Cherokee County
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Cherokee County Greenways & Trails Master Plan

APPENDIX C: TRAIL DESIGN GUIDANCE

FEBRUARY 2025

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Trail Design Guidelines

September 13, 2024

Gresham Smith

Design Guidance

User Profiles

Successful trail and greenway systems:

- Provide a range of experiences for a variety of users
- Get people to and from destinations
- Promote safety and comfort
- Include amenities, signage, wayfinding, and art

Casual Socializing

- Wider paths for side-by-side
- Areas to pull off and chat
- Access to public spaces, retail, restaurants, streets, and other trails
- Water, seating, shade, art, bike parking, visual interest

Utilitarian Trips

- Space for passing
- Minimize out-of-direction travel
- Access to neighborhoods, employment, transit, shops, streets, and other trails
- Water, lighting, trash cans, fixit stations, bike parking

Exercise/Fitness

- Space for passing
- Longer, continuous segments
- Water, shade, trash cans, dog waste stations, visual interest, exercise equipment
- Vehicle parking

Nature/Outdoor Enjoyment

- Context sensitive design
- Varied terrain and settings
- Quiet places for rest
- Access to parks, greenspace
- Rich sensory experiences
- Water, seating, shade, trash cans
- Vehicle parking

Key Resources

- American Association of State Highway Transportation Officials (AASHTO)
- Atlanta Regional Commission (ARC)
- Federal Highway Administration (FHWA)
- Georgia Department of Transportation (GDOT)
- Institute of Transportation Engineers (ITE)
- US Access Board - PROWAG

Peer Communities and Case Studies

- Razorback Greenway (Northwest Arkansas)
- Swamp Rabbit Trail (South Carolina)
- Root River/Harmony-Preston Valley Trail (Minnesota)
- Olde Town Conyers Trail (Conyers, GA)
- Hard Labor Creek State Park (Morgan County, GA)
- Chattahoochee River National Recreation Area (Metro Atlanta, GA)
- Mission Boulevard Linear Park (Hayward, CA)

Greenway Trails

Use Cases:

- Primarily recreation with some commuters, utilitarian trips
- All modes: pedestrians, bicyclists, dog walkers, strollers, skaters, wheelchairs, etc.

Silver Comet Trail

Considerations:

- Range of users and potential for speed differential (e.g., walking vs. biking)
- Potential for higher volumes
- Environmental constraints
- Routing/alignment, since they don't usually follow roads
- Connectivity to other trails, paths, greenways
- Access for people on foot, bike, and in cars
- Safety and security

Greenway Trails

Design Guidance

- Typically paved (concrete or asphalt), with boardwalk where needed
- Width: 10-14 ft
- Shoulder width: 3-5 ft graded, 2 ft min.
  - 5 ft recommended if along water
- Vertical clearance: 10 ft, 8 ft min.
- ADA compliant slopes and grades

Root River Trail
(credit: gydlrgrc)

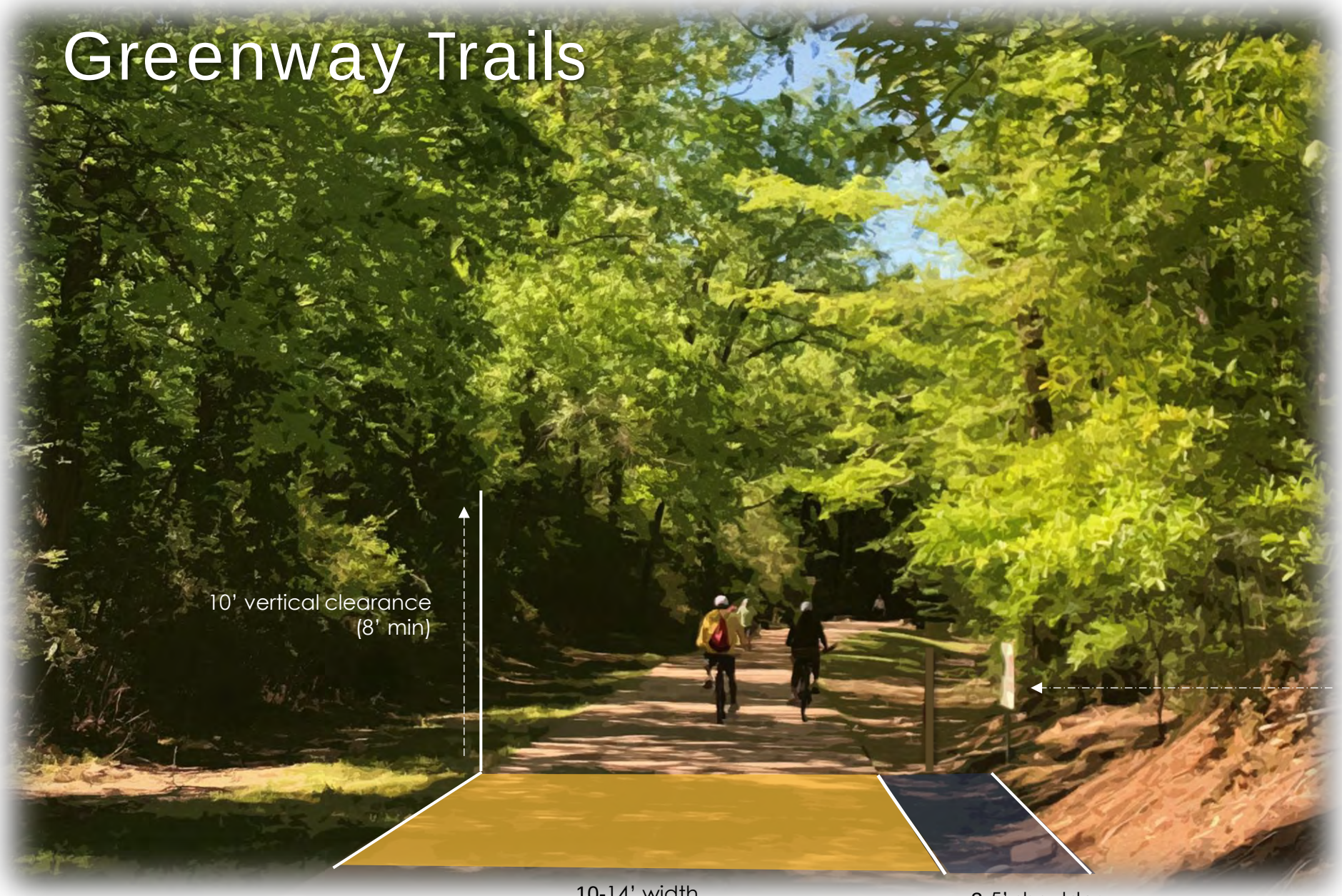
Greenway Trails

Additional Guidance

- High visibility crosswalks at roads
- Centerline striping as needed
- Lighting and wayfinding and regulatory signage where needed
- Cameras, call boxes, mile markers can aid in emergencies
- Amenities: water fountain, trash cans, seating, shade, pull-offs, bike parking, and vehicle parking where appropriate

Razorback Greenway
(credit: JAllison, via TrailLink)

Greenway Trails



Greenway Trails

Multi-functional lighting helps keep people on the trail

Optional centerline stripe to separate direction of travel

Space for people to pull off the trail for rest, socializing, or taking a call

10-14' width
Materials: concrete, asphalt, or boardwalk

3-5' shoulder
(2' min)

Greenway Trails

Wayfinding, directional signage, or distance markers

Consider handrails on boardwalk sections where appropriate *(if boardwalk is 30" or more above grade)*

10-14' width
Materials: concrete, asphalt, or boardwalk

Sidepaths (along roads)

Use Cases:

- Primarily utilitarian with some recreation trips
- All modes: pedestrians, bicyclists, dog walkers, strollers, skaters, wheelchairs, etc.

Concord Road, Smyrna, GA

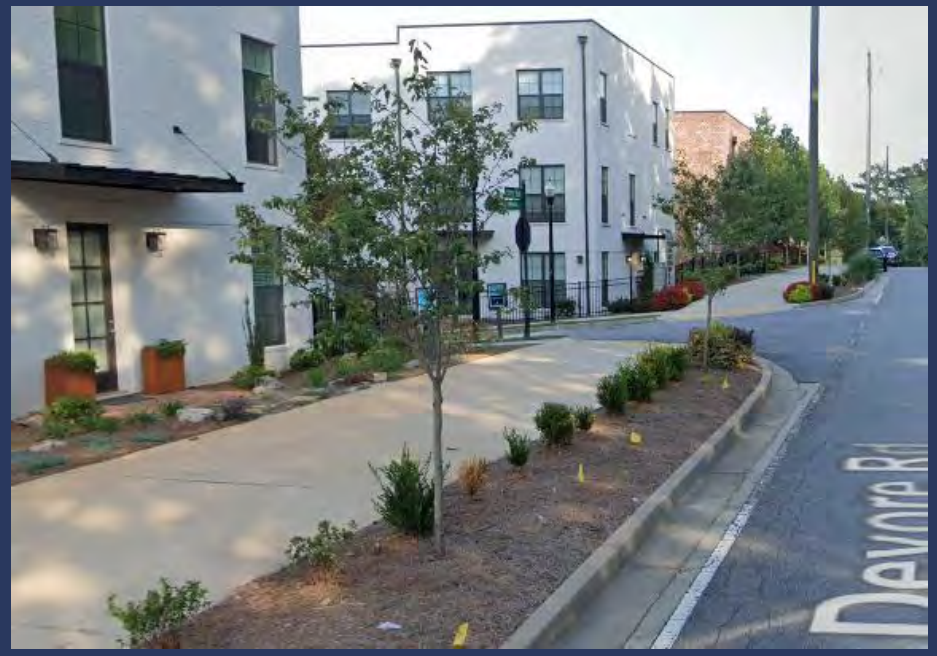
Considerations:

- Range of users and potential for speed differential (e.g., walking vs. biking)
- Connections between residential, commercial, and other areas of interest
- Potential conflict points, driveways, and intersection treatments
- Safety and separation from travel lanes
- Wayfinding and access points
- Potential for speed differential
- Road design standards may conflict with best practices for user comfort

Sidepaths

Design Guidance

- Similar design to greenways
- 5 ft buffer between travel lanes and trail if speed limit 35 mph
  - If < 5ft, a physical barrier should be used
- 2 ft horizontal clearance from fixed objects
- Minimize curb cuts, driveway crossings



Alpha Loop Trail
(credit: Google)

Sidepaths

Additional Guidance

- Design intersection treatments based on traffic and trail volume, speed (separation distance, signalization, pavement markings, etc.)
- Lighting, wayfinding, and regulatory signage where needed
- Optional furniture zone against commercial buildings where appropriate
- Cameras, call boxes, mile markers can aid in emergencies
- Amenities: water fountains, trash cans, seating, shade, public art

Bells Ferry Road

Sidepath

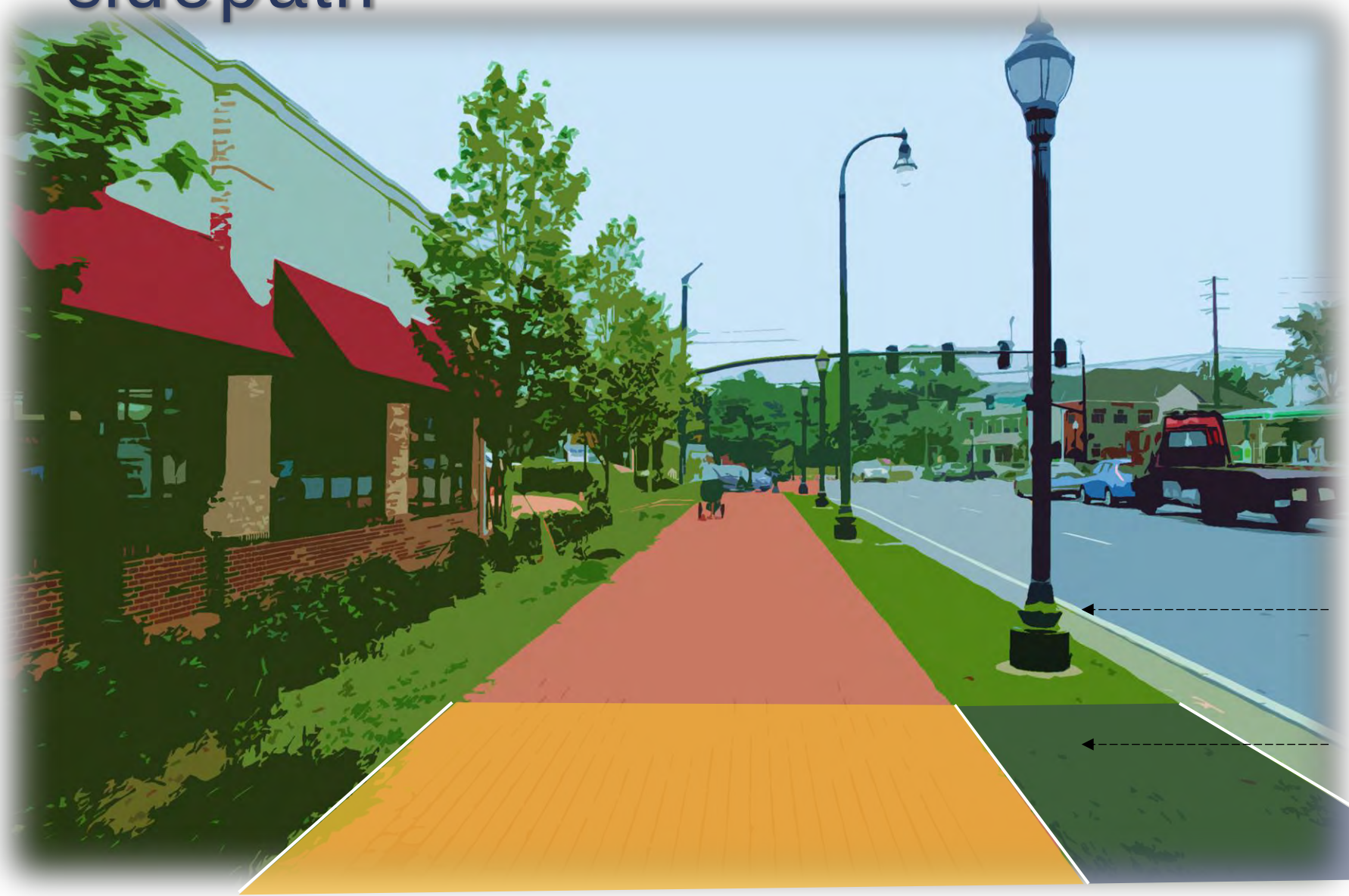
Trees provide shade

Branded wayfinding and etiquette signage to communicate location, distance to destinations, and rules for trail use

5' buffer
(2' min in constrained areas)

10-14' width
Materials: generally concrete

Sidepath



Lighting for safety can also provide visual separation from travel lanes

Opportunity for wayfinding signage

Optional planting or furniture zone in commercial areas

10-14' width
Materials: generally concrete

5' buffer
(2' min in constrained areas)

Sidepath

Detectable warning strips signal road crossings to pedestrians and cyclists

Highly visible crosswalk markings signal the presence of bicycles at crossings

Optional centerline stripe

10-14' width
Materials: generally concrete

Soft Surface Trails

Use Cases:

- Primarily recreational – hiking, exercise, experiencing nature
- Modes: hikers, dog walkers, trail runners – in some cases can be shared by mountain bikers or equestrians

Tweetsie Trail
(Credit: PurduePeterson, via TrailLink)

Considerations:

- Biker/hiker conflicts
- Environmental or natural resource impacts
- Accessibility for safety and security
- Erosion and drainage issues
- Private property constraints
- Single track vs. bi-directional use

Soft Surface Trails

Design Guidance

- Typically dirt, gravel, or crushed aggregate
- Single-track trails: 18-24 inches wide
- Double-track trails: width varies
- Follow natural contours of the land
- Average grade of 10% or less is sustainable on most soils and for most users
- 0.5-3% grades for better bicycle handling, to allow drainage, and prevent erosion

Walking Path in East Cobb Park

Soft Surface Trails

Additional Guidance

- Avoid fall lines (shortest route down a hill – where water flows) and avoid flat areas (where water pools)
- 8 ft min vertical clearance (higher for equestrian trails)
- Directional signage and mile markers can aid with routing and wayfinding, include rules and regulations to discourage use in wet conditions
- Consider a directional by-day policy to limit conflicts and reduce tread wear patterns

Johnson Ferry North (Chattahoochee River National Recreation Area)

Soft Surface Trail

Soft Surface Trail

Soft Surface Trail

Optional barriers, fencing, and screening depending on context

Crushed gravel surface

Variable width depending on use and context

Mountain Bike Trails

Use Cases:

- Exclusively recreational
- Modes: mountain bikers, some hikers depending on location

Allatoona Creek Park
(Credit: Jeff Barber, SingleTracks.com))

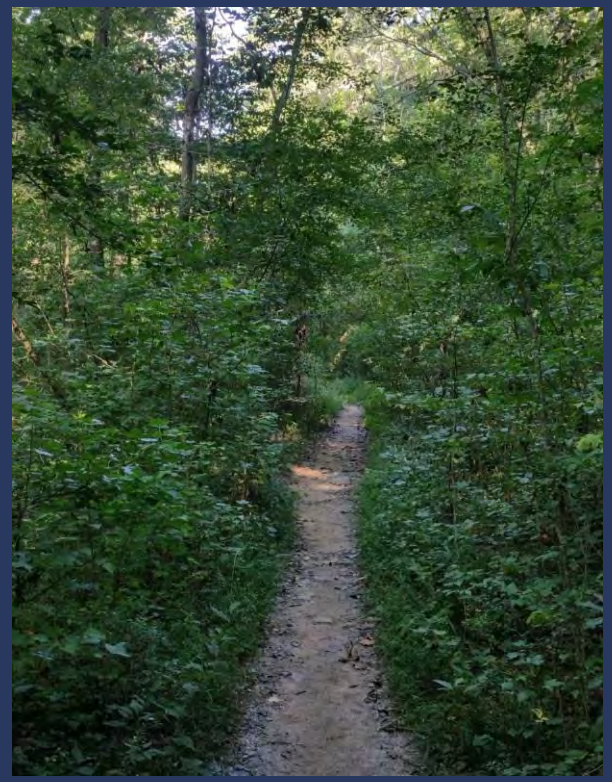
Considerations:

- Biker/hiker conflicts
- Environmental or natural resource impacts
- Accessibility for safety and security
- Erosion and drainage issues
- Day-of-use policies

Mountain Bike Trails

Design Guidance

- Compacted earth tread
- Width varies considerably, mainly based on course difficulty (12”- 72”)
- Trail gradient should not be greater than half the grade of side slopes (“the half rule”)
- Average trail grade of 10%; max. may vary between 15-25% depending on site
- Trail tread sloped from hillside at 3-4%
- Provide and follow rolling contours



Sope Creek, Chattahoochee River National Recreation Area

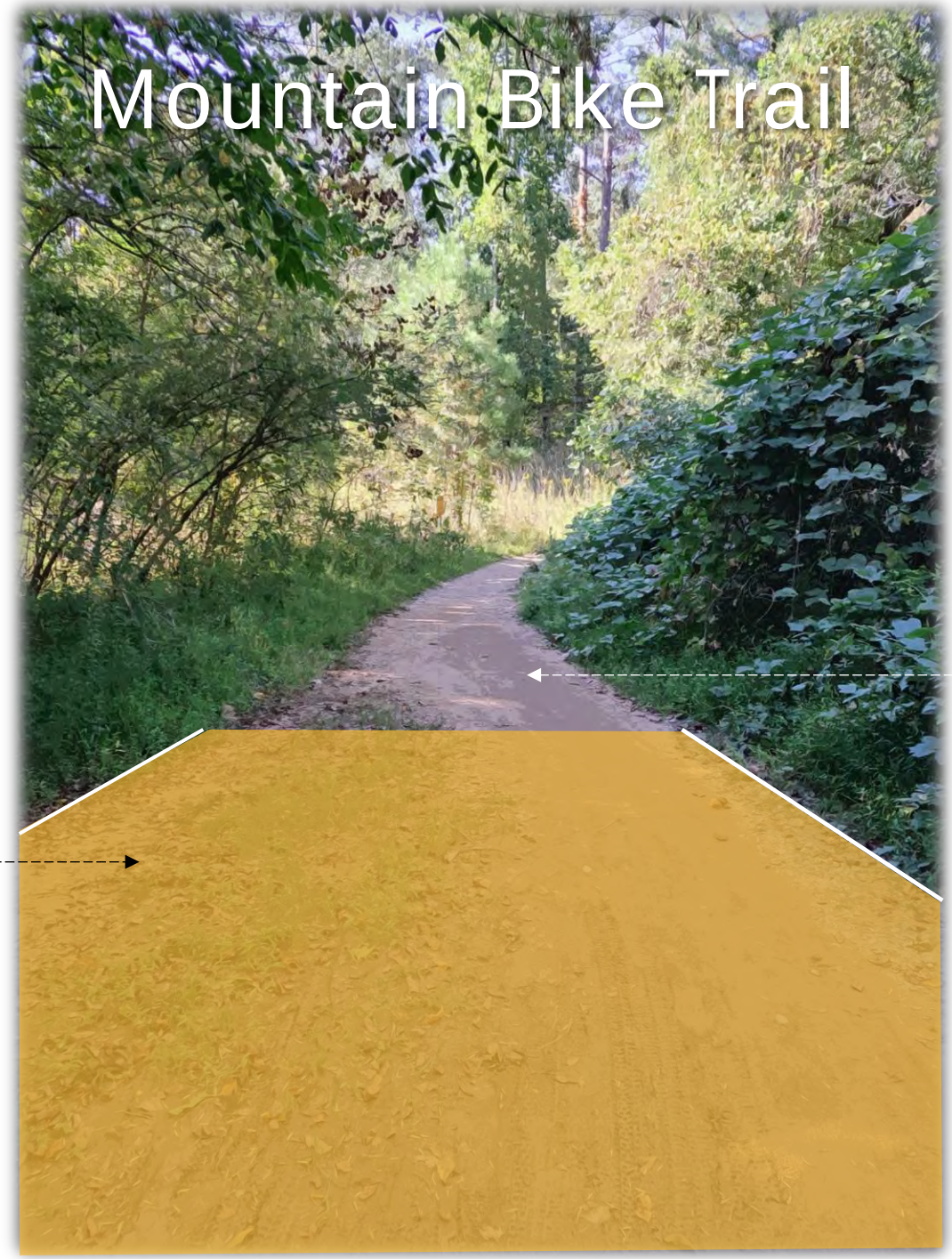
Mountain Bike Trails

Additional Guidance

- Provide varied terrain to maintain cyclist interest (inclines, declines, rocks, ruts, gravel, etc.)
- Maintenance due to wear and tear
- Environmental considerations - erosion
- Cost of maintenance varies greatly
- Parking for vehicles

Allatoona Creek Park
(Credit: MTB Atlanta)

Mountain Bike Trail



Compacted earth tread
Moderate grade

Sufficient width for two bikes to pass

Mountain Bike Trail

Optional amenities

Sloped trail allows water to drain

Obstacles and varied terrain increase difficulty and cyclist enjoyment

Driftwood Trail Allatoona Creek Park
(Credit: PKRohnert, via Trailforks.com)

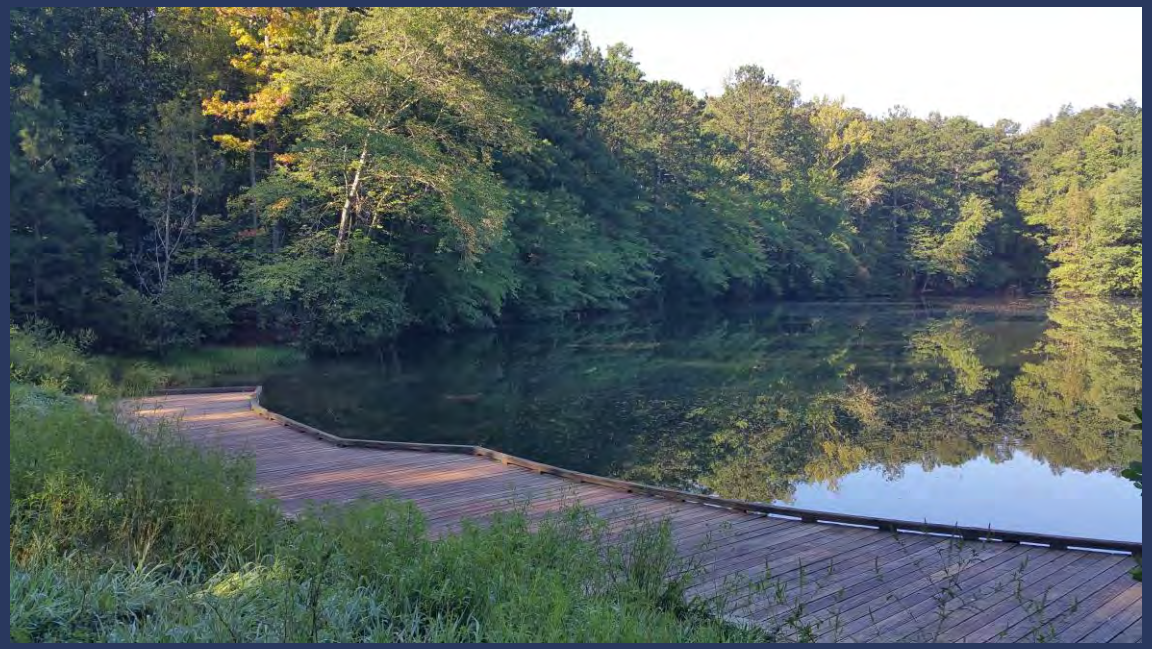
Blueways

Use Cases:

- Exclusively recreational
- Modes: kayaks, canoes, rafts, tubes

Considerations:

- Water flow and volume
- Access points
- Emergency / first responder access
- Distance and time between put-in/pull-out locations



Chattahoochee River National Recreation Area

Blueways

Design Guidance

- Access point frequency: every 5 miles or less
- Gangway or ramp slope: 5-8.33% at water's edge
- Staging area: firm and stable
  - Width: 6-12 ft, 5 ft min.
  - Length: 25+ ft
  - Enter boats parallel to dock, from the side
  - Space to turn around 16 ft+ canoe

Bull Sluice Lake, Sandy Springs

Blueways

Additional Guidance

- Short distance from parking to launch or unloading area if parking further
- Information kiosks at access points, also print and online materials
  - Maps, mileage, difficulty, water level
- Safety markers along route
- Range of signage, tailored for location and purpose
- ADA standards for accessible design

Credit: NC Growth's Field Guide to Blueways

Blueway

Blueway

Shade for resting

Parallel greenway for improved access and visibility

Sufficiently wide and flat staging area

Reinforced banks provide seating and ability to launch boats and rafts

Stable platform for viewing and access

Textured ramp with moderate grade

Regulatory signage