

Information Item

Date: April 12, 2022

To: Mayor, Mayor Pro Tempore, and Members of the City Council

From: Aaron King, Assistant City Manager
Chris Murphy, Director of Planning and Development Services

Subject

Fertilizer Plant Zoning Regulations Research and Recommendations

Strategic Focus Area: Livable Neighborhoods

Strategic Objective: No

Strategic Plan Action Item: No

Key Work Item: No



The recent fire at the Winston Weaver fertilizer plant (located on North Cherry Street) has precipitated the need for assessing the City’s current zoning requirements for fertilizer manufacturing or processing facilities in comparison to those of our peer cities. This memorandum details how fertilizer facilities are classified and regulated by other communities in the state, specifically Charlotte, Durham, Fayetteville, Greensboro, and Raleigh. The specific requirements of these communities can be found in the table on page 4.

Staff also researched zoning ordinances for five jurisdictions with major fertilizer operations in the central United States. These plants are located in lesser-populated counties whose zoning ordinances do not have use-specific standards for fertilizer plants, and such plants are allowed either by right or with Special Use Permit approval.

Winston-Salem’s Unified Development Ordinances (UDO) classifies fertilizer plants as chemical manufacturing based on the North American Industrial Classification System (NAICS). This type of manufacturing is one of 13 uses categorized as “Manufacturing C”, which is solely permitted in the General Industrial (GI) District. This district is the most intense industrial district in the UDO. Further, watershed protection regulations prohibit the use, storage, or manufacture of hazardous materials within one mile of Salem Lake.

Use Restrictions

Like Winston-Salem, our peer communities permit fertilizer plants only in heavy industrial zoning districts. The use is typically classified as some form of chemical manufacturing, processing, or storage. Fayetteville has a use category for High Impact/Hazardous Manufacturing that includes fertilizer plants. Many of our peer communities have additional use restrictions compared to Winston-Salem, such as enhanced setback requirements next to residential uses or requiring a Special Use Permit for these facilities. Additional use restrictions for chemical manufacturing or processing typically include:

- Elected Body Special Use Permit Approval: Durham and Greensboro require a public hearing via the quasi-judicial Special Use Permit process.
- Enhanced Setbacks from Residential Uses or Districts: Most peer cities require enhanced setbacks for these uses from either existing residential uses or residential districts. These setbacks range from 300 to 1,500 feet.
- Perimeter Security Wall or Fence: Durham and Greensboro require an 8-foot security fence or wall around the perimeter of the property.
- Hazardous Materials Management Plan: Durham and Fayetteville require that a Hazardous Materials Management Plan be submitted for review by local Fire/EMS staff as part of the site plan approval process.
- Water Supply Watersheds: Hazardous materials and uses are prohibited within one mile of designated water supply sources in Winston-Salem, while Greensboro prohibits them within one-half mile of a water supply source. Fayetteville and Durham require spill containment plans to be approved and implemented in watershed areas for any use involving hazardous materials.

Stated minimum lot sizes in peer cities range from 8,000 square feet to one acre. However, the enhanced setbacks from residential development lead to de-facto minimum lot sizes much larger than ordinance requirements. A minimum site size could be required for intensive industrial uses with significant setbacks to adjoining properties. The UDO currently requires a 10-acre minimum lot size for hazardous waste management facilities, which also require a minimum 200-foot setback from any property line in addition to a one-quarter mile setback (1,320 feet) from any residential or institutional zoning district.

Other Standards

Building Setbacks: Winston-Salem has minimum building setbacks that range from 0.5 feet (or 12 feet) from interior side yards; to 20 feet for rear yards or side streets; to 40 feet for front yards. Setbacks for peer communities range from 10 to 50 feet, except for Fayetteville and Greensboro, which typically have a minimum 50-foot building setback next to residential for all industrial uses.

Height Limits: Almost all of the communities surveyed have a standard height limit of 40-90 feet adjacent to residential uses, with the possibility of increasing the height to 145 feet or higher, provided there is an additional foot of setback from property lines for each foot of building height in excess of standard height limits.

Bufferyards/Landscaping: Minimum bufferyard widths vary from 20 feet to 100 feet (when adjacent to residential). Every peer city mandates that the most intensive landscaping yard required by ordinance be installed when these facilities are next to residential uses or districts.

Recommendations

Based on the preceding research, various options exist for enhancing UDO regulations for chemical manufacturing facilities, should the Mayor and City Council believe such an approach is warranted. These standards would need to be adopted through the UDO text amendment process.

A review of peer city regulations suggests that the following use-specific standards be considered:

- Requiring an Elected Body Special Use Permit for such uses
- Increasing minimum site size requirements
- Enhancing setbacks and buffering from residential districts
- Adding a spacing requirement from schools and universities
- Requiring a perimeter security wall or fence
- Requiring submission of a hazardous materials management plan for review by local Fire/EMS agencies as part of site plan approval

In addition to the possible zoning ordinance provisions noted above, a new facility would also be subject to building and fire code regulations. These provisions, many of which did not exist in their current form when the Winston Weaver plant was built, would further lessen the impacts of such facilities on the surrounding community through safety measures such as limits on the amount of product at the facility; requirements for how product is stored; and requirements for sprinkler and other suppression systems. These codes are determined at the State level and administered by local staff. Building and fire code experts can provide more detailed information on how such provisions would be addressed in construction of a new facility.

Staff will be available to present this information at the April 2022 Public Works Committee meeting.

Summary of NC Peer City Fertilizer Plant Zoning Regulations

	Winston-Salem	Charlotte	Durham	Fayetteville	Greensboro	Raleigh
Required Zoning District	General Industrial (GI)	Heavy Industrial (I2)	Heavy Industrial (I)	Heavy Industrial (HI)	Heavy Industrial (HI)	Heavy Industrial (IH)
Use Classification	Manufacturing C: Chemical Manufacturing	Chemical Manufacturing, Refining, Processing	Other Facilities for Manufacture/ Storage of Chemicals	Manufacturing, High Impact/ Hazardous	Other Facilities for Manufacture/ Storage of Chemicals	Chemical Bulk Storage
Use Restrictions	Prohibited in Salem Lake Reservoir Protection Areas (extends 1-mile from lake)	Primary Access to Nonresidential Street; 300-foot setback from Residential; Prohibited in selected watershed overlay districts	Special Use Permit Required; 1,500-foot setback from Residential; 8-foot fence/wall around property; Plan Review by Fire/EMS staff	1,000-foot setback from Residential or NB districts; Hazardous Management Plan submitted with Site Plans for local EMS review	Special Use Permit Required; 500-foot setback from Residential; 8-foot fence/wall around property; Prohibited in Watershed Critical Areas (1/2 mile from water source)	None
Minimum Lot Size (sq. ft.)	1 acre	8,000	30,000*	40,000	20,000	NA
Minimum Lot Width (ft.)	150	50	150*	100	100	NA
Minimum Setbacks (ft.)						
Front	40	20	40*	Lesser of 50 or 75 feet from street centerline	25 local/collector streets; 30 thoroughfares	50
Rear	20	10	40*	20; 50 from Residential District	0 or 5; 50 from Residential	0; 70 for both front and rear yard
Side, Street	20	20	40*	Same as front setback	25 local/collector streets; 30 thoroughfares	50
Side, Interior	0.5 or 12	0 or 5	50*	15: 100 from Residential District	0 or 5; 50 from Residential	0
Maximum Height (ft.)	70 next to Residential; unlimited with additional setback	0 adjoining Residential; unlimited with additional setback	90; 145 with SUP Approval	90: 50 from Residential District	50; 80 with additional setback	50
Maximum Building Coverage (%), or Floor Area Ratio (FAR)	NA	FAR: 1.0	65%*	NA	NA	NA
Minimum Bufferyard Width (ft.)	20-100 next to Residential	40-100 next to Residential based on acreage	50-80	25	35-70; 45 average	20-35

* Dimensional Standards in Durham vary by growth management tiers. Dimensions listed are for the suburban tier.