South Wake Landfill Update

South Wake Citizens Committee
March 25, 2026

WAKE COUNTY
NORTH CAROLINA

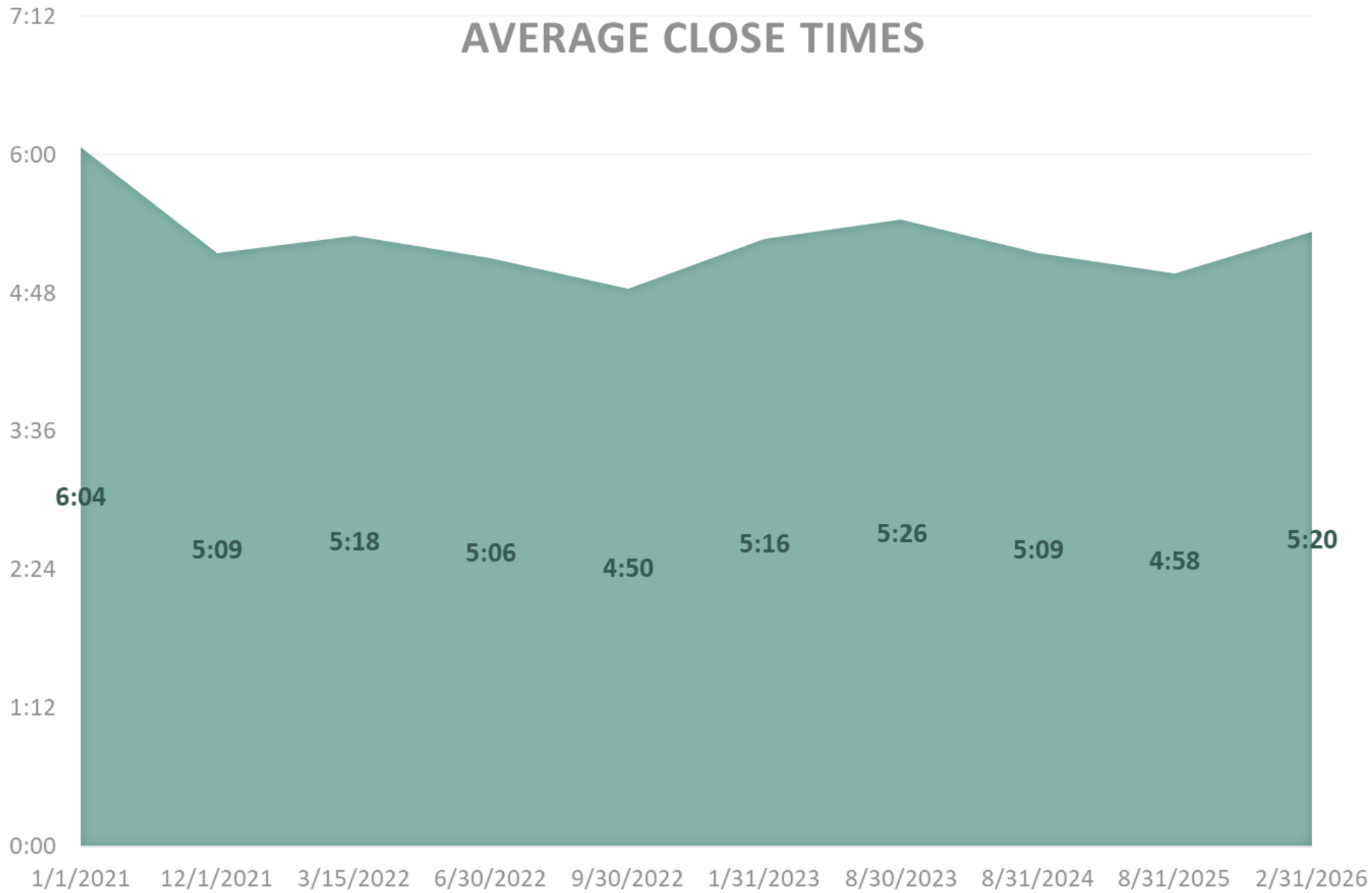
Overview

- GFL Improvements & Investments
- Wake County Improvements & Investments
- Odor Reporting Trends & Metrics
- Community Engagement & Recycling Initiatives
- Next Steps & Future Plans (Beyond the SWLF)

GFL
Improvements & Investments

Operational Update – GFL

- Consistent closure times. February Average 5:20pm.
- Waste fill plan – current elevations of waste placement lift 2 (383).
- Waste placement within 2C
- Daily cover
- Holiday full cover
- Misting System


AVERAGE CLOSE TIMES
7:12
6:00
4:48
3:36
2:24
1:12
0:00
6:04
5:09
5:18
5:06
4:50
5:16
5:26
5:09
4:58
5:20
1/1/2021
12/1/2021
3/15/2022
6/30/2022
9/30/2022
1/31/2023
8/30/2023
8/31/2024
8/31/2025
2/31/2026

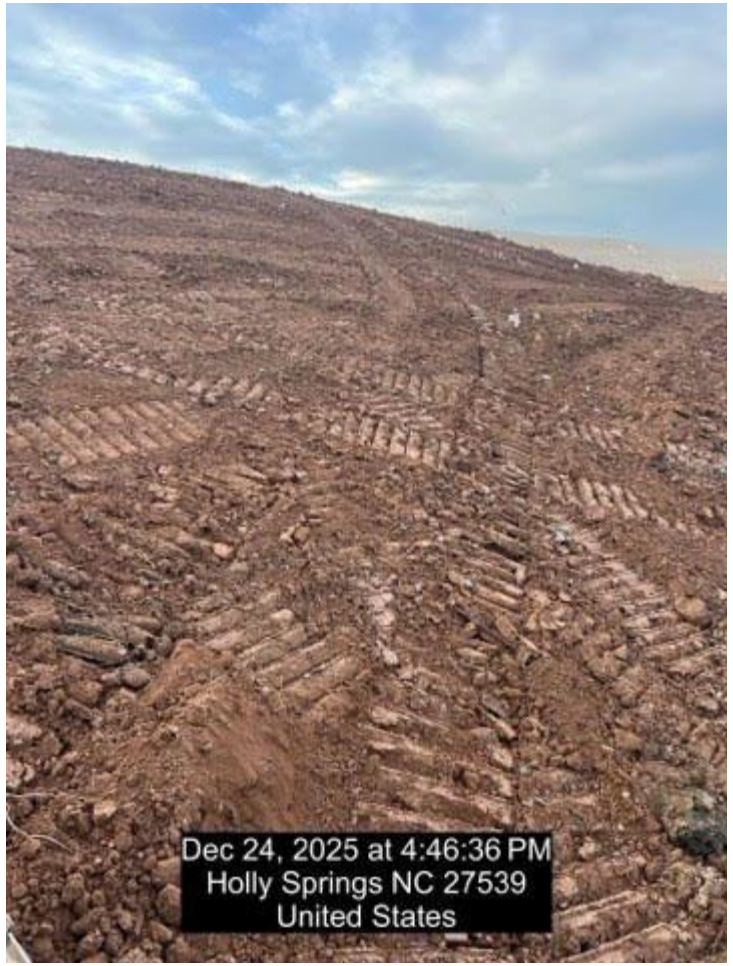







Mar 14, 2026 at 4:50:00 PM
6512 Old Smithfield Rd
Apex NC 27539
United States


Mar 20, 2026 at 5:14:45 pm
6512 Old Smithfield Rd
Apex NC 27539
United States


Dec 24, 2025 at 4:46:36 PM
Holly Springs NC 27539
United States


Dec 24, 2025 at 4:45:10 PM
Holly Springs NC 27539
United States



Wake County
Improvements & Investments







LFG Wellfield Expansion

- Efforts to move new construction to the spring/early summer worked!
- Contract bid in February and contract approved at March BOC meeting
- Construction should start in May – should last less than 60 days, so it will be complete by July

New Air Compressor Station

- Provides redundancy
- Previously, with no air, blower/flare shuts down
- Separates “field” from B/F air
- Reduces potential for B/F shut down and associated emissions



Landfill Gas to Energy Project









Odor Reporting Trends & Metrics

March 2026 Update

Odor Complaints significant reduced over the past few months!

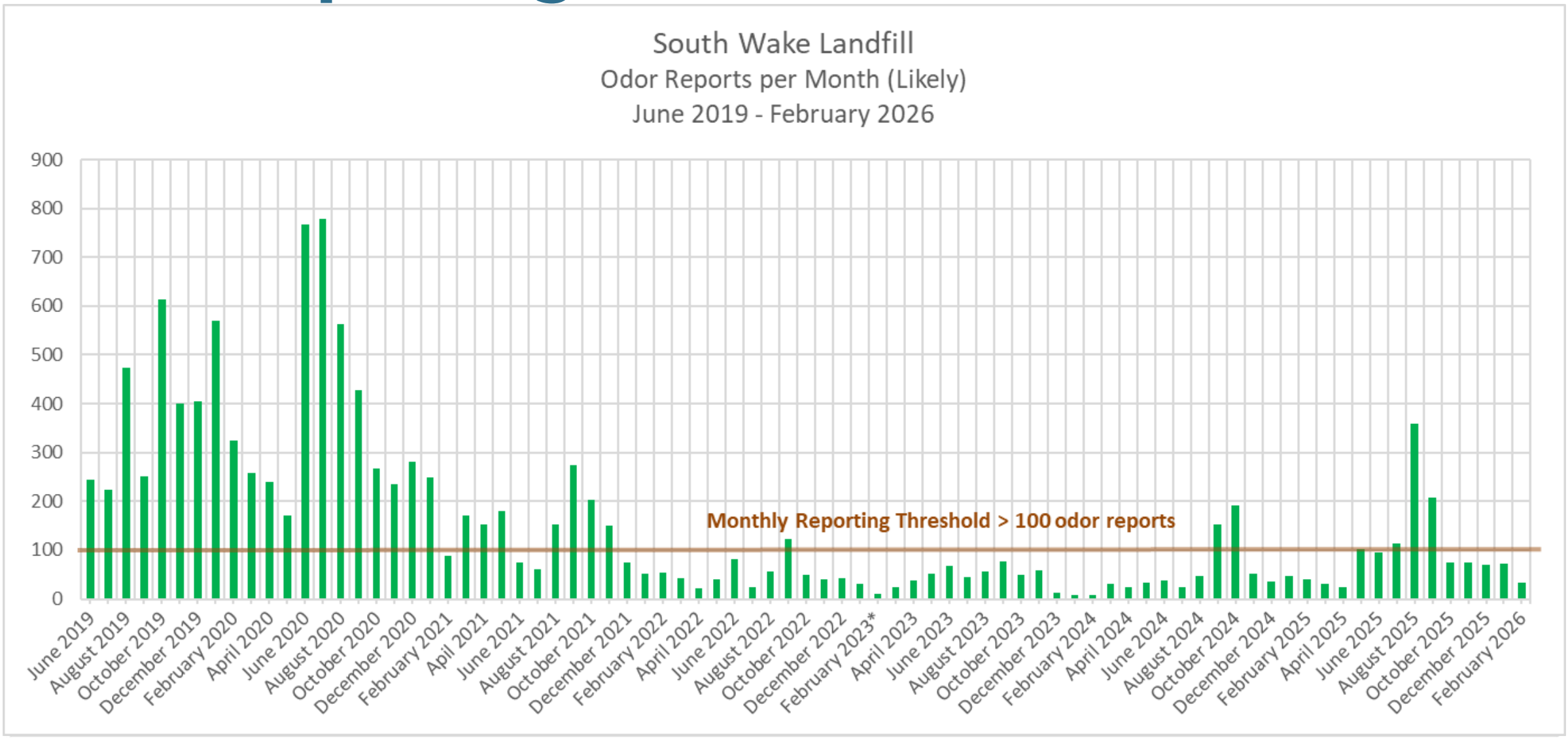
Potential Reasons

- Prevailing wind direction to the north (away from most homes – for now… Veredia coming)
- No significant projects ongoing

Anticipated next few months

- This year's LFG project will be complete prior to wind direction change - this helps minimize potential odors
- GFL still working on final solution to RO plant odor
- Next new phase is at least 2-3 years away – will make sure new phase opens with appropriate attention to potential odor issues (smaller working face, use of more soil for cover)

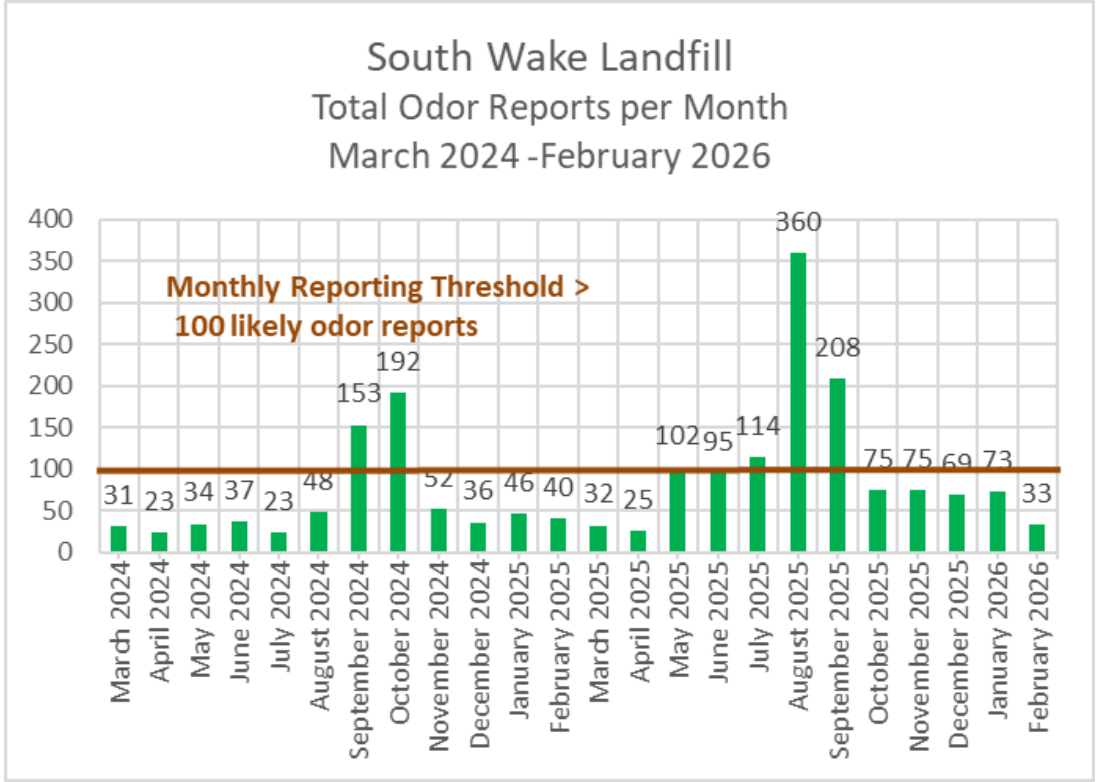
Odor Reporting Trends



Town Metrics – Monthly Odor Reports

Thresholds

- 100 odor reports likely attributable to the landfill
- **OR** 200 total odor reports in a month
  - Report generated by consultants
  - County and GFL use info to consider how we can prevent future issues
  - Returned to under threshold…



Outreach & Communications

Compost Bin Sale Begins May 1!

- Annual event since 2016
- More than 6,000 bins sold
- Visit wake.gov/compost to sign up for an email reminder
- 15 bins available for school or community gardens
- Email recycling@wake.gov to apply



This compost bin is one of 244 donated to school or community gardens since 2017.

Outreach Team Springs into Action



- Greatest American Cleanup, Mar. 21, Apr. 18
- Dix Park Earth Day, Apr. 24
- Apex EarthFest, Apr. 25
- Wild about Nature at Sugg Farm, May 16

We provide grabbers, bags, and safety vests to residents who want to help clean up Wake County.

Newsletters Galore!



WAKE COUNTY | Solid Waste Management Division

SOUTH WAKE LANDFILL

New study aims to prepare residents for the next phase in waste management

Open houses and survey coming this spring

The South Wake Landfill has been in operation since 2008, but with limited space, the landfill is expected to reach capacity and close as early as 2040. With the help of CDM Smith, the Solid Waste Management Division started the Beyond the South Wake Landfill Study to consider options for what to do with Wake County's waste before this happens.

Currently, the four options for future waste disposal being considered are:

- Development of a new landfill in Wake County
- Hauling and disposal at regional landfills outside Wake County
- Development of a Waste-to-Energy facility in Wake County
- Alternative disposal technologies

There are several community engagement efforts planned within the next few months to better inform residents and businesses about the options and receive public input. Keep an eye on our social media channels and your inbox for more updates!

Wake County couple continues learning from landfill tours after 10 years

Sharon Mahovlic and Jim Schleper have been married for 53 years and describe themselves as "each other's best friend, next to Jesus." The Fuquay-Varina residents have been attending landfill tours at least once every other year since 2015.

Jim and Sharon, who both retired from Wake County School System, are avid learners and share a passion for reducing waste in the environment. While they've been recycling in Wake County for 26 years, the couple say they still enjoy the tours because they keep gaining new insights.

Check your inbox for:

- SWLF Newsletter – Sent March 11; next in fall
- 1st Solid Waste Outreach & Marketing Newsletter – Sent today; ongoing monthly
- Updates to your inbox about the Beyond the SWLF Study

Our Work to Control Odors Never Ends

Our commitment: To minimize landfill odor issues through advanced technology and best operational practices.

Website: wake.gov/landfill



Next Steps & Future Plans (Beyond the South Wake Landfill)

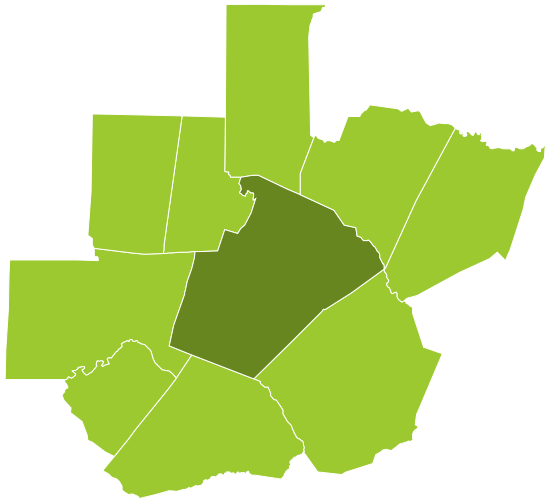
Why are we studying MSW disposal options now?

- The South Wake Landfill has a **finite capacity** to receive waste and may **reach capacity between 2040 and 2045**.
- Because of the **time needed to develop disposal options**, we must begin making crucial infrastructure decisions.
- A complete **range of waste disposal options** needs to be considered to create a plan that meets the County's long-term disposal needs.
- Continuing with the **ILA and possibly developing new partnerships** will be important.

Goals of the Beyond the SWLF Study

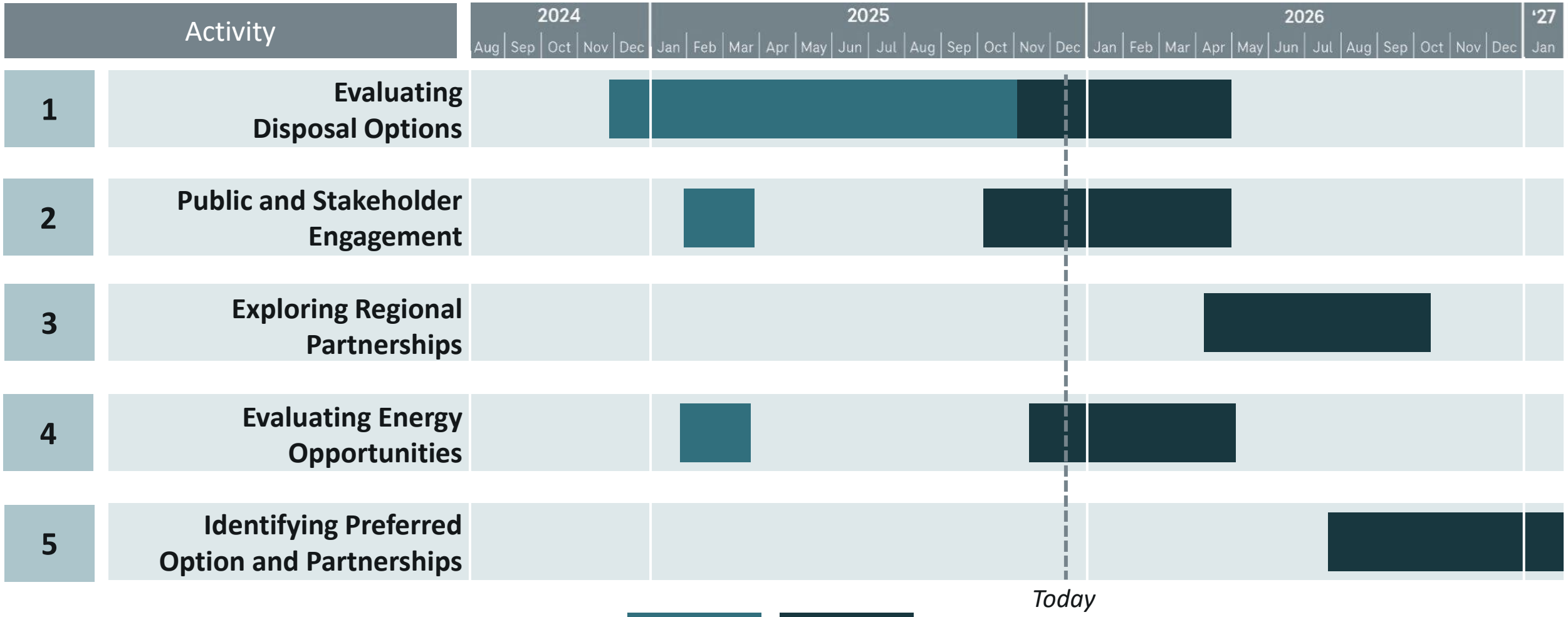
1. Objectively evaluate long-term solid waste disposal options
2. Engage stakeholders and the public in the decision-making process



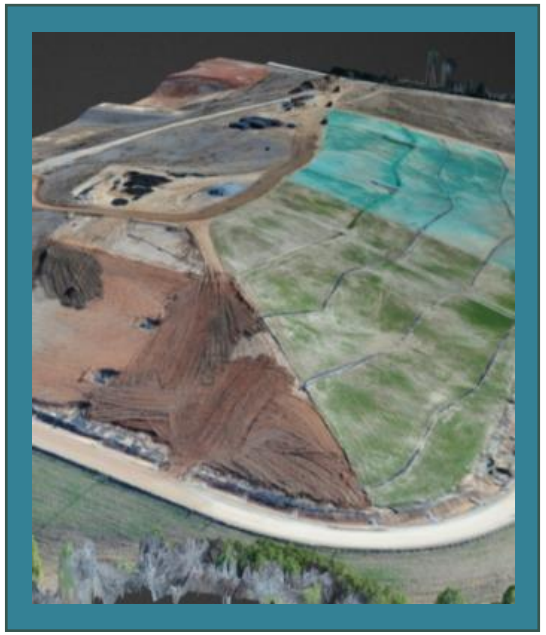


3. Solidify local partnerships and explore regional partnerships
4. Develop an adaptive plan for implementing the preferred option

Study Timeline



Long-term Solid Waste Disposal Options



New Publicly Owned Landfill in Wake County



Hauling and Disposal at Regional Landfill(s)



Alternative Disposal Technologies



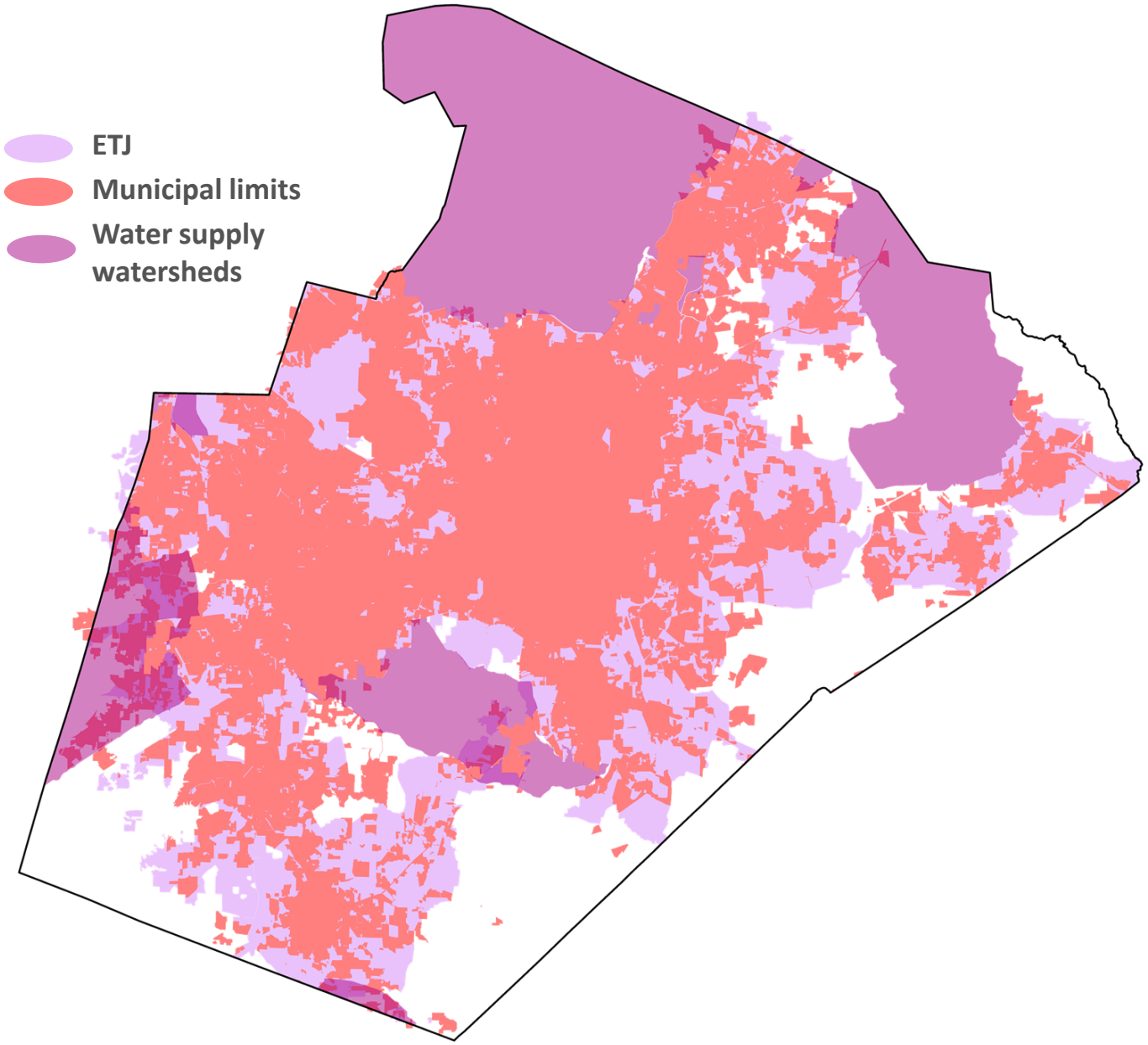
Publicly Owned Waste-to-Energy Facility

New Publicly Owned Landfill in Wake County

Screening Criteria

- 400+ contiguous acres and
- Excluding:
  - Municipal and ETJ limits
  - Airport exclusion zones
  - Water supply watersheds
  - Cultural, natural, or historic resources
  - “Developed” land uses
  - ...and other criteria

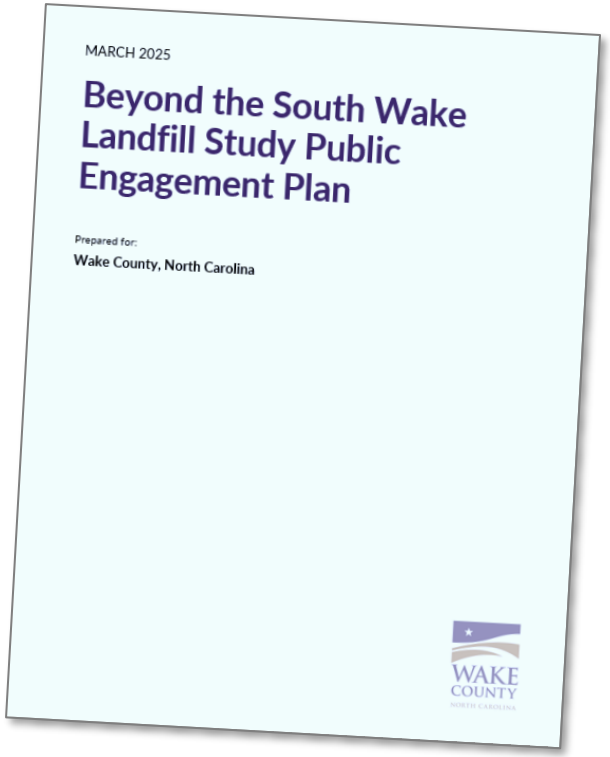
Suitability of several potential areas to be further evaluated



Next Steps – Phase 2 includes

Engaging with **Key Stakeholders**

- **Already engaged with:**
  - Board of County Commissioners
  - Wake Energy Advisory Commission
  - Wake County Solid Waste Technical Advisory Committee
  - Triangle Solid Waste Consortium (Central Pines Regional Council)
- **Intend to engage with:**
  - City and Town elected officials
  - Environmental Advisory boards, committees, and groups
  - Business interests (waste haulers, chambers of commerce)
  - Community and neighborhood groups
  - Public

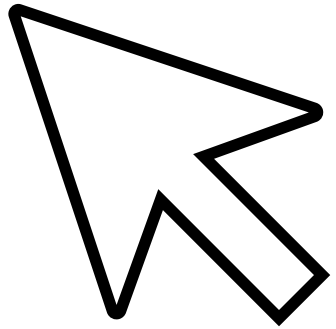


Do you have recommendations for groups that the Study Team should engage?

Easy Web Address



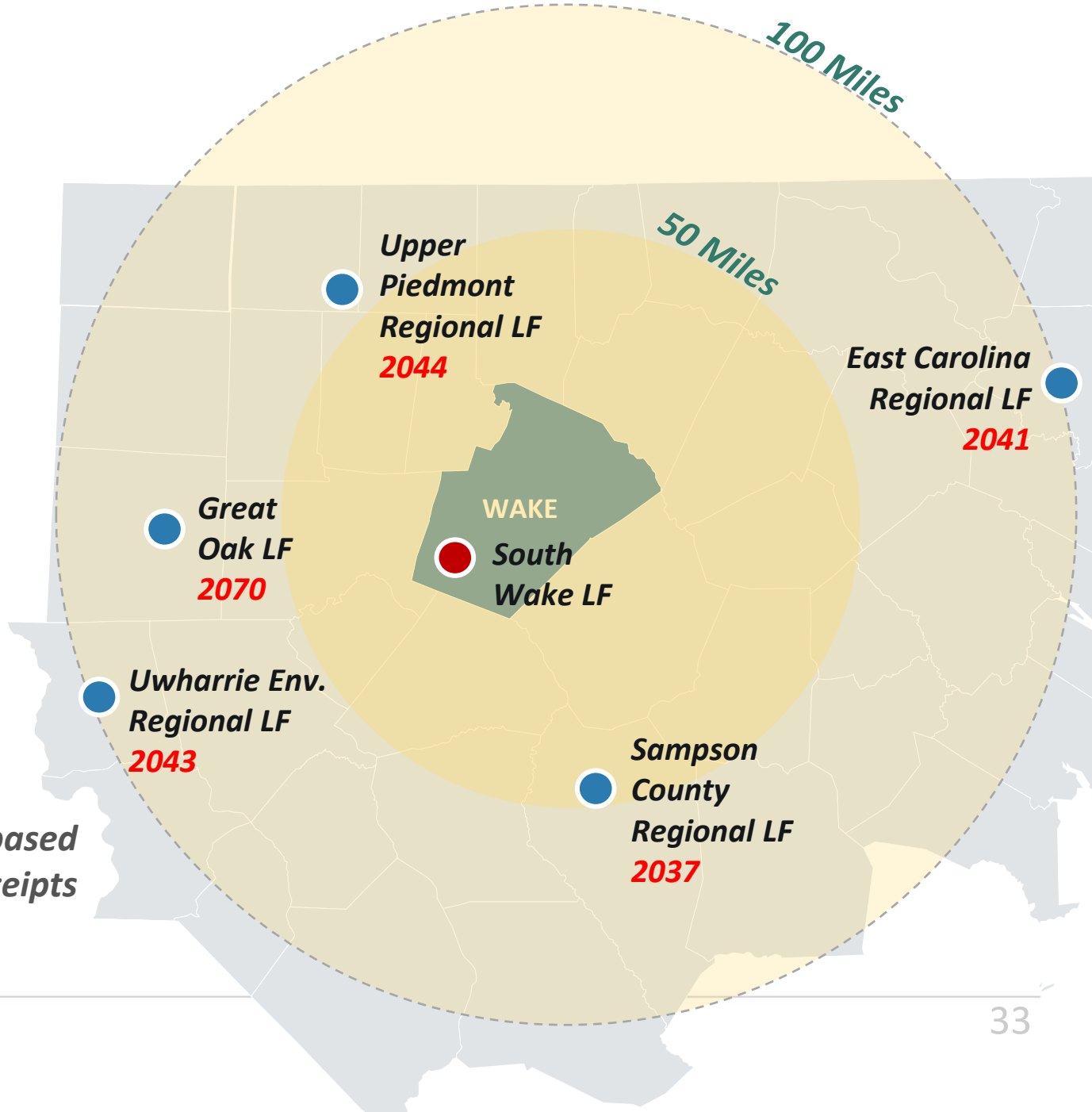
wake.gov/**landfill**



Thank You

Hauling and Disposal at Regional Landfill(s)

- Four of the five regional landfills could run out of ***permitted*** airspace before the SWLF reaches capacity.
- All four regional landfills appear to have room to expand, which could extend their life.



***Year at capacity** based on FY24 waste receipts*

Alternative Disposal Technologies

To be considered for Wake County, a technology must show:

- Demonstrated reliability
- Effectiveness processing mixed MSW
- Ability to scale to the County waste volume
- Minimal pre-processing for incoming waste deliveries
- Minimal residual waste for disposal

Results of Alternative Technology Review:

- None of the technologies have demonstrated the ability to process mixed MSW at scale and present a viable option for Wake County.

- Mechanical/ Biological Treatment
- Gasification
- Composting
- Pyrolysis
- Anaerobic Digestion

Waste-to-Energy

- Mass burn combustion of MSW into energy
- 2,800 WTE plants worldwide
  - 1,000 in Japan, 650 in China, 500 in Europe, and ~63 operating in the U.S.
- Most U.S. WTE plants were constructed prior to 1996
- WTE reduces MSW volume by 90% and allows for metals recovery
- WTE is above landfilling on EPA's "Waste Management Hierarchy"



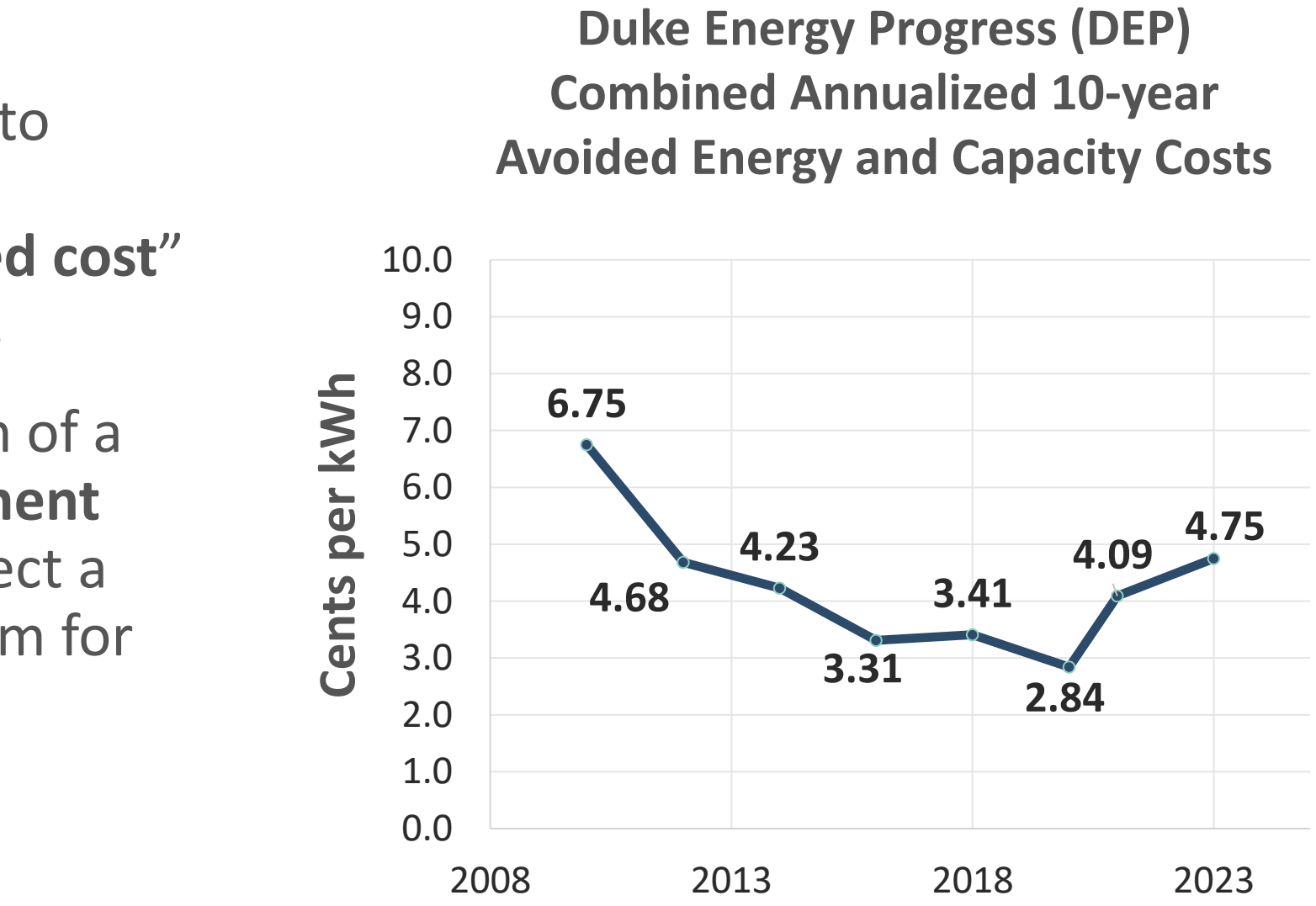






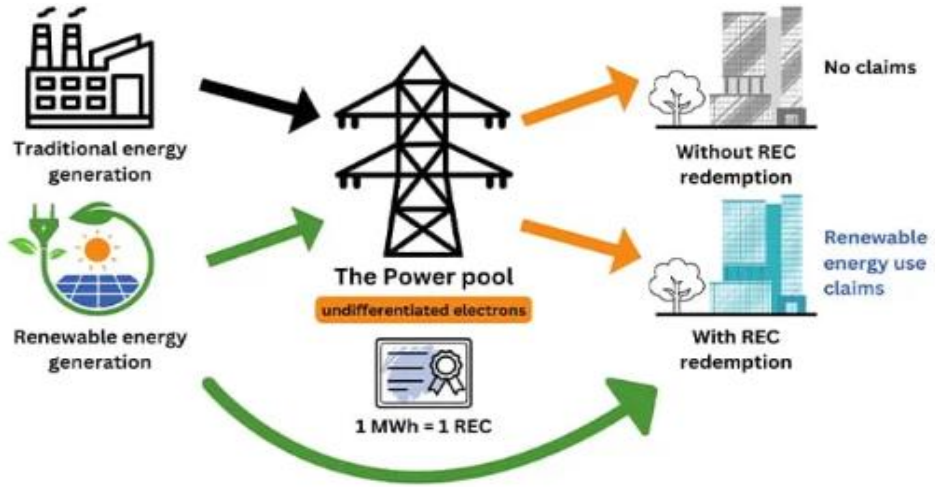
Waste-to-Energy Challenges

- Duke Energy is required to purchase electricity and capacity at their "**avoided cost**" of generating the power.
- Maximum five-year term of a **Power Purchase Agreement** makes it difficult to project a long-term revenue stream for financing needs.



Waste-to-Energy Opportunities

- **Self-generation** and sale of **thermal energy** (i.e., steam) from cogeneration may be possible if an end-user is on-site or adjacent.
- Pending merger of **Duke Energy companies** or increased **demand from AI data centers** could result in improved regulatory or market conditions.
- If, and to the extent MSW is considered a “renewable energy resource,” a WTE facility may be eligible to generate and sell **Renewable Energy Certificates**.



Results of Disposal Options Evaluation (Phase 1)

Life Cycle Assessment (LCA)

An LCA was performed to evaluate and compare **three example disposal scenarios**, assuming 2,000 tons per day of MSW. The criteria included:

Environmental Performance

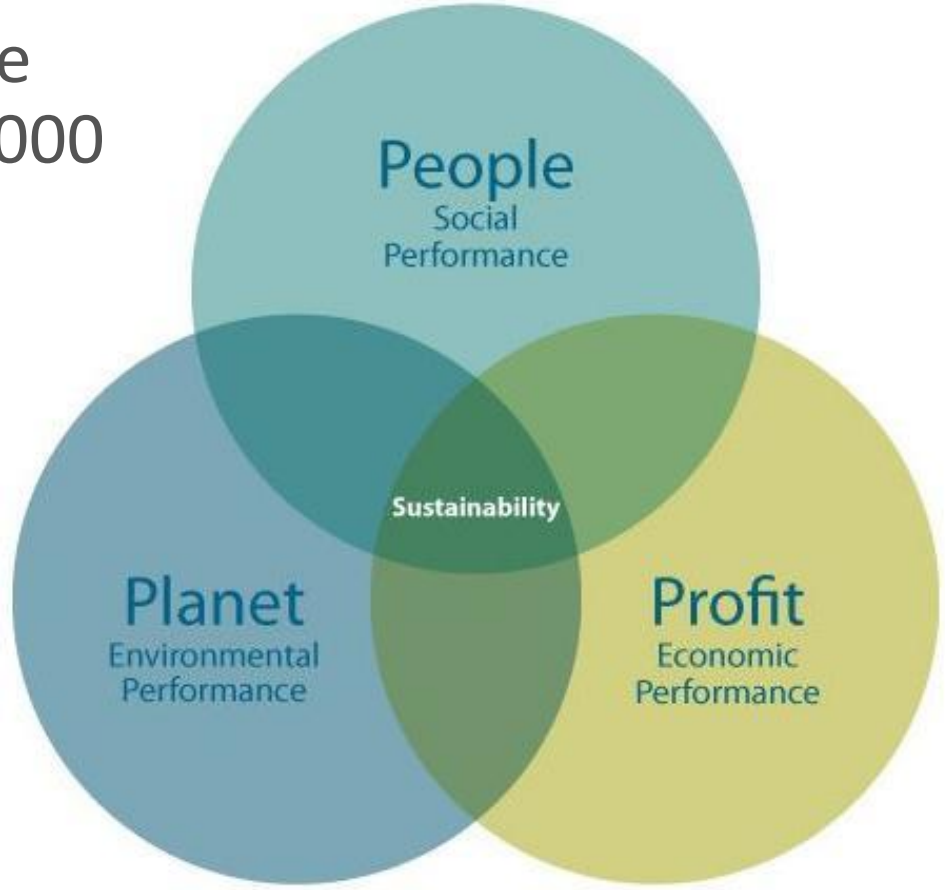
- Greenhouse gas emissions
- Criteria air pollutant emissions

Economic Performance

- Cost per ton ranges

Social Performance

- Vehicle collisions

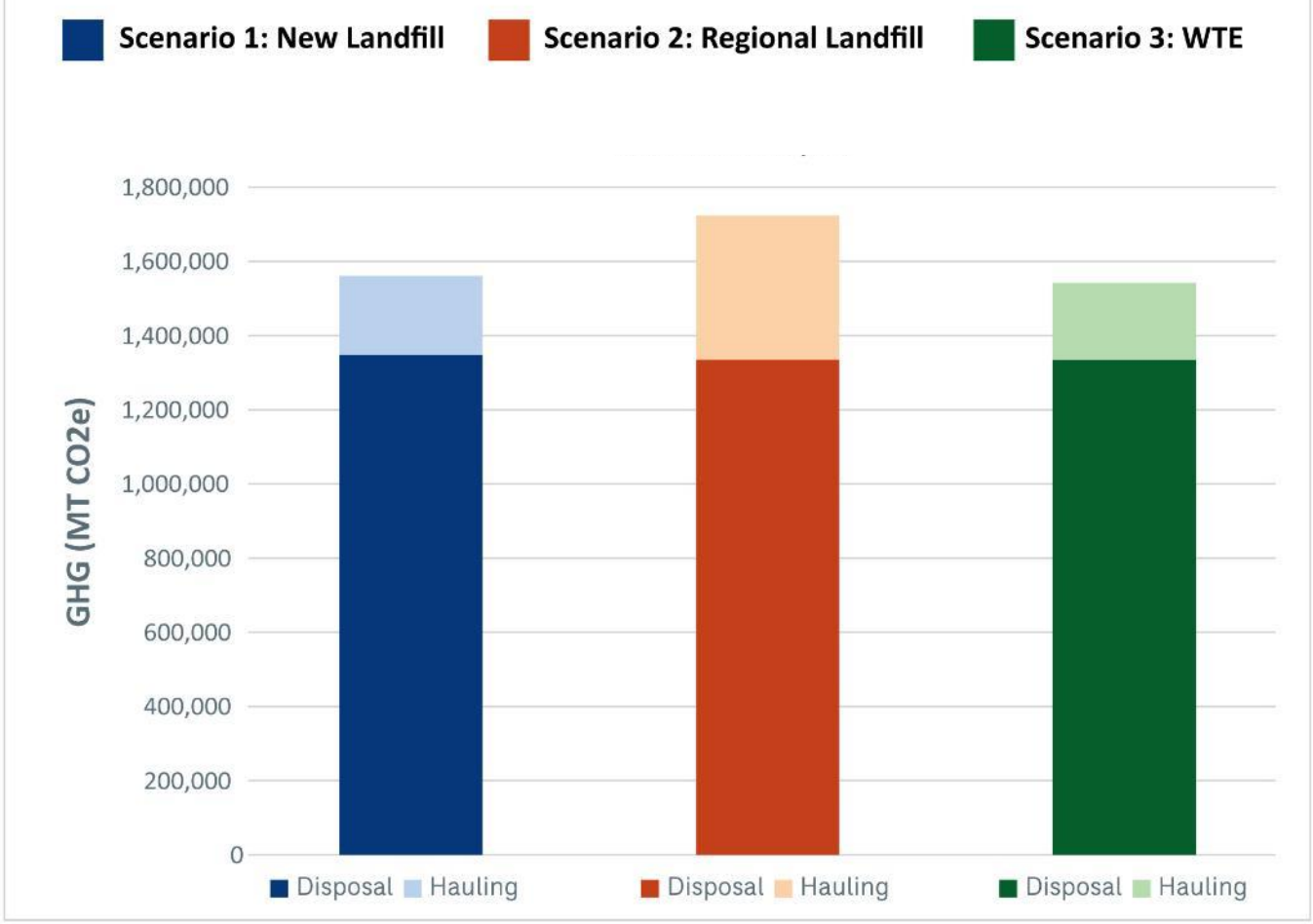


Triple Bottom Line

Environmental Performance

= Most favorable
= Less favorable
= Least favorable

Greenhouse Gases (MTCO2e over 30 Years)

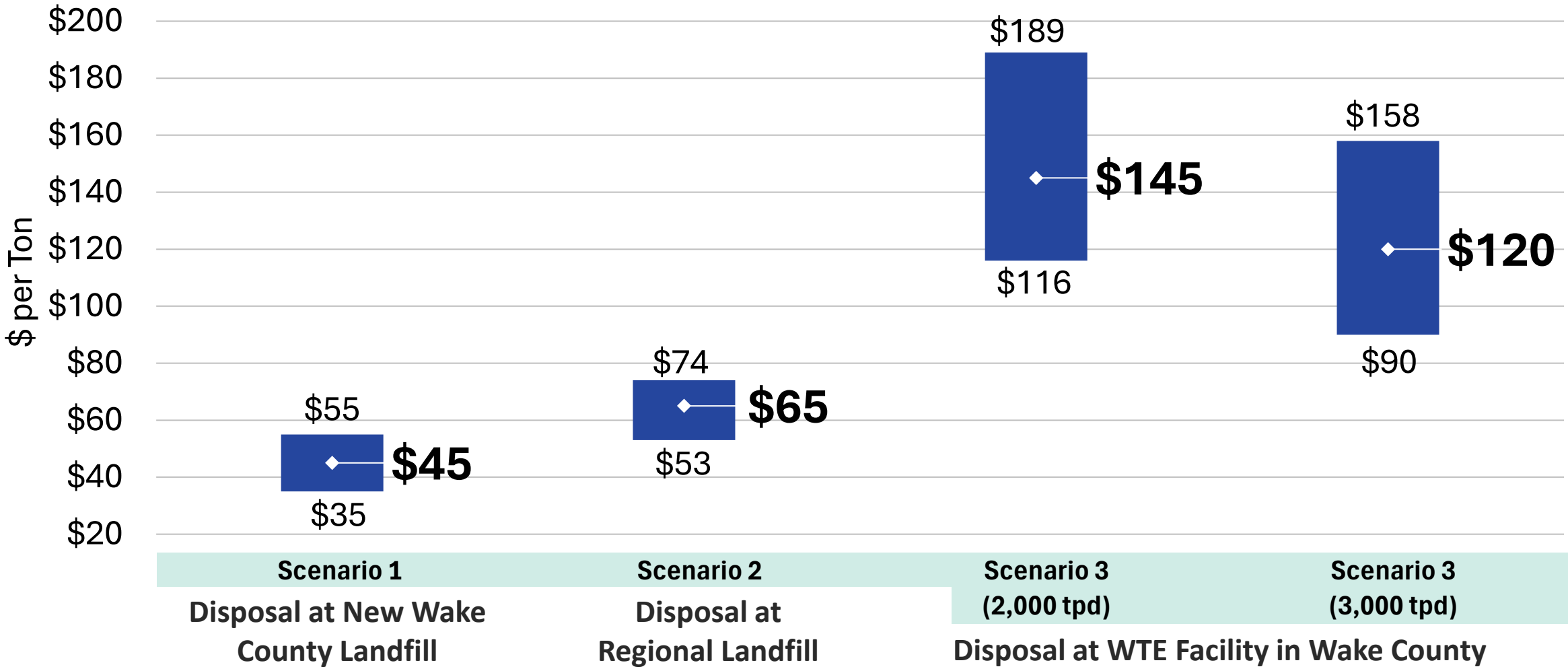


Criteria Air Pollutants as a Percentage of the National Ambient Air Quality Standards

Pollutant	Scenario 1 New Landfill	Scenario 2 Regional Landfill	Scenario 3 WTE
CO	0.98%	3.6%	0.007%
NO_2	42.0%	67.6%	1.4%
SO_2	4.9%	15.2%	0.36%
PM_{10}	25.9%	19.3%	0.02%
$PM_{2.5}$	110.9%	82.9%	0.09%

CO, NO_2, and SO_2 use 1-hr averaging periods
Particulate Matter 2.5 and 10 use 24-hr averaging periods

Financial Performance – Cost per Ton Range



Social Performance – Vehicle Collisions



Scenario 1
Disposal at New Wake County Landfill
(11,000 miles/day)



Scenario 2
Disposal at Regional Landfill
(19,200 miles/day)



Scenario 3
Disposal at a WTE Facility in Wake County
(10,200 miles/day)



I-40, November 13, 2025



Phase 1 Disposal Options Evaluation Summary

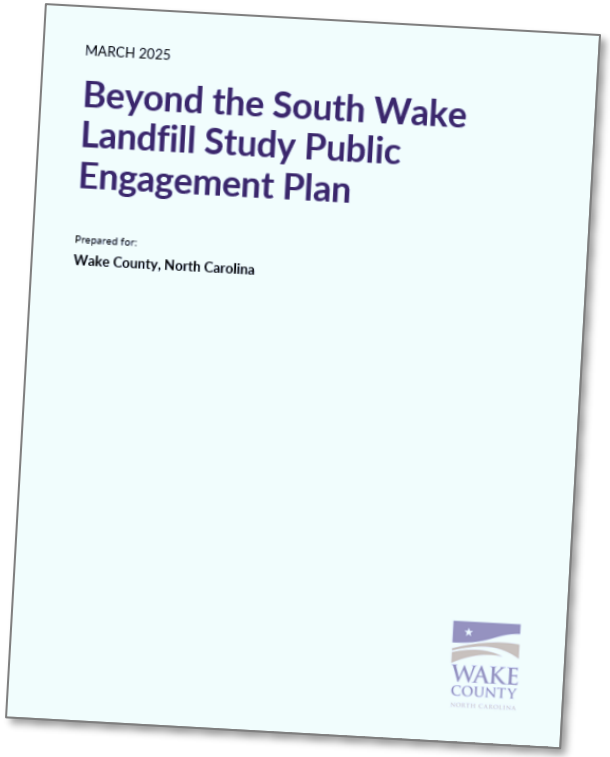
- There is limited land remaining in Wake County that meets regulatory and other criteria and is of sufficient size to site a **new landfill**. Further evaluation is needed.
- Expansions of existing **regional landfills** and/or new regional landfills are needed if out-of-county disposal is pursued.
- Estimated **greenhouse gas** emissions are similar for each scenario.
- Estimated **criteria air pollutants** are higher for the landfilling options, accounting for dispersion.
- **WTE** is a viable option, but the economics are challenging and there is uncertainty in the regulatory landscape.

Next Steps (Phase 2) and Managers Feedback

Next Steps – Phase 2 includes

Engaging with **Key Stakeholders**

- **Already engaged with:**
  - Board of County Commissioners
  - Wake Energy Advisory Commission
  - Wake County Solid Waste Technical Advisory Committee
  - Triangle Solid Waste Consortium (Central Pines Regional Council)
- **Intend to engage with:**
  - City and Town elected officials
  - Environmental Advisory boards, committees, and groups
  - Business interests (waste haulers, chambers of commerce)
  - Community and neighborhood groups
  - Public



Do you have recommendations for groups that the Study Team should engage?

What criteria are most important to you when selecting the next MSW disposal option?



Please complete the survey by December 17.

https://form.jotform.com/260275216391152

WAKE COUNTY

Municipal Solid Waste Disposal Options Criteria Survey

The Beyond the South Wake Landfill Study team is interested in your feedback. The purpose of this survey is to better understand what criteria should be considered and emphasized when evaluating and selecting the next solid waste disposal option. All survey responses are anonymous.

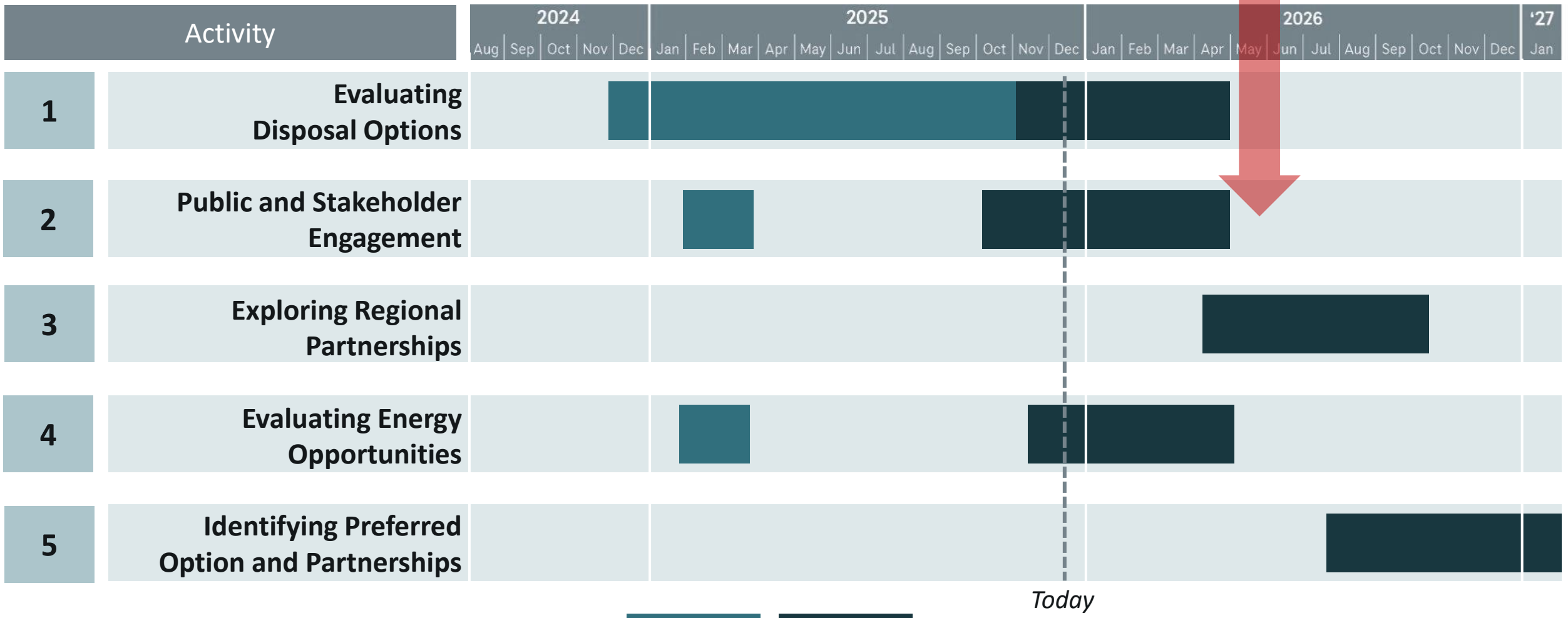
Each person should only submit one survey, but multiple members of your jurisdiction's management team can complete a survey.

What criteria are the most important to you when selecting the next municipal solid waste disposal option for Wake County? Drag and drop the following options, ranking from 1 to 14 (1 = Most Important; 14 = Least Important). Be sure to hit the green submit button at the bottom when you are done. *

- 1: Minimizing greenhouse gas emissions
- 2: Maintaining local control over waste disposal
- 3: Social cost and environmental justice
- 4: Minimizing truck traffic and vehicle collisions
- 5: Minimizing cost
- 6: Producing energy
- 7: Minimizing odors

Study Timeline

AN UPDATE WILL BE PROVIDED



Questions?

John Roberson, PE, Solid Waste Director

John.Roberson@wake.gov