materials like household waste, plastic film, batteries, oil, oil filters, antifreeze, electronics, hazardous waste, clean-dry paper, metal cans, glass bottles, and jars, plastic bottles/tubs/cups, drink/milk cartons, cardboard, aerosol cans, aluminum foil/trays, food waste.<sup>15</sup> The collected single-stream materials at the centers include clean-dry paper, metal cans, glass bottles and jars, plastic bottles/tubs/cups, drink/milk cartons, cardboard, aerosol cans, and aluminum foil/trays.<sup>16</sup> Orange County's Solid Waste Management A-Z Recycle Guide<sup>17</sup> is available to residents and provides information on managing items and diverting as many as possible from the landfill.

<sup>15</sup> Interlocal Agreement- Co. and Towns 2018. Appendix B. provided by Orange County Solid Waste Department

<sup>16</sup> Interlocal Agreement- Co. and Towns 2018. Appendix B. provided by Orange County Solid Waste Department

<sup>17</sup> A-Z Recycle Guide: <https://www.orangecountync.gov/150/A-Z-Recycle-Guide>



Figure 2 - Bubble Map of the Eubanks Road Facility

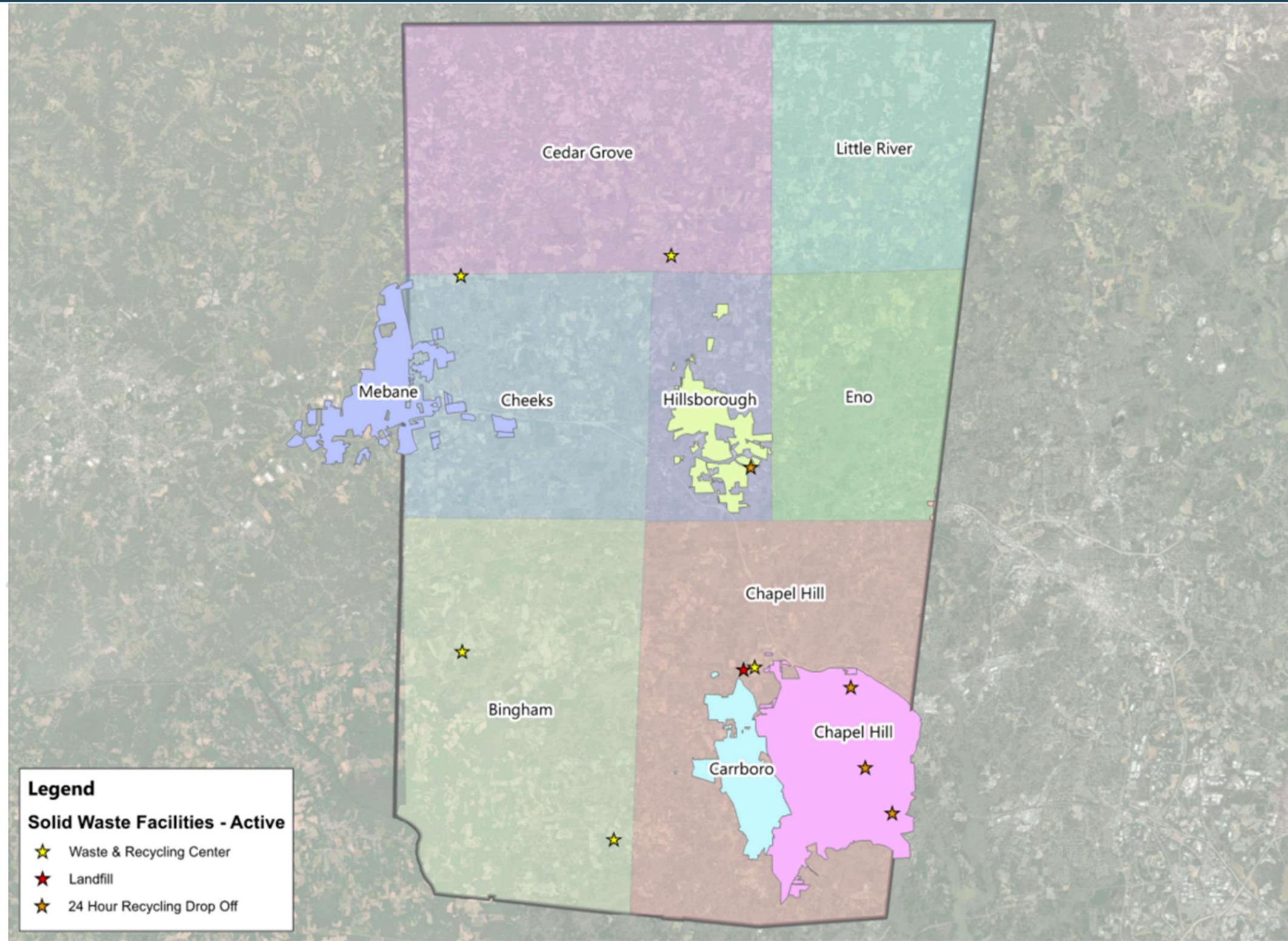


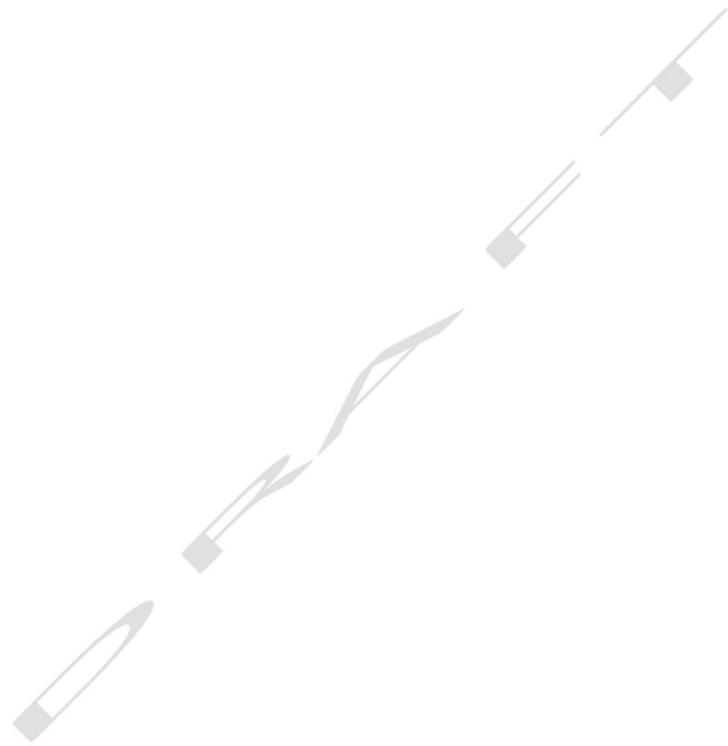
Figure 3 - Map of the Solid Waste Facilities in Orange County

Table 6 - Orange County Residential Services<sup>18 19</sup>

Collection Programs											
	Number of households served	Tons collected	Collection Cost	Disposal Cost (tipping fees paid)	Total Cost, including overhead	Cost per ton managed	Pounds/ Households Collected	Disposal/ Processing (\$/Ton)	Disposal Cost/ Household	Collection Cost/ Household	Total Collection & Disposal Cost/Household
<b>2018-2019</b>											
MSW	64,421	24,037	\$734,123	\$350,349	\$5,235,744	\$218	746.25	\$14.58	\$5.44	\$57.96	<b>\$63.40</b>
Recycling program	64,421	18,830	\$3,622,785	\$539,043	\$5,178,368	\$275	584.59	\$28.63	\$8.37	\$56.24	<b>\$64.60</b>
Yard waste program	41,978	11,899	\$270,519	N/A	\$354,408	\$30	566.92	N/A	N/A	\$6.44	<b>\$6.44</b>
<b>Total</b>		<b>54,766</b>	<b>\$7,627,427</b>	<b>\$889,392</b>	<b>\$10,768,520</b>						
<b>2019-2020</b>											
MSW	63,689	23,230	\$3,247,810	\$1,881,255	\$5,129,065	\$220	729.48	\$80.98	\$29.54	\$50.99	<b>\$80.53</b>
Recycling program	42,500	17,358	3,377,740	\$747,540	\$5,087,012	\$293	816.87	\$43.07	\$17.59	\$79.48	<b>\$97.07</b>
Yard waste program	42,500	8,819	\$324,225	N/A	\$285,056	\$32	415.01	N/A	N/A	\$7.63	<b>\$7.63</b>
<b>Total</b>		<b>49,407</b>	<b>\$6,949,775</b>	<b>\$2,628,795</b>	<b>\$10,501,133</b>						
<b>2020-2021</b>											
MSW	62,517	6,816	\$872,672	\$517,973	\$1,390,645	\$204	218.04	\$76.00	\$8.29	\$13.96	<b>\$22.24</b>
Recycling program	43,338	16,510	\$2,910,620	\$394,826	\$3,305,446	200	761.92	\$23.91	\$9.11	\$67.16	<b>\$76.27</b>
Yard waste program	43,338	8,101	\$315,000	N/A	\$396,900	\$49	373.84	N/A	N/A	\$7.27	<b>\$7.27</b>
<b>Total</b>		<b>31,426</b>	<b>\$4,098,292</b>	<b>\$912,799</b>	<b>\$5,092,991</b>						

<sup>18</sup> Sources: LGAR DEQ REPORT 2018-2019, Orange County LGAR DEQ REPORT 2019-2020, Local Government Annual Report Form 2020-2021 in SWMP 4 Existing System Folder of Data Request and Response  
<sup>19</sup> This data is collected by the governmental collection program as well as Waste Industries for urban areas (2018-2019). The LGAR indicates that this is both the residential and commercial data.





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Table 7 - Single-stream Collection by Source in Tons

Year	Curbside	Drop-off	All "Other" Programs	Total
FY19	8,771	4,120	2,307	15,198
FY20	9,092	1,836	2,128	13,056
FY21	9097	1293	1501	11,891

### 4.3 Commercial and Institutional Waste Service

For Commercial recyclables collection, Orange County currently operates to provide single-stream recycling collection, subject to available funding, to all bars, restaurants, and other commercial establishments in the county. The County provides collection for all local government buildings and Orange County Water and Sewer Authority (OWASA) buildings. In contrast, other government buildings are serviced on a case-by-case basis at the County’s discretion, subject to available resources. The Public Schools are serviced through fee-based contracts negotiated directly with the individual school system.<sup>20</sup> Collection of MSW from all commercial establishments, businesses, and industrial centers is provided by private waste collection companies, and the total amount of commercial and industrial MSW which is collected in the county is unknown at this time.

### 4.4 Construction & Demolition Waste Service

The County operates a Construction and Demolition (C&D) waste landfill at the Eubanks Road Facility. The Landfill is permitted by the North Carolina Department of Environmental Quality (DEQ) and is in Phase 2 of its development. Shown in Table 8 is the amount of C&D waste disposed of at the Orange County C&D Landfill by residents and commercial haulers from FY2019 through FY2021. Through discussions with County operations management, it is understood that C&D waste generated in the County is disposed of in several C&D facilities in and adjacent to the County. A more thorough evaluation of C&D facilities other than the County’s will yield a better understanding of the present C&D waste tonnages generated in the County. An additional opportunity to capture C&D tonnage information would arise from the reactivation of the County’s hauler licensing and annual reporting ordinance.

The County landfill operates from 7:00 am to 4:00 pm Monday to Friday and 8:00 am to 12:00 pm on Saturday. The current disposal fee for C&D at the Landfill is \$42.00 per ton, and there is an estimated 23 years of remaining capacity based on the current quantity of C&D being accepted by the site. The Landfill’s compactor is 17 years old, and a new compactor is anticipated to be delivered in September of 2022. Additionally, a new grinder was delivered in April 2022 for the mulching of green waste and the grinding of C&D waste to improve the use of airspace capacity. The new equipment will be used to grind all C&D waste received by the Landfill prior to final disposal to conserve the site’s capacity and extend its life (has there been any analysis to confirm the projected additional capacity of the Landfill based on using the grinder). The County has committed to maintaining financial, regulatory, and environmental responsibility for operations, closure, and post-closure maintenance/monitoring of the C&D Landfill.<sup>21</sup> The County Waste and Recycling Centers offer Clean Wood and Metal recycling for C&D waste.

<sup>20</sup> Interlocal Agreement- Co. and Towns 2018. Appendix B. provided by Orange County Solid Waste Department

<sup>21</sup> Interlocal Agreement- Co. and Towns 2018. Appendix B. provided by Orange County Solid Waste Department

Table 8 - Orange County C&D Landfill<sup>22</sup>

Years	2019-2019	2019-2020	2020-2021
Tons of waste disposed	43,033	12,398	23,629
Tons of waste disposed per month	3,586	1,033	1,969

## 4.5 Green Waste Collection Service

The County operates a yard waste program that consists of WRCs and drop-off collection points and, for larger loads, a drop-off location at the Landfill on Eubanks Road. Materials are self-hauled by residents or delivered by commercial haulers. Further details regarding the mulch collection, processing, and sale of finished mulch products are included in [Section 5.2.3 - Mulching and Composting Facilities](#) of this report.

Table 9 below shows the County’s green waste collection. A total of 8,714 tons of green waste was accepted in 2020-2021.

Table 9 - Orange County Green Waste Collection Tonnage

Destination	2018-2019	2019-2020	2020-2021
Government mulch facility	11,899	8,326	8,101
Land clearing and inert debris disposed in C&D landfill	804	493	613
<b>Total Annual Tons</b>	<b>12,703</b>	<b>8,819</b>	<b>8,714<sup>23</sup></b>

## 4.6 Food Waste Service

Residential food waste is accepted at both County-operated and County supported drop-off centers such as the Carrboro Farmer’s Market, the Chapel Hill Farmer’s Market, the Hillsborough Farmer’s Market, and the Eubanks Road and Walnut Grove Church Waste and Recycling Centers. Food waste collection is available to a portion of the restaurant, food preparation, supermarket, and other pre-and post-consumer approved commercial locations that meet a County-established minimum monthly generated threshold and can adhere to quality requirements and accessibility. Food waste dropped off and managed at County centers is collected under contract with Brooks Contractor, a private composting company with a compost facility in Chatham County. Further details regarding the food waste collection, processing, and sale of finished compost are included in [Section 5.2.3 - Mulching and Composting Facilities](#) of this report.

## 4.7 Glass Service

In addition to the curbside blue cart recycling service, the County offers a separate glass recycling program called *Glass on the Side* (GOTS). Glass recycling dumpsters are available at all five (5) Waste and Recycling Centers and at all four (4) of the 24-hour drop off sites. These dumpsters accept glass bottles and jars. The separated glass is then sent to a glass processor in Wilson, NC, to be turned into new products, including bottles and jars, fiberglass insulation, sand-blasting media, reflective paint beads, and more. Keeping the glass separate from other items through the GOTS program improves the quality of the material through

<sup>22</sup> Sources: 6804-CDLF-2005\_FAR-FY2018-2019, 6804-CDLF-2005\_FAR-FY2019-2020, ANNUAL C&D 2020-2021

<sup>23</sup> Sources: LGAR DEQ REPORT 2018-2019, Orange County LGAR DEQ REPORT 2019-2020, Local Government Annual Report Form 2020-2021 in SWMP 4 Existing System Folder of Data Request and Response

reduced contamination and yields more efficient recycling. In combination with the glass that is contributed through residential drop-off, a large quantity of the glass collected through this program comes from nearby restaurants and bars.

Orange County is in partnership with Alamance County and Durham County. Alamance and Durham bring their glass to Orange County Glass Consolidation Area, where it is weighed and aggregated. The glass is then sent to Strategic Materials in Wilson, NC.



Figure 4 - Glass Aggregation at Eubanks Facility

## 4.8 Special Wastes Service

Special Waste includes materials collected at the WRCs distinct from Household Hazardous Waste and includes used motor oil, used oil filters, used antifreeze, lead-acid and dry cell batteries, fluorescent bulbs/lights containing mercury, propane tanks, and used cooking oil/waste vegetable oil.

Tires collected at the WRCs and Eubanks Facility are picked up based on an agreement with New River Tire Recycling, LLC, in Surry County. The term of the agreement is May 1, 2017, through April 30, 2022, with a new, two-year extension ending 4/30/24. New River Tire Recycling is required to provide all trailers and labor needed to load the tires onto the trailers. However, the tires are loaded onto trailers and then delivered by the County staff to the company’s facility in Pilot Mountain, NC, for processing. The processed tires are converted to tire-derived fuel, aggregate, or mulch products. Plastic bags are collected at Orange County’s Waste and Recycling Centers and are collected for recycling by Harris Teeter. Interstate batteries collects car and dry cell batteries.



Table 10 - Special Waste Collected<sup>24</sup>

Material	2018-2018	2019-2020	2020-2021
Number of households	13,026	13,247	12,432
Used Motor Oil (gallons)	20,130	22,651	21,304
Used Oil Filters (lbs. or barrels)	16960 (lbs.)	162 (barrels)	53 (barrels)
Used Antifreeze (gallons)	1,910	1,516	4,333
Batteries, Lead Acid (lbs. or # of batteries)	13,908 lbs.	1,364 lbs.	197 batteries
Batteries, Dry Cell (lbs.)	*	7,354	*
Fluorescent Bulbs/Lights Containing Mercury (lbs.)	*	1,424	14,889
Propane Tanks (lbs. or # of tanks)	*	500 lbs.	324 tanks
Used Cooking Oil (lbs.)	17,432	343	15,820
Other mercury-containing waste (lbs.)	*	115	*

\*Data collected under a separate contract.

### 4.8.1 Electronics

As of 2021, Orange County uses a state contract with Synergy Recycling in Rockingham County as the recycler for the county’s received electronic waste. In 2019, the County used the services of Ecycle Secure in Mecklenburg County under a state contract. Synergy Recycling and Ecycle Secure offer end-of-life processing, including manual or mechanical disassembly of electronic waste and disposal of unrecyclable materials. The County does perform primary deconstruction at the Eubanks Road Ops Facility, separating the electronic materials into the base material, which can then be palletized and sent on to Synergy.

### 4.8.2 Hazardous Household Waste (HHW)

The County provides HHW collection at the Eubanks Road and Walnut Grove WRCs. This program services an estimated 12,432 residents based on FY 2021 information<sup>25</sup>. Materials are self-hauled by residents to the two permanent drop-off locations, Eubanks Road and Walnut Grove Church Road WRCs. During FY 2021, the County contracted with several private companies to manage the collected HHW, including Interstate, Tradebe, and CleanLites. Noble Oil offers used oil recycling in which the oil is converted into lubricant and oil filter recycling. CleanLites provides battery recycling services, and Tradebe offers safe hazardous waste disposal, including chemical reuse and solvent distillation, compressed gas cylinder management, and high hazardous waste disposal. The tables below indicate the quantities of HHW collected at the County’s Walnut Grove center and those of HHW collected at the County’s Eubanks Road center. About 208,196 pounds of HHW were accepted at Orange County Waste and Recycling Centers in FY 2020-2021<sup>26</sup>.

<sup>24</sup> Sources: Local Government Solid Waste and Materials Management Annual Report Form (LGAR) DEQ REPORT 2018-2019, Orange County LGAR DEQ REPORT 2019-2020, Local Government Annual Report Form 2020-2021 in SWMP 4 Existing System Folder of Data Request and Response

<sup>25</sup> Appendix B: Interlocal Agreement- Co. and Towns 2018

<sup>26</sup> Orange County Local Government Annual Report Form 2020-21 FINAL-Battery adj 9-01-2021

Table 11 - Orange County Walnut Grove WRC HHW (Quantities in lbs.)<sup>27</sup>

Material	2018-2018	2019-2020	2020-2021
<b>Total HHW Collected at all Centers (lbs.)</b>	<b>587,843</b>	<b>248,247</b>	<b>208,196</b>
<b>Material Collected at Walnut Grove Waste and Recycling Center (lbs.)</b>			
Aerosols	*	*	1,838
Fluorescent Lightbulbs	*	*	*
Other Mercury-Containing Material	6	*	10
Electronic Material	*	*	*
Flammable Solids	*	*	*
Oxidizing Material	259	766	390
Poisonous Material	7,586	5,329	3,407
Flammable Liquids	8,976	*	14,654
Corrosive Material	3,940	1,996	1,696
Batteries	*	*	*
Compressed Gases	5,214	3,957	*
Antifreeze, Used Oil, Oil Filters	*	*	*
Paint, Alkyd	33,171	21,626	*
Paint, Latex	60,675	48,381	29,543
CFCs	*	*	30
Reactive	*	*	8
Propane	348	*	200
<b>Total</b>	<b>120,300</b>	<b>82,055</b>	<b>51,776</b>

\* Data collected under a separate contract.

<sup>27</sup> Sources: 6804-HHW-2013\_FAR\_FY2018-2019, 6804-HHW-2013\_FAR\_FY2019-2020, ANNUAL 6905-HHW-2013-2020-2021



Table 12 - HHW Quantities at Eubanks Road Convenience Center

Material	2018-2018	2019-2020	2020-2021
Aerosols	*	*	5,847
Fluorescent Lightbulbs	*	*	*
Other Mercury-Containing Material	6	115	34
Electronic Material	*	*	*
Flammable Solids	*	*	23,694
Oxidizing Material	1,176	1,801	1,335
Poisonous Material	22,171	11,978	8,508
Flammable Liquids	11,905	*	*
Corrosive Material	8,400	3,023	1,682
Batteries	*	*	*
Compressed Gases	11,272	8,950	820
Antifreeze, Used Oil, Oil Filters	164,513	*	*
Paint, Alkyd	91,113	37,992	*
Paint, Latex	156,683	101,933	84,021
CFCs	*	*	*
Reactive	*	*	*
Propane	348	500	*
<b>Total</b>	<b>467,589</b>	<b>166,292</b>	<b>120,060</b>

\* Data collected under a separate contract.

### 4.8.3 Bulky Wastes/Furniture

Bulky Rigid Plastics are brought from the Waste and Recycling centers to the facility at Eubanks Road. At the Eubanks facility, the rigid plastics are baled and loaded into semi-trailers by the County, and WM collects the semi-trailers with their trucks. Other large bulky waste and furniture are collected at the waste recycling centers, brought to the Eubanks Facility, and then brought to the WM MRF by OC personnel. While Film Plastics are not considered bulky wastes, the film is baled at Eubanks Road and sent to Harris Teeter for recycling.

### 4.8.4 White Goods/Appliances

Table below describes the County’s white goods (appliances) tonnages. Clean Harbors CR Supply Company in Durham is the firm used as the processor. The white goods are sent to Metal Recyclers in Charlotte for recycling after the County removes the freon from appliances.

Table 13 - Orange County White Goods<sup>28</sup>

	2018-2019	2019-2020	2020-2021
<b>Tons of Goods Received</b>	<b>333</b>	<b>386</b>	<b>385.67</b>
<b>Type of Refrigerants Removed (in ounces)</b>			
134A	166.5	339.5	181
R12	18.5	93.4	72
R22	120	169.5	11
410A	22	74	162
600A	2		

<sup>28</sup> Sources: LGAR DEQ REPORT 2018-2019, Orange County LGAR DEQ REPORT 2019-2020, Local Government Annual Report Form 2020-2021 in SWMP 4 Existing System Folder of Data Request and Response

## 5 Current Solid Waste Facilities Inventory

### 5.1 County Landfill and Transfer Station Facilities

#### 5.1.1 Eubanks Road Facilities

The Orange County Landfill was originally permitted, opened in 1972, owned and operated by the Town of Chapel Hill, and is currently owned and operated by Orange County Solid Waste Management. The landfill facility is made up of four (4) different landfill units that are located on both the north side and south side of Eubanks Road, on the western edge of the Town of Chapel Hill, as follows: the North MSW Landfill (closed), the South MSW landfill (closed) and the closed C&D landfill, all of which are incorporated into NCDEQ Solid Waste Permit 68-01, and the remaining active C&D landfill, which is managed under NCDEQ Solid Waste Permit Number 68-04.

Additionally, the Orange County Solid Waste Management operations and administration office is located adjacent to the Landfill on its western side, south of Eubanks Road. Apart from the Waste and Recycling centers outlined below, all facilities at Eubanks Road are open Monday-Friday: 7:00 am - 4:00 pm, and Saturday: 8:00 am - 12:00 pm.

The facility area covers 145.5 acres on the north side of Eubanks Road and 102 acres on the south side of Eubanks Road. Approximately 31.5 and 39.5 acres remain undeveloped on the north and south side of Eubanks Road, respectively (this includes about 8.8 acres on the parcel where the administration offices are located). However, a significant portion of the area undeveloped to the north is considered environmentally sensitive areas (creek, wetlands, etc.) or mandatory property buffers. Additionally, a significant portion of the area to the south is considered environmentally sensitive, including mandatory property buffers and areas that have been historically used for soil borrow, soil stockpiles, and temporary storm debris storage.

##### 5.1.1.1 Eubanks Road North Facility

The North facility consists of approximately 62 acres of disposal area in two separate closed disposal units:

- The largest of the units (the “closed North MSW landfill”) is approximately 49.7 acres and contains about 2,400,000 cubic yards of MSW. This unit was closed in 1998, and the facility is currently in the post-closure maintenance phase. The North MSW facility is bounded to the north by a wooded area, to the east by Old Field Creek and a wooded area, to the south by Eubanks Road and the Eubanks Road Waste and Recycling Center (convenience center), and to the west by the active C&D Landfill and a wooded area.
- The “closed C&D landfill,” approximately 12.3 acres, is separated from the closed North MSW landfill by a perennial stream; Old Field Creek is to the west and south, and is bounded by wooded areas to the north and east. The upper portions of Old Field Creek are typically dry during the warmer months.

The first unit to be opened was the 49.7-acre North MSW unit, which was permitted to receive MSW and served Orange County and the towns of Carrboro, Hillsborough, and Chapel Hill.

The closed North MSW landfill and the closed C&D Landfill are unlined pre-Subtitle D landfills with no leachate collection system. A gas collection and extraction system was installed on the North MSW unit in

conjunction with the South landfill unit in 2011. The gas is extracted from the landfill and is cleaned for powering an engine used to generate electricity on the University of North Carolina campus. The excess gas is flared using an enclosed flare system.



Figure 5- Eubanks Road Facility Entrance

### 5.1.1.2 Consolidation and Transfer Facilities (North Facility)

The balance of the operational area of the North Facility, approximately 12 acres, is the collection, consolidation, processing, temporary storage, and transfer of all materials brought into the Eubanks Road Operations Facility and including the following:

- Yard waste and clean wood stockpile, shredding, mulch wind-rowing area (Largest single area of approximately 3.5 acres of the 12 acres)
- Compost Bulk & Bag storage and sales,
- Single Stream Recyclables tip floor for consolidation and transfer to open-topped semi-trailers,
- Rigid Plastics tip floor for consolidation, baling, and semi-trailer loadout,
- Tire collection, consolidation, temporary storage, and transfer area,
- Glass collection, consolidation, temporary storage, and transfer area,
- Battery consolidation, temporary covered storage, and transfer area,
- Metals and white goods area tip floor for consolidation and transfer to open-topped semi-trailers,
- Mattresses drop-off location into the roll-off container, and
- Oyster shell collection drop-off storage.

Based on onsite interviews with the operations staff and following a preliminary operations review and site visit, the Collection and Transfer Facilities appear to be challenged for the present level of service required for current operational needs. There are several structural and physical aspects to note that will be considered in the next phase of project work; they are:

- Most collection and consolidation areas are open to the elements

- Their existing structural shelter does not fully cover the tip floors for both rigid plastics and single-stream recyclables. Currently, it does not have the former canvas cover that was damaged in a storm event. Keeping material out of contact with stormwater is both advantageous from a processing and commodities price perspective but also for environmental protection
- The footprint of tip floors for both rigid plastics and single-stream recyclables overlaps the future planned Phase 3 C&D Landfill cell.
- There are comingled traffic patterns for operational vehicles and the public, which present safety challenges. However, no issues were raised with the current circulation pattern.



Figure 6 - Eubanks Road Waste and Recycling Center Front Sign

### 5.1.1.3 Eubanks Road South Closed MSW Landfill

The South Facility is made up of two (2) parcels that total approximately 92 acres. The main landfill parcel is about 77 acres and houses the South MSW unit. The South landfill stopped accepting waste in June of 2013 prior to utilizing the entire available airspace, with closure construction being completed in September 2014. The South MSW unit is bounded to the north by Eubanks Road, to the east by woods and another County-owned parcel where Animal Services is located, to the west by woods and a County-owned parcel where the Solid Waste Administration building is located, and to the south by an electric line easement held by Duke Energy.

The second parcel is approximately 15 acres in size and is the borrow area for the (active C&D) landfill. The borrow area is accessed through the South MSW unit parcel to the southeast corner. The borrow parcel is bounded to the west by residential property and electric utility easement, to the south and east by a wooded area, and to the north by a wooded area and an electric utility easement.

The south facility also houses the electronics recycling facility, the landfill gas blower/flare station, and a scale house currently used for shredding paper that could be reactivated in the event of an emergency.

The South MSW unit is a lined facility with a leachate collection system and cleanouts, along with an active gas extraction system owned and operated by the University of North Carolina at Chapel Hill. Leachate is discharged to a gravity sewer system along Eubanks Road, owned and operated by Orange Water And Sewer Authority (OWASA). The unit is also capped with a synthetic liner system to control gas migration and water infiltration into the waste mass.

The South facility also provides material diversion and transfer operations for electronic waste using a former equipment maintenance building to provide consolidation, primary deconstruction, and sorting into Gaylord boxes on pallets and bins, where it is stored until enough is accumulated for pickup by the electronic material contractor – Synergy Recycling.

**5.1.1.4 Eubanks Road Active C&D Landfill**

The only remaining active landfill unit, the new C&D Landfill, also located north of Eubanks Road and immediately west of the closed North MSW landfill, is currently operating in the second phase of construction and is approximately 11 acres. The C&D Landfill began operation in 2005 under Permit 68-04, with phase 2 (out of 5 total planned phases) becoming operational in November 2021. It is bounded to the south by a wooded area and Eubanks Road, west and north by Duke Forest, and east by the sediment basin and various landfill operational buildings.

The active C&D landfill unit is, per DEQ standards, unlined with no leachate collection system and no gas extraction system. Based on current projections, the active C&D Landfill has approximately 23 years of airspace remaining.

Currently, future Landfill Phase 3 includes the area presently occupied by the recycling tip floors and consolidation areas, and these facilities will require relocation and capacity adjustments in future planning.



Figure 7 - CD Landfill Daily Working Face Area

## 5.2 Waste and Recycling Centers and Drop-Off Locations

This section describes the operational aspects of waste and recycling centers and drop-off locations.

### Eubanks Road and Walnut Grove Church Road District WRCs

As part of the assessment, field visits were made on March 10 and 11, 2022, to review existing facilities and current operations, allowing the GBB team to familiarize itself with these facilities. These facilities are staffed, and their staff was asked about general operations of what is collected at each and about customer use, layout, bin and container sizes, and customer experience. The facilities are laid out similarly regarding traffic patterns and operations, and the following observations apply to both locations.

- There is adequate capacity for current levels of use.
- Up-to-date facilities are fully paved with defined traffic patterns.
- There are consistent entrance and exit locations and processes
- Queuing Outside Gate: Eubanks Road has a right-hand turn lane off Eubanks Road, Walnut Grove does not have a right-hand turn lane off Walnut Grove Road for queuing purposes. Customers line up partially on and off the roadway during times of heavy use.
- Stationary Compactors for MSW are adequate and up to date. There is some need for management of liquids from their operation.
- Labeling:
  - For the most part, labeling is consistent, but there is room for improvement.
  - The labeling system is very detailed. It was noted by operations staff that many people ask questions, either from difficulty understanding or not being able to read signs in some cases; signs need to be coupled with staff guidance at these staffed locations.

#### 5.2.1.1 Bradshaw Quarry, High Rock Road, Ferguson Road Satellite WRCs

As part of the assessment, field visits were made on March 10 and 11, 2022, to review existing facilities and current operations, allowing the GBB team to familiarize itself with these facilities. These facilities are staffed, and their staff was asked about general operations of what is collected at each and about customer use, layout, bin and container sizes, and customer experience. All three of these facilities are laid out similarly in terms of traffic patterns and operations. These following observations apply to all three locations; the differences are identified as needed. On the day of the site visit to Bradshaw Quarry WRC, the GBB team could not access the facility due to a locked gate. There may be a follow-up visit in subsequent work tasks. Additionally, during the GBB team's visit to High Rock Road WRC, the temporary WRC area was in operation in anticipation of the renovation at High Rock (that is now underway).

- There was adequate capacity for current use levels, except for Bradshaw Quarry. To address its capacity, the County is undertaking a possible consolidation of Bradshaw Quarry and Ferguson Road to another location that serves customers from both existing facilities.
- Entrances are located directly off main roads for easy access, and entrances provide minimal queuing space for customers during heavy use. There was evidence of queuing off the main road on the shoulder to keep out of the active travel lane for both Ferguson and Bradshaw Quarry WRCs. High Rock Road has a longer entrance before the gate, so there is less of a queuing issue.
- Traffic patterns are fairly consistent with a clockwise pattern from the entrance and a consistent order of bin and container categories for the customer's ease of use, however, this does depend

on what the customer has for drop-off. If they have bulky material, then the customer would be directed in and to the right in a counterclockwise fashion.

- Labeling:
  - For the most part, labeling is fairly consistent but there is room for improvement. Labeling age is also a factor as some appeared quite dated.
  - The labeling system is very detailed. It was noted by operations staff that many people ask questions, either from difficulty understanding or not being able to read signs in some cases; signs need to be coupled with staff guidance at these staffed locations.
- Containers Capacity and Condition - From observations at Ferguson Road and High Rock WRCs, there are adequate containers per material category, and the operations team adjusts the bin count per category depending on need. Most containers were in satisfactory condition, and some appeared well used with holes in the bottom and lower sides. Most bins for MSW were open-top with no cover for ease of use. However, precipitation does collect in these containers and can find its way to discharge on roads, adding to the leachate in landfills.

### 5.2.1.2 24-Hr Drop-off Recycling Centers

The 24-hour Drop-off Recycling Centers were not visited in this assessment. These facilities are described in [Section 4.2 - Residential Waste and Recycling Service](#).

## 5.2.2 Material Recovery Facilities

### 5.2.2.1 Waste Management Recycle America MRF in Morrisville, NC

Waste Management’s Recycle America material recovery facility (MRF) is located at 10411 Globe Road, Morrisville, NC 2756. WM’s MRF has been in operation since June 2021 and is co-located with its Transfer Station, as discussed below. The approximately 35,000 sq ft facility houses a system that consists of a combination of equipment designed to operate at processing rates of 55,000 tons per month, roughly 280 tons per day on two shifts. The equipment manufacturers include CP Group, Persona AB, URR, AMP Robotics, and Zen.

The County delivers 100% of the collected single-stream recyclables, OCC, and HDPE bulky rigid materials to the MRF for recycling based on July 2021 to June 2023 agreement. Roundtrip travel distance to and from the Eubanks Road Operations to the MRF is approximately 44 miles. The average roundtrip transportation time is around 65 to 75 minutes, not including an estimated load off and load time (25 minutes). The single-stream recyclables are loaded into transfer trailers with a rubber tire front-end loader and generally delivered to the MRF with a payload of six to seven (6 to 7) tons.

Figure 8 - Waste Management’s Recycle America MRF Front Entrance in Morrisville



### 5.2.2.2 Transfer Stations

Privately operated transfer stations in the Orange County area included in this assessment are WM’s Transfer Station at Globe Road, Morrisville (co-located with the WM MRF), and the Durham Transfer Station (operated by GFL) located in Durham.

Waste Management’s Recycle America Transfer Station is located at 10411 Globe Road, Morrisville, NC 2756, co-located with the WM’s MRF. The facilities share a dual-scale system at the entrance to the property, and the traffic pattern is one-way in and out, with no flow-through or circular pattern. Incoming loads must execute a Y-turn to reverse into the three tipping floor bays. The TS building is approximately 10,000 square feet with a tipping floor for receiving MSW.

Figure 9 - WM Transfer Station



The general layout includes a tipping floor with push load crossing right to left to open-topped semi-trailer at lower level for haul out. There is an incoming conveyor from the MRF building on the right into the transfer station to move processing residue to the tip floor for consolidation with the MSW for transport and disposal. The total property area on which the TS and MRF facilities are located is approximately 12 acres with one ingress and egress point.

The Durham Transfer Station is located at 2115 E Club Boulevard, Durham, NC 27704. The facility has a dual-scale system at the entrance to the property, and the traffic pattern is one-way in and out, with no flow-through or circular pattern. Incoming loads, both commercial and residents must execute a Y-turn to reverse into one of two buildings, each with four (4) bays, or door openings, into the tipping floor. The West TS building is approximately 10,000 square feet, and the East TS building is about 15,000 square feet with a tipping floor for receiving MSW. The layout of the West TS tip floor is with push load to the rear to open-topped semi-trailer at a lower level and haul out. The loads for the East TS building are generally pushed to the right to open-topped semi-trailers on a lower level for haul out. The total property area on which both the TS and MRF facilities are located is approximately 10 acres, with multiple ingress and egress points along Club Boulevard. For this assessment, the Durham Transfer Station was not visited as we understand from our discussions with County staff that multiple personnel have worked at this facility, and their experience can be drawn on throughout the next phases in the planning process.

While the County does not deliver any of its single-stream recyclables to this facility, the County can deliver up to 25% of its MSW tonnage to this facility annually. The average roundtrip transportation time is approximately 60 to 70 minutes, not including an estimated load off and load time (25 minutes).

### 5.2.3 Mulching and Composting Facilities

In North Carolina, there are presently 16 mulching and 58 composting operations that work to divert the organic fraction of MSW, including yard and food waste. In 2020, the state’s composting operations diverted 18,469 tons of food residuals produced from industrial food processors, with an additional 34,263 tons<sup>29</sup> of yard waste, wood waste, biosolids, and other organic wastes.

Orange County also works to divert yard and food waste from the Landfill. Both mulch and compost are created and sold for use in garden and landscape projects throughout the County. The mulch is made by the County from clean yard waste that is brought to the landfill by residents, local government collection programs, and contractors of the County and is processed at the Eubanks Road Operations Facility. The mulch is also sold in bulk at this facility.

The compost is produced by Brooks Contractors, a commercial composting firm located in Goldston, North Carolina. Food waste material is collected in the County’s various food waste collection programs and combined with other organic materials such as manure, wood chips, and agricultural waste, creating the feedstock for the finished compost product. CompostNow is contracted with Brooks to collect food waste.

Orange County hosts organic food and food-related paper waste drop-offs at the Walnut Grove Church Road Waste and Recycling Center and the Eubanks Road Waste and Recycling Center. The County also supports organic food and food-related paper waste drop-off at the Carrboro, Hillsborough, and Chapel Hill Farmer’s Markets. In addition to these drop-off opportunities for food waste, the County supports food waste collection from area restaurants, florists, and other higher generators of food waste. For residential use, the County sells compost bins<sup>30</sup> to the public through its Solid Waste Management Department Administration Office and works to foster the development of at-home compost for individuals’ yard waste, brown leaves, and kitchen fruit and vegetable scraps via robust education initiatives. Compost education is a County-wide priority, as evidenced by the informative how-to materials available on the Solid Waste Management Department’s website and its two (2) compost demonstration sites located at the Chapel Hill Community Center and the Orange County Solid Waste Management Administrative Office. Orange County offers composting education classes at these sites throughout the year and will also work with interested organizations, schools, or businesses to provide composting education on a desired basis. All these educational opportunities are provided at no charge to the public.

Figure 10 - Compost Pile Stockpiled at Eubanks Facility



Waste diversion through mulch and compost operations continues to grow in importance. Currently, food waste diversion accounts for 11%<sup>31</sup> of feedstocks processed in North Carolina, and increasing food waste diversion remains a priority statewide.

<sup>29</sup> Source: DEQ Annual Report to the North Carolina General Assembly. <https://deq.nc.gov/media/18733/download>

<sup>30</sup> Source: <https://www.orangecountync.gov/965/Mulch-Compost>

<sup>31</sup> Source: DEQ Annual Report to the North Carolina General Assembly. <https://deq.nc.gov/media/18733/download>

## 5.3 Enforcement

The Towns authorize enforcement of the County’s Regulated Recyclable Material Ordinance (RRMO) within each town’s municipal limits<sup>32</sup>. Each town may assist in the enforcement of the County’s RRMO within each town’s jurisdiction using their staff in coordination with the County. The Towns monitor waste collection for banned materials to prevent the delivery of banned materials for disposal. The County provides solid waste plan advice, review, and approvals in concert with development applications to the Towns. The County assists the Towns’ staff in enforcing the RRMO and landfill bans on privately collected waste containers. The Town of Chapel Hill shall, by whatever means are legally required, authorize the County to provide the Services within that part of the town situated in Durham County.

The County, in cooperation with the Towns, is responsible for developing and timely submission of required annual reporting and solid waste management planning to the North Carolina Department of Environmental Quality. In cooperation with the Towns, the County develops recycling performance and tracking measures for various solid waste programs of interest that can be utilized in the required state reporting. The County also uses these performance evaluations to help evaluate the increased diversion of materials from landfills or incineration, including the emphasis on the diversion of organic waste, especially non-residential generated food wastes, and the expansion of commercial/non-residential recycling programs and services and related ordinances and policies to advance waste reduction and recycling.

The County also certifies Material Reclamation Facilities for C&D recycle processing. Materials from construction projects must comply with RRMO, and materials go to certified facilities. Currently, the County has four (4) listed certified material Reclamation Facilities.

## 5.4 Permitting & Licensing Requirements of Future Facilities & Operations

The County facilities and operations, as well as those of the private sector, are required to be permitted and licensed under several state and county regulations and ordinances for those that manage solid waste.

Currently, the Eubanks Road facilities and operations are permitted under a life of site permit (NCDEQ Solid Waste Permit 68-01) and the active C&D Landfill permit to operate (NCDEQ Solid Waste Permit 68-04). Any changes, such as expansions of operations, or the addition of new activities, will require modification of the existing permit. In addition, the facility also has an NPDES permit (stormwater) for solid waste facilities issued by the NCDEQ Division of Water Resources.

The various waste and recycling centers around the County do not require NCDEQ Solid Waste Section permitting. However, the HHW facilities at the Eubanks and Walnut Grove Facilities are permitted. In addition, if the activities on these sites change from the current activities, additional permitting may be required. All Sites operated by Orange County Solid Waste are subject to current zoning regulations of the location in which they are located (Town of Chapel Hill, Town of Hillsborough, Orange County, etc.).

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<sup>32</sup> Interlocal Agreement – County and Towns, 2018. Retrieved from Orange County’s Solid Waste Management Department.



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NORTH CAROLINA

*Thank you for this opportunity to serve  
the government and residents of Orange County, NC.*



Gershman, Brickner & Bratton, Inc.  
2010 Corporate Ridge  
Suite 510  
McLean, Virginia 22102  
(703) 573-5800  
[www.gbbinc.com](http://www.gbbinc.com)