Resource Conservation District (RCD)


Unnamed tributary to Wilson Creek at Obey Creek Development

Agenda

- What is a riparian buffer?
- Why are riparian buffers valuable?
- What is the RCD?
- How is it applied?
- How does the RCD compare to riparian buffer protections in the region?
- How is development impacted by the RCD?
- What are stakeholders' interests?

Council Work Session
February 17, 2021

What is a riparian buffer?

- Land adjacent to streams that is protected from development.
- Applies to both sides of the stream.
- Measured as a specified width from the top of the stream bank.
- Allowed development can vary between defined zones.

Figure 1: Riparian Buffer Schematic (Cross-sectional View)
(Adapted from Pennsylvania Department of Environmental Protection, 2010)

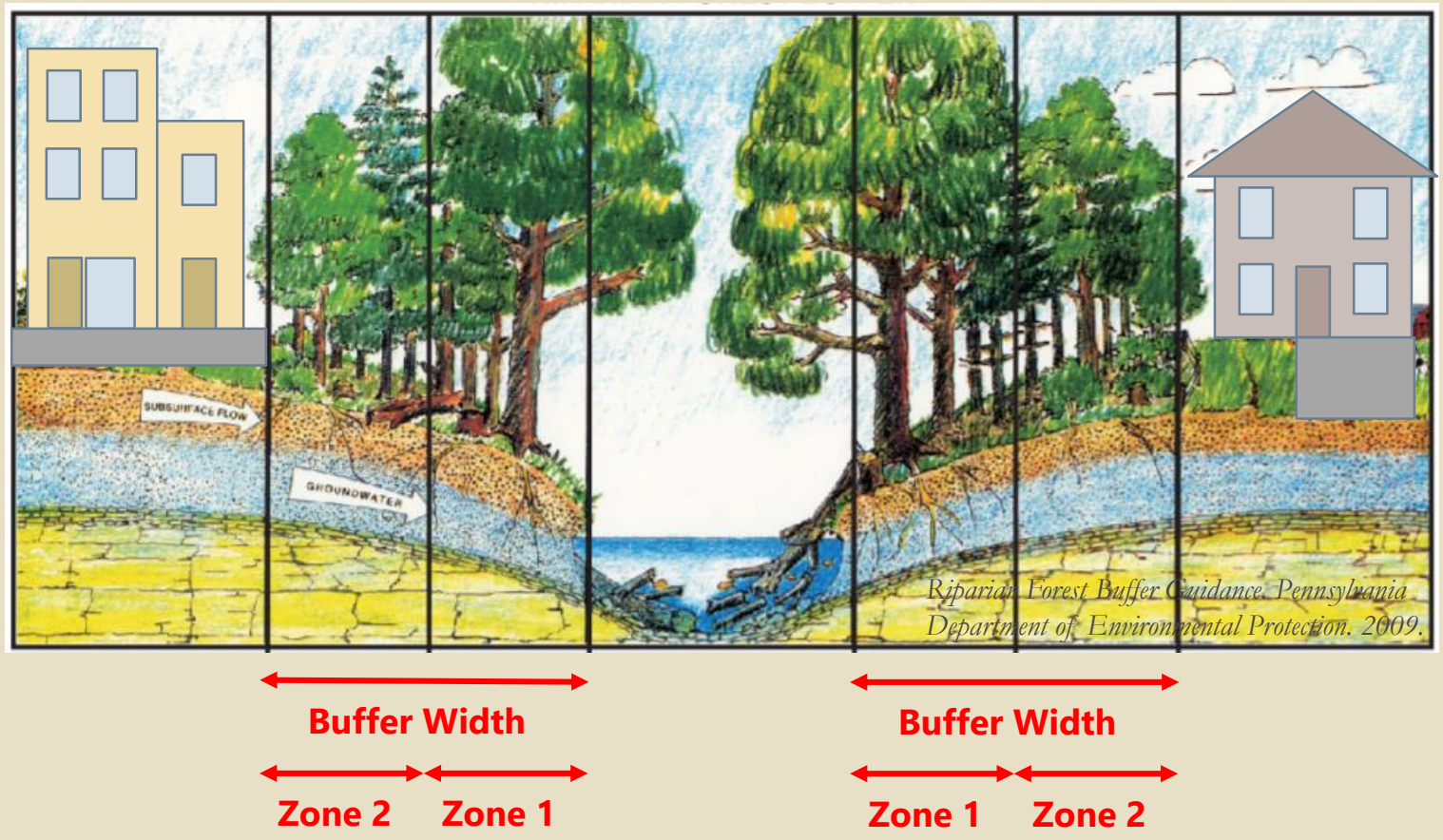

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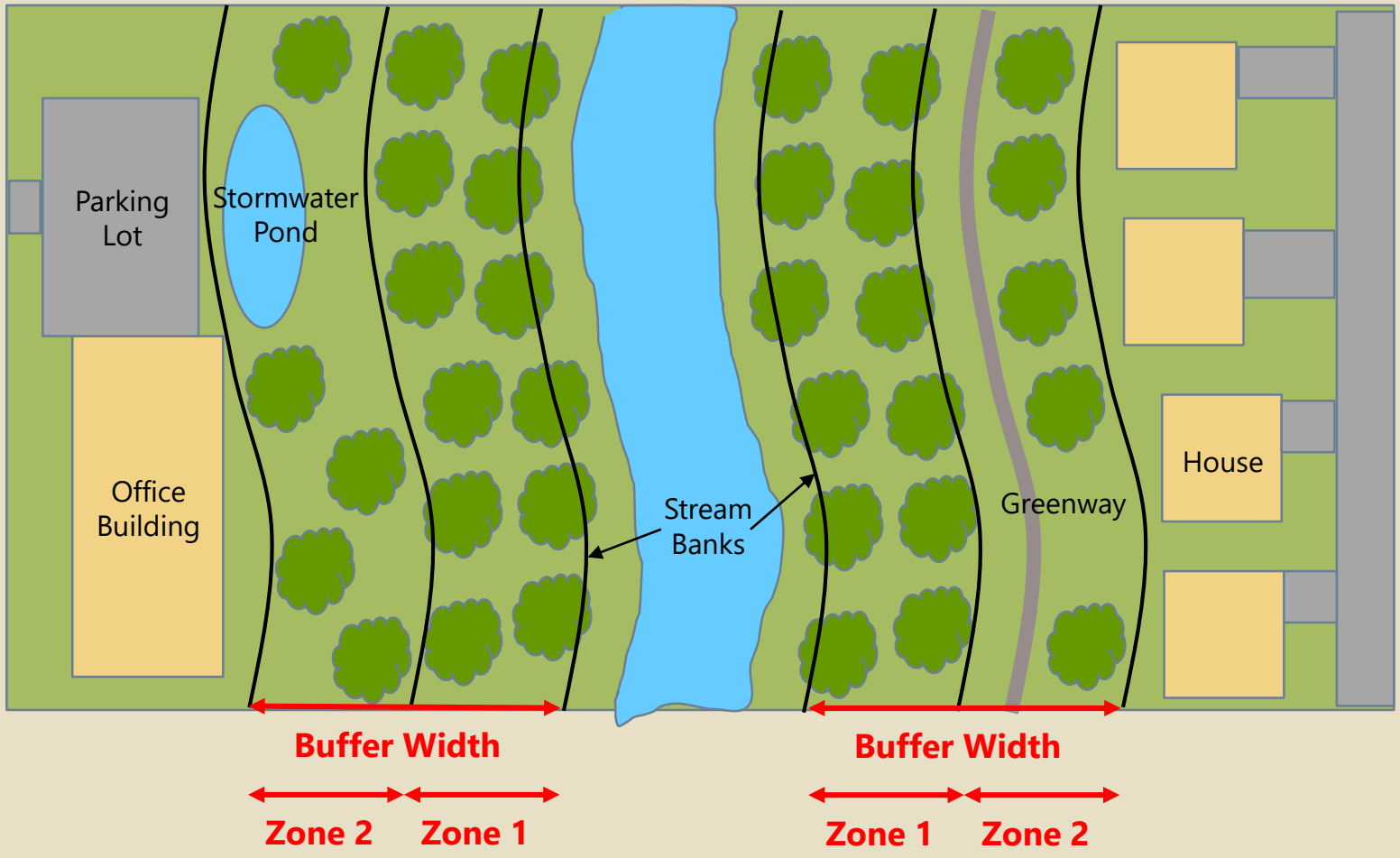
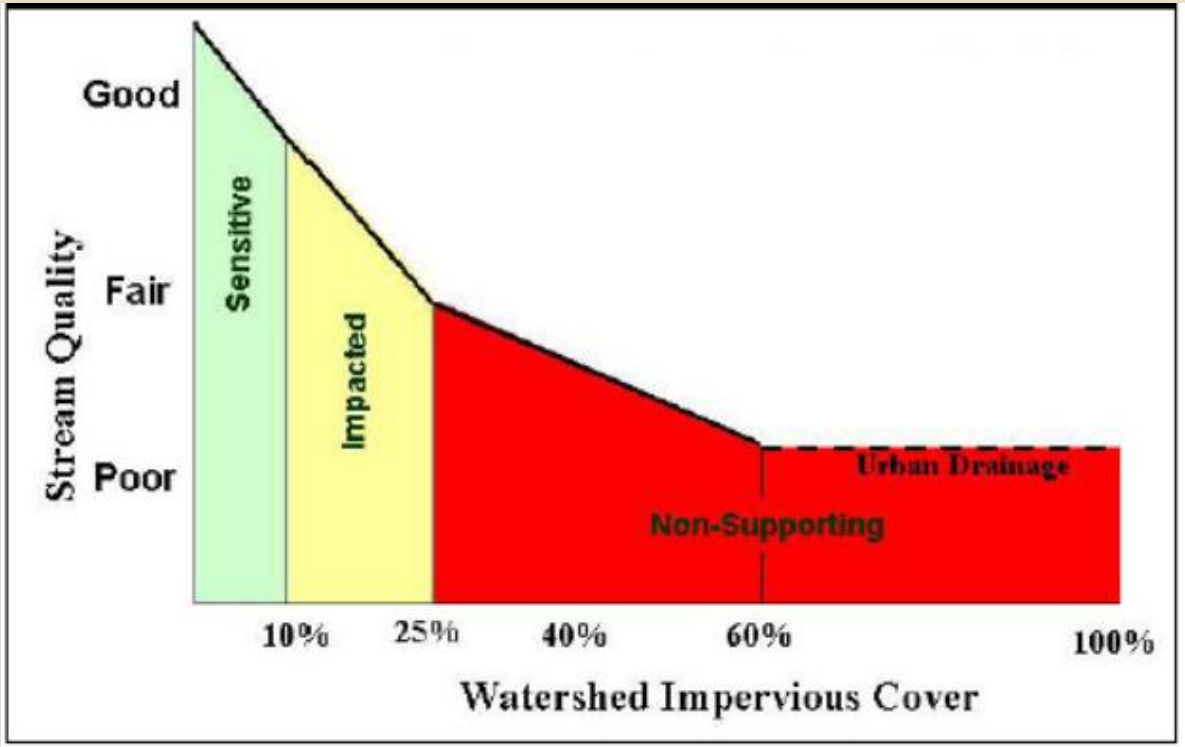
Figure 2: Riparian Buffer Schematic (Plan View)



Why are riparian buffers valuable?

- Stabilize streambanks
- Manage flood storage
- Protect water quality
- Mitigate urban heat island
- Encourage groundwater recharge
- Provide habitat
- Preserve aesthetic qualities of the Town
- Provide an air and noise buffer

Figure 3: The Impervious Cover Model
(Center for Watershed Protection, 2003)



Urbanization Degrades Stream Quality

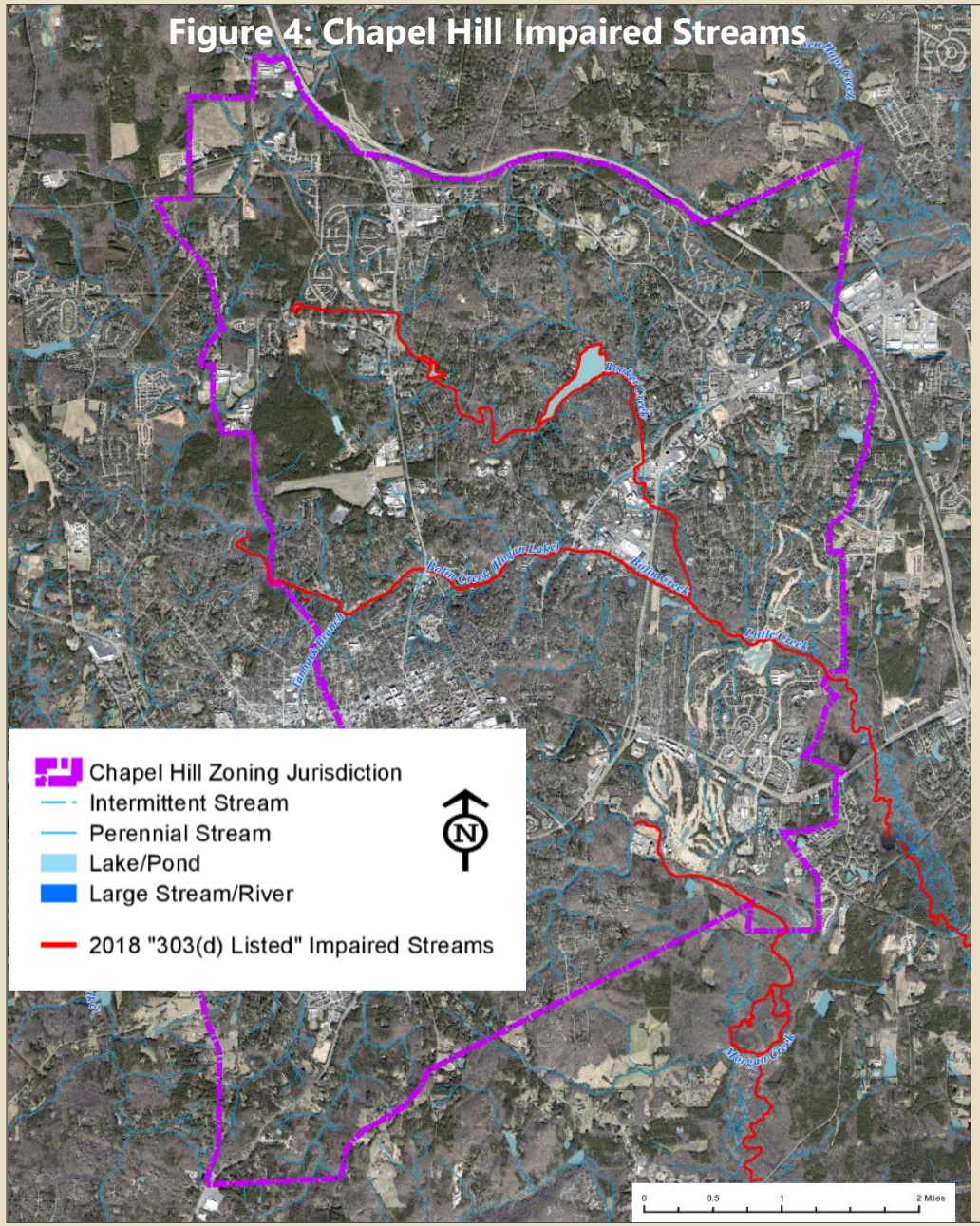


Figure 4: Chapel Hill Impaired Streams

Riparian Buffers and Water Quality Regulations

- Per federal Clean Water Act requirements, NCDEQ identifies “impaired” waterbodies and their pollutants.
- Pollution limit could be assigned in the future.
- 7 impaired stream segments in Chapel Hill (2018 DWR Integrated Report).
- Preserved stream buffers may minimize future costs associated with pollution reduction.

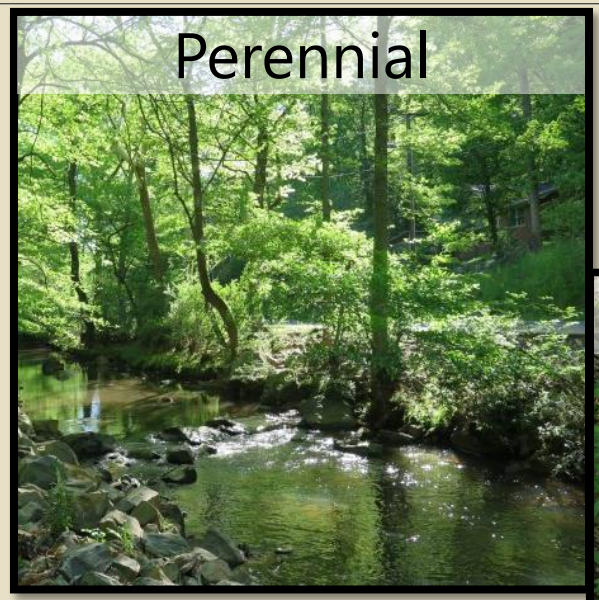
What is the Resource Conservation District?

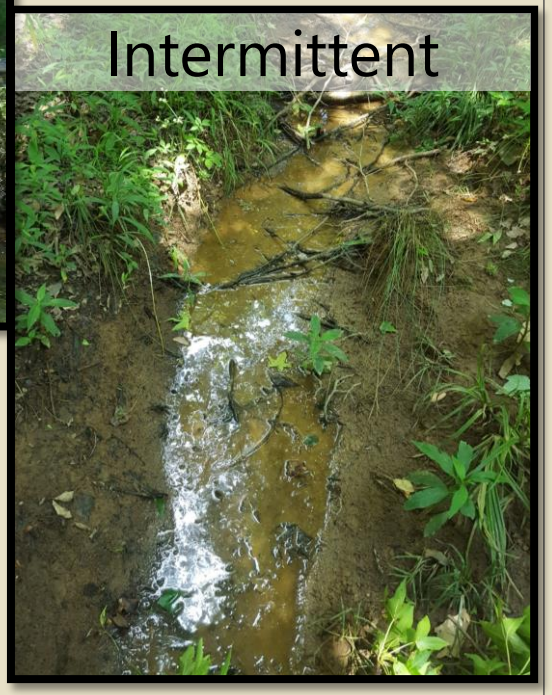
- Adopted in 1984 as a zoning overlay district. Updated in 1987 and 2003.
- Intended to preserve the natural land areas along the Town's streams, while still allowing landowners a reasonable use of their property.
- Supports other Town Goals in the 2020 Comprehensive Plan especially Theme 5: Nurturing Our Community
  - "Conserve biological ecosystems"
  - "Protect, acquire, and maintain natural/undeveloped open spaces to protect wildlife corridors"

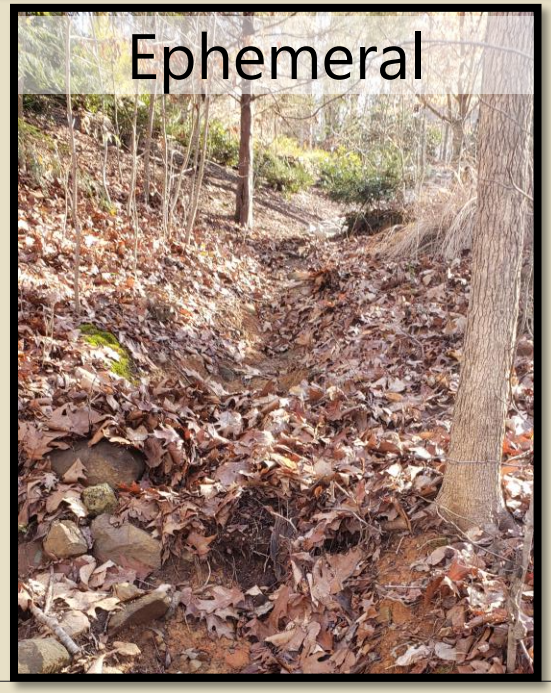
Theme 5: Nurturing Our Community

How is the RCD width determined?

Stream Classification	RCD Width
Perennial = year-round flow during normal year of rainfall	0-150 feet
Intermittent = partial-year flow	0-50 feet
Ephemeral = flowing only during and right after rain event	N/A





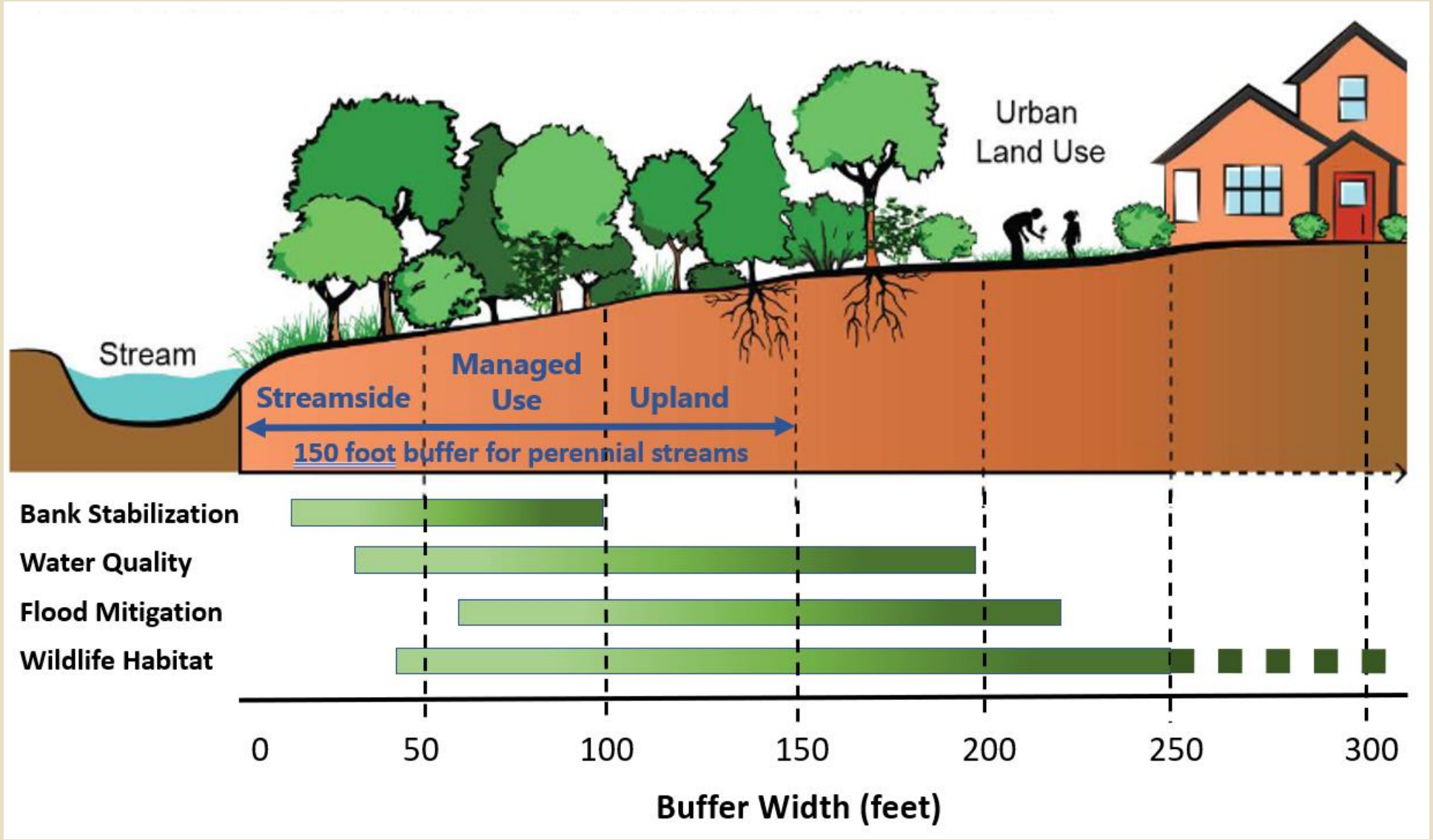


How does the RCD compare to riparian buffer protections in the region?

Local Government	Perennial	Intermittent	Ephemeral
Town of Chapel Hill	0-150 ft	0-50 ft	0 ft
Town of Carrboro	100 ft	60 ft	15-30 ft
Orange County	50-250 ft	50-250 ft	0 ft
Town of Apex	100 ft	50 ft	0 ft
Town of Cary	50-100 ft	50-100 ft	0 ft
City/County of Durham	0-150 ft	0-100 ft	0 ft
Chatham County	50-100 ft	50-100 ft	30 ft

The buffer width may be determined by factors including watershed size, presence of floodplain, land slope, or when the property was established.

Figure 5: RCD Zones and Benefits
(Adapted from Tennessee Department of Agriculture, 2015; USDA, 1998; and Hawes and Smith, 2005)



How is the RCD applied?

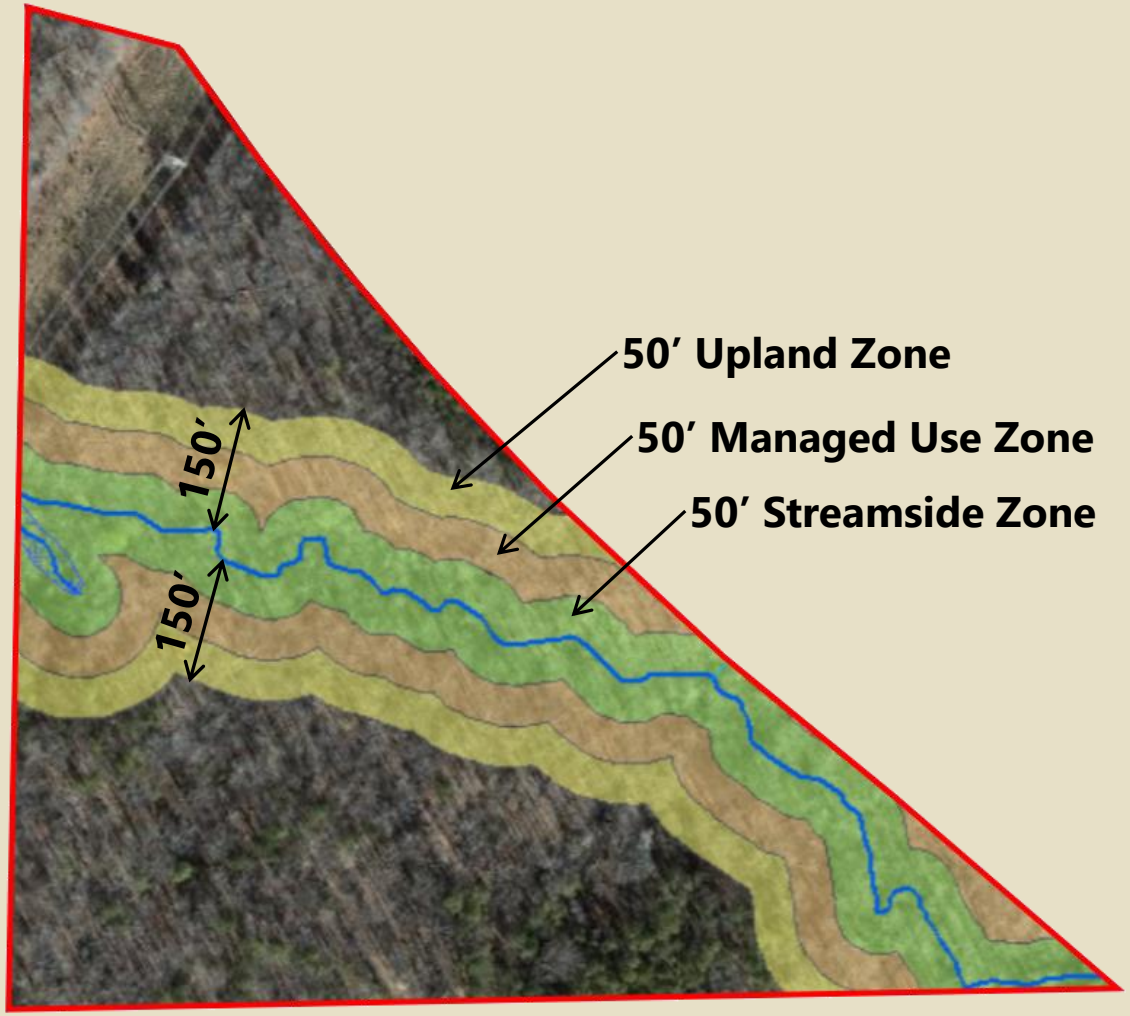
- **Permitted Uses and Activities** limit <u>type</u> of land use and activities in each zone

- **Dimensional Regulations** limit <u>amount</u> of land disturbance and impervious area in each zone

Development Scenario

- RCD is 150 feet on perennial stream
- Example **Permitted Uses and Activities** specific to each zone are shown below

Land Use	Streamside	Managed	Upland
Trail/ Greenway	✓	✓	✓
Golf course	✗	✗	✓
Detention/ retention basin	✗	✓	✓

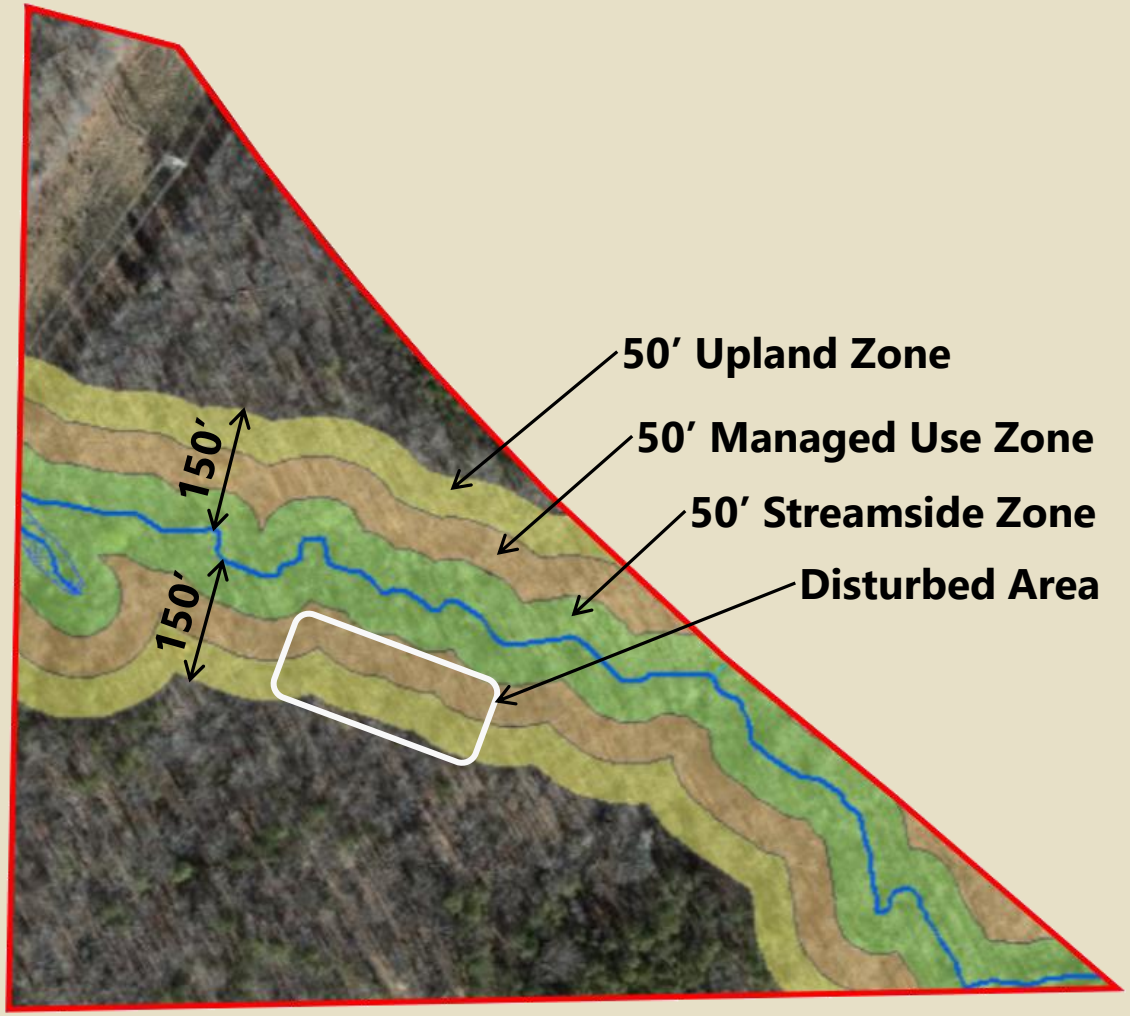


Development Scenario

- **Dimensional Regulations** limit the <u>amount</u> of the buffer that can be used for permitted uses and activities

	Streamside	Managed	Upland
Impervious Area	0.10	0.20	0.20
Disturbed Area	0.20	**0.40**	**0.40**

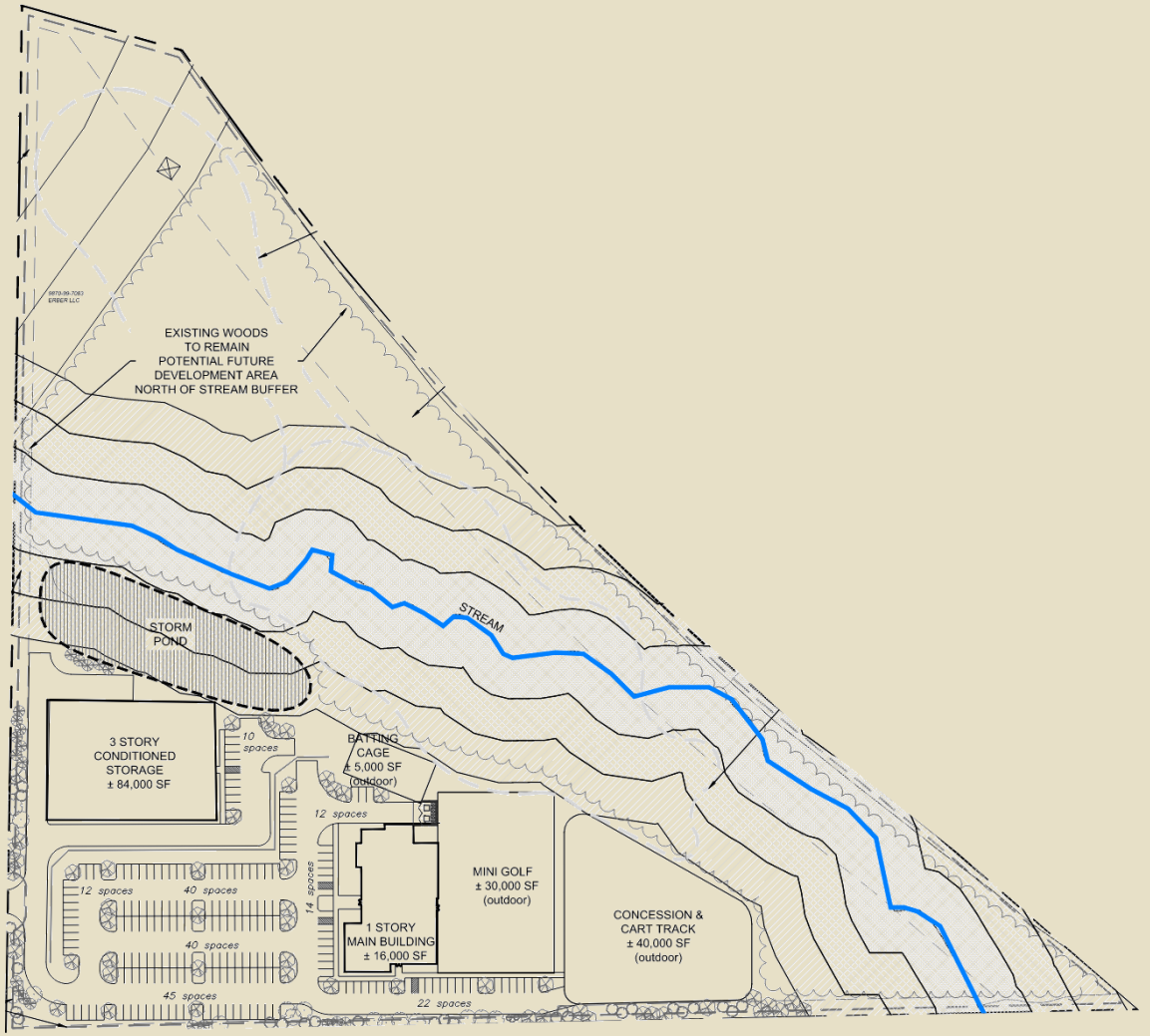
$$\frac{Disturbed\ Area\ in\ Managed\ Use\ Zone}{Total\ Area\ in\ Managed\ Use\ Zone} < 0.4$$



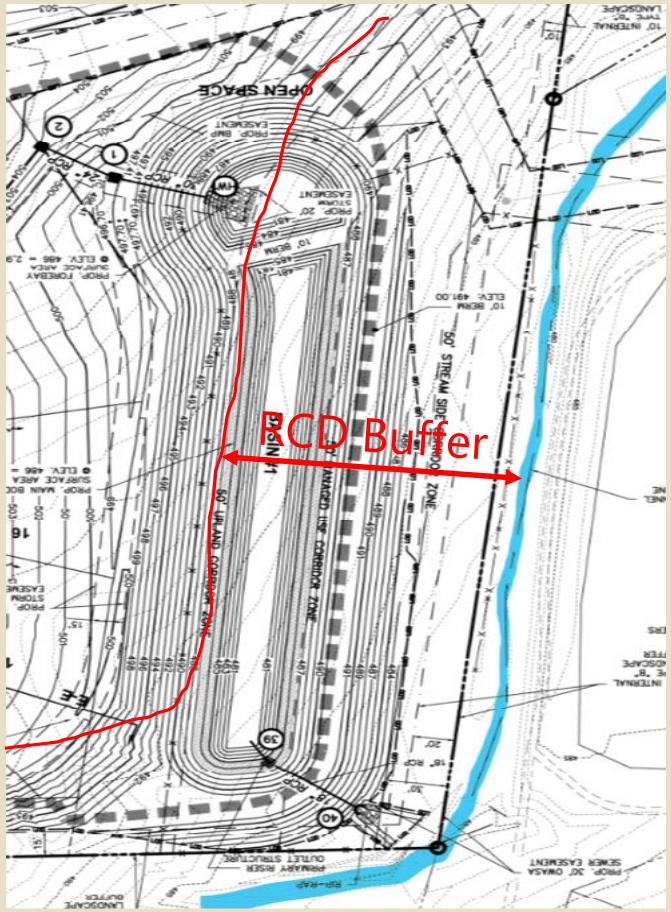
Development Scenario

- Recent Concept Plan for Putt Putt Fun Center

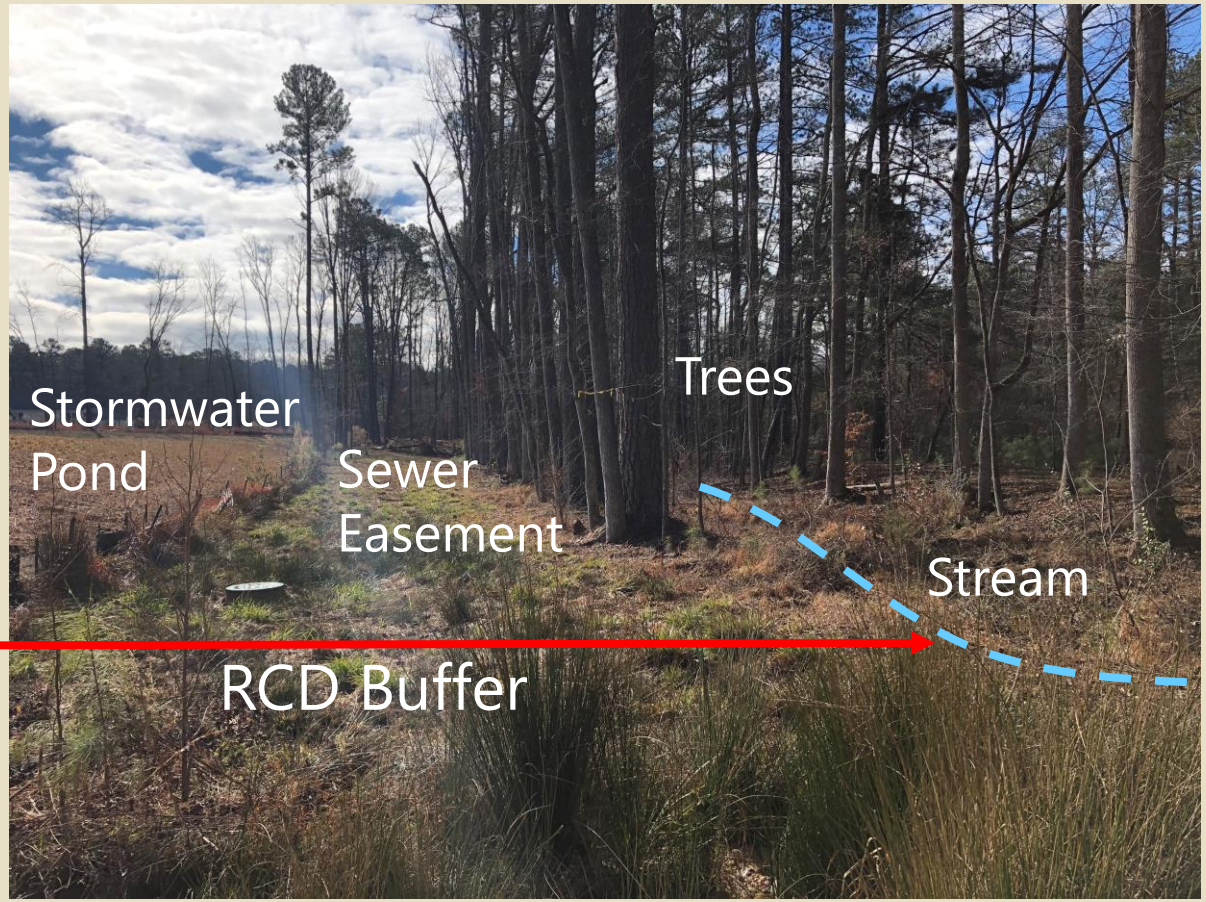
	Streamside	Managed	Upland
Impervious Area	N/A	N/A	N/A
Disturbed Area	N/A	<0.40	<0.40



- What is the process for projects with non-permitted uses or exceedance of the dimensional regulations in the RCD?



These projects are approved or denied by the Town Council or the Board of Adjustment who can request mitigating measures.



What are stakeholders' interests?

Stormwater Management Utility Advisory Board

- Watershed planning
- Stormwater Capital Improvement Projects

Developers/ Homeowners

- Property Value
- Buildable Area
- Allowed Uses
- Stream Erosion and Maintenance Responsibility

Regional Community

- Jordan Lake source of drinking water
- Flood control
- Nutrient concerns

Looking Forward

- Addressing stakeholder interests
  - Weekly Stormwater/Planning coordination meetings
  - Pre-application meetings and site visits
  - Review development applications in the context of watershed-scale efforts
- Questions from Council
  - RCD Modifications
  - LUMO Rewrite

References

- Center for Watershed Protection. (2003). *Watershed Protection Research Monograph No. 1: Impacts of Impervious Cover on Aquatic Systems*. file:///C:/Users/mbmeumann/Downloads/impacts-of-impervious-cover-on-aquatic-systems-2003.pdf
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- United States Department of Agriculture. (1997, rev. 1998). *Chesapeake Bay Riparian Handbook: A Guide for Establishing and Maintaining Riparian Forest Buffers* (NA-TP-02-97). https://www.chesapeakebay.net/content/publications/cbp_13019.pdf