

Manatee County's Airspace Challenge and the Path to a Sustainable Solution

Christian Collins and
Shane Fischer, P.E.

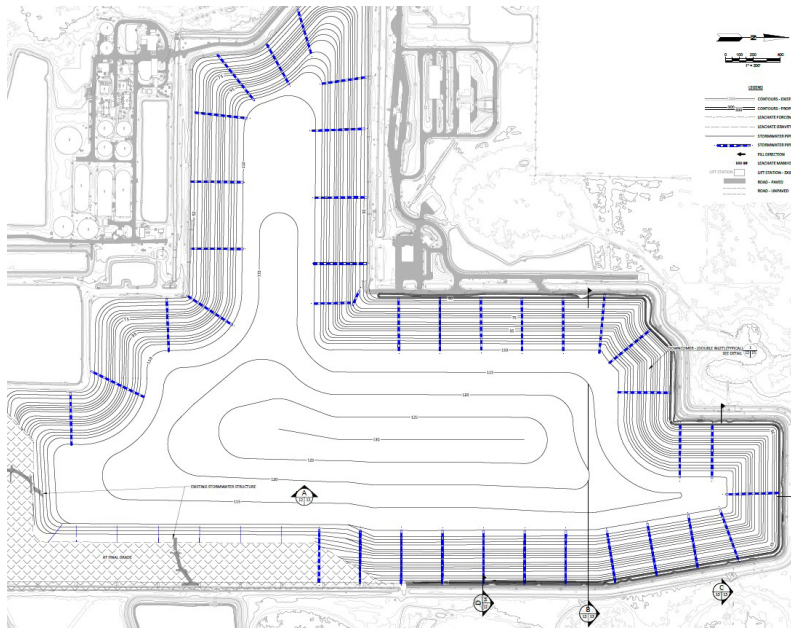
Manatee County, like many growing regions, has faced significant challenges in managing its solid waste. One of the most pressing issues has been the dwindling airspace in its existing Lena Road landfill. As the population grows and consumption increases, the amount of waste generated has surged, pushing the landfill to its limits sooner than anticipated. This essay explores the challenge, the process undertaken to address it, and the ultimate solution that has provided a sustainable path forward for the County.

The Challenge

The primary challenge for Manatee County was the imminent exhaustion of its landfill airspace. With limited space remaining, the County was at a crossroads, needing to find a viable solution to manage its solid waste effectively. The urgency of the situation required a comprehensive assessment of all possible options to ensure the County could continue to handle its waste without compromising environmental standards or incurring prohibitive costs.

The Process

To tackle this challenge, Manatee County embarked on a thorough exploration of various disposal options. The process included several key steps:



Original final buildout with 3H:1V and 4H:1V slopes and terraces.

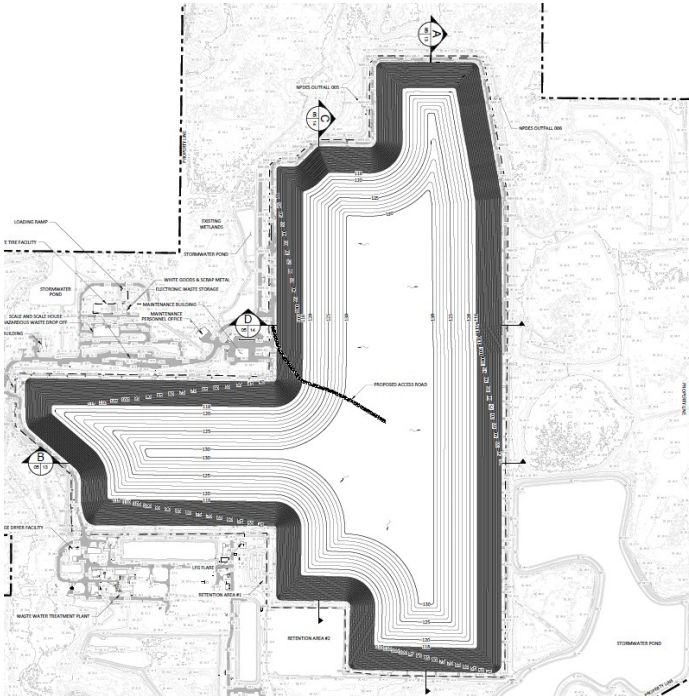
- **Conversion Technology Assessment:** The County evaluated advanced conversion technologies that could potentially reduce the volume of waste through processes like gasification, pyrolysis, and anaerobic digestion. These technologies promised to convert waste into energy or other useful byproducts, thereby decreasing the amount of waste required to be placed in the landfill.
- **Transfer Waste Out of County:** Another option considered was transporting waste to landfills outside the County. While this

could provide immediate relief, it posed logistical challenges and higher costs associated with transportation and tipping fees at other facilities.

- **Site a New Landfill:** Establishing a new landfill within the County was also explored. However, this option faced significant hurdles, including finding suitable land both in location and quantity, obtaining necessary permits, and addressing potential opposition from local communities concerned about environmental and health impacts.
- **Optimize Existing Site:** The final option was to optimize the existing landfill site. This involved re-evaluating the current landfill operations and exploring ways to increase its capacity without expanding its footprint (remain within the limits of the existing slurry wall) and without going vertically above the current permitted elevation due to agreements made when the property was purchased. This approach required innovative engineering solutions and regulatory adjustments.

The Solution

After careful consideration, Manatee County decided to optimize its existing landfill site. This solution offered several advantages:



Revised final buildout with 3H:1V slopes and tack-on berms.

- **Gaining Twice as Much Life on the Same Footprint:** By implementing advanced landfill management techniques, the County was able to significantly increase the landfill’s capacity. Techniques such as vertically expanding a portion of the landfill to match the current permitted final buildout elevations, improved waste compaction methods, and improved waste segregation allowed the landfill to accommodate more waste within the same footprint.
- **Modified Permit:** To facilitate these changes, the County worked closely with regulatory authorities to modify the landfill’s permit. This ensured the optimized operations met all environmental and safety standards, providing a sustainable and legally compliant solution.
- **Long-Term Benefits for Citizens:** The optimized landfill site now offers a solid waste disposal solution for close to 40 years,

addressing its landfill airspace challenge serves as a model for other regions facing similar issues. By thoroughly assessing all available options and choosing to optimize the existing site, the County has ensured a sustainable waste management solution that benefits both the environment and its residents. This strategic decision has not only extended the landfill’s life, but also demonstrated the importance of innovative thinking and collaboration in tackling complex environmental challenges.

Christian Collins is the Deputy Director of

which is more than double the previous life. This extended lifespan means the citizens of Manatee County can continue to rely on a local, cost-effective waste management solution without the need for drastic changes or increased costs.

Innovative Solution

Manatee County’s proactive approach to

Utilities for Manatee County, with more than 30 years of expertise in wastewater and water plant operations, design and construction, reclaimed and biosolids management, solid waste facility operation and maintenance, and leading large teams, licensed in water and wastewater operations. He can be reached at chris.collins@mymanatee.org.

Shane Fischer, P.E., is a Vice President/Regional Manager for the Southeast Business Unit of SCS Engineers that includes the Tampa, Orlando, and Sarasota offices. He has more than 25 years of diverse experience in designing and permitting civil engineering and solid waste management projects from the initial concept, throughout construction, and during operations. He can be reached at sfischer@scsengineers.com.



Aerial photograph conducted January 3, 2024.