

Beyond the South Wake Landfill

Growth & Sustainability Committee

August 15, 2022

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Why Look Beyond the South Wake Landfill

- South Wake Landfill Life is Projected to 2045+
- A conservative approach reduces this to 2040
- It is not anticipated that a new landfill will be permitted in Wake County



BOC Goal: Growth & Sustainability

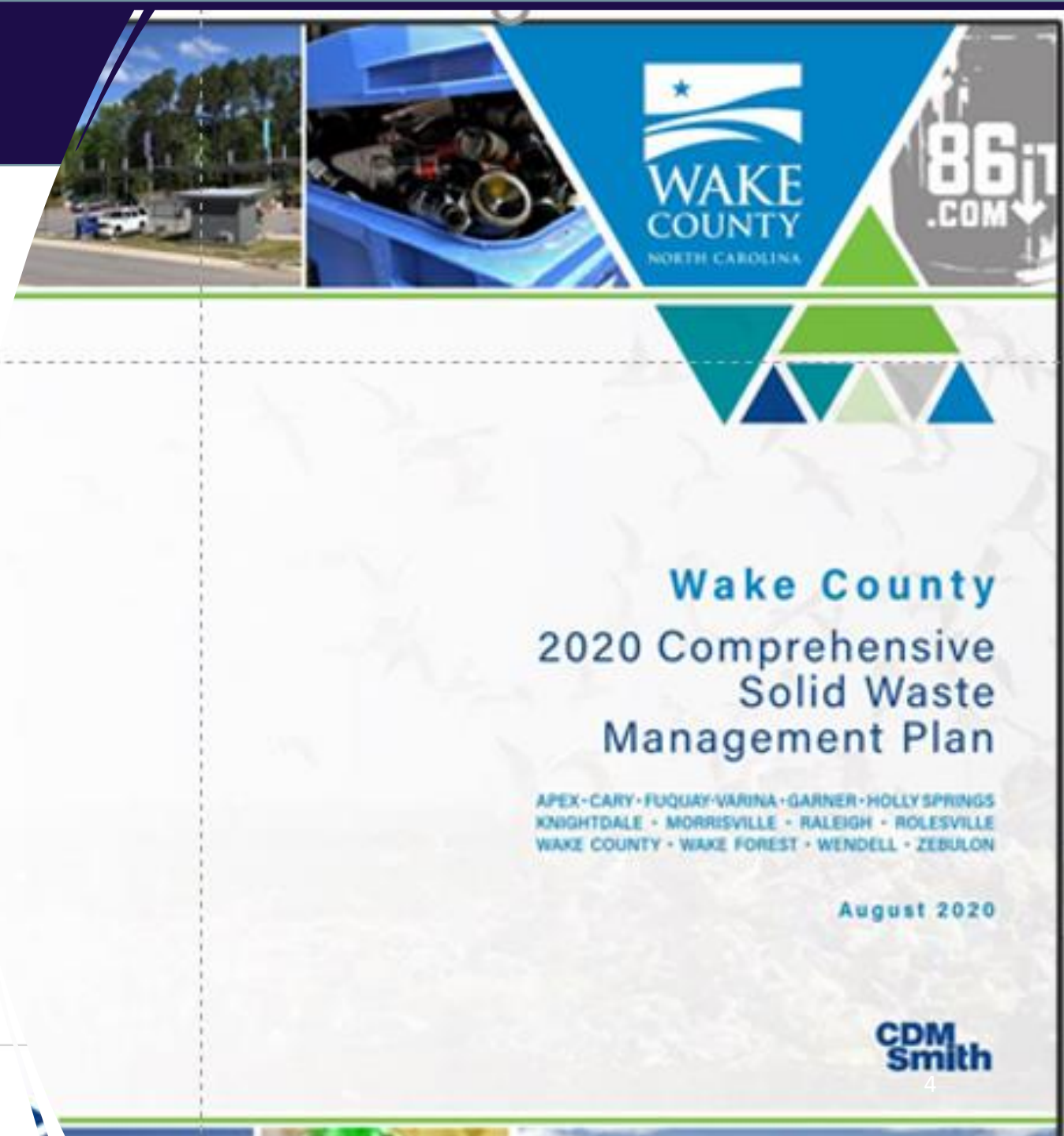
GS 5: Promote sustainability and address issues associated with climate change.

Objectives:

- GS 5.2: Implement procedures to minimize odors associated with the South Wake Landfill.
- Prior year goal related to updating the Comprehensive Solid Waste Management Plan

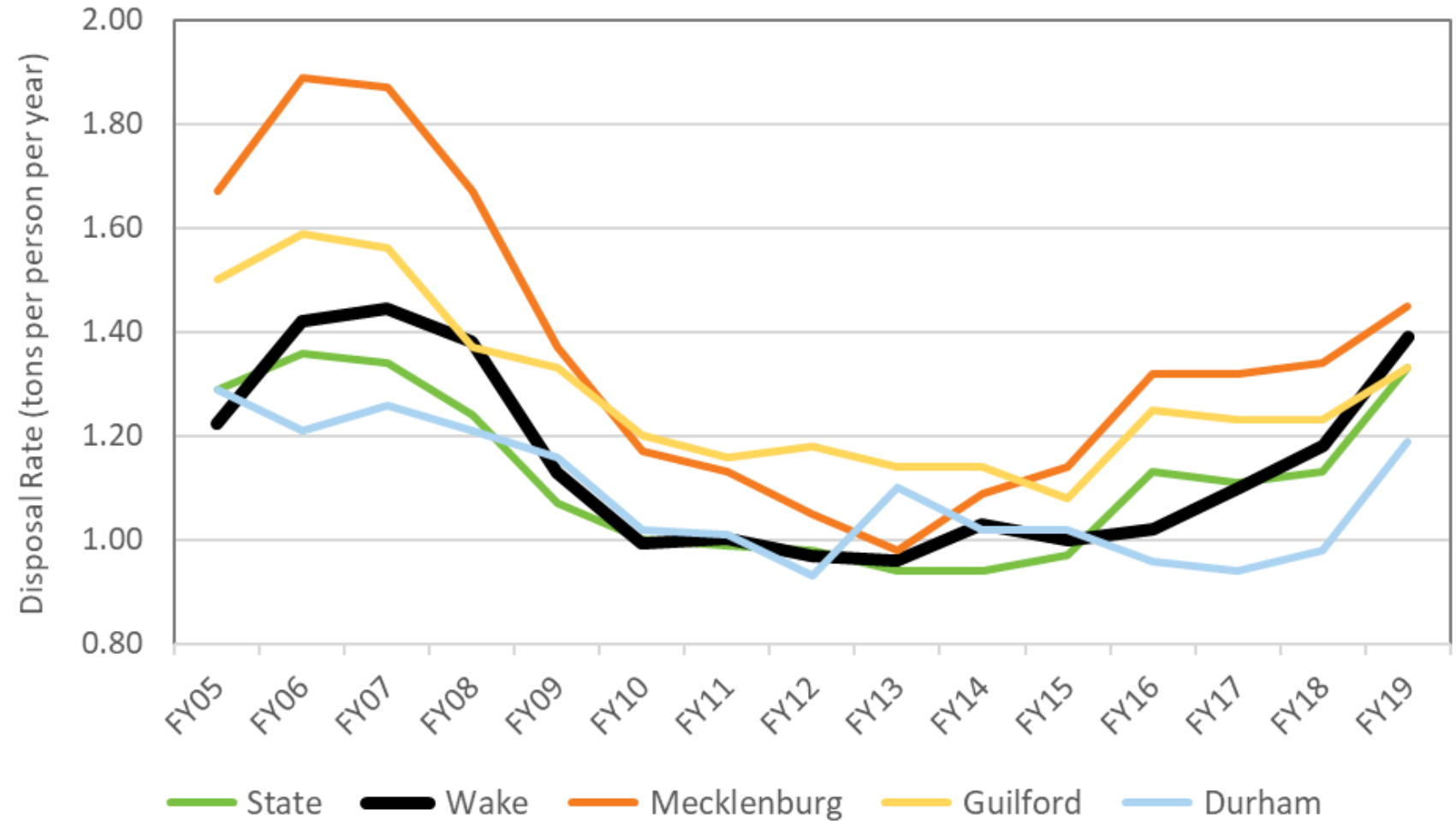


A look into the Future

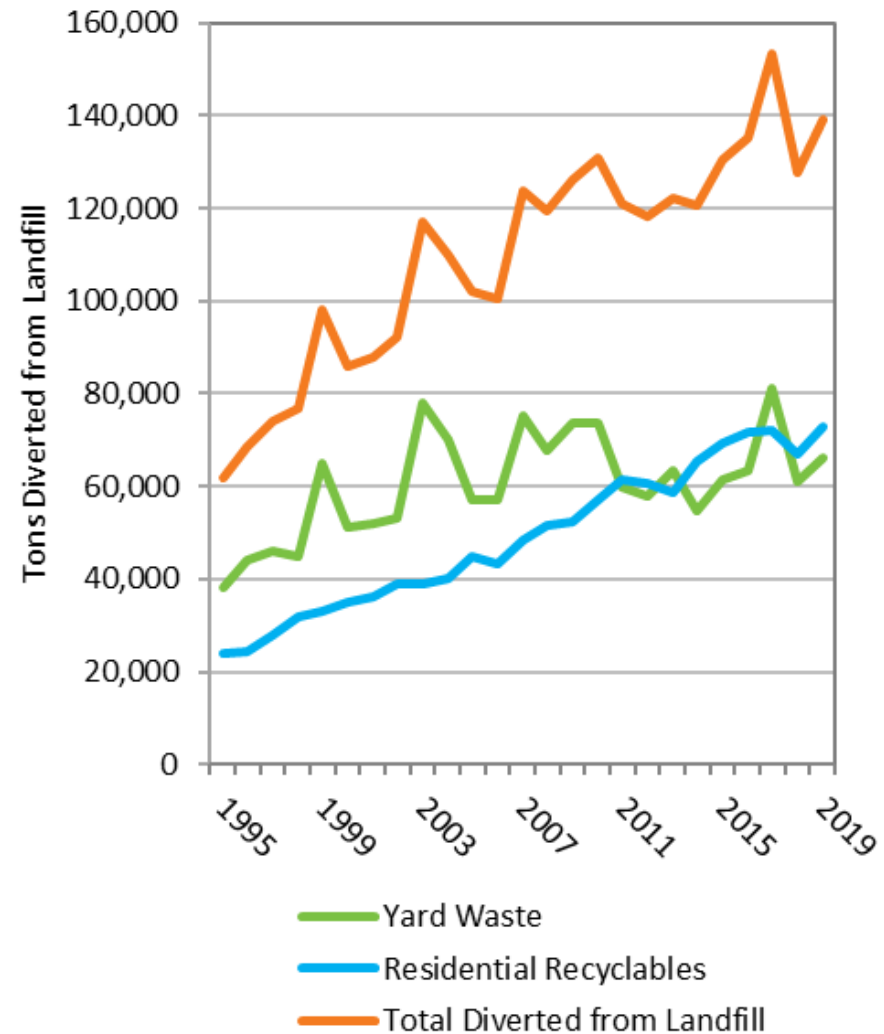
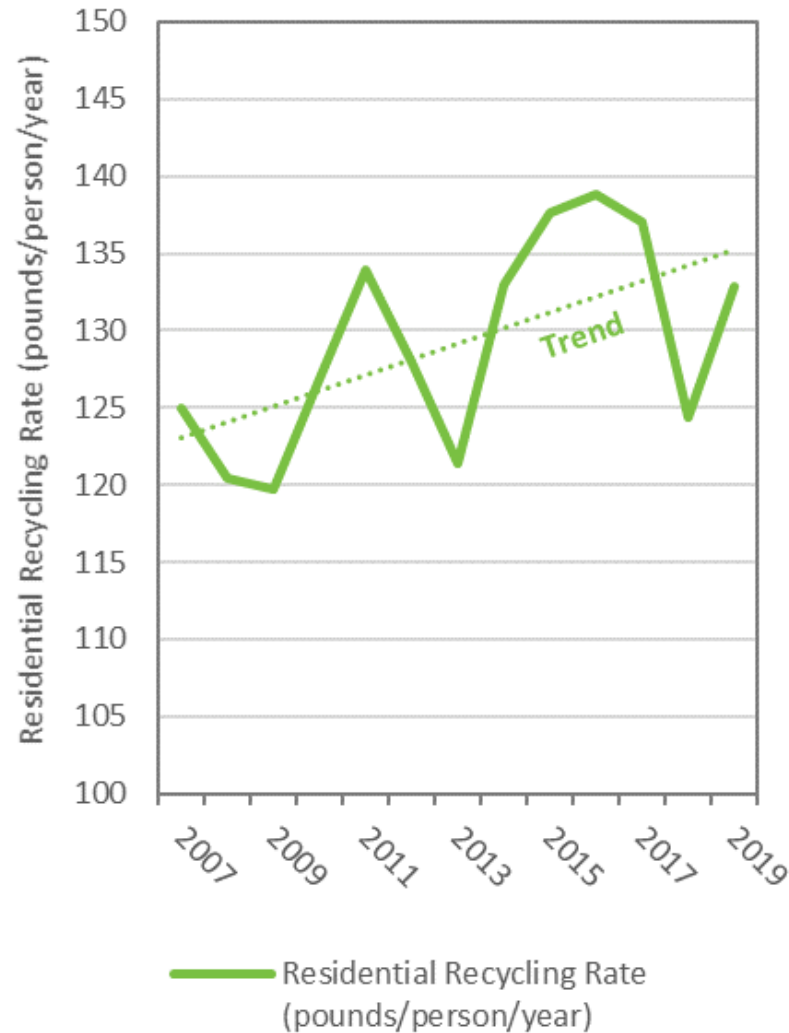


Per Capita Disposal Rate Peer Comparison

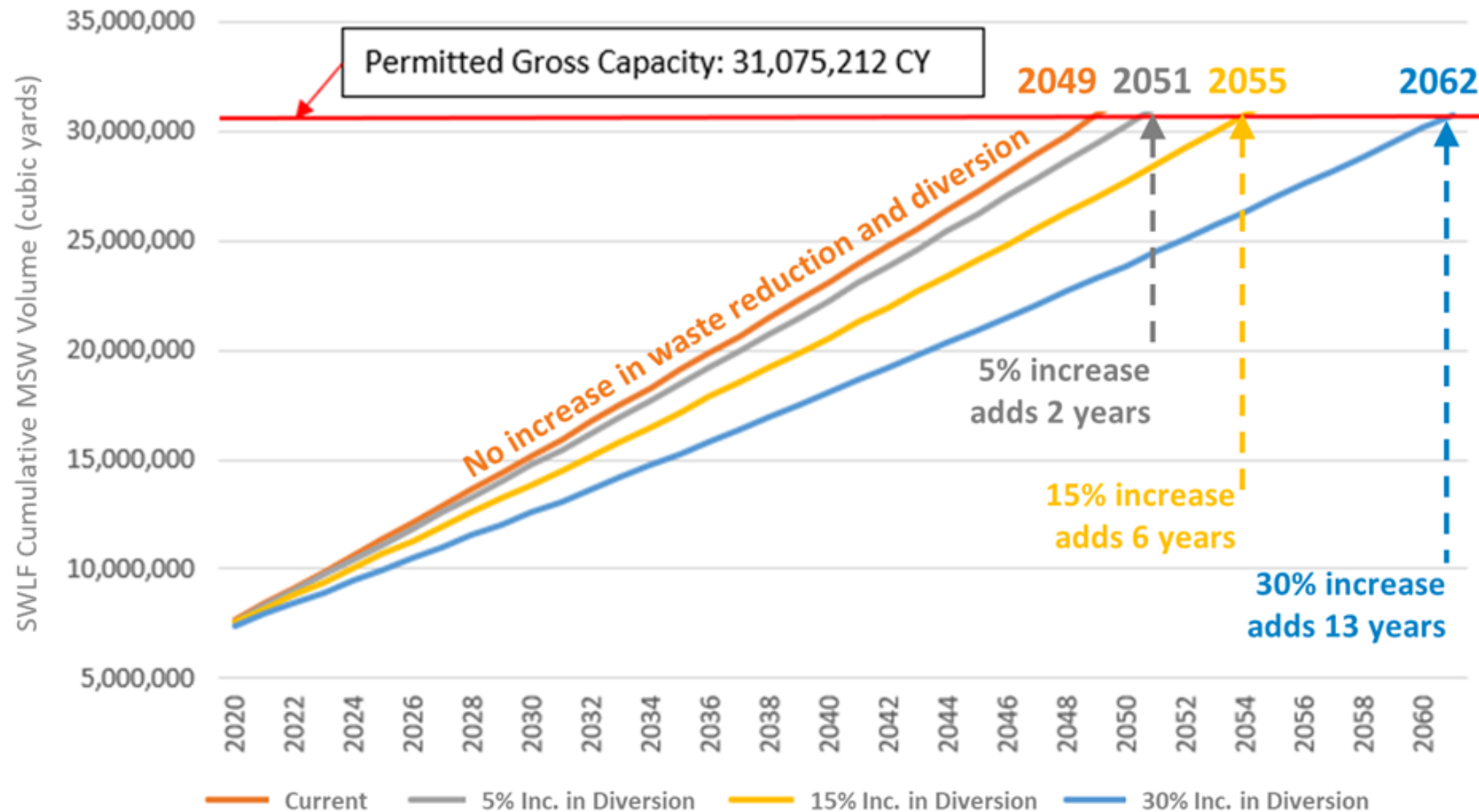
Wake County's increase is primarily linked to the construction market



Residential Recycling and Yard Waste Trends



Impact on SWLF Life

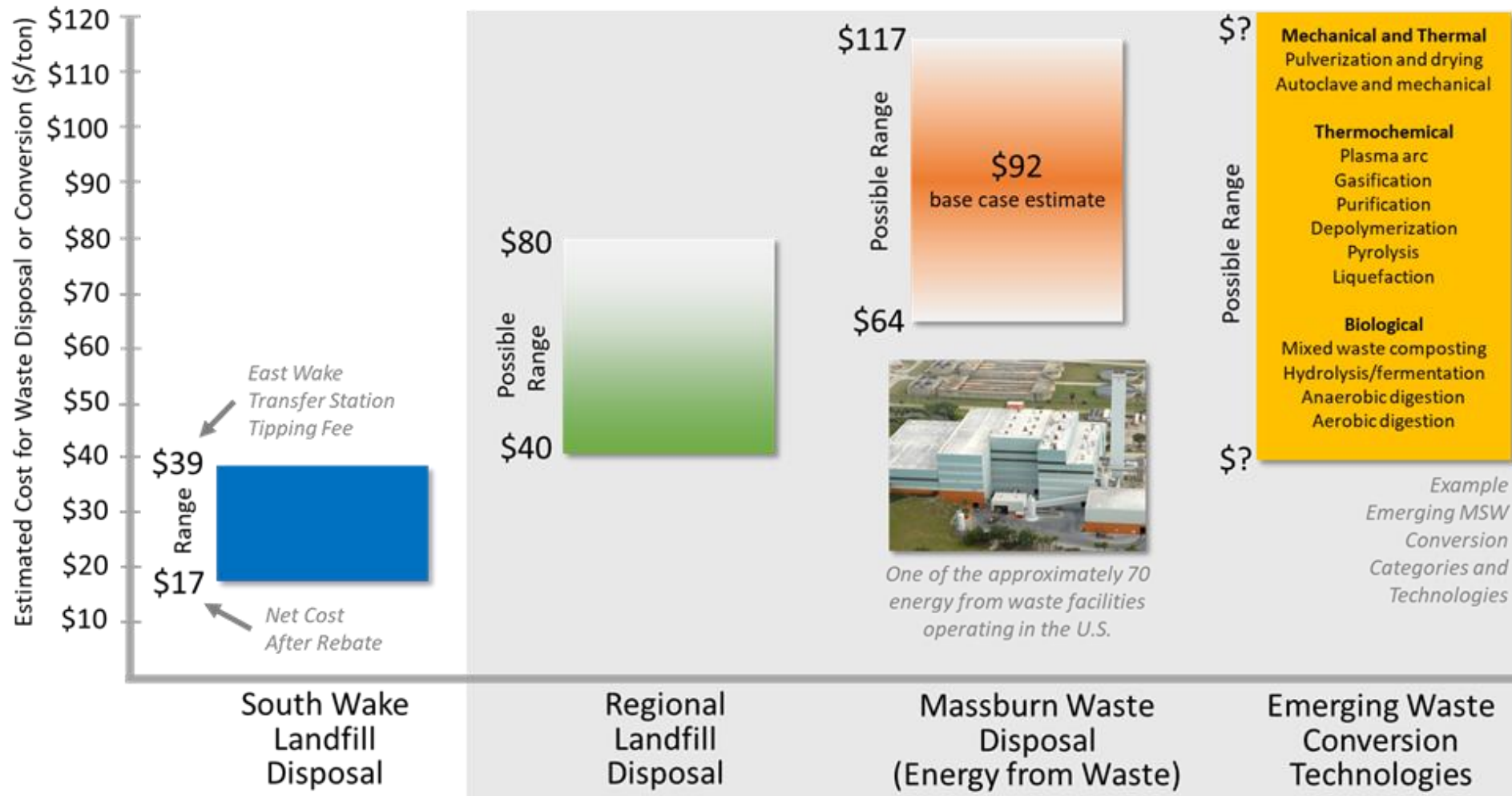


Each year that the landfill life is extended results in a \$ 6.5 million savings in disposal costs

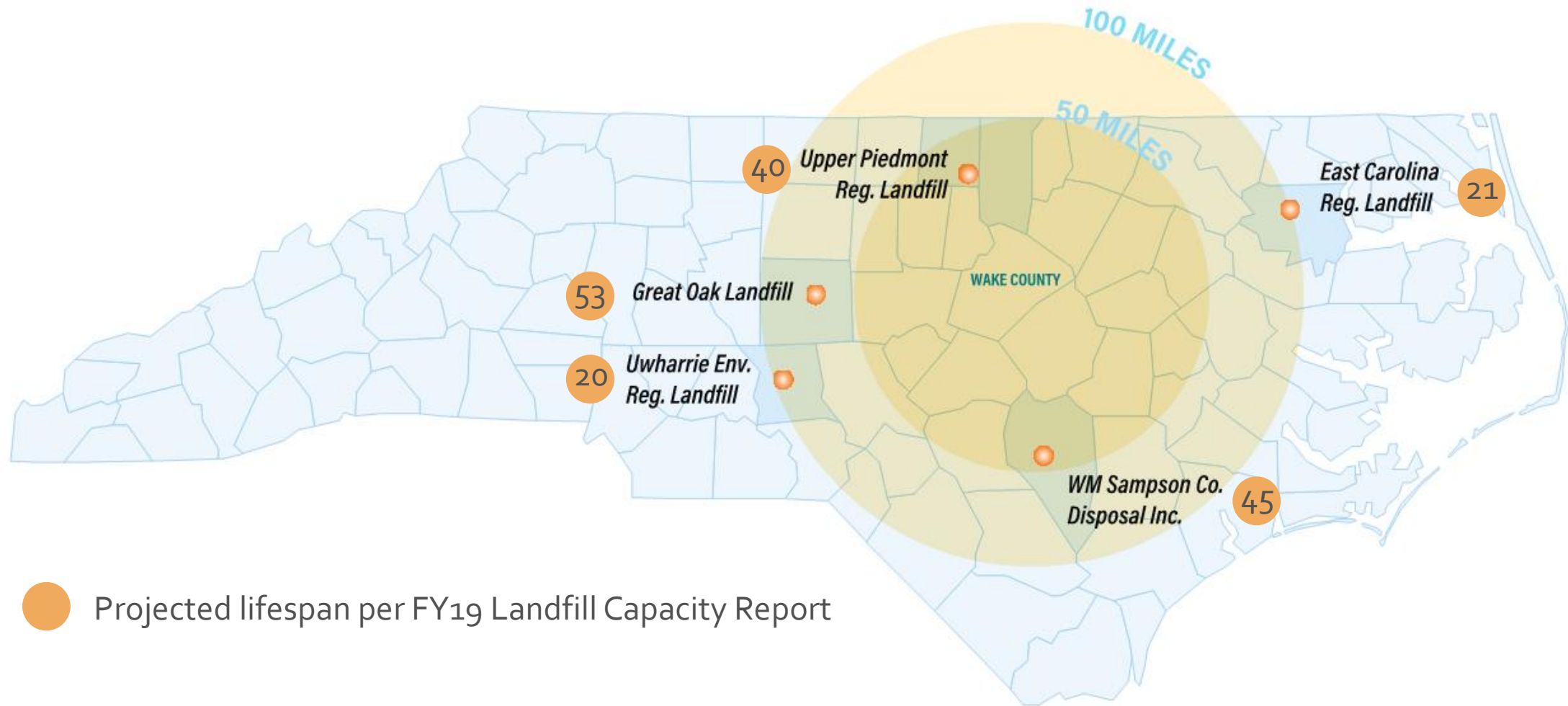
Risks and Rewards of Future Opportunities

- Increase SWLF capacity
 - Temporary solution
- Haul waste out of Wake County
 - Increased costs and price fluctuations
- Evaluate Energy from Waste (EfW) alternatives
 - Some environmental groups could oppose combustion
 - Increased return on investment through energy production
 - Increased efficiency of pollutant removal from exhaust gases
 - Proven methodology in the European Union, Canada and the US

Estimated Costs for Future Waste Management



Regional (NC) Landfill Disposal Options



Energy from Waste (EfW)

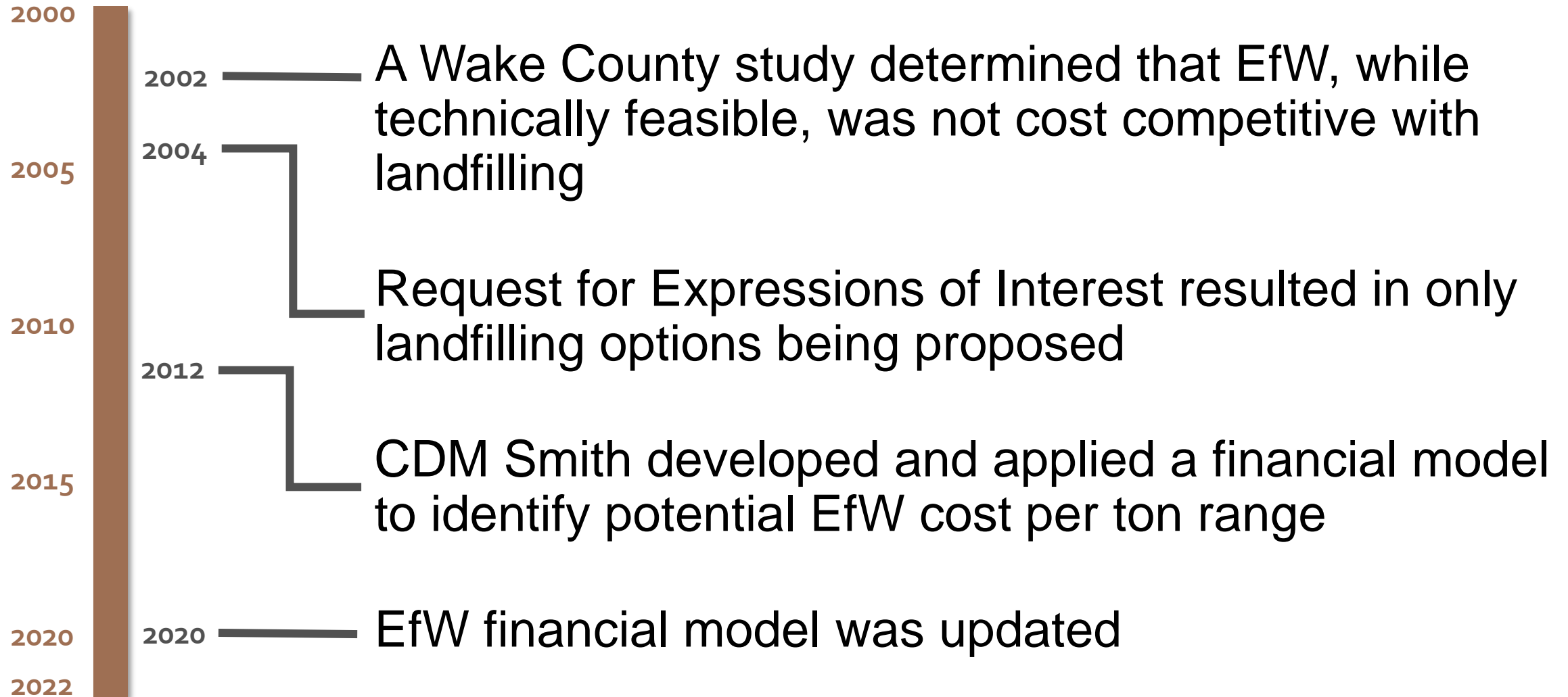


Figure 1. Hillsborough County, Florida RRF Facility provides 2 MW of Renewable Electricity to 12 MGD AWWTP and other adjacent Public Works

Energy from Waste (EfW)

- A variety of methods exist within this process
- Wake County has evaluated some form of this for 20 years
- CDM Smith recommends the combustion of unprocessed municipal solid waste (Massburn Waterwall Combustion)

Previous EfW Evaluations












Financial Feasibility of EfW

- **Model Assumptions**

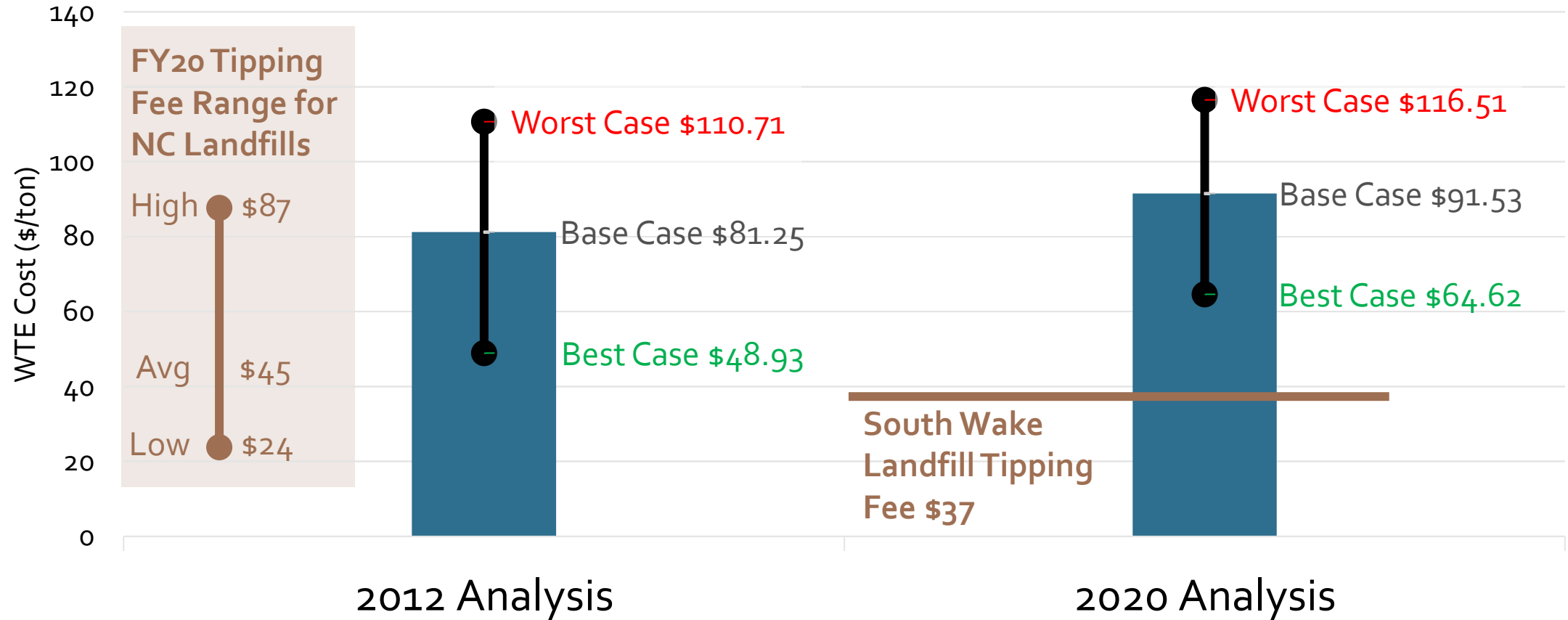
- 1,800 tons per day
- 592,00 tons per year based on 90% availability
- 37% of waste generated in Wake County is available for EfW processing
- 700 kWh/ton gross generation
- 609 kWh/ton net generation (13% parasitic load)
- 22% ash generation rate

Financial Feasibility of EfW

Model Variable	2012 Analysis (Base Case)	2020 Analysis (Base Case)
Capital Cost	\$250,000 per tpd of capacity	 \$285,00 per tpd of capacity
O&M Fee	\$32.50 per tpd of capacity	 \$37.50 per tpd of capacity
Interest Rate	5%	 4.5%
Financing Term	20 years	 25 years
Sales Price of Electricity	6 cents per kWh	 3 cents per kWh
Sales price of Ferrous Metal	\$150 per ton	 \$100 per ton
Sales price of Non- Ferrous Metal	\$1,000 per ton	 \$500 per ton
Ferrous Metal Recovery Rate	2.0%	 4.0%
Non-ferrous Metal Recovery Rate	0.35%	 0.70%
Sale of Renewable Energy Credits	None	None

Financial Feasibility of EfW

Financial Model Results

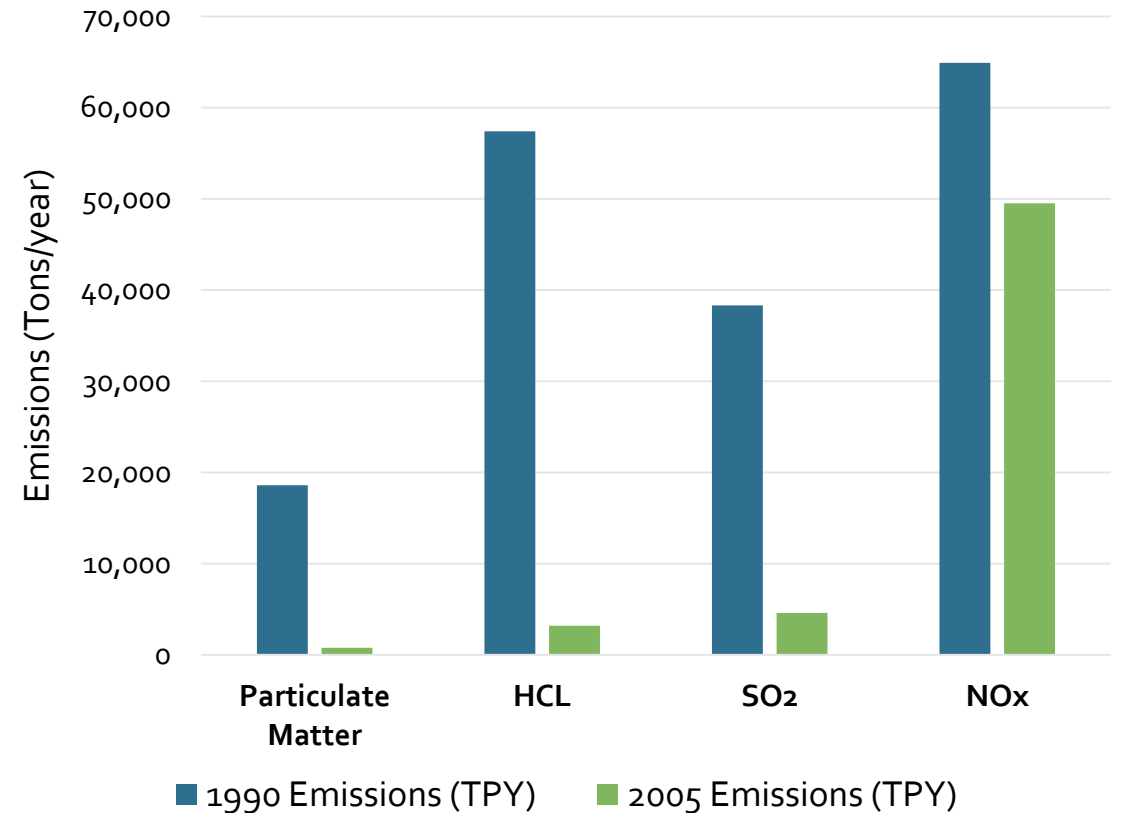
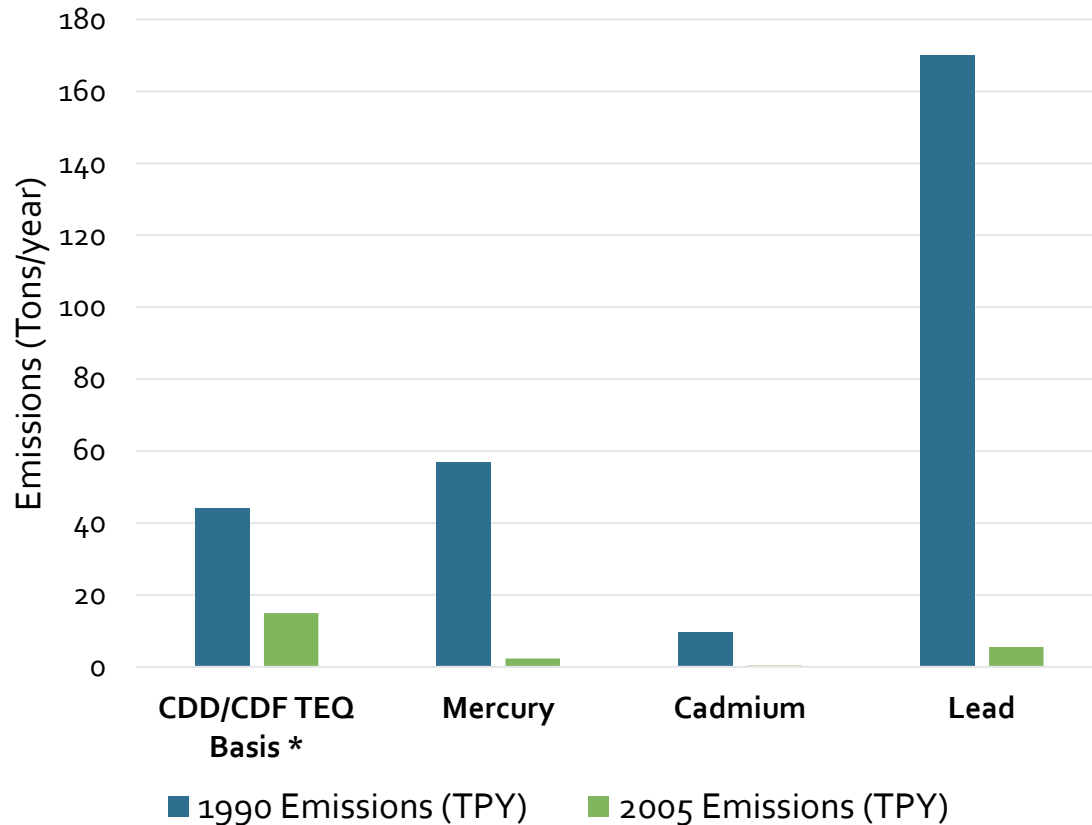


Recent Considerations

- Utilities Goals
 - Electric – carbon neutral
 - Municipality – high reliability
- Increase in fuel prices will make hauling to out-of-county LF less attractive
- Regulatory Support/Bans
 - Florida
 - Baltimore

Emissions from EfW Facilities

Emission Trends, 1990 to 2005



Other “Emerging” Technologies

Waste to Bio-ethanol INEOS



Courtesy of Biocycle

Waste to Syngas Tees Valley



Courtesy of Let's Recycle.com

Waste to Biofuels Enerkem



Courtesy of Plastics Today

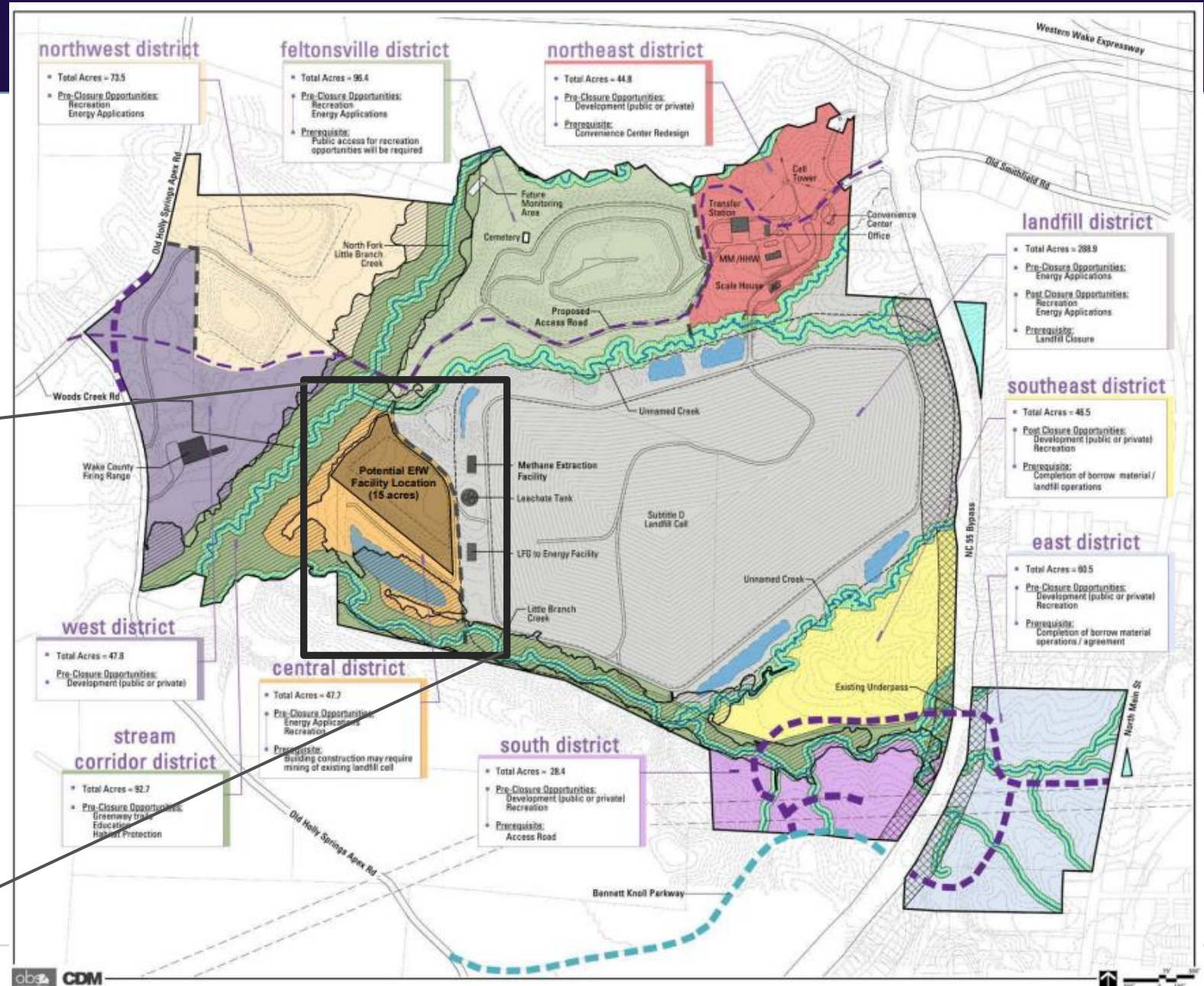
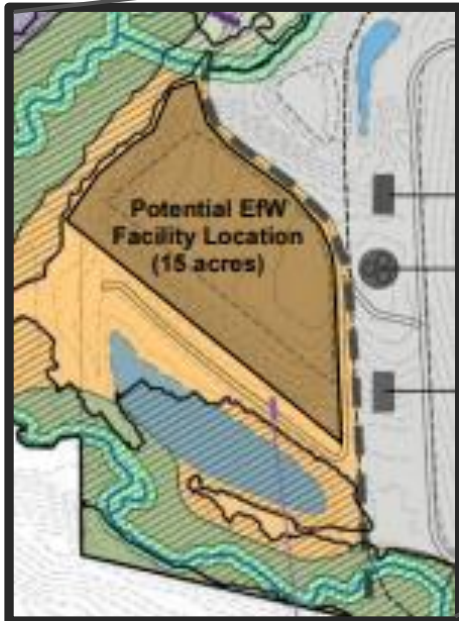
Next Steps

- Actively engage our consultants in this initiative
- Discuss and solidify methodology with the general public
- Discuss and solidify methodology with Triangle Area Governments
- Actively monitor and advocate for beneficial legislative actions as needed

Project Development Timeline 7 to 10 Years

- Phase 1 – Feasibility, scoping, and public input: Years 1 to 3
- Phase 2 – Procurement and financing: Year 3
- Phase 3 – Construction and commissioning: Years 4 – 10
- Useful life – 50 Years

South Wake Landfill with EFW





Q & A

