3.4 Buffers.

Purpose and function: ~~To provide minimum separation and screening of different land uses. To minimize the adverse effects of commercial and industrial land uses on surrounding property and public throughfares; to act as a filtration zone for storm water; to make the environment more visually attractive; and to preserve the tree canopy in the county.~~

~~It is the intent of this ordinance that buffers be maintained and controlled so that the effects of the screening are not diminished.~~

It is the intent of this ordinance that all buffer areas be properly maintained and preserved in a manner that sustains their functional and aesthetic value over time, ensuring that their screening and environmental benefits are not diminished.

The purpose of this ordinance is to ensure adequate separation and effective screening between differing land uses across all zoning districts. Buffers are intended to minimize the adverse impacts of development—including but not limited to commercial, industrial, residential, and mixed-use projects—on adjacent properties and public thoroughfares. Buffers also serve as natural filtration zones for stormwater runoff, enhance the visual quality of the built environment, and protect and preserve the County's existing tree canopy.

3.4.1 Buffer design standards:

A. *Plant material:* Existing plant materials including understory vegetation in buffers shall be maintained whenever possible. All trees over six inches diameter at breast height (dbh) shall be retained. Additional planting may be required when existing plant material is inappropriate for screening. Additional landscaping may be added at the property owner's discretion.

B. *Encroachment:* Buffer areas should remain natural. The following are the only permitted encroachments:

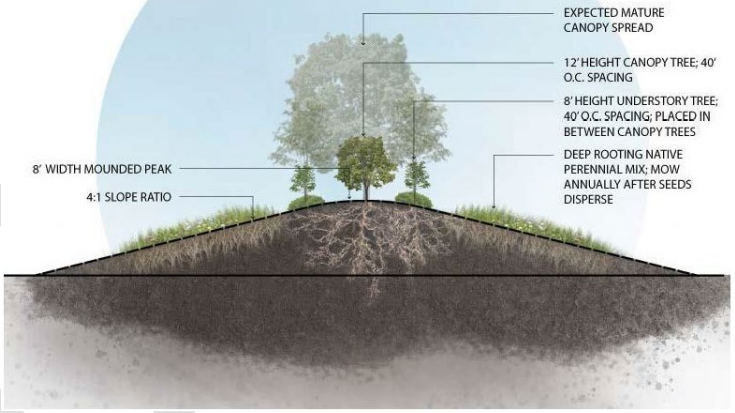
1. Drainage ditches, utility, and service lines provided that they are approximately perpendicular to the property line.
2. Sidewalks and pathways that connect multiple parcels.
3. Lighting fixtures.
4. Signs.
5. Flagpoles.
6. Structural elements: Privacy fences or walls located in a buffer shall provide a minimum of two feet from the element to the exterior property line to allow for plant material.
7. Landscaping retaining wall if integrated into the buffer and subject to approval by the zoning administrator.
8. Berms, subject to the following standards if encroaching within a buffer:
    a. Minimum slope of 4:1 (see figure below).
    b. Maximum height of the berm shall be based on the width as provided below and shall be reduced by six feet for every one foot of berm height:
        i. For a 25 feet high berm, the buffer requirement is reduced from a 300 feet buffer to a 150 feet buffer. The 150 feet wide buffer includes 35 feet of natural and undisturbed buffer and remaining buffer is the berm. If the berm base is beyond 115 feet, the berm extends into the property and not the 35-foot undisturbed area.

ii. For a 16 feet high berm, the buffer requirement is reduced from a 300 feet buffer to a 200 feet buffer. The 200 feet wide buffer includes 35 feet of natural and undisturbed buffer and remaining buffer is the berm. If the berm base is beyond 165 feet, the berm extends into the property and not the 35-foot undisturbed area.

iii. For a 10 feet high berm, the buffer requirement is reduced from a 300 feet buffer to a 240 feet buffer. The 240 feet wide buffer includes 35 feet of natural and undisturbed buffer and remaining buffer is the berm. If the berm base is beyond 180 feet, the berm extends into the property and not the 35-foot undisturbed area.

iv. The height of the berm is measured perpendicular off the nearest adjacent property line using the natural grade, height cannot be determined by infill grade.

v. ~~Major subdivisions with rear or side facing homes will install a six (6) foot tall berm with approved landscaping material at the apex of the berm. Minimum width of the berm is fifteen (15) feet at the base.~~ Major subdivisions with rear or side-facing homes shall provide a minimum fifty (50) foot vegetative buffer. If the required vegetative buffer cannot be established, a six (6) foot tall berm with approved landscaping material may be installed with the fifty (50) foot buffer.



C. Required setbacks shall be inclusive of buffers areas.

D. When a less intense zoning district abuts a more intense zoning district, the responsibility for providing the required buffer shall rest solely with the property in the more intense district.

			Proposed Zoning													
	AR-1	AR-2	AR-3	R-1	R-2	R-3	R-4	R-5	R-6	B-1	B-2	B-3	~~MXD~~ PD	I-1	LI	HI
AR-1	15 ft	15 ft	15 ft	15 ft	30 ft	30 ft	15 ft	15 ft	15 ft	30 ft	30 ft	30 ft	20 ft	300 ft	150 ft	300 ft
AR-2	15 ft	15 ft	15 ft	15 ft	30 ft	30 ft	15 ft	15 ft	15 ft	30 ft	30 ft	30 ft	20 ft	300 ft	150 ft	300 ft

R-1	30 ft	30 ft	30 ft	15 ft	30 ft	30 ft	15 ft	15 ft	15 ft	30 ft	30 ft	30 ft	20 ft	300 ft	300 ft	300 ft
R-2	30 ft	30 ft	30 ft	30 ft	15 ft	15 ft	30 ft	30 ft	30 ft	20 ft	20 ft	20 ft	15 ft	300 ft	150 ft	300 ft
R-3	30 ft	30 ft	30 ft	30 ft	15 ft	15 ft	30 ft	30 ft	30 ft	20 ft	20 ft	20 ft	15 ft	300 ft	150 ft	300 ft
R-4	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	15 ft	15 ft	15 ft	30 ft	30 ft	30 ft	20 ft	300 ft	300 ft	300 ft
R-5	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	15 ft	15 ft	15 ft	30 ft	30 ft	30 ft	20 ft	300 ft	300 ft	300 ft
R-6	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	15 ft	15 ft	15 ft	30 ft	30 ft	30 ft	20 ft	300 ft	300 ft	300 ft
B-1	30 ft	30 ft	30 ft	30 ft	20 ft	20 ft	30 ft	30 ft	30 ft	15 ft	15 ft	15 ft	15 ft	150 ft	50 ft	150 ft
B-2	30 ft	30 ft	30 ft	30 ft	20 ft	20 ft	30 ft	30 ft	30 ft	15 ft	15 ft	15 ft	15 ft	150 ft	50 ft	150 ft
B-3	30 ft	30 ft	30 ft	30 ft	20 ft	20 ft	30 ft	30 ft	30 ft	15 ft	15 ft	15 ft	15 ft	150 ft	50 ft	150 ft
~~MXD~~ PD	30 ft	30 ft	30 ft	30 ft	15 ft	15 ft	20 ft	20 ft	20 ft	15 ft	15 ft	15 ft	10 ft	300 ft	150 ft	300 ft
I-1	300 ft	300 ft	300 ft	300 ft	300 ft	300 ft	300 ft	300 ft	300 ft	150 ft	150 ft	150 ft	300 ft	25 ft	25 ft	25 ft
LI	150 ft	150 ft	150 ft	300 ft	150 ft	150 ft	300 ft	300 ft	300 ft	50 ft	50 ft	50 ft	50 ft	25 ft	50 ft	50 ft
HI	300 ft	300 ft	300 ft	300 ft	300 ft	300 ft	300 ft	300 ft	300 ft	150 ft	150 ft	150 ft	150 ft	25 ft	25 ft	25 ft

If a privacy fence is used, the material needs approval by Development Services, the fence maximum height is seven (7) feet in height, then the adjacent buffer may be reduced by ten (10) feet-30 feet to 20 feet for residential required buffers only.

* Subdivisions of less than five lots are exempt from buffer requirements when neighboring property is under the same ownership.

E. The constructed berm shall have vegetative cover applied immediately post-construction to assist in stabilization of the berm.

Before final plat approval of a subdivision or sketch plan approval of a commercial, industrial or PD development, a bond shall be submitted to development services in the amount of ten (10) percent of the construction cost of the berm as determined by EOM.

** Adjacent commercial, institutional, and industrial developments which are designed as a single development or share parking may reduce the buffer width by up to 50 percent between these parcels. If commercial property is developed with zero lot lines, then the buffer between parcels shall be eliminated. At no time may buffers be reduced between commercial, institutional, or industrial and residential uses.

*** Where a Residential or Commercial development abuts a railroad right-of-way, a vegetative buffer of 30 feet in width shall be provided.

**** The required plant material portion of a buffer may be reduced by 50% when adjacent to agricultural or conservation areas if replaced by additional storm water management areas.

***** Industrial surface mines will follow the buffer requirements in section 3.17.4.

3.4.2 Adjacent public street buffers: All development excluding industrial development shall maintain a ten-foot wide landscaped buffer between any parking or loading area and an adjacent accessed public right-of-way (ROW). In single family subdivisions a ten-foot landscaped buffer must be maintained between any lot or internal street and any public collector or arterial ROW accessed from the subdivision.

A. In cases where the adjacent public street is also the exterior boundary of the site, the buffer required in table 3.4.1 shall be inclusive of this ten-foot-wide landscaped buffer.

B. Where parcels abut a street without access to that street the buffer on that side of the parcel shall equal the required buffer for the use on the other side of the street in the above chart.

C. Street buffers for industrial property shall equal the required buffer for the use on the other side of the street in the above chart.

D. Residential subdivisions shall have visual buffers consisting of either vegetative cover or fencing and shall have a minimum 50 percent opacity. If vegetation is used, it shall be projected to reach the required opacity within one year of installation and shall maintain the minimum required opacity during all seasons of the year. A visual buffer may be no higher than six feet in height, except on main or collector streets where the buffer is a maximum height of twenty (20) feet.

E. PDs may have different buffer requirements; however, buffers are still required in all approved PDs. Please refer to PD ordinance in Article X.

F. Where property lines run adjacent to federally designated interstate highways, regardless of zoning or proposed use, that section of the property is exempt from all buffer requirements along the property line with frontage on the interstate highway.

~~*3.4.5 Required plant material:*~~ *3.4.3 Enforcement:*

A. *Pre-Construction Buffer Protection*. Prior to the issuance of any land disturbing activity permit for a development, all required buffer areas shall be clearly delineated in the field with highly visible silt fencing or other approved protective barrier. The purpose of this requirement is to ensure that buffer areas are protected and remain undisturbed throughout all phases of site preparation and construction. The silt fencing shall be installed along the outer edge of the buffer area closest to the area of disturbance and must remain in place and properly maintained until all construction activity has ceased and final stabilization is achieved. Buffer delineation and fencing shall be verified by County staff during the pre-construction inspection.

B. Where trees do not already exist they must be planted at a rate of one tree, at least two inches dbh, every 15 linear feet of buffer. The following list specifies recommended trees for this area. For buffers greater than 30 feet in depth required tree planting must come from the large tree list.

C. Buffers in industrial zones must include understory plantings at a rate of on three (3) gallon plant every five linear feet if sufficient understory foliage does not exist.

D. Unauthorized removal, disturbance, or destruction of any required buffer shall result in the following:

1. A stop work order will be issued.

2. A minimum monetary penalty of five hundred dollars ($500.00), plus an additional five hundred dollars ($500.00) for every one-quarter (.25) acre, or portion thereof, of disturbed area.

3. The party responsible shall be required to restore the buffer area at a density three (3) times greater than the originally required plantings. All replacement vegetation must be of the same or approved equivalent species and must meet or exceed the minimum size requirements.

4. A landscape plan prepared by a registered landscape architect or other qualified professional shall be submitted to and approved by the Director of Development Services or their designee prior to any planting. The plan must detail the species, size, spacing, and location of all proposed plantings and demonstrate compliance with the required triple density replacement. Restoration

must be completed within a timeframe determined by the County and may be subject to inspection and ongoing maintenance requirements to ensure long-term viability.

3.4.4 Required Plant Materials:

Large Trees >50' Suitable for areas with more than 400 square feet of total planting area; in a planting strip at least 16' × 25' or 20' × 20'						
Common/Scientific Name	Height & Width	Sun/Shade	Insect & Disease Resistance	Growth Rate	Deciduous Evergreen	Remarks
Beech, American Fagus grandifolia	50-75' h 40-80' w	PS/FS	L	S	D	Native. Needs ample room above and below ground. Acid soil. Fruit attracts wildlife, no litter. Zones 4-9
Blackgum Nyssa sylvatica	65-75' h 25-35' w	PS/FS	H	S	D	Native. Soil pH below 6 best, texture tolerant, drought tolerant, wet soil tolerant. Fruit attracts wildlife, some litter. Zones 4-9
Cypress, bald Taxodium distichum	60-80' h 25-35' w	FS/PS	M	F	D	Native. Drought & wet tolerant. 'Knees' form in wet areas. Tolerates compaction. Zones 4-11
Cypress, pond Taxodium ascendens	50-60' h 50-60' w	PS/FS	H	F	D	Native. Soil adaptable below 7.5. Knobby 'knees' form in moist areas. Attracts wildlife. No litter. Zones 5-9

Hickory, pignut Carya glabra	50-65' h 30-40' w	PS/FS	M	M	D	Native. Soil texture adaptable. Drought tolerant. Nuts attract wildlife. Zones 4-9
Hickory, shagbark Carya ovata	60-80' h 25-35' w	PS/FS	H	S	D	Native. Soil texture adaptable. Abundant nuts attract wildlife. Shaggy bark attractive. Zones 4-8
Magnolia, Southern Magnolia grandiflora	60-80' h 30-40' w	PS/FS	M	M	E	Native. Soil adaptable. Bark is thin, protect from mechanical injury. White showy blooms in spring & summer. Good cultivars. Zones 7-9
Maple, Red Acer rubrum	60-75' h 25-35' w	PS/FS	H	F	D	Native. Prefers acidic soil, texture tolerant, wet tolerant. Bark is thin. Fruit attracts wildlife. Many cultivars. Zones 4-9
Oak, laurel/Darlington Quercus laurifolia	60-70' h 50' w	PS/FS	H	F	SE	Native. Soil adaptable. Roots will heave sidewalks. Acorns attract wildlife, creates some litter. Zones 6-10

Oak, live Quercus virginiana	60-80' h 60-120' w	PS/FS	H	M	E	Native. Soil adaptable. Roots will eventually heave sidewalks, wind resistance. Some litter. Zones 8-10
Oak, shumard Quercus shumardii	60-80' h 40-50' w	FS	M	F	D	Native. Soil texture adaptable, acidic. Urban tolerant. Acorns attract wildlife. Some litter. Zones 5-9
Oak, southern red Quercus falcata	60-80' h 60-70' w	FS	M	M	D	Native. Acidic soil, all textures, urban tolerant. Fruit attracts wildlife, no significant litter. Zones 7-9
Oak, scarlet Quercus coccinea	60-75' h 45-60' w	FS	M	M	D	Native. Acidic soil, all textures. Needs ample root space. Nuts attract wildlife. Some litter. Zones 5-8
Oak, swamp chestnut Quercus michauxii	60-70' h 30-50' w	PS/FS	M	M	D	Native. Acidic soil, all textures, occasional wet. Leaf litter persistent, acorns for wildlife. Zones 6-9
Oak, white Quercus alba	60-100' h 60-80' w	PS/FS	H	M	D	Native. Acidic soil, all textures.

						Protect roots from disturbances. Nuts attract wildlife. Some litter. Zones 3-9
Oak, willow Quercus phellos	60-75' h 40-60' w	FS	M	F	D	Native. Acidic soil, all textures, occasional wet, drought, urban tolerant. Nuts attract wildlife. Some litter. Zones 5-9
Pine, loblolly Pinus taeda	50-80' h 30' w	FS	M	F	E	Native. Soil texture adaptable, acidic. Thick bark-resistant to fire. Needle drop prolific. Zones 6-9
Pine, longleaf Pinus palustris	60-80' h 30-40' w	FS	M	F	E	Native. Soil texture adaptable. Beautiful bark. Needle and cone drop prolific. Drought tolerant once established. Zones 7-10
Redcedar, eastern Juniperus virginiana	40-50' h 8-25' w	FS	H	F	E	Native. Soil pH and texture tolerant. Blue fruit attracts wildlife. Good wind break, urban tolerant. Zones 3-9
Sweetgum Liquidambar styraciflua	75' h 50' w	PS/FS	H	M	D	Native. Soil pH of 7.5 or less. Surface roots. Fruit

						attract wildlife, significant litter. Cultivar 'Rotundifolia' fruitless. Zones 5-9
Sycamore, American Platanus occidentalis	75-90' h 60-70' w	FS	L	F	D	Native. Soil pH and texture adaptable. Prefers moist soil. Roots may heave sidewalks. Showy bark. Zones 4-9
Tulip poplar Liriodendron tulipifera	80-120' h 25-40' w	FS	H	F	D	Native. Acidic soil, occasional wet. Avoid drought & salt. Showy greenish-yellow blooms in spring. Some leaf drop in high heat. Zones 4-9

KEY			
Sun/shade exposure:	Growth rate:	Pest resistance:	Type:
FS = Full sun	S = Slow (less than 1' per year)	H = High	D = Deciduous
PS = Part sun	M = Medium (1-2' per year)	M = Medium	E = Evergreen
S = Shade	F = Fast (more than 2' per year)	L = Low	SE = Semi Evergreen

Medium Canopy Trees: (Count for 550 square feet of area for planting—minimum two inches caliber)

Medium Trees 30' - 50' Suitable for spaces with 100 to 200 sqft of total planting space; in a planting strip at least 4-7 feet wide; or place at least 4' from pavement or wall.						
Common Name/Scientific Name	Height & Width	Sun/Shade	Insect & Disease Resistance	Growth Rate	Deciduous Evergreen	Remarks
Birch, river Betula nigra 'Heritage	40-50' h 40-50' w	PS/FS	M	F	D	Native. Acidic soil. Drought

						sensitive in confined spaces. Roots need room. Cultivars available. Zones 3B-9
Holly, East Palatka Ilex x attenuata	30-45' h 10-15' w	FS	M	M	E	Florida natural hybrid. Urban & drought tolerant once established. Red berries attract wildlife. Zones 7-9
Holly, American Ilex opaca	40-50' h 15-25' w	FS	M	S	E	Native. Salt and drought tolerant once established. Red berries attract birds, no litter. Zones 5-9
Holly, Nellie R. Stevens Ilex x	20-30' h 10-15' w	FS	H	M	E	Hybrid. Soil texture tolerant. Needs male and female plants for berries. Drought tolerant. Showy red berries & deep green leaves. Zones 6-9
Holly, Savannah Ilex x attenuata	30-45' h 6-10' w	FS	M	M	E	Hybrid. Acidic soil, urban tolerant. Red berries attract birds, no litter. Zones 6-9

Magnolia, sweetbay Magnolia virginiana	40-50' h 15-25' w	PS	M	M	D	Native. Acidic soil. Tolerates wetlands. Flood & drought tolerant. Showy, white, fragrant flowers. Zones 5-9
Magnolia, Southern Magnolia grandiflora	30-50' h 15-30' w	FS	H	M	E	Native. Soil adaptable. White showy blooms in summer & early fall. Smaller leaves than species. Zones 6-9
Oak, overcup Quercus lyrata	35-50' h 35-50' w	FS	H	M	D	Native. Soil adaptable, wet & drought tolerant once established. Urban tolerant. Acorns attract wildlife, significant litter. Zones 5-9
Palm, cabbage Sabal palmetto	40-50' h 10-12' w	PS/FS	H	S	E	Native. Soil tolerant, frond and fruit litter messy. Needs irrigation until established as all cut roots die back. Southern region only. Zones 8B-11

Redbud, eastern Cerci's Canadensis 'Forest Pansy'	20-30' h 15-30' w	PS	M	F	D	Native. Light, rich, moist soil, texture adaptable. Showy purple blooms in spring. Cultivar 'Texas White' good. Short lived. Zones 4-9
Silver bell, Carolina Haleiwa Carolina	20-40' h 15-30' w	PS/FS	H	M	D	Native. Acidic soil. Drought sensitive in full sun, roots need room. Showy white blooms in spring. Zones 5-8
Yellowwood, American Cladastris kentukea	30-50' h 40-50' w	PS/FS	H	M	D	Native. Needs pruning while young. White fragrant blooms. Tolerates urban conditions. Zones 4-8

KEY			
Sun/shade exposure:	Growth rate:	Pest resistance:	Type:
FS = Full sun	S = Slow (less than 1' per year)	H = High	D = Deciduous
PS = Part sun	M = Medium (1-2' per year)	M = Medium	E = Evergreen
S = Shade	F = Fast (more than 2' per year)	L = Low	SE = Semi Evergreen

Small trees < 25' useful under utility lines; areas with < 100 sf of total planting area; a planting strip with a width of at least 4'.						
Common Name/Scientific Name	Height & Width	Sun/Shade	Insect & Disease Resistance	Growth Rate	Deciduous Evergreen	Remarks

Cherry, Okame Prunusx incamp 'Okame'	15-25' h 20' w	PS/FS	M	M	D	Hybrid. Soil texture and pH adaptable. Roots need room. Pink showy blooms. Fruit attracts birds. Zones 7-9
Crape myrtle, Japanese Lagerstroemia fauriei	35-50' h 25-35' w	FS	H	M	D	Japan. Soil adaptable. Urban tolerant. White showy flowers. Beautiful bark. May be resistant to powdery mildew. Zones 6-9
Dogwood, flowering Cornus Florida	20-30' h 20' w	PS	M	M	D	Native. Part shade. Drought sensitive, low salt tolerance, needs good drainage. White showy flowers. Horizontal branching pattern. Zones 5-9
Fringetree Chionanthus virginicus	12-15' h 10-15' w	PS/FS	M	S	D	Native. Acidic soil. Thin bark easily damaged. Urban tolerant. Showy white blooms in spring. Fruit attracts birds. Zones 4-9
Holly, yaupon Ilex vomitoria 'Pendula'	15-20' h 15-20' w	S/FS	M	M	E	Native. Soil & pH greatly adaptable. Urban tolerant. Thin bark. Red berries attract wildlife. Zones 7-10
Magnolia, Southern Magnolia grandiflora 'Little Gem'	20-25' h 10-15' w	PS/FS	M	M	E	Native. Soil adaptable. Bark is thin, protect from mechanical injury. White showy blooms in summer and early fall. Zones 7-9
Redbud, Oklahoma Cercis reniformis 'Oklahoma'	20-30' H 15-30' w	PS/FS	M	F	D	Native. Soil & pH adaptable, salt sensitive, showy thick leaves. Zones 5-9

Waxmyrtle Myrica cerifera	15-20' h 20-25' w	PS/FS	M	F	E	Native. Soil & pH adaptable, urban tolerant. Blue berries attract wildlife. Zones 8-11

KEY			
Sun/shade exposure:	Growth rate:	Pest resistance:	Type:
FS = Full sun	S = Slow (less than 1' per year)	H = High	D = Deciduous
PS = Part sun	M = Medium (1-2' per year)	M = Medium	E = Evergreen
S = Shade	F = Fast (more than 2' per year)	L = Low	SE = Semi Evergreen