

Chapter 4D

PUBLIC FACILITIES PLAN SOLID WASTE COLLECTION & DISPOSAL



SOLID WASTE COLLECTION & DISPOSAL

Introduction

The Spotsylvania County Department of Public Works prepares a Solid Waste Management Plan every five years in accordance with the Virginia State Code. The Plan is an integral part of provision for solid waste services for Spotsylvania County and is incorporated as part of the Comprehensive Plan by reference. At the present time, the 2020 Solid Waste Management Plan is in effect. The next update is due in 2025. For planning purposes, the Comprehensive Plan incorporates by reference the latest version of the Solid Waste Management Plan. The Plan is based on a twenty (20) year planning period and deals with all aspects of solid waste management from operation of the landfill to the development of convenience sites to litter control efforts to the development of recycling and other educational programs. The objectives of this plan are to protect the health, safety and the welfare of the citizens of Spotsylvania by providing for and planning for the present and future solid waste disposal needs for the County. It is the intent of the County to provide these services as efficiently and economically as possible. The plan minimizes the amount of solid waste disposed of in the County's landfill by providing an integrated plan of recycling and education. This will serve to maximize the life span of the existing landfill and promote the effective and efficient use of limited natural resources. The information contained in this section is derived from that plan.

Existing Facilities

Spotsylvania County operates one landfill facility in the southern part of the County. Known as the Livingston Landfill, it is located north of State Route 602 and east of State Route 208 approximately 3 miles southeast of Brokenburg. The entire site covers approximately 538 acres, with 250 acres ultimately proposed for disposal of municipal solid waste. Future unknown variables, regulatory changes, efficiency improvements, increased recycling rates, population and waste generation changes over time all influence landfill lifecycle going forward beyond 2023. Though estimates vary, all agree additional phases will add over fifty (50) additional years to the landfill's estimated facility life beyond the Phase I closure.

Currently 85 acres are permitted for use as a landfill under the authority of the Virginia Department of Environmental Quality. This is designated as Phase 1 (cells 1 through 6). As per the 2020 Solid Waste Management Plan the estimated date of closure of Phase I is 2023. Of the 85 acres permitted as Phase 1, 55 acres will be actual disposal area with the remainder to be used for roads, drainage area, and buffers. The facility is designed with a capacity of 5.4 million cubic yards. This total includes 310,000 cubic yards of final cover (cap, cushion, and topsoil), 220,000 cubic yards of liner and drainage layers, 968,000 cubic yards of daily and intermediate cover and 3.87 million cubic yards of waste. The current waste stream five-year average (2015-2020) is 136,000 tons annually or 373 tons per day. This updated figure is up from 40,000 tons annually that had been reported as part of the 2013 Comprehensive Plan. As per the 2015 Spotsylvania County Solid Waste Management Plan in 2012/ 2013 a substantial increase was



observed due to an increase of commercial volume accepted at the Livingston Landfill. The County sourced commercial volume was previously leaving the County for private sector landfills in adjoining regions. Increased competitiveness due to more favorable tipping fees has been attributed to the shift of commercial haulers selecting the Livingston landfill over out of County sites. Commercial haulers/ users are defined as those customers delivering brush/leaves/landscape debris by means of mechanical dumping (dump trucks, box trucks, dump trailers) and vehicles clearly associated with a related commercial business (trucks with advertisements, trailers with multiple mowers, multiple site visits within 24 hours, etc). Solid Waste growth can also be attributed to an increase in economic activity and the landfill capturing the majority of any waste leaving the County. Solid Waste growth can also be attributed to an increase in economic activity and the landfill capturing the majority of any waste leaving the County.

Increased annual volumes inevitably impact the speed at which the landfill grows in relation to its ultimate capacity. However, increases in commercial tipping overall are viewed as beneficial in financial support of operations and offsetting costs associated with provision of Solid Waste Services. These increases also represent the County taking a larger share of solid waste management for solid waste generated within the County borders as opposed to its waste being exported out of the County.

The Solid Waste Division is actively looking at ways to add efficiencies and build additional capacity into existing operations including the Livingston Landfill whereby extending the viable life of such facilities while maintaining or improving upon levels of service. One example being considered during this planning period is the concept of landfill mining meant to increase the capacity and revitalize previously closed landfill cells.

Spotsylvania County maintains a comprehensive solid waste disposal program that includes the disposal of household, commercial, and industrial waste. The household component of the stream comprises approximately 90% of the waste that is placed in the landfill. The remainder consists of construction demolition and debris, and commercial and industrial waste (10%).

The Solid Waste Division, with the assistance of third-party consultants, is evaluating the landfill's existing gas extraction system and planning for potential opportunities to expand that system. The primary objective of the evaluation is to define best management practices for the future, and ensure that our existing system is operating, maintained, and monitored at an optimum level.

Currently, residents of the County are provided with 13 convenience sites located at various locations throughout the County. The sites have designated areas for household waste and recycling. Table 1 identifies the individual convenience sites.



**Table 1
Spotsylvania County Convenience Sites**

Convenience Site	Location
The Barn	2805 Lewiston Road
Belmont	7102 Belmont Road
Berkeley Public Use Area	6013 Stanfield Road
Chancellor Public Use Area	5917 Harrison Road
Chewning Park	13001 Post Oak Rd
Cole Hill Creek	5029 Partlow Road
Lee Hill	9904 Lee Hill Park Road
Livingston Landfill	6241 Massey Road
Marshall Park	7114 Massaponax Church Road
Mine Road	4010 Mine Road
Post Oak	10020 Post Oak Road
Todds Tavern	10653 Brock Road
Wilderness	10501 Orange Plank Road

More information regarding County convenience sites including: contact information; location; hours of operation; recycling items accepted can be found [HERE](#).

Virginia mandates a recycling rate of 25%. In the most recent three years the County has achieved a recycling rate at a range of 28-36%. Single stream recycling containers are available at each convenience site. Single stream recycling includes mixed paper, plastics, cardboard, aluminum, and glass. In addition to single stream containers, the County also offers opportunities to recycle metal, used motor oil, antifreeze, batteries, appliances, latex paint, and brush and yard waste.

The County offers household hazard waste collection twice a year for residential disposal of chemicals, toxic wastes, or hazardous liquid materials. This collection effort is accomplished through third party contract services.

In accordance with the Biosolids Management Plan, Spotsylvania County adopted the composting process as the choice method to stabilize its biosolids. In 2001, the County committed to composting their biosolids, which also requires some materials from the mulching program. The composting facility is located at the Livingston Landfill and was expanded in 2010. The County composts 100% of biosolids produced and maintains 100% diversion of all wood waste out of the landfill. Tree trimmings, logs and brush are collected and periodically ground to provide the bulking agent required for the composting program. In 2003, the compost was registered with the United States Compost Seal of Testing Assurance Program. This program certifies through rigorous testing that the product not only achieves class A criteria according to the US EPA Part 503 regulations, but that it meets growing standards of quality for attributes such as particle size, stability, and soluble salt content to name a few. In that same year, the product was registered as a fertilizer with the Virginia Department of Agriculture. The compost



was later trademarked as Livingston's Blend and marketed/distributed with information regarding proper applications. The County was awarded the 2012 Gold Winner Solid Waste Association of North America Composting Division. Details of the award and Spotsylvania's composting operations can be found [HERE](#).

Future Expectations

The County Code specifies that only waste that is both discarded and collected within the County limits may be disposed of at the County's Livingston landfill. This helps regulate the inflow of material and also helps plan for future landfill growth, as we can review trends of incoming material compared with population growth and development specific to Spotsylvania County. However, the County Code does not require commercial haulers doing business within the County to dispose of their collected waste at Livingston landfill, rather the Code specifies Livingston's tipping fees for commercial disposal. The dynamic of these two codes have balanced the waste stream at Livingston in years past.

Continued growth in the County whether it is commercial, industrial or residential will put additional pressure on the existing landfill and the convenience sites. The sequence of development for the Livingston Landfill currently includes five phases. The County has active permits for Phase I and has applied to the Department of Environmental Quality for permits to develop Phase II. Provided the waste stream grows at a similar rate as the population projections, phases I & II have the capacity to provide sanitary landfill services to the County until approximately 2047. Phases III, IV, and V are conceptual phases that identify potential landfill development on approximately 196 acres of County property. Estimated landfill capacity is subject to change with changes in County policy and code.

The Phase II development was initiated in 2018 with a landfill expansion conceptual evaluation. Many considerations were reviewed as part of the conceptual evaluation including: the property's wetlands and environmental setback requirements, the geographic location of existing landfill cells and opportunities to improve existing conditions while maximizing future capacity, expansion sequencing, cell development costs, cell volumes and cell life, and cost efficiency. As the design of phase II developed, project elements such as roads and disposal cells were modified to minimize direct impacts to wetlands and streams. Project elements were also designed to meet all Virginia Department of Environmental Quality siting criteria. The phase II lateral expansion of the landfill facility encompasses approximately 37 acres and consists of four waste disposal cells. The expansion provides for approximately 5,370,000 cubic yards of landfill capacity (not including liner and cap), which is equivalent to 3,423,000 tons of waste. Assuming a consistent and constant waste stream, the phase II expansion will provide approximately 24 years of life expectancy.

Environmental stewardship is a long-term strategic goal of the County. As part of the phase II development, the County intends to mine a portion of a disposal cell that stopped accepting waste in 1993. A portion of the closed cell, referred to as permit #99, does not have a geosynthetic membrane liner. The County intends to mine the unprotected buried waste area so



that a membrane liner may be installed and tied into the existing liners of adjacent cells. As a result of this solid waste management strategy, all buried waste at the Livingston property will be protected by a double geosynthetic membrane lining system which will provide long term protection of the groundwater system, minimizing environmental impacts and needs of long term corrective action planning.

Location Criteria

The existing Livingston landfill property has the acreage to provide sanitary landfill capacity throughout the 21st century and thus will not need replacement or relocation during this Comprehensive Plan horizon. Convenience sites should be located according to the following criteria.

- A 5-mile radius level of service standard should be maintained. This means that a convenience site's population should be within 5 miles of the site. Current geographical spacing of the County's convenience sites complements the 5-mile service area goals with coverage for the majority of County land and residents presently. Small service area gaps outside of the 5-mile service area exist in the northwest corner of the County near Spotswood Furnace Road; at Lake Anna near the Route 208 corridor and bridge crossing; Smith Road. Overall, these are not major population centers, and, in all instances, the additional mileage is less than 1 mile.
- Convenience sites should not be located on arterial or major collector roads.
- Preference should be given for joint use sites such as with fire/rescue station, parks, and other public facilities.
- The entrance to a convenience site should be readily accessible to the large vehicles required to service them.
- Adjoining land use (current and future) should be considered.
- Individual site use trends and traffic counts should be evaluated when determining new or expanded sites.

Design Criteria

- Convenience sites should be a minimum of two acres in area in order to accommodate parking, stacking and staging areas as well as the waste collection facilities. The sites should be of adequate size to expand if necessary.
- Sites should be located in areas that will allow for adequate screening of the facilities from adjacent land uses. Mitigation measures for the site's impact on adjacent properties should be addressed in the design of the site.
- Site should be planned to accommodate expansion, including site area, entrance design, road improvements, etc.



Recommendations

The following are recommendations for solid waste planning:

Short term

- Implement a County decal program that will enable solid waste staff to effectively identify residents of Spotsylvania County using convenience sites for residential use.
- Adopt a policy that restricts commercial disposal to a select number of disposal sites.
- Update tipping fees and disposal of select items with current market rates.
- Evaluate strategies to make brush and yard waste recycling operations sustainable, in cooperation with the County's composting facility.
- Continue to implement goals of the latest Solid Waste Management Plan that is incorporated by reference within the Comprehensive Plan.
- Consider one site to include the County's Public Works Center for collection, fleet, recycle processing, material transfer, and mulching.
- Continuously review and reference the Solid Waste Management Plan consistent with the Code of Virginia.
- Update applicable Chapters of the Comprehensive Plan upon completion of updates to the Solid Waste Management Plan update considering any future needs, opportunities, or recommendations that apply.

Long term

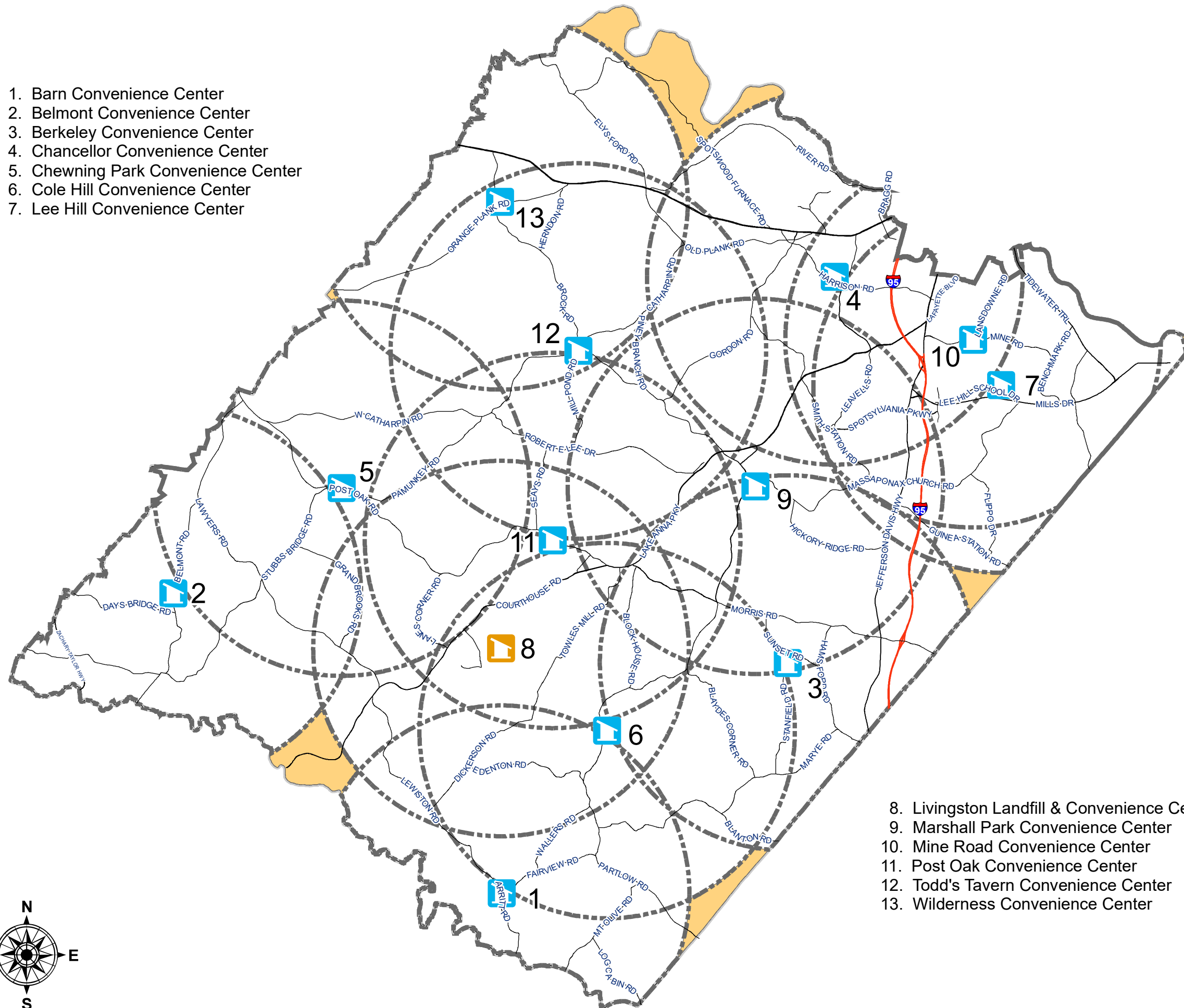
- Monitor recycling industry trends and markets on an international and national level.
- Update educational recycling programs as the industry grows and changes and continue to build partnerships with commercial recycling businesses.
- Continue developing sustainable solutions for bio solids, yard waste and brush recycling.
- Evaluate the benefits of managing the solid waste division as an enterprise fund.
- Evaluate the benefits of purchasing additional properties adjacent to the County's existing property. Additional property with sanitary landfill potential and value may provide long term solid waste management benefits to the County.



Spotsylvania County Solid Waste 5-Mile Service Areas



1. Barn Convenience Center
2. Belmont Convenience Center
3. Berkeley Convenience Center
4. Chancellor Convenience Center
5. Chewing Park Convenience Center
6. Cole Hill Convenience Center
7. Lee Hill Convenience Center







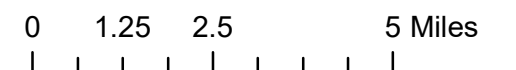
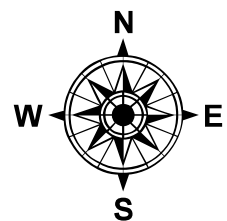
8. Livingston Landfill & Convenience Center
9. Marshall Park Convenience Center
10. Mine Road Convenience Center
11. Post Oak Convenience Center
12. Todd's Tavern Convenience Center
13. Wilderness Convenience Center

Legend

Solid Waste Collection Centers

Items Accepted

-  Household Trash Only
-  Household, Commercial, Constr., Demo.
-  5 Mile Service Areas
-  Located Beyond 5-Mile Service Area



Map Approved: December 14, 2021