Solid Waste Management Division

SOUTH WAKE LANDFILL

Citizens Committee Meeting

October 13, 2020

Meeting held virtually

WAKE COUNTY
NORTH CAROLINA

WAKE COUNTY
NORTH CAROLINA

Agenda

1. **Introductions** & Overview of Committee
2. South Wake Operations
    a. New GFL management introduction – George Metcalf
    b. SWLF Stats (truck counts, waste volume) – COVID-19 impacts on stats
    c. Landfill Odor Update
        i. Odor Control and Management Plan review/discussion
        ii. Update on nightly landfill covering
        iii. Community relations (odor report forms, possible Wake County Liaison)
        iv. Bio-catalyst pilot test
3. Education & Outreach
4. Other Items
    a. Comprehensive Solid Waste Management Plan
    b. Site Expansion in Morrisville/Cary
5. Other Business

Introductions & Overview

The South Wake Landfill Citizens Committee was established in 2006, prior to the opening of the South Wake Landfill. The purpose of the committee is to:

- Provide a forum for neighbors of the South Wake Landfill to have a voice in the continuing development of the landfill
- Assist the County with continued operations of the landfill
- Provide a conduit for information between Wake County Environmental Services staff and the neighboring public regarding activities at the landfill

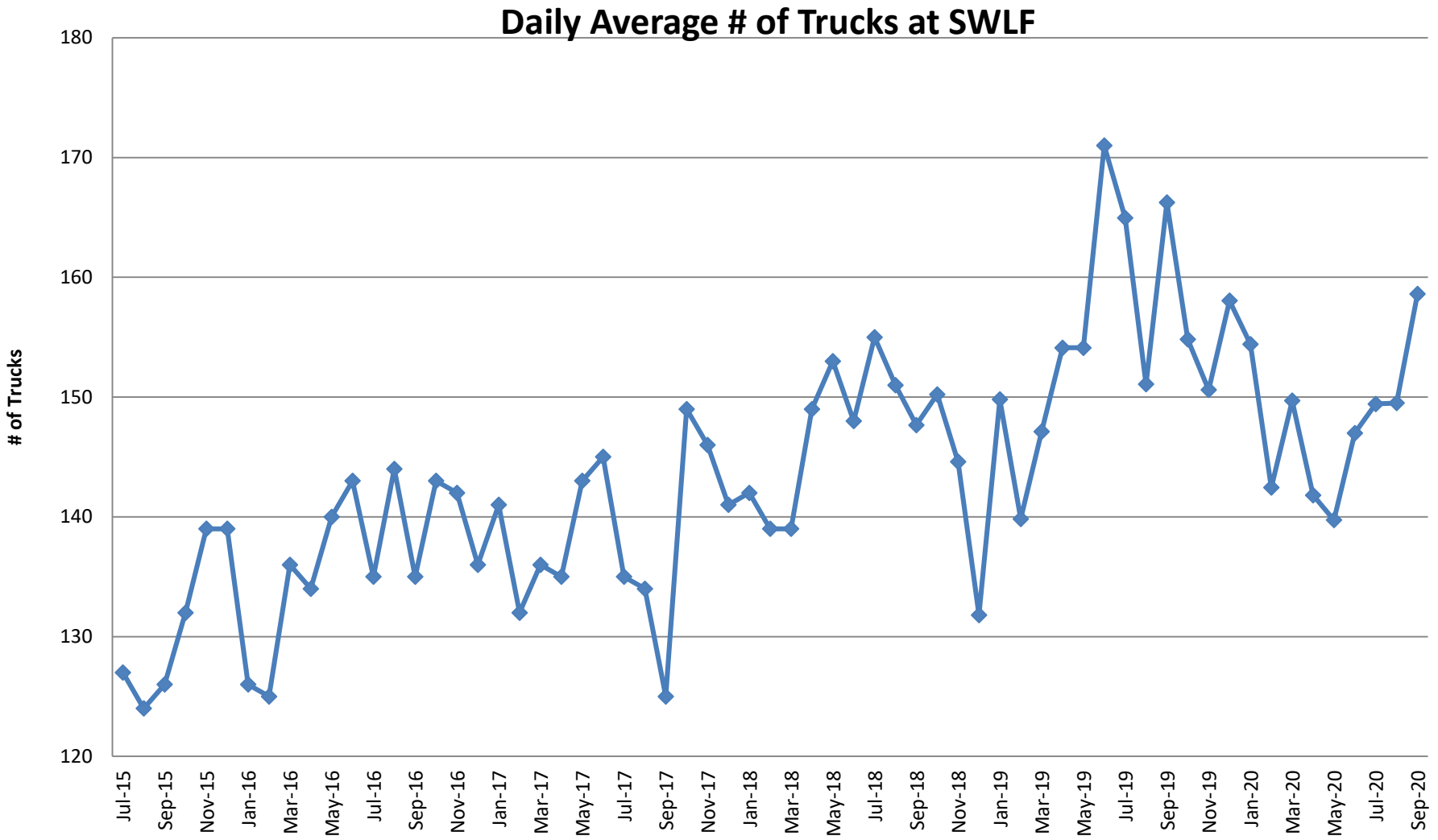
South Wake Operations

South Wake Landfill Manager Transition

- On August 1st, 2020, GFL Introduced a new General Manager for South Wake Landfill

- George Metcalf Introduction and Background
  - Joined Waste Industries/GFL in 2014 as a General Manager
  - Fresno State University Alumni – Bachelors Degree in Agricultural Science
  - George has 18+ years of experience managing Landfills, Transfer Stations and Landfill construction
  - From 2002-2014 George managed six waste facilities (three landfills/three transfer stations) averaging over 10,000 tons of waste daily
  - Prior to his relocation to South Wake, George managed several landfills in the State of Tennessee for GFL

SWLF Truck Stats



Conversion to Dirt/Soil Cover (w/ tarps)

Significant Equipment acquired since March of 2020

GFL South Wake Landfill - Critical Assets			
Asset Type	**Asset Quantity March 2020**	**Asset Quantity August 2020**	**+/-**
Excavator	1	2	+1
Dirt/Rock Haul Trucks	2	4	+2
Waste Handling Dozers	2	3	+1
Grading Dozers	2	3	+1

March of 2020 original asset purchase commitment value = $365,000
March of 2020 through August of 2020 assets purchased value = $2.1 million

GFL acquired assets – Photos

Conversion to Dirt/Soil Cover (w/ tarps)

- Since 7/28/20 GFL has achieved closure at night with the application of dirt/soil and tarps only
- From 2008 through 7/28/20 GFL utilized other State compliant forms of Alternate Daily Cover
  - Posi Shell an approved form of ADC was the primary material used with the addition of the County's Latex Paint
  - In late 2019 GFL conducted a pilot of another form of ADC called Rusmar foam which did not meet our expectations

Conversion to Dirt/Soil Cover (w/ tarps)

- GFL has adjusted operational practices to significantly reduce the waste placement area during operating hours
  - The area of exposed waste must be managed closely to ensure a timely closure with dirt/soil and tarps
- A few examples demonstrating closure with posi-shell versus with dirt/soil and tarps have been provided in the next few slides

Prior to converting to dirt/soil (with tarps), waste many times was covered with Posi-shell primarily


Prior to converting to dirt/soil (with tarps), waste many times was covered with Posi-shell primarily
Mar 16, 2020 at 6:25:36 PM
6512 Old Smithfield Rd
Apex NC 27539
United States

Upon converting to dirt/soil (with tarps), no waste can be seen

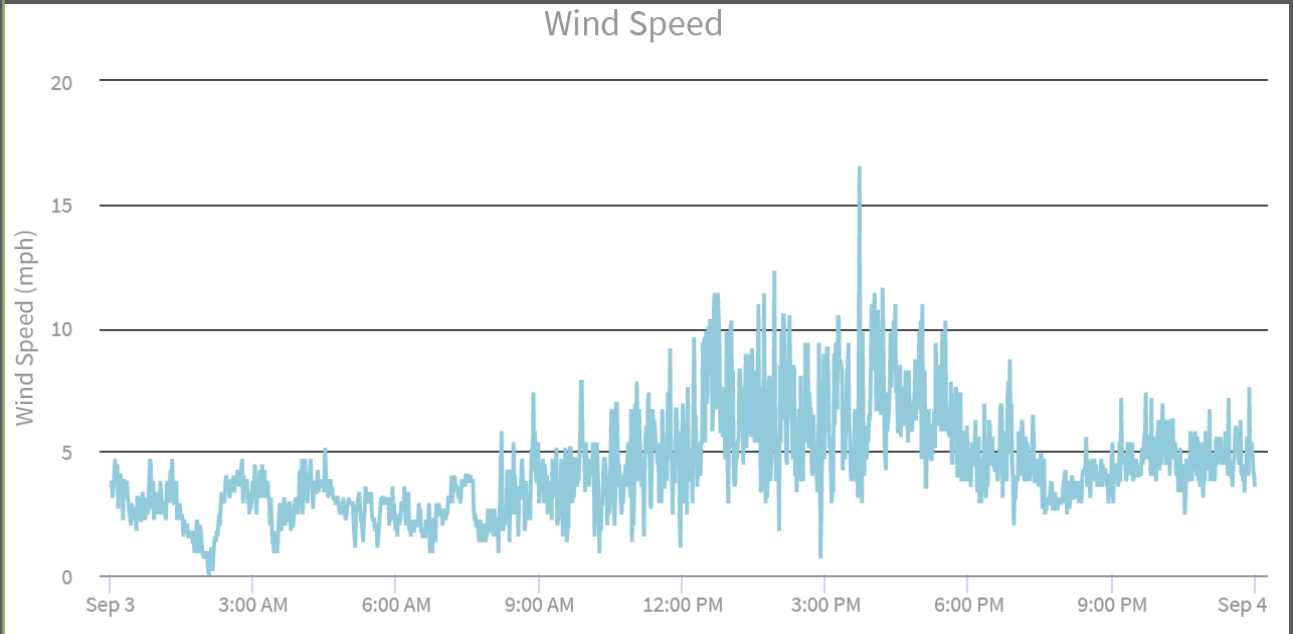
Upon converting to dirt/soil (with tarps), no waste can be seen

Impacts of Eliminating Posi-Shell

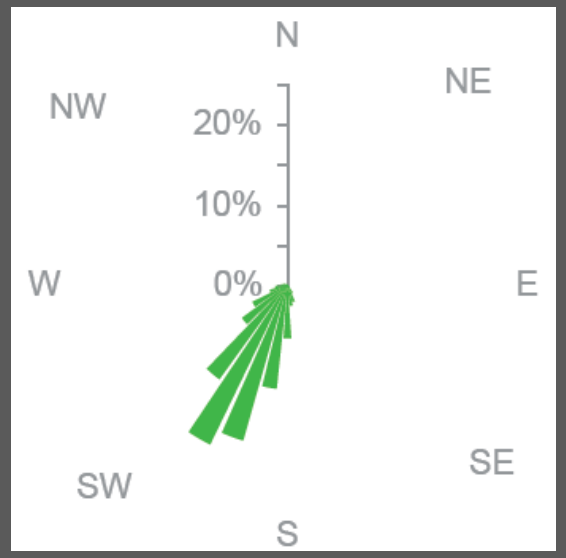
- County collects over 1 million lbs. of latex paint each year
- Until 2017, almost all latex paint collected was used in Posi-Shell and considered a re-use/recycling effort by DEQ
- As of July 2020, all latex paint collected will be disposed of (hardened via mixing with sawdust, etc.) in order to help with odor control at SWLF at significant additional cost

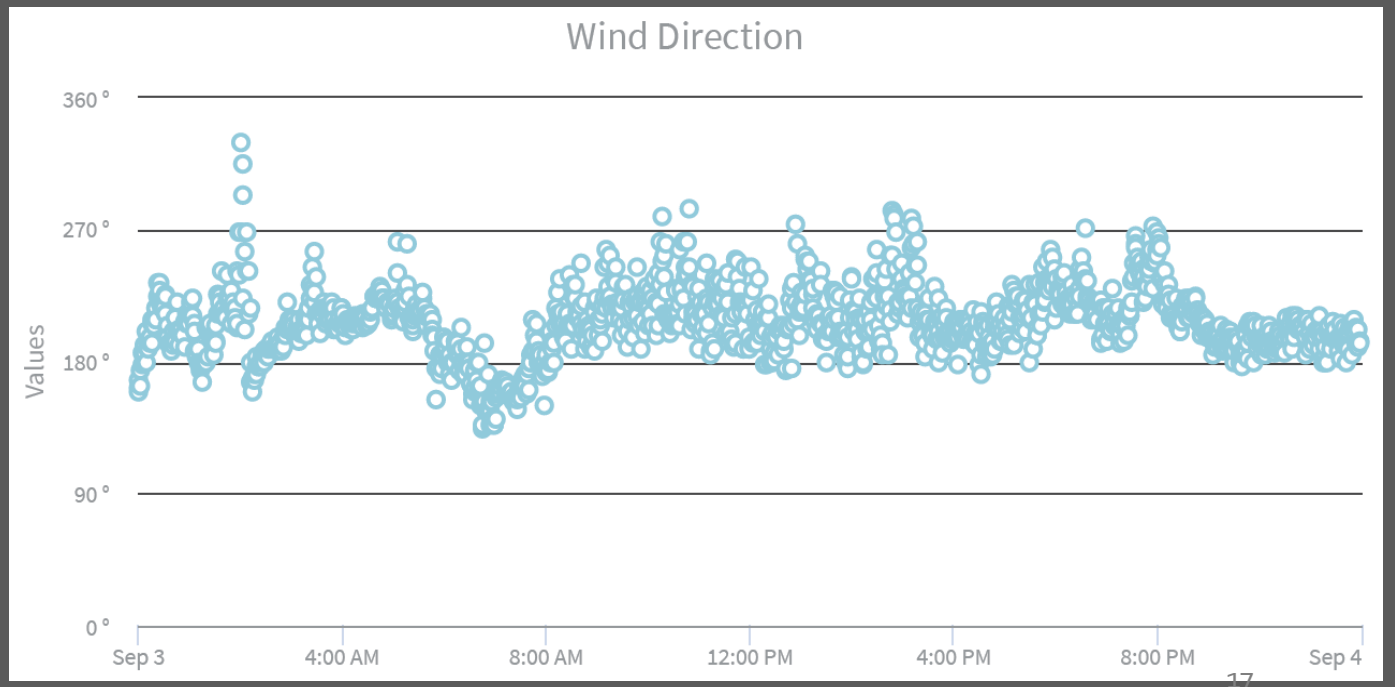
Envirosuite Software

- eNoses installed late 2019 (3 on-site)
- New weather station (data reported every minute) installed in Feb. 2020
- Odor Reporting tool implemented March 6, 2020
- Provides both historic and predictive modeling of wind speed/direction with topographic information applied
- Graphically presented data



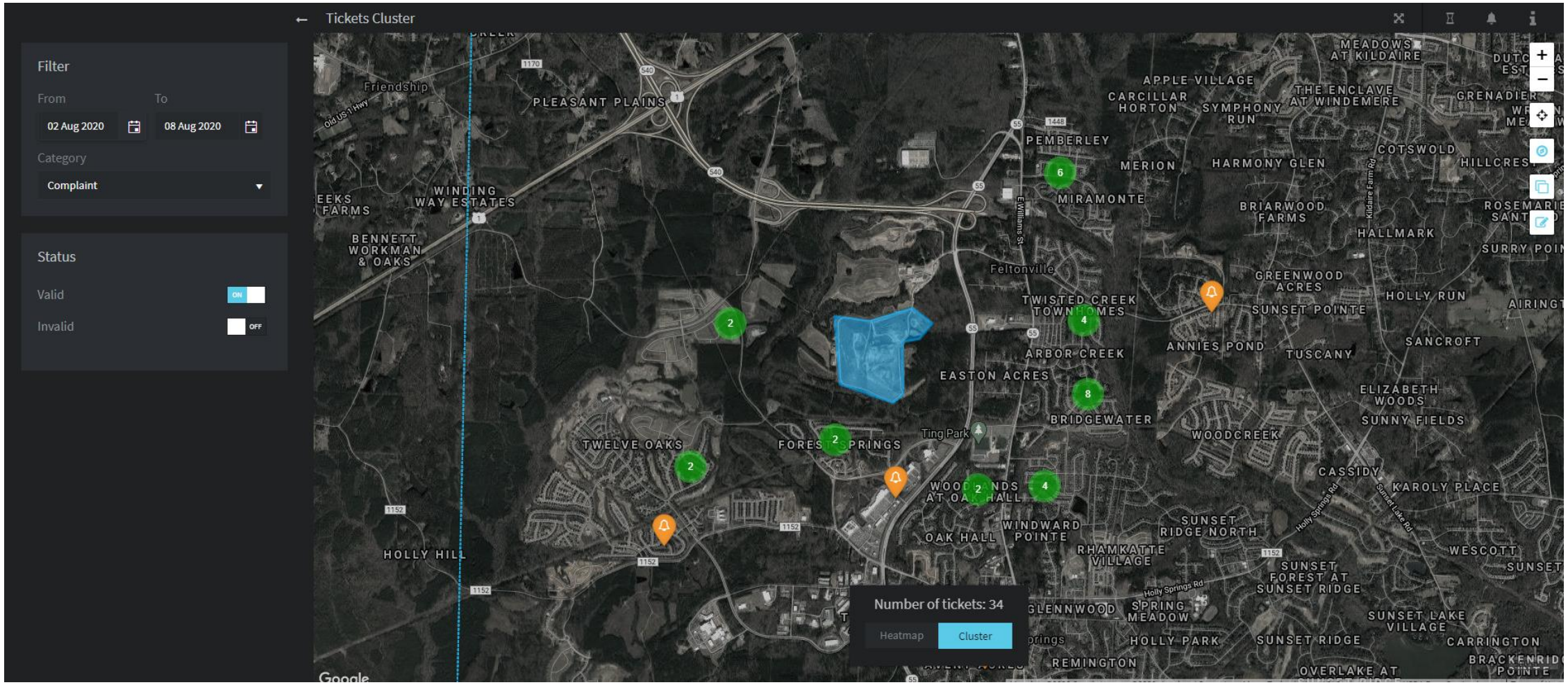
Weather Data Reporting





Predictive Weather Tools

Odor Reporting Tool



Odor Report Data

Week	No. of Odor Reports	Comments (as needed)
July 5th	224	Equipment issues
July 12th	237	Working to fix prior issues with size of working face
July 19th	69	Significant improvements
July 26th	62	Nearing implementation of dirt/soil cover
August 2nd	34	Dirt/soil cover established at end of week
August 9th	124	Significant changes in wind direction – 70 occurred on August 13th
August 16th	279	120 occurred on August 18th and 80 occurred on August 19th
August 23rd	69	Breezy week
August 30th	82	Normal operations
September 6th	139	Transition to cooler temps with winds out of the north and west and potential impacts due to Greenway Waste
September 13th	64	Normal operations
September 20th	125	Influx of Greenway Waste odors that may have impacted our count due to proximity

Greenway Waste Repairs

Odor Mitigation Strategies
Actionable Solutions Summary

Current Strategies (with Planned Improvements)	New Strategies Under Development
Section 3.1 - LFG Collection & Control System	
• Increase comprehensive infrastructure • Increase frequency of assessing system efficiency and routine O&M • Accelerate LFG system installation in conjunction with waste placement operations prior to regulatory obligations	• Assess potential to install horizontal collectors, slope collectors, sacrificial wells, shallow direct-push wells, vertical well target piles, caisson bottom-up wells, etc. for LFG extraction • Assess potential to install near-surface collectors and additional bottom-of-cell LFG infrastructure

Odor Mitigation Strategies
Actionable Solutions Summary

Current Strategies (with Planned Improvements)	New Strategies Under Development
Section 3.2 - Odor Neutralizing System	
• Expand and/or relocate vapor-phase OCM • Increase/implement direct-application products (e.g., NWC SWAT, Odor No More, Bio-Organic Catalyst) • OdorBoss odor control equipment to enhance odor neutralizing system	• Moving vapor-phase OCM with start of waste placement in Phase 2B or 3 • Consider separation and/or treatment of waste streams at transfer stations • Adding odor masking/neutralizing agent "misters" to certain equipment • Applying odor neutralizing agent to select incoming waste collection/transfer vehicles

Odor Mitigation Strategies
Actionable Solutions Summary

Current Strategies (with Planned Improvements)	New Strategies Under Development
Section 3.3 - Working Face Operations	
	• Containerizing odorous materials before delivery to working face • Increasing air flow and dispersion
Section 3.4 - Cover Materials	
• Working face to a minimum size and the exclusive use of dirt and tarps • Continued pilot study demonstration of ADC products and protocols • Accelerated deployment of final cover	• Installing additional final cap ahead of schedule • Installing interim cover systems such as exposed geomembrane cover • Use of hybrid final cover systems

Odor Mitigation Strategies
Actionable Solutions Summary

Current Strategies (with Planned Improvements)	New Strategies Under Development
Section 3.5 - Waste Receipt	
• Prohibition of WWTP sludge and biosolids • Curtailment of C&D materials	• Identification and curtailment of odorous wastes and restricting hours for this material to be delivered • Regular odor assessment of incoming waste loads
Section 3.6 - Leachate	
• Covered leachate storage tank with aeration	• Leachate minimization and prevention of infiltration
Section 3.7 - Cell Construction	
• Procedures to limit LFG emissions during new cell construction • Minimize the impact from onsite projects	

Odor Mitigation Strategies
Actionable Solutions Summary

Current Strategies (with Planned Improvements)	New Strategies Under Development
Section 4 - Monitoring & Remediation	
• Standard LFG monitoring • Off-site odor monitoring in response to odor reports • SEM on an as-needed basis • Envirosuite Ambient eNose Odor Sensors and associated dispersion models • Cover integrity monitoring of final closure cap	• Analyze samples of LFG from LFG collection and control system • Olfactory odor evaluation at LFG well pipe penetrations • Regular voluntary SEM events at the working face (use of Drone technology?) • Ambient air sampling at off-site locations • Cover integrity monitoring on non-closed areas of landfill

Odor Mitigation Strategies
Actionable Solutions Summary

Current Strategies (with Planned Improvements)	New Strategies Under Development
Miscellaneous	
• Receiving and responding to odor reports from the public • Community outreach and education – including tours, Nextdoor notifications, and meetings of the South Wake Landfill Citizens Committee	• Annual evaluation and update of Odor Management and Control Plan • Hiring staff to oversee odor-related activities • Expanded public notification of landfill activities using a 3rd party PR or communication group • Presentations at HOA meetings • Collecting stormwater from active filling area to divert infiltration

Odor Management Conclusions

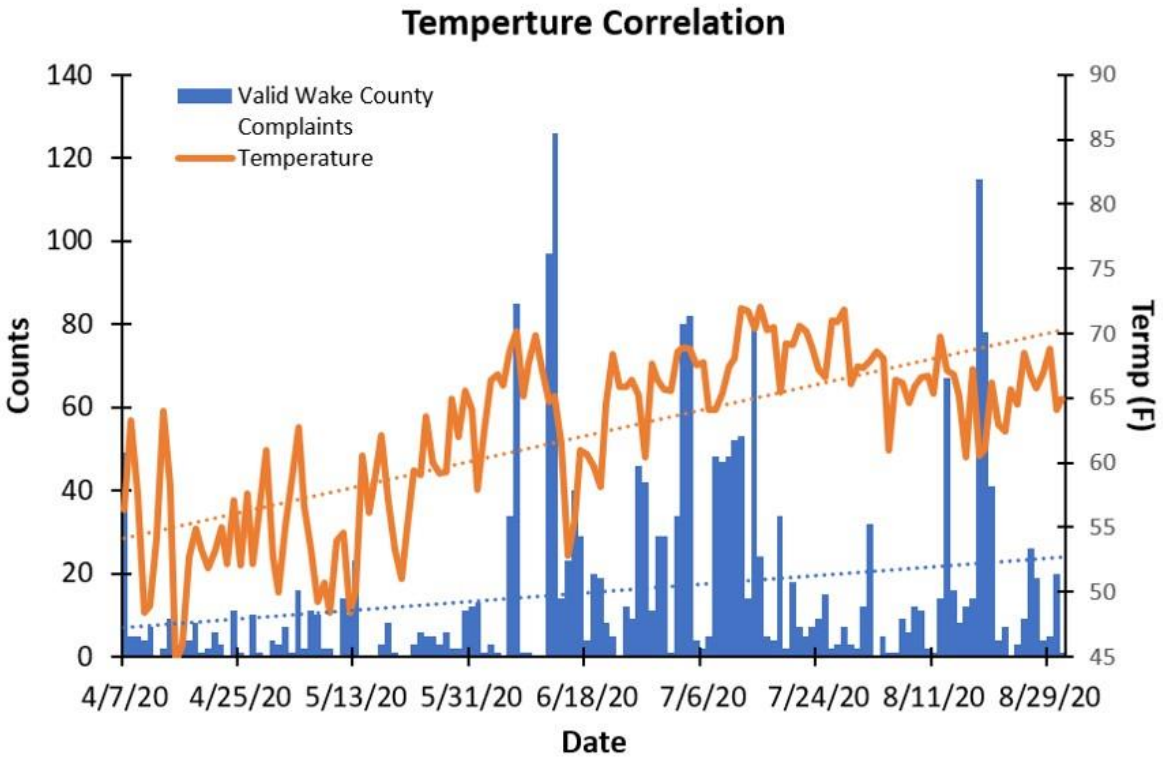
- Landfill has invested millions in infrastructure, equipment, technology platforms and other resources related specifically to odor management and control
- Efforts are still underway to continually improve – immediate next steps:
  - LFG system expansion – starting prior to the end of October
  - Hiring an Outreach Coordinator to provide better communication – contract in process for consultant help – new position to be created for FY22 (July 2021)
  - Expansion of surface emissions monitoring (SEM) into Phase 2A and potential use of drone technology for additional SEM efforts – November 2020
  - Continued piloting of various odor masking &/or neutralizing products - Ongoing
  - Full evaluation of interim cover systems for areas not in regular use – To be evaluated fully in early 2021
  - Incorporate “bottom-of-cell” LFG system infrastructure in Phase 2B – Being incorporated

Odor Management Conclusions

- Metrics are under development
  - Size of working face
  - Run time (95%) for landfill gas system
  - Run time (95%) for odor management system
  - Daily reports to be completed due to number of odor reports in an hour or day
  - Others
- With new landfill leadership and better coordination, we anticipate significant improvements by and especially during 2021

Bio-Catalyst Pilot Project

- Eco-Cat Product
  - *"The product increases dissolved oxygen (DO) and reduces odors and most importantly, will shift the biological conditions that produce odors".*
- Initiated on April 6, 2020 and concluded on August 31st
- Over 2300 observations performed.
- Numerous variables to consider
- Operations, Atmospheric, and Seasonality are key factors
- Report is under review with vendor and the Town



Education & Outreach

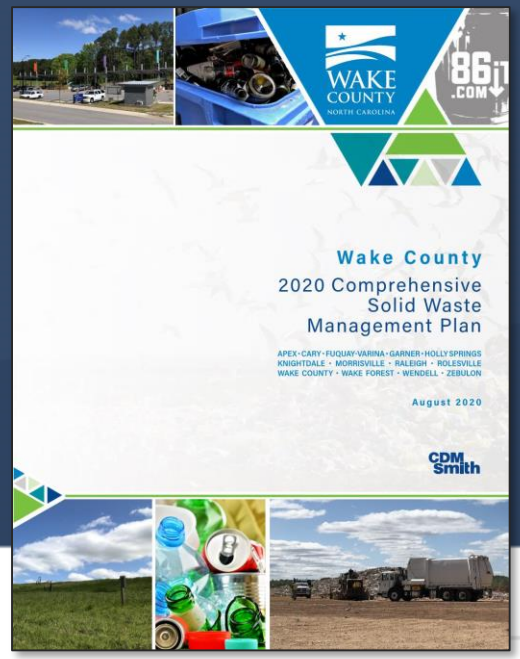
- Virtual Presentations
  - Available upon request
- Landfill & Recycling Tours
  - On Hold due to pandemic
- Virtual Tours
  - In development

Education & Outreach

- Waste Reduction Grants
  - Applications due Nov. 6
  - $500 to $10,000 awards
- America Recycles Day Bingo
  - Play November 1 – 30
  - Download card at wakegov.com/recycling
- Litterati Partnership
  - Assess type and concentration

2020 Comprehensive Solid Waste Management Plan

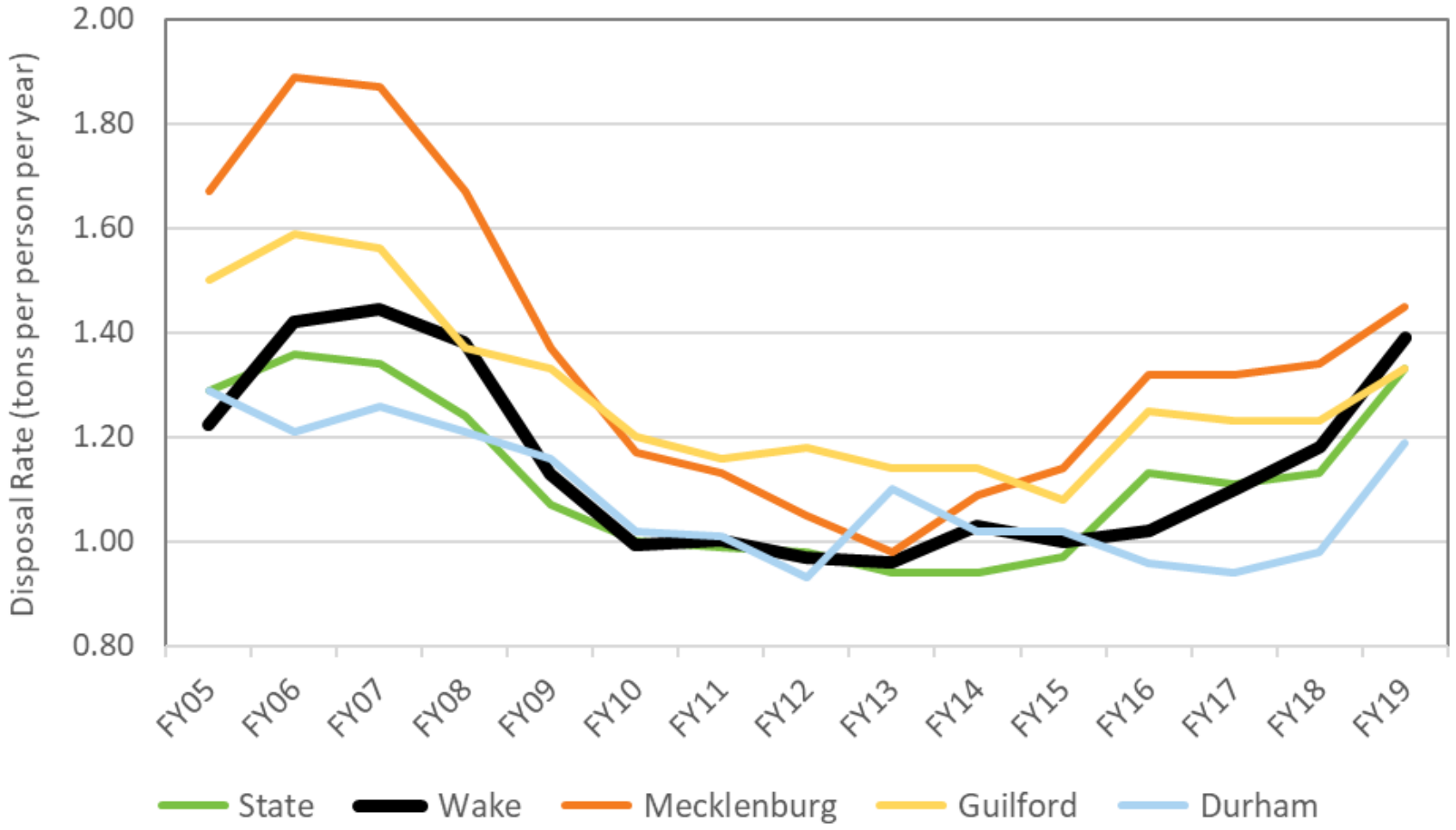
Solid Waste Facts, Figures and Trends



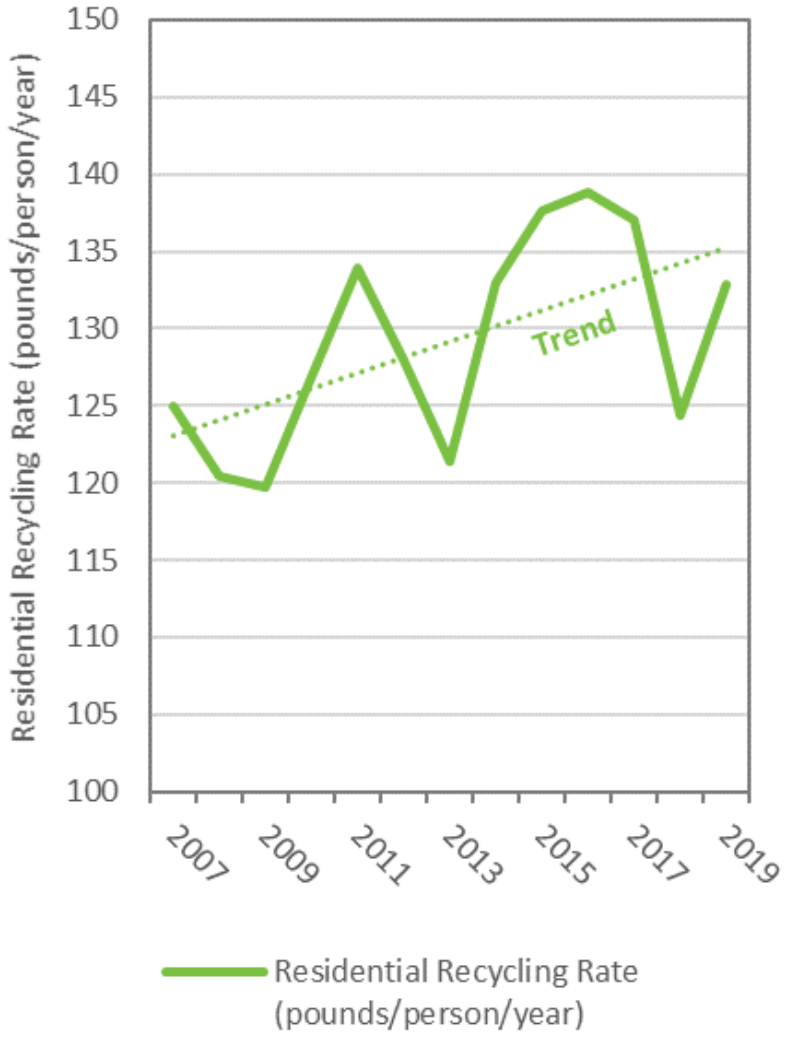
Can be found on Wakegov.com at:
http://www.wakegov.com/recycling/division/reports/Documents/Wake%202020%20CSWMP.pdf

Per Capita Disposal Rate Peer Comparison

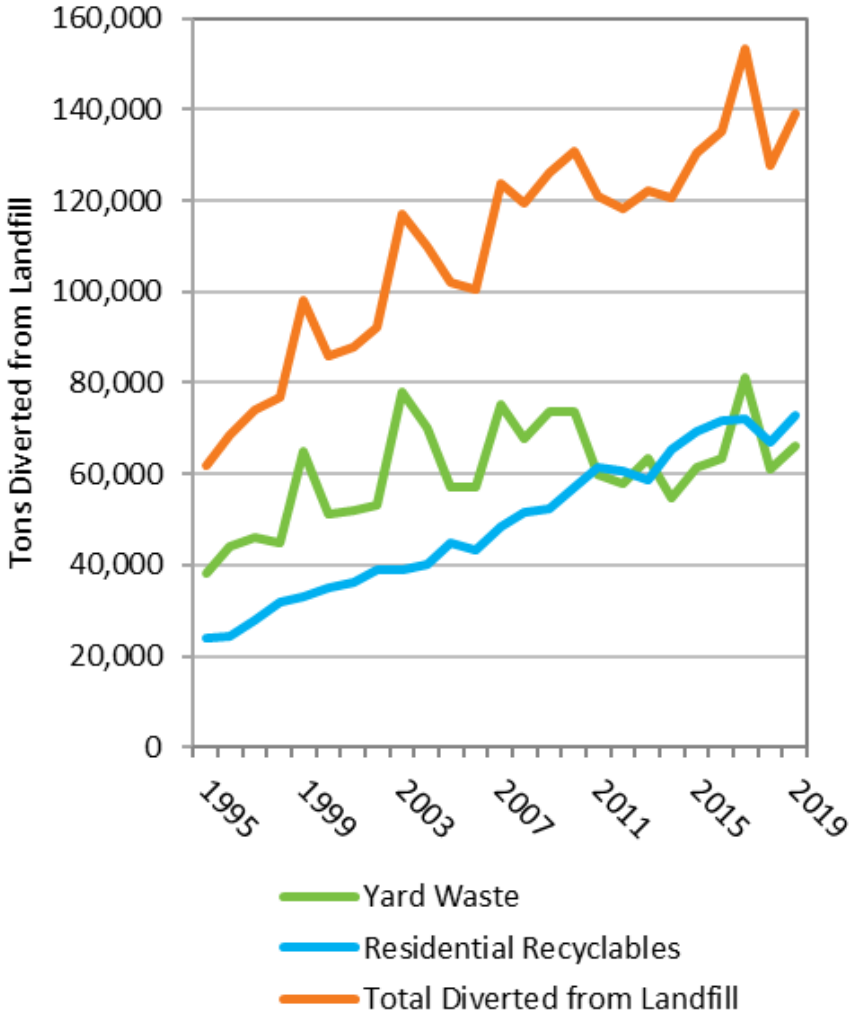
Wake County's per capita disposal rate is increasing at a slightly higher rate than peer counties, primarily due to strong construction starts and the generation and disposal of C&D waste.



Residential Recycling & Yard Waste Trends



On a per capita basis, the residents of Wake County have demonstrated a modest increase in recycling. Each resident of Wake County is **recycling about 1 additional pound each year**, on average.



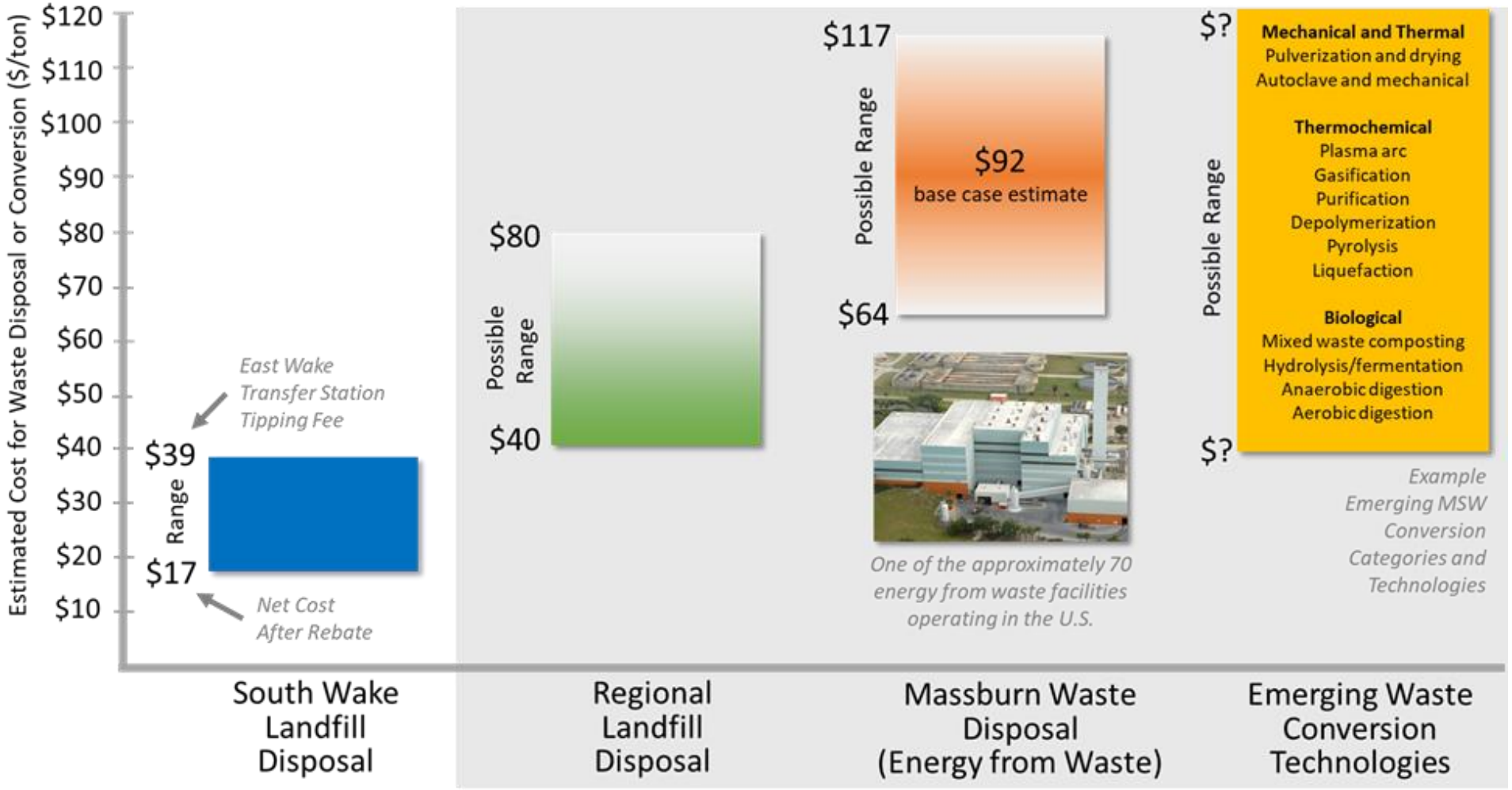
Local Government Recycling Percentages

Collectively, the local governments of Wake County have slightly increased the percentage of waste recycled since 2011

Jurisdiction	2018 Population	Tons of Waste Disposed	Tons Recycled	Pounds Recycled per Person	Percentage of Waste Recycled 2019	Change in Percent from 2011
Apex	52,909	15,177	4,241	160	27.9%	-4%
Cary	162,341	36,460	11,512	142	31.6%	-5%
Fuquay-Varina	26,936	9,369	1,690	125	18.0%	0%
Garner	30,787	8,030	2,825	184	35.2%	11%
Holly Springs	34,071	9,917	2,353	138	23.7%	-5%
Knightdale	15,305	5,383	806	105	15.0%	-4%
Morrisville	26,041	3,731	1,347	103	36.1%	3%
Raleigh	464,435	92,524	27,966	120	30.2%	11%
Rolesville	6,638	3,045	530	160	17.4%	-19%
Wake Forest	37,279	10,865	3,089	166	28.4%	1%
Wendell	7,132	2,667	525	147	19.7%	-2%
Zebulon	4,986	1,783	288	116	16.2%	-5%
Wake County (unincorporated)	227,548	64,697	15,453	136	23.9%	-2%
Overall	**1,096,408**	**263,648**	**72,625**	**132**	**27.5%**	3.7%

Source: FY19 Solid Waste Management Annual Reports

Est. Cost Range for Future Waste Disposal



QUESTIONS?

Extra Slides if questions arise

Solid Waste Division Overview

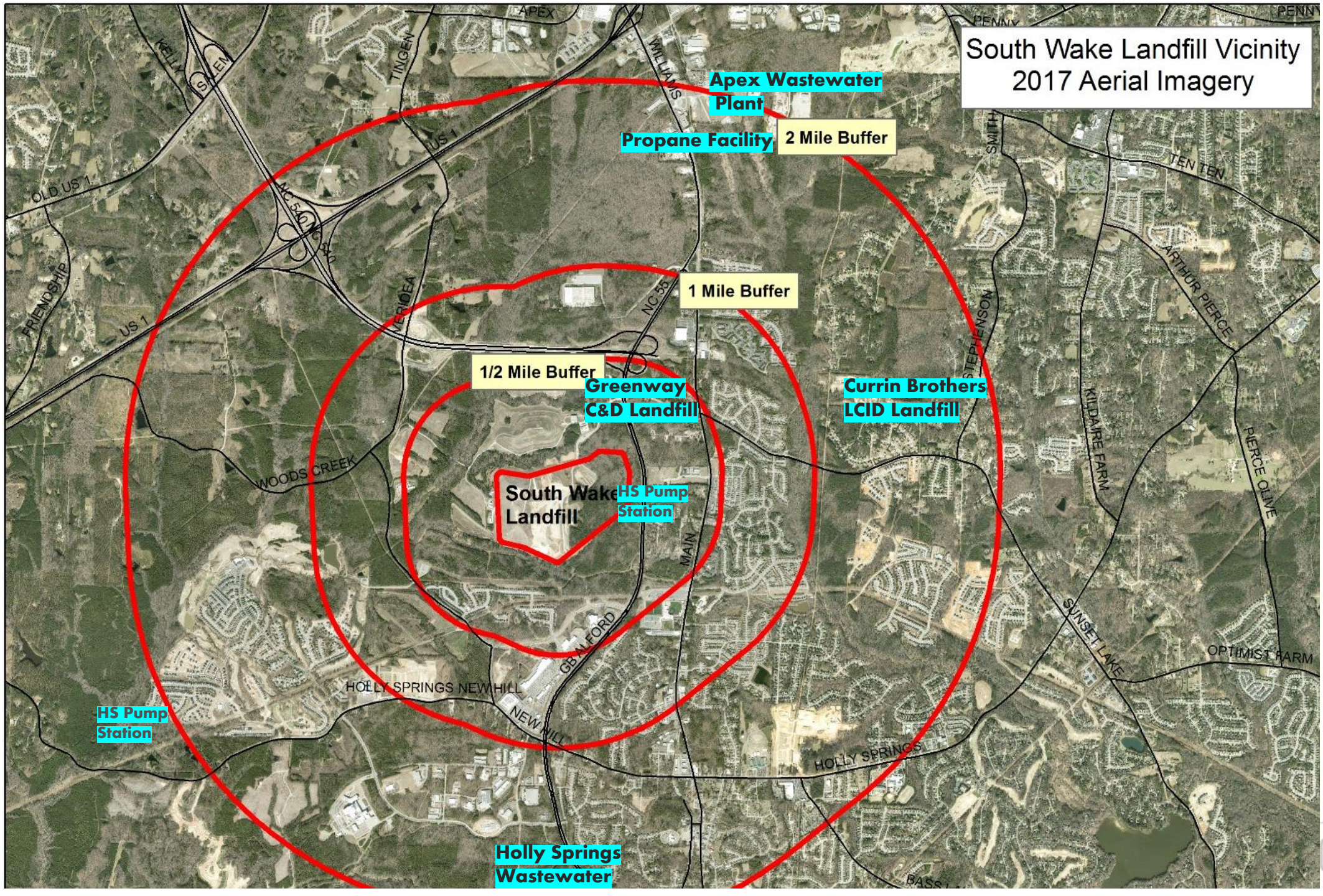
- Solid Waste Operations
  - Manage 19 waste facilities
    - 11 Convenience Centers
    - 3 Multi-Material Recycling Facilities
    - 3 Household Hazardous Waste Facilities
    - **SOUTH WAKE LANDFILL (SWLF)**
    - East Wake Transfer Station
  - Landfill gas systems
  - Illegal dumping enforcement
  - Closed North Wake Landfill

Solid Waste Division Overview

- Solid Waste Outreach & Education
  - Feed the Bin School Program
  - 86it Anti-Litter Campaign
  - Community Outreach
  - Food Waste Reduction
  - Facility Tours

Can the SWLF Close Early?

- Current projections for landfill to remain open until 2040+
- Municipalities in Wake County benefit from significantly reduced costs by having the SWLF (2 to 3 times more costly to ship waste out of county)
- ILA would have to be dissolved (all parties must agree) – unlikely due to cost impacts to all Partners


South Wake Landfill Vicinity
2017 Aerial Imagery
Apex Wastewater Plant
Propane Facility
2 Mile Buffer
1 Mile Buffer
1/2 Mile Buffer
Greenway C&D Landfill
Currin Brothers LCID Landfill
South Wake Landfill
HS Pump Station
HS Pump Station
Holly Springs Wastewater
APEX
PENNY
KELLY SUTTEN
TINGEN
WILLIAMS
SMITH
TEN TEN
OLD US 1
US 1
NC 540
NC 55
FRIENDSHIP
VERIDEA
STEPHENSON
ARTHUR PIERCE
KILDAIRE FARM
PIERCE OLIVE
WOODS CREEK
MAIN
GB ALFORD
HOLLY SPRINGS NEW HILL
NEW HILL
HOLLY SPRINGS
SUNSET LAKE
OPTIMIST FARM