**Item Title:** Presentation Regarding the Wake County Comprehensive Solid Waste Management Plan with a Focus on the Recently Completed South Wake Landfill Odor Management and Control Plan

**Specific Action Requested:**
**That the Board of Commissioners receives the report and provides feedback.**

**Item Summary:**

Purpose: Provide information regarding the Solid Waste Division's activities and ongoing responsibilities.

Background: Wake County's Solid Waste Division, with consultant assistance, has developed our 2020 Comprehensive Solid Waste Management Plan (CSWMP) to help guide solid waste activities and programs over the next 20 years. It is anticipated that the document will be reviewed extensively and updated as needed every 5 years. As a separate but connected activity, a South Wake Landfill Odor Management and Control Plan (OMCP) has been in process since the BOC work session on March 9, 2020 on this topic. This presentation will provide an overview of the CSWMP and the Odor Management and Control Plan.

Board Goal: The activities of this report support Board Goal GS2 (Comprehensive Solid Waste Plan): Update and implement the comprehensive solid waste plan to address waste management thru 2040.

Fiscal Impact: Solid Waste activities are all enterprise funded (no General Funds) via either the annual $20/household recycling fee or the South Wake Landfill/East Wake Transfer Station tipping fees.

**Additional Information:**

Wake County's previous Solid Waste Management Plan was completed in 2012 in accordance with the NC Division of Waste Management's (DWM) Ten Year Solid Waste Management Plan Guide. Shortly thereafter, the State's solid waste rules and regulations were revised and the requirement for Plan updates every three years was eliminated. Although solid waste planning is no longer mandated by the state, most communities still recognize that effective planning is integral to maintaining affordable, resilient, and sustainable solid waste programs. In Wake County, many of the factors influencing recycling, waste transfer, disposal, and other program elements have changed since the Plan was last updated eight years ago. To address these changes and continue to plan for solid waste management over the next 20 years, the Solid Waste Division has collaborated with its 12 municipal partners, with the assistance of CDMSmith, to develop an updated 2020 Comprehensive Solid Waste Management Plan (CSWMP). This Plan focuses on both near-term challenges, including recycling, expanding options for special

waste management, and improving waste transfer, and long-range challenges such as identifying future options for waste management disposal. The CSWMP has been reviewed by the 12 municipal partners and the finalized version is included as part of this presentation. A power point slide show will be presented with the highlights of the plan.

As a separate, but linked process, the Solid Waste Division has also been working with our South Wake Landfill design, build, operate and maintain contractor, GFL Environmental, to develop an Odor Management and Control Plan (OMCP) related to the South Wake Landfill (with the assistance of SCS Engineers and Smith + Gardner Engineers). This Plan describes the current practices and technologies utilized by the County and the Landfill's operator, to minimize off-site odors and address odor reports received by either the County or GFL. The Plan also discusses the best management practices (BMP) and available strategies to mitigate on-site odors in order to minimize off-site odors.

Odor mitigation has been emphasized by the County and GFL as a priority since the Landfill commenced operations in 2008. In accordance with the Operations Agreement, GFL is responsible for managing the waste placement operations, applying and maintaining cover materials within the active waste disposal units, leachate management and disposal/treatment, and operations and maintenance of an odor mitigating system(s). The County is responsible for operating, maintaining, and expanding the Landfill Gas (LFG) Collection and Control System as well as response procedures for addressing fugitive LFG releases.

The South Wake Landfill OMCP is included as part of this presentation with a power point slideshow prepared for the meeting. Below is a table from the OMCP showing Current Strategies (with planned improvements) and New Strategies Under Development:

| Current Strategies (with Planned Improvements) | New Strategies Under Development |
|---|---|
| **Section 3.1 - LFG Collection & Control System** | |
| • Increase comprehensive infrastructure to enhance wellfield performance (including vertical LFG wells, dewatering pumps, automated wellheads, leachate cleanout connections, redundancy in collection pipe, and additional isolation valves)<br>• Increase frequency of assessing system efficiency and routine O&M activities (including well density and coverage, liquid level measurements, vacuum distribution, wellhead flowrates, pump cleaning, etc.)<br>• 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<br>• Assess potential to install near-surface collectors and additional bottom-of-cell LFG infrastructure |

| Current Strategies (with Planned Improvements) | New Strategies Under Development |
|---|---|
| **Section 3.2 - Odor Neutralizing System** | |
| • Expand and/or relocate vapor-phase OCM<br>• Increase/implement direct-application products (e.g., NWC SWAT, Odor No More, Bio-Organic Catalyst) | • OdorBoss odor control equipment to enhance odor neutralizing system<br>• Moving vapor-phase OCM with start of waste placement in Phase 2B or 3<br>• Consider separation and/or treatment of waste streams at transfer stations<br>• Adding odor masking/neutralizing agent "misters" to certain equipment<br>• Applying odor neutralizing agent to select incoming waste collection/transfer vehicles |
| **Section 3.3 - Working Face Operations** | |
| | • Containerizing odorous materials before delivery to working face<br>• Increasing air flow and dispersion |
| **Section 3.4 - Cover Materials** | |
| • Daily and intermediate cover protocols keeping the working face to a minimum size and the exclusive use of dirt and tarps for daily cover operations.<br>• Continued pilot study demonstration of ADC products and protocols<br>• Accelerated deployment of final cover | • Installing additional final cap ahead of schedule<br>• Installing interim cover systems such as geosynthetic rain cover or exposed geomembrane cover in areas that will be inactive for extended periods of time, but are not ready for final cover<br>• Use of hybrid final cover systems |
| **Section 3.5 - Waste Receipt** | |
| • Prohibition of WWTP sludge and biosolids<br>• Curtailment of C&D materials and special event waste from the City of Raleigh | • Identification and curtailment of odorous wastes and restricting hours for this material to be delivered<br>• 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 tie-ins in new cell construction including the installation of anchor trench solar gas collectors | |

| Current Strategies (with Planned Improvements) | New Strategies Under Development |
|---|---|
| • Development of odor control practices to minimize the impact and duration from onsite projects such as well drilling, well extending and cell expansion activities | |
| **Section 4 - Monitoring & Remediation** | |
| • Standard LFG monitoring (blower/flare station data recording, wellhead monitoring, probe monitoring, etc.)<br>• Off-site odor monitoring in response to odor reports<br>• Standard SEM events, as well as voluntary SEM on an as-needed basis<br>• Envirosuite Ambient eNose Odor Sensors and associated dispersion models<br>• Cover integrity monitoring of final closure cap | • Analyze samples of LFG from LFG collection and control system<br>• Olfactory odor evaluation at LFG well pipe penetrations<br>• Regular voluntary SEM events at the working face, in "hot spots", non-NSPS cells, etc.<br>• Ambient air sampling at off-site locations<br>• Cover integrity monitoring on non-closed areas of landfill |
| **Miscellaneous** | |
| • Receiving and responding to odor reports from the public<br>• 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<br>• Collecting stormwater from active filling area to divert infiltration<br>• Hiring staff to oversee odor-related activities<br>• Expanded public notification of landfill activities using a 3rd party PR or communication group<br>• Presentations at HOA meetings |

Further, we have developed a listing of questions from the March 9th meeting with the answers provided at the meeting and updated responses. Also included are some other questions received before and after the March 9th meeting with current responses.

We anticipate a survey to be sent out to the neighbors (and the Town) within the next month to determine the community's preferred communication venue(s). Ultimately, we will design a process (website, Twitter feed, Facebook page or otherwise) to communicate on a more regular basis regarding ongoing activities and sharing of data from our Envirosuite platform. Further, in the near future, all odor reports will get a specific response showing the backtrack wind model. This is a feature that is having to be designed into the system that doesn't current exist. This system has helped us document that though the landfill provides a significant amount of the odor reports in the area (80%), there are other sources of odor that everyone should be aware of (up to 20%). Our goal is for the overall number of odor reports to decrease over time.

One question that does continue to surface during these discussions is the possibility of early landfill closure (i.e., cessation of waste acceptance and disposal operations prior to achieving the permitted capacity of approximately 30 million cubic yards). Currently, based upon waste volumes and the size of the approved landfill, we anticipate that the landfill has a potential life expectancy until at least 2040 with some estimates indicating a greater life expectancy (depending upon various assumptions, such as waste tonnages received and waste density). Closing the landfill early will have significant impacts to the landfill's current and future residential and commercial customers and community at large (11 municipalities outside of Holly Springs and Wake County only population) in that the waste generated within the service area (current population of over 1.1 million) would have to be transferred out of the County. This would involve the siting, permitting, design, and building of multiple new transfer facilities (an extensive endeavor that requires both substantial time and money) and then for all of the municipalities in Wake County paying an estimated 2 to 3 times more in solid waste transportation and disposal costs than their current budgets allow for, including the dissolution of the current Interlocal Agreement between the municipalities and Wake County. Note that the ILA requires that all parties agree to any change (11 municipalities and the County). This would also position the municipal jurisdictions to be dependent upon the availability and pricing of transportation contractors and disposal facilities. This scenario would appear to introduce additional transfer vehicles on the roads (correlating to increased traffic congestion and vehicle emissions) and limit the County's progress on sustainability and resiliency while limiting our ability to control our own destiny regarding solid waste and recyclable material management. Ultimately the concept of closing the landfill early possesses many detrimental consequences and ramifications to a broad segment of the County's citizens and business enterprises considering the impact to the large community (Wake County). Accordingly, the County and GFL intend to maintain a significant focus on odor management tools and processes to enable the viability of SWLF operations well into the future.

A report regarding the Bio-Organic Catalyst pilot project is still under development. Being that data was being gathered as late as 8/31/20, the compilation, evaluation and determination of conclusions are still in process. There is a slide in the presentation on the topic and the full report will be shared with the BOC (and interested parties with the Town) once it is complete by 9/18/20.

Ultimately the goal of this meeting and discussion is to share the comprehensive variety of strategies that are ongoing and continuing at the SWLF to minimize off-site odor occurrences. At a minimum we are working towards a significant minimization of odors during non-operating hours of the landfill (7 PM until 6 AM each day and all day on Sundays). During the working hours we are also working towards minimization of odors. Due to the proximity of homes constructed near the landfill, there will always be the potential for an intermittent odor experience during the working hours due to specific weather patterns and wind direction/speed.

Attachments:

1. Comprehensive Solid Waste Management Plan Presentation
2. 2020 Comprehensive Solid Waste Management Plan
2. SWLF Odor Management Control Plan
3. Q&A from 3-9-20 BOC Work Session
4. General Q&A about South Wake Landfill
5. South Wake Timeline thru 2020