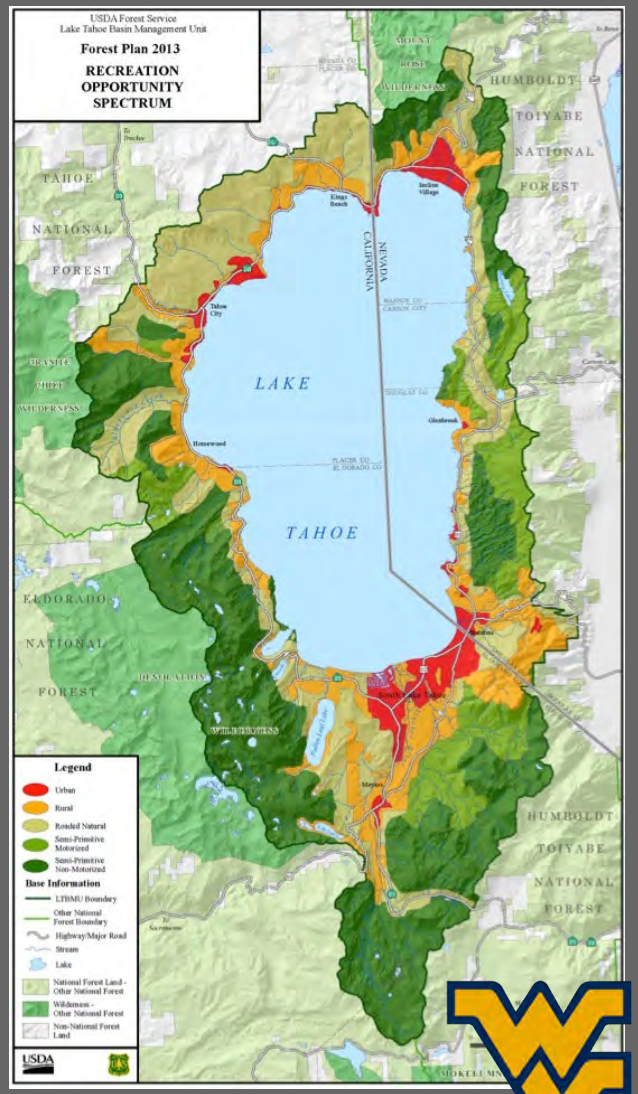
DEVELOPING THE PLAN



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ZONE ANALYSIS

- After you've completed community and land manager engagement, created a vision, found available data, assessed the terrain, and identified major control points, lines, and polygons; its time to start developing the plan!
- Before you draw lines on map, pull back your view and think higher level.
- Zones (polygons) are a useful tool to segregate certain terrain types and the experiences they can host. Zones may include key positive control points and avoid negative ones, they may meet at important intersections or junctions, especially those driven by the landscape.
- Sketching in zones lets one assess feasibility of the project, is it possible, is it worth it?
- Conceptual zones can help determine trail density. Trail density often depends on the landscape setting and planned experience goals.
- Rough rules of thumb; 1 mile per 10 acres is quite dense (think city park), the less dense the system to more remote/solitude your provide visitors, single-use experience pods like mountain bike gravity zones may appeal to more dense trails, typically the densest part of the system is adjacent to the trailhead.

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KEY IDEAS

Stacked Loops

- Stacked loops are appealing because they offer variety. Loops let visitors enjoy trails of varying distances, difficulty, or ecosystems in the same outing. Several different types of loops can work depending on the landscape constraints; links in a chain, lollipops connected together, large outer loop with inner options, etc. Stacked loops make optimal use of available land by dispersing visitors depending on their desired experience and skill.
- In general, the easiest loops/terrain should be close to the trailhead to provide the best accessibility to new trail users or those looking for quick simple outings. The most challenging trails and terrain should be further away from the proposed parking hubs, rewarding those willing to travel longer distances. Putting the difficult segments further out of reach of beginners, and giving riders time and distance to warm up before reaching those technical segments, provides a level of self-selection in the system, a proven risk management tool.
- Connectivity is important, and loops are not always possible. Shared use corridors are common when constraints create one feasible trail alignment. Providing connectivity is important, there may only be one route to a mountain peak. But in general, loops are much preferred by all visitor types.

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KEY IDEAS

Connectivity

- Connectivity is important, and loops are not always possible. Shared use corridors are common when constraints create one feasible trail alignment. Providing connectivity is important, there may only be one route to a mountain peak or one way to a community access point. In general, loops are much preferred by all visitor types, minimize “out and back” experiences when possible.

KEY IDEAS

Shared use & Single Use

- Shared use trails are important for building community and offering the most recreation from the landscape. Key connections between access points, trailheads, or important control points are often shared use.
- Pockets of single use can help accommodate more diverse experiences and reduce visitor conflicts. For instance, a hiking-only nature trail can offer quiet solitude for those seeking connection with nature, while a mountain bike-only descent gives riders a chance to let loose and go fast, without worry of startling other visitors.

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KEY IDEAS

Intersections

- Intersections are important control points, like turning locations they may not be identified until the design phase. During the planning phases, key intersections may be established to guide the interaction of experience zones and trail corridors.
- Natural intersection points may include the trailhead/access points, saddles between peaks, or key water crossings. In general, intersections on anything over mellow slopes are tough to create without some conflict potential.

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KEY IDEAS

Hubs & Clusters

- Hubs and clusters are enhanced purposeful intersections and associated experience zones. They give visitors more trail options for varying skill levels at each hub (major intersection), allowing for progressive skill level and trail types diversity. At many hubs, there is the option to change the trail difficulty or type, or continue on the same skill level/style trail.
- This practice better spreads out visitation and helps reduce visitor conflict. A "cluster" is a concentration of trails with various difficulty levels or styles. Clusters may have a theme, creating an experience zone, such as a gravity zone for bike-only descents, or a nature zone near waterfront for hikers and walkers.

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KEY IDEAS

Trailheads

- Well-placed trailheads and parking lots contribute to successful trail systems. Trailheads should be located in areas of lower elevation, as most trail visitors prefer outbound climbs with inbound descents back to the parking area. This also helps mitigate risk by allowing fatigued riders an easier route back to their starting point. This is especially true for mountain bikers, and necessary for families and beginners. Mountain bikers usually prefer to exert themselves the fullest on the first half of an outing, and enjoy a descent back to their vehicle on the second half. Trailheads can be well-developed, or primitive. They can also be focused towards one visitor type over the other.
- Determining your trailhead needs is important during planning. Trail systems intended to host competitive events may require large parking areas. Will there be camping at the trailhead? Do you need parking for 10 or 100 cars? Mountain bikers often have large racks on their cars, spaces need to be larger, while equestrians need whole trailer areas. Will there be night use of the trails? Should the trailhead be lit? Restrooms? Portable or flushing toilets?

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KEY IDEAS

Community Access Points

- Access points generally have no parking, often just a trail connection to existing infrastructure (bike path, road, etc.) Access points are important to promote inclusion and accessibility. Not all trail visitors have vehicles to drive to dedicated trailheads, community access points can help provide more options for a diverse population.
- Access points are difficult to manage at trail systems with gate revenue goals. Access points also open up more confusion in a trail system, ensuring adequate and appropriate signage throughout the system is vital to all visitors.

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KEY IDEAS

Progression & Diversity

- Progression and diversity are important concepts from planning to construction that will help create a successful trail system that offers the most recreational benefits from the landscape in a minimal way.
- Providing progressive trail difficulty levels will help visitors increase their skills and grow. This is very important for mountain bikers. Diverse trail experiences, with different trail objectives and settings, help disperse visitors and create unique options for exploration.
- When combined with stacked loops, hubs and clusters, shared use and single use pockets; these guiding principles can help produce a high quality trail system for a wide range of visitors.

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IMBA Trail Difficulty Rating System

	EASIEST WHITE CIRCLE	EASY GREEN CIRCLE	MORE DIFFICULT BLUE SQUARE	VERY DIFFICULT BLACK DIAMOND	EXTREMELY DIFFICULT DBL. BLACK DIAMOND
TRAIL WIDTH	72" (1,800 mm) or more	36" (900 mm) or more	24" (600 mm) or more	12" (300 mm) or more	6" (150 mm) or more
TREAD SURFACE	Hardened or surfaced	Firm and stable	Mostly stable with some variability	Widely variable	Widely variable and unpredictable
AVERAGE TRAIL GRADE	Less than 5%	5% or less	10% or less	15% or less	20% or more
MAXIMUM TRAIL GRADE	Max 10%	Max 15%	Max 15% or greater	Max 15% or greater	Max 15% or greater
NATURAL OBSTACLES AND TECHNICAL TRAIL FEATURES (TTF)	None	Unavoidable obstacles 2" (50 mm) tall or less Avoidable obstacles may be present Unavoidable bridges 36" (900 mm) or wider	Unavoidable obstacles 8" (200 mm) tall or less Avoidable obstacles may be present Unavoidable bridges 24" (600 mm) or wider TTF's 24" (600 mm) high or less, width of deck is greater than 1/2 the height	Unavoidable obstacles 15" (380 mm) tall or less Avoidable obstacles may be present May include loose rocks Unavoidable bridges 24" (600 mm) or wider TTF's 48" (1,200 mm) high or less, width of deck is less than 1/2 the height Short sections may exceed criteria	Unavoidable obstacles 15" (380 mm) tall or less Avoidable obstacles may be present May include loose rocks Unavoidable bridges 24" (600 mm) or narrower TTF's 48" (1,200 mm) high or greater, width of deck is unpredictable Many sections may exceed criteria

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CORRIDOR ANALYSIS

- Zone analysis lets you determine large conceptual ideas and feasibility. It can often be useful for selling the vision and idea to others, land managers, local businesses, politicians, neighbors, etc.
- Corridors, actual trail alignments (lines), require some level of ground truthing. No amount of data can reliably be used to create accurate trail alignments without fieldwork.
- Corridor width depends on the level of planning you completing. Generally, at some point, going into enough depth turns to design. Wide corridors should be used during the planning phase, to better assess actual trail possibility and inform the design phase. During corridor analysis trail type becomes important, this will be based upon the zone.
- 100- to 300-foot corridors are quite common during master planning, where conceptual ideas are further vetted with corridors and more trail details. Sketching corridors on maps or spatial analysis programs can help identify new issues or confirm ideas from the zone analysis. Lines on a map are only as useful as the topographic data and trail grade details. If you draw a line that is too steep, it may misrepresent your opportunities.
- For instance, if you hoped for a 1-mile descent to the trailhead in your beginner zone, you may sketch a line at appropriate grades to confirm or deny.

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TRAIL TYPES

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TRAIL TYPES

- Remember, trails can have only one design user, but many managed users.
- Trail type will be dictated by the design user first and foremost.
- After the design user, managed users add "multipliers" to trails, further dictating trail type.
- Exact and detailed trail descriptions may have a wide variety of attributes (measured or defined data).
- The more detailed classification of trails will become more important during design, for now focus on broad trail types that can help define the planning phase. Using high level trail types to denote experience zones and broader goals.

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TRAIL TYPES

HIKING TRAIL (*HIKE-OPTIMIZED HIKE-ONLY TRAIL*)

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TRAIL TYPES

HIKING TRAIL (*HIKE-OPTIMIZED HIKE-ONLY TRAIL*)

- Hiking only trail is optimized for the design and only managed use, foot traffic.
- Hiking only trails are typically rugged or natural feeling, since obstacles and tread texture is less important to foot traffic.
- Hiking only trails often employ techniques or features unsuitable for other user types; stairs, narrow boardwalks/bridges, steep grades, and narrow turns are a few examples.

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TRAIL TYPES

TRADITIONAL SINGLETRACK (*HIKE-OPTIMIZED SHARED-USE TRAIL*)

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TRAIL TYPES

TRADITIONAL SINGLETRACK (*HIKE-OPTIMIZED SHARED-USE TRAIL*)

- Traditional singletrack is optimized for the design user, foot traffic, but accommodates shared-use such as mountain biking with some modifications.
- Traditional shared-use trails will often use more appropriate grades for bikes and equestrians, as well as more suitable turn radii and styles to accommodate other users.
- Traditional shared-use trails lack bike-optimized features, like insloped turns and consistent rollers/grade dips.

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TRAIL TYPES

MTB OPTIMIZED SINGLETRACK

(*BIKE-OPTIMIZED SHARED-USE TRAIL*)

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TRAIL TYPES

MTB OPTIMIZED SINGLETRACK (*BIKE-OPTIMIZED SHARED-USE TRAIL*)

- Bike-optimized trails are optimized for the design user, bike traffic, but accommodate shared-use such as hiking and/or equestrians with some modifications.
- Always use appropriate grades, turn radii/type, and rolling contour alignment.
- Often use insloping, especially in turns. Careful attention to how insloping and rollers/grade dips will affect user speeds and visitor interactions is important.
- Long sightlines are vital for shared-use success.

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TRAIL TYPES

MTB GRAVITY SINGLETRACK (*BIKE-OPTIMIZED BIKE-ONLY DIRECITONAL TRAIL*)

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TRAIL TYPES

MTB GRAVITY SINGLETRACK (*BIKE-OPTIMIZED BIKE-ONLY DIRECITONAL TRAIL*)

- Take bike-optimized trail and fine tune it for the downhill direction and you get gravity trails.
- Directionality and single-use mean these trails can be highly enhanced; this leads to a wider variety of experiences because bikes allow for a multitude of riding styles.
- Contain all the features of bike-optimized trails; appropriate grades, turn radii/type, and rolling contour alignment. These are often improved for bike-only use and for the downhill direction.

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TRAIL TYPES

ROADS, PATHS, DOUBLETRACK (*NOT REALLY TRAILS, BUT IMPORTANT*)

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TRAIL TYPES

ROADS, PATHS, DOUBLETRACK (*NOT REALLY TRAILS, BUT IMPORTANT*)

- Roads, paths, and double track provide important connectivity for many trail systems.
- Planning, design, and construction of these wider travel ways is outside the scope of this trail build school, but its important to note these types of corridors.
- Typically, especially for mountain bikers, these travel ways do not offer high quality experiences.

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FACILITY TYPES

BIKE PARKS

FACILITY TYPES

BIKE PLAYGROUNDS

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FACILITY TYPES

PUMPTRACKS/

TOT TRACKS

FACILITY TYPES

SKILLS DEVELOPMENT TRAILS

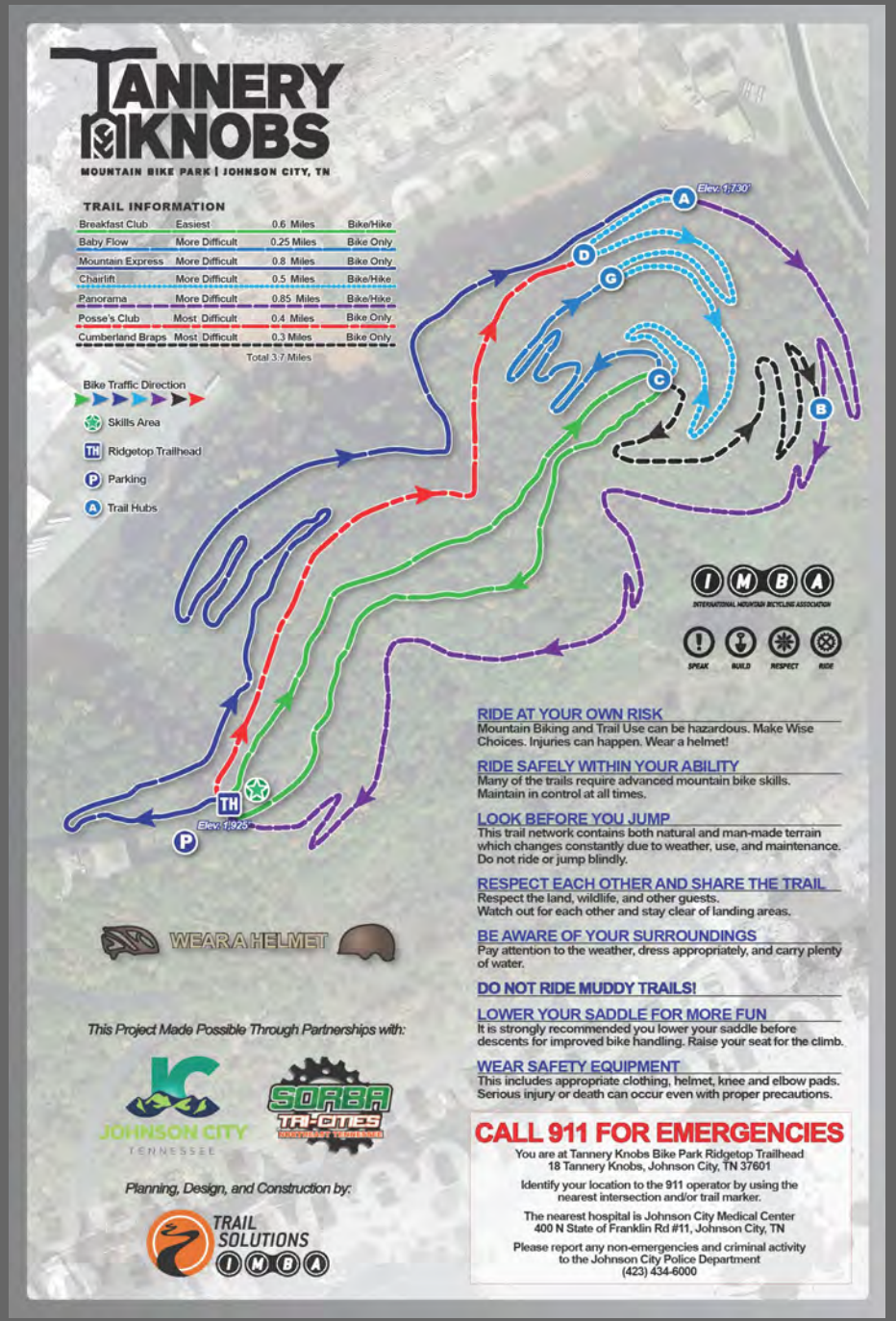






FACILITY TYPES

JUMP ZONES



EXAMPLES OF DIVERSE TRAIL SYSTEMS

WITH MULTIPLE TRAIL TYPES

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PLANNING EXAMPLES

- In the next few pages we will walk through a planning example. There are two additional examples after this one.
- Read through the community and land manager goals, think about how those affect the control points and zone analysis.
- While reading these pages, skip back to the maps to better understand/verify the ideas we have presented.
- We will go through these examples in more depth during the next webinar.

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EXAMPLE PLANNING 1

COMMUNITY GOALS

HALF-DAY DRIVE DESTINATION

PRIMARILY SHARED-USE (HIKE/BIKE)

MODERN MOUNTAIN BIKE EXPERIENCES

MAINTAIN NATURAL SETTING

MINIMIZE NEIGHBOR IMPACTS

LAND MANAGER GOALS

AVOID IMPACTS TO WETLANDS/STREAMS

AVOID CULTURAL SITES

MINIMIZE IMPACTS TO SPECIAL HABITAT

MINIMIZE IMPACTS TO HUNTING

MAINTAIN FIRE MANAGEMENT POTENTIAL

SHARED-USE TRAILS

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TOPO MAP


Legend
Polylines
Type
Buffer
Stream
Existing Trails
Roads
Wetlands
Dove Field
Standing Boy Creek State Park
Buildings
Waterbodies
Type
Dam or Weir
Dam or Weir
River or Stream
0
0.25
0.5
1 Miles
N
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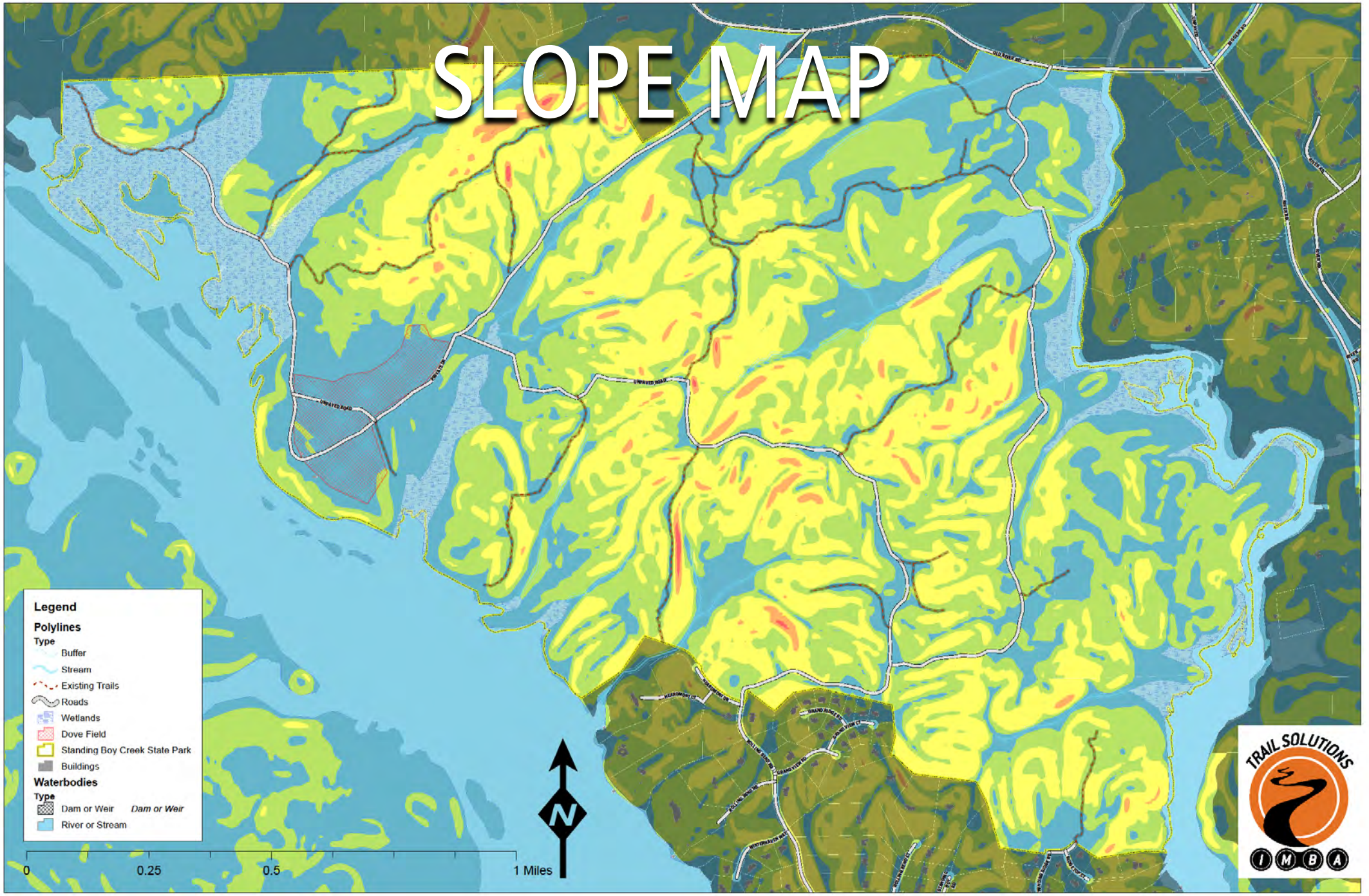
SLOPE MAP


Legend
Polylines
Type
Buffer
Stream
Existing Trails
Roads
Wetlands
Dove Field
Standing Boy Creek State Park
Buildings
Waterbodies
Type
Dam or Weir
Dam or Weir
River or Stream
0
0.25
0.5
1 Miles
N
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EXAMPLE PLANNING 1

POSITIVE CONTROL

LAKESHORE

POSSIBLE VIEWS

EXISTING CULVERTS

NEW PARKING AREA

ROCKY AREAS

TRAILHEAD

NEGATIVE CONTROL

WETLAND

STREAMS

OPEN AREAS

DOVE FIELD

NEIGHBORS

HOMESTEADS

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OPEN GENTLE SLOPES

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INCISED/ERODED STREAMS

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LARGE ROCKS

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WET AREAS AND BOUNDARIES

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LAKESHORE AND VIEWS

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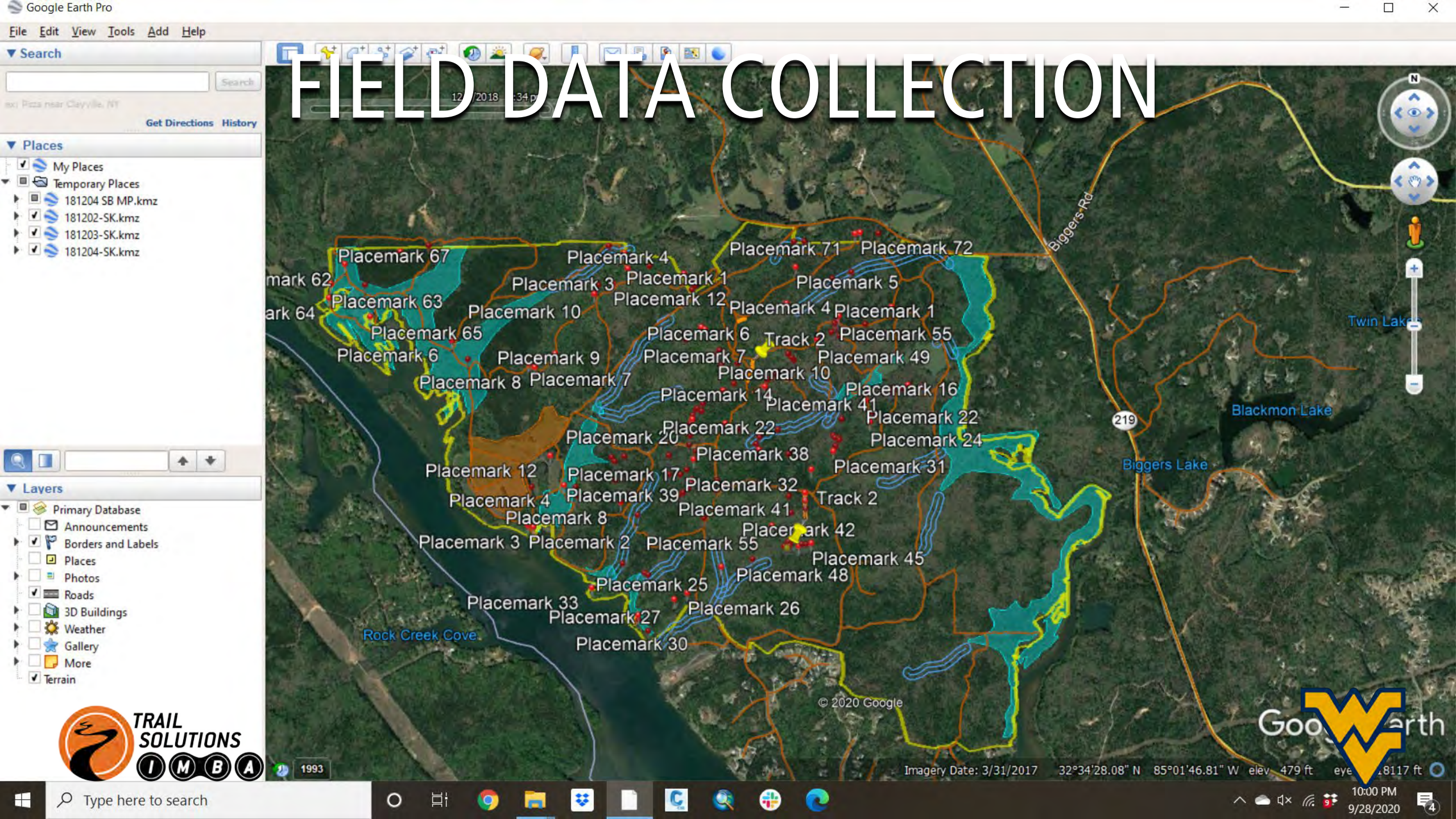
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Get Directions History
Places
My Places
Temporary Places
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181202-SK.kmz
181203-SK.kmz
181204-SK.kmz
Layers
Primary Database
Announcements
Borders and Labels
Places
Photos
Roads
3D Buildings
Weather
Gallery
More
Terrain
FIELD DATA COLLECTION
Placemark 67
Placemark 4
Placemark 71
Placemark 72
Placemark 62
Placemark 3
Placemark 1
Placemark 5
Placemark 63
Placemark 12
Placemark 4
Placemark 1
Placemark 10
Placemark 65
Placemark 6
Track 2
Placemark 55
Placemark 6
Placemark 9
Placemark 7
Placemark 49
Placemark 8
Placemark 7
Placemark 10
Placemark 14
Placemark 16
Placemark 41
Placemark 22
Placemark 22
Placemark 20
Placemark 24
Placemark 38
Placemark 12
Placemark 17
Placemark 31
Placemark 32
Placemark 4
Placemark 39
Track 2
Placemark 41
Placemark 8
Placemark 42
Placemark 3
Placemark 2
Placemark 55
Placemark 45
Placemark 48
Placemark 25
Placemark 33
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Placemark 27
Placemark 30
Biggers Rd
Twin Lakes
Blackmon Lake
Biggers Lake
219
Rock Creek Cove
© 2020 Google
Imagery Date: 3/31/2017 32°34'28.08" N 85°01'46.81" W elev 479 ft
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9/28/2020

EXAMPLE PLANNING 1

ZONE ANALYSIS

DETERMINE ZONES OF FEASIBILITY (USEABLE AND UNUSABLE TERRAIN)

IDENTIFY ZONES BASED UPON TERRAIN CONTROLLED SKILL LEVEL CONSTRAINTS (GENTLE SLOPES FOR BEGINNER TRIALS, STEEPER SLOPES FOR MORE ADVANCED)

IDENTIFY ZONES BASED UPON TERRAIN CONTROLLED TRAIL TYPE OPPORTUNITIES (ROCKY AREAS FOR TECHNICAL TRAILS, OPEN MODERATE SLOPES FOR FLOW)

IDENTIFY MAJOR POIS (TRAILHEAD, BUFFERS, KEY INTERSECTIONS, VIEWS, ROCKS, ETC.)

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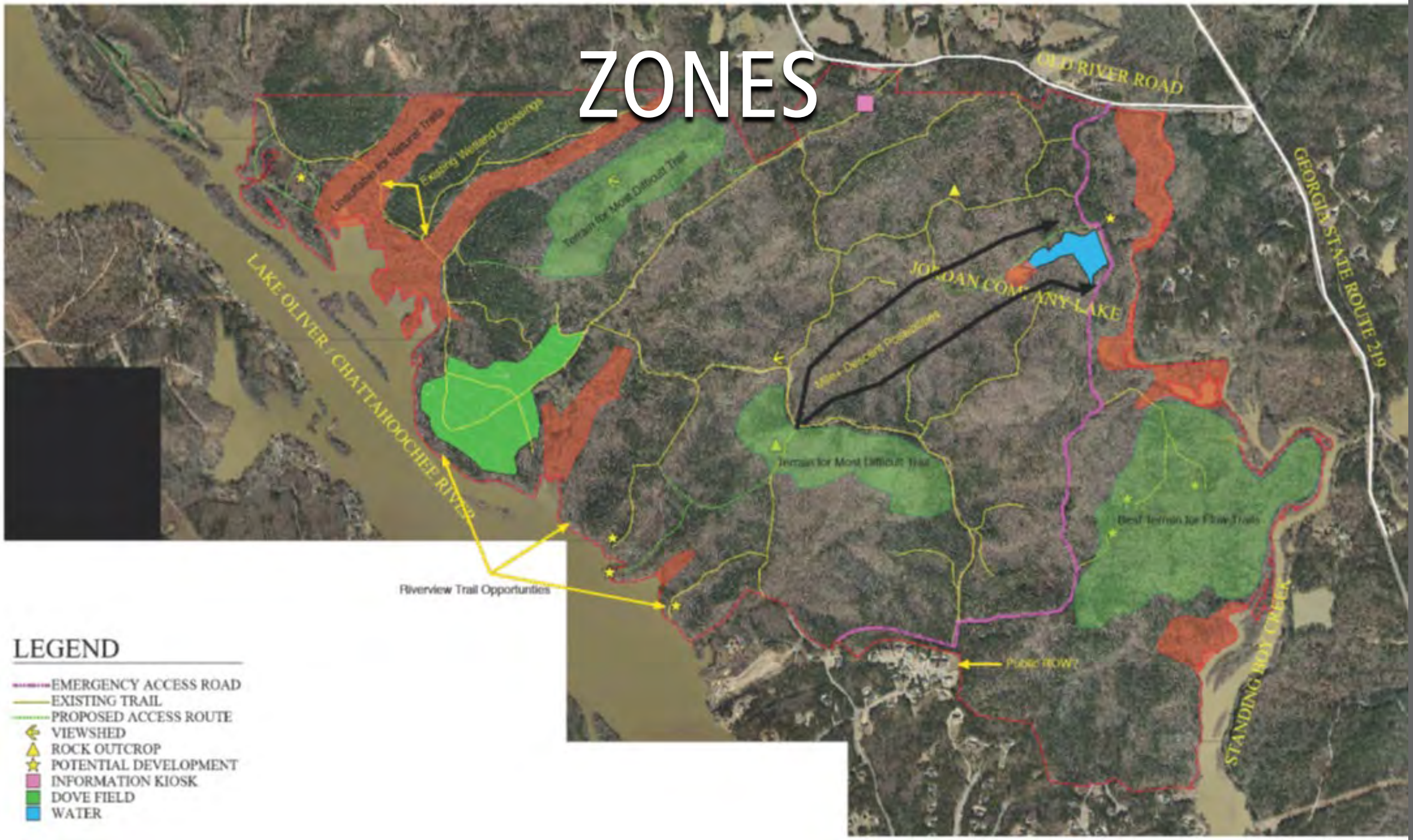
ZONES


OLD RIVER ROAD
GEORGIA STATE ROUTE 219
LAKE OLIVER / CHATTAHOOCHEE RIVER
Existing Wetland Crossings
Terrain for Most Difficult Trail
JORDAN COMPANY LAKE
Riverview Trail Opportunities
STANDING BOY CREEK
LEGEND
EMERGENCY ACCESS ROAD
EXISTING TRAIL
PROPOSED ACCESS ROUTE
VIEWSHED
ROCK OUTCROP
POTENTIAL DEVELOPMENT
INFORMATION KIOSK
DOVE FIELD
WATER

EXAMPLE PLANNING 1

CORRIDOR ANALYSIS

CONNECT THE DOTS (AND AVOID THE NEGATIVE ONES)

ALWAYS STRIVE TO SKETCH CORRIDORS AT APPROPRIATE GRADES (LEARN MORE IN DESIGN)

AN EXERCISE IN DENSITY, APPROXIMATELY HOW MUCH TRAIL CAN FIT IN THESE ZONES

USE ZONE ANALYSIS TO ESTIMATE SKILL LEVEL AND TRAIL TYPE

TRY TO CREATE LOOPS, USE YOUR MAJOR CONTROL POINTS, THINK HUB & CLUSTER

NOT AN ABSOLUTE, NOT THE END GAME

REFINE, REFINE, REFINE (PLANNING IS ITERATIVE)

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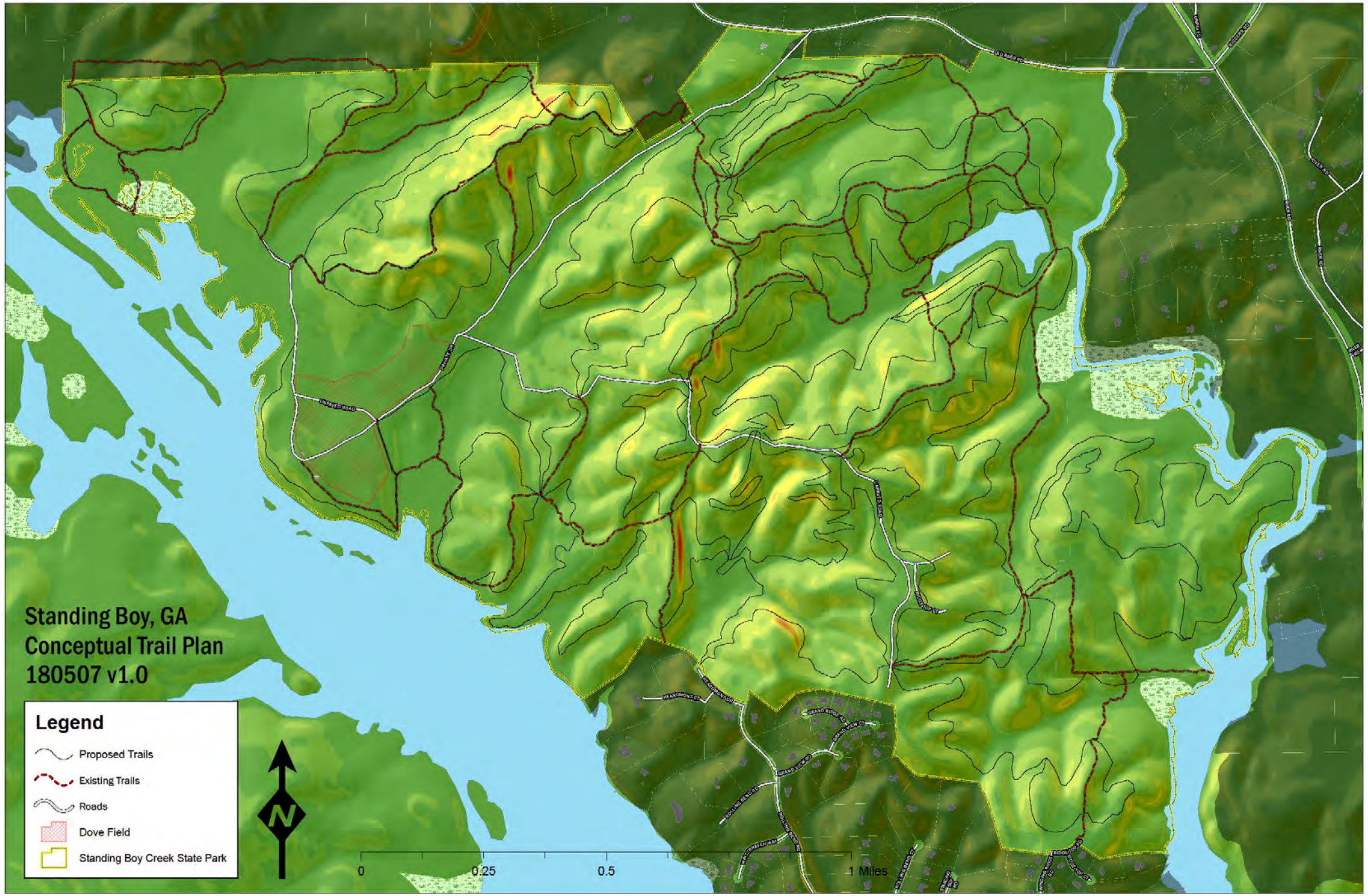
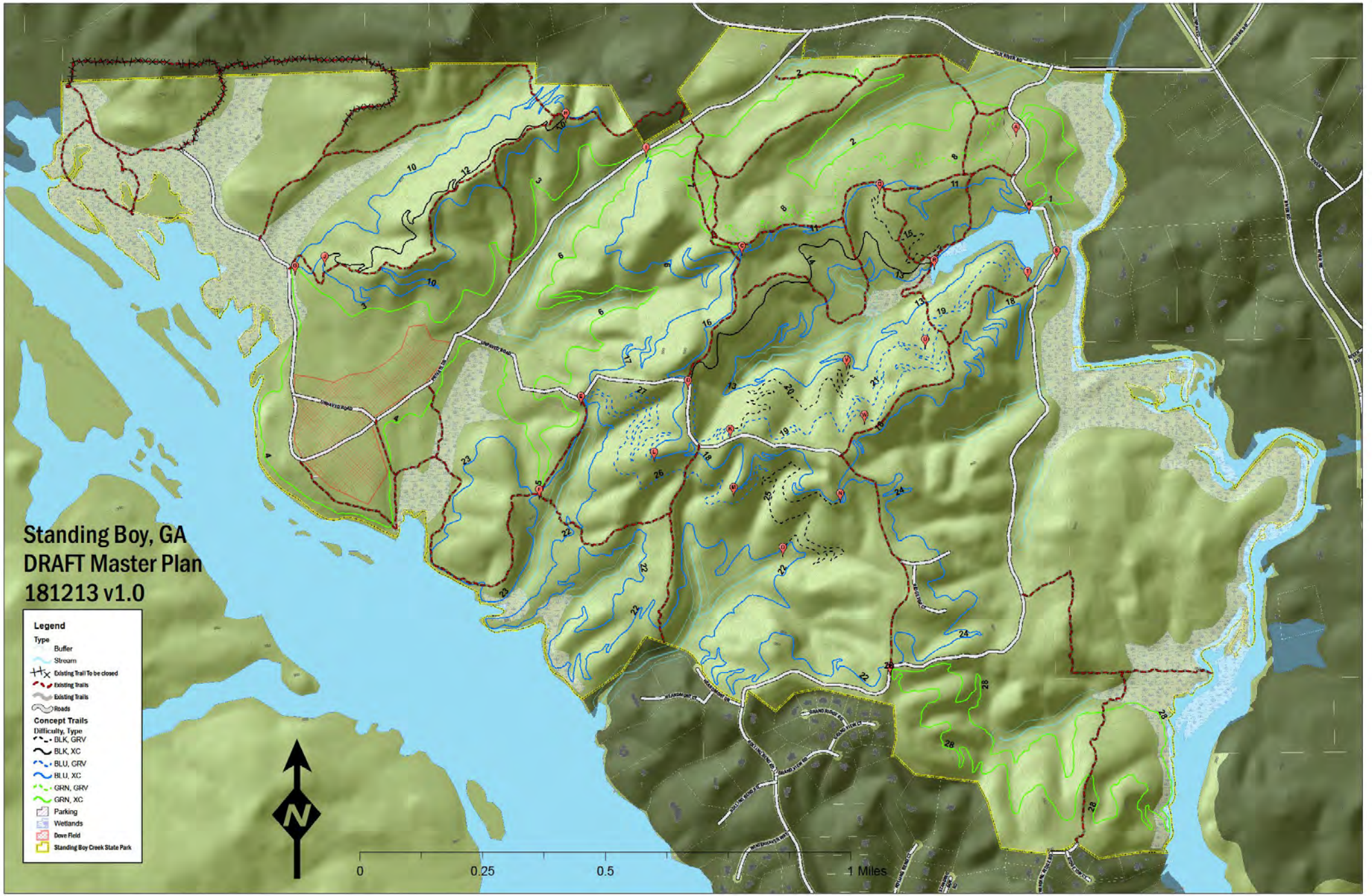

Standing Boy, GA
Conceptual Trail Plan
180507 v1.0
Legend
Proposed Trails
Existing Trails
Roads
Dove Field
Standing Boy Creek State Park
N
0
0.25
0.5
1 Miles


Standing Boy, GA
DRAFT Master Plan
181213 v1.0
Legend
Type
Buffer
Stream
Existing Trail To be closed
Existing Trails
Existing Trails
Roads
Concept Trails
Difficulty, Type
BLK, GRV
BLK, XC
BLU, GRV
BLU, XC
GRN, GRV
GRN, XC
Parking
Wetlands
Dove Field
Standing Boy Creek State Park
N
0
0.25
0.5
1 Miles

EXAMPLE PLANNING 1

REFINE CORRIDORS

LAND MANAGER IDENTIFIED NEW TRAILHEAD

LAND MANAGER PLANS TO PROVIDE FIRE MANAGEMENT TO SOME AREAS

NEIGHBORHOOD BUFFER IS ADDED TO SOUTHERN PART OF PARCEL

TORNADO DAMAGE

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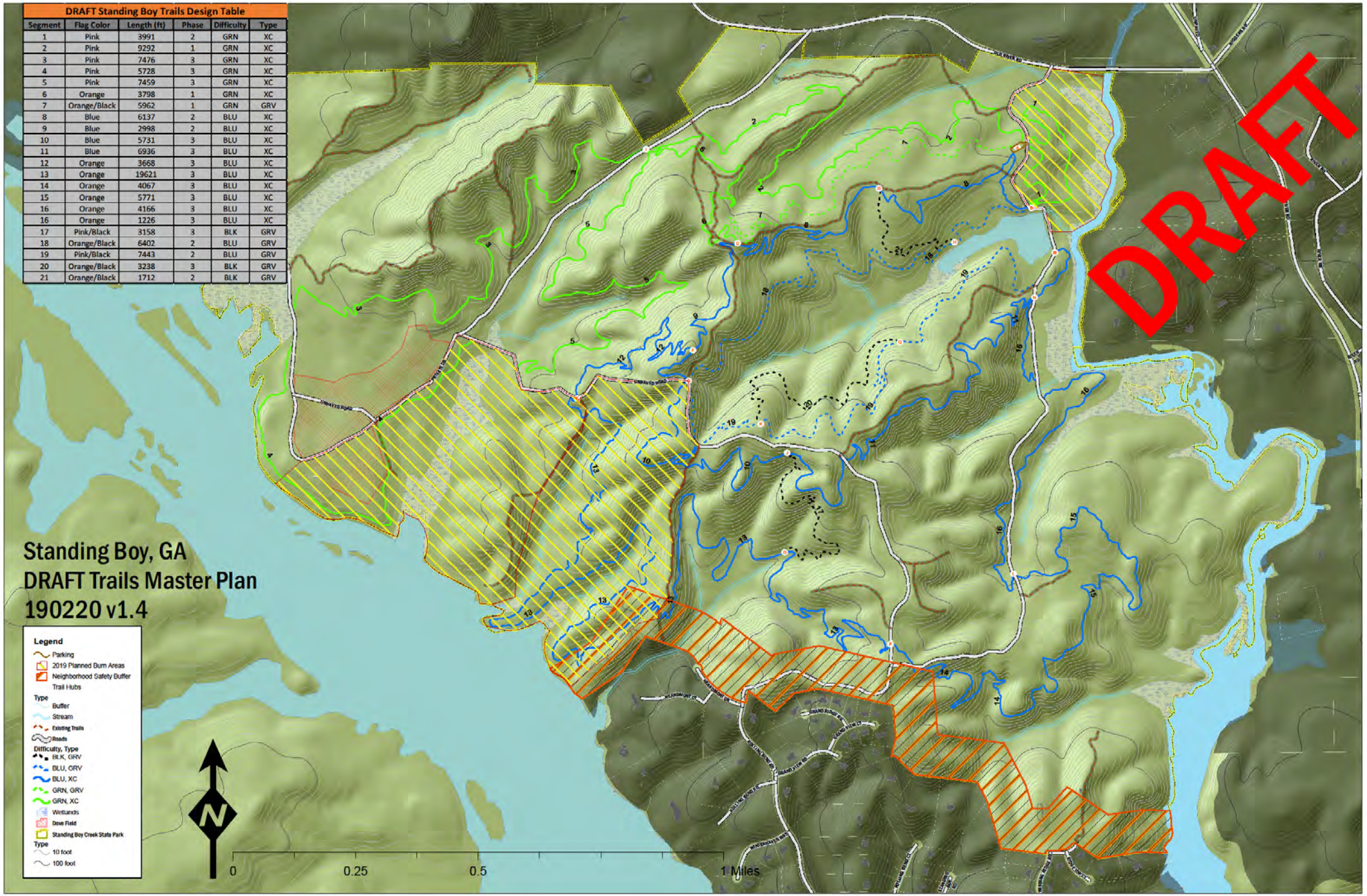
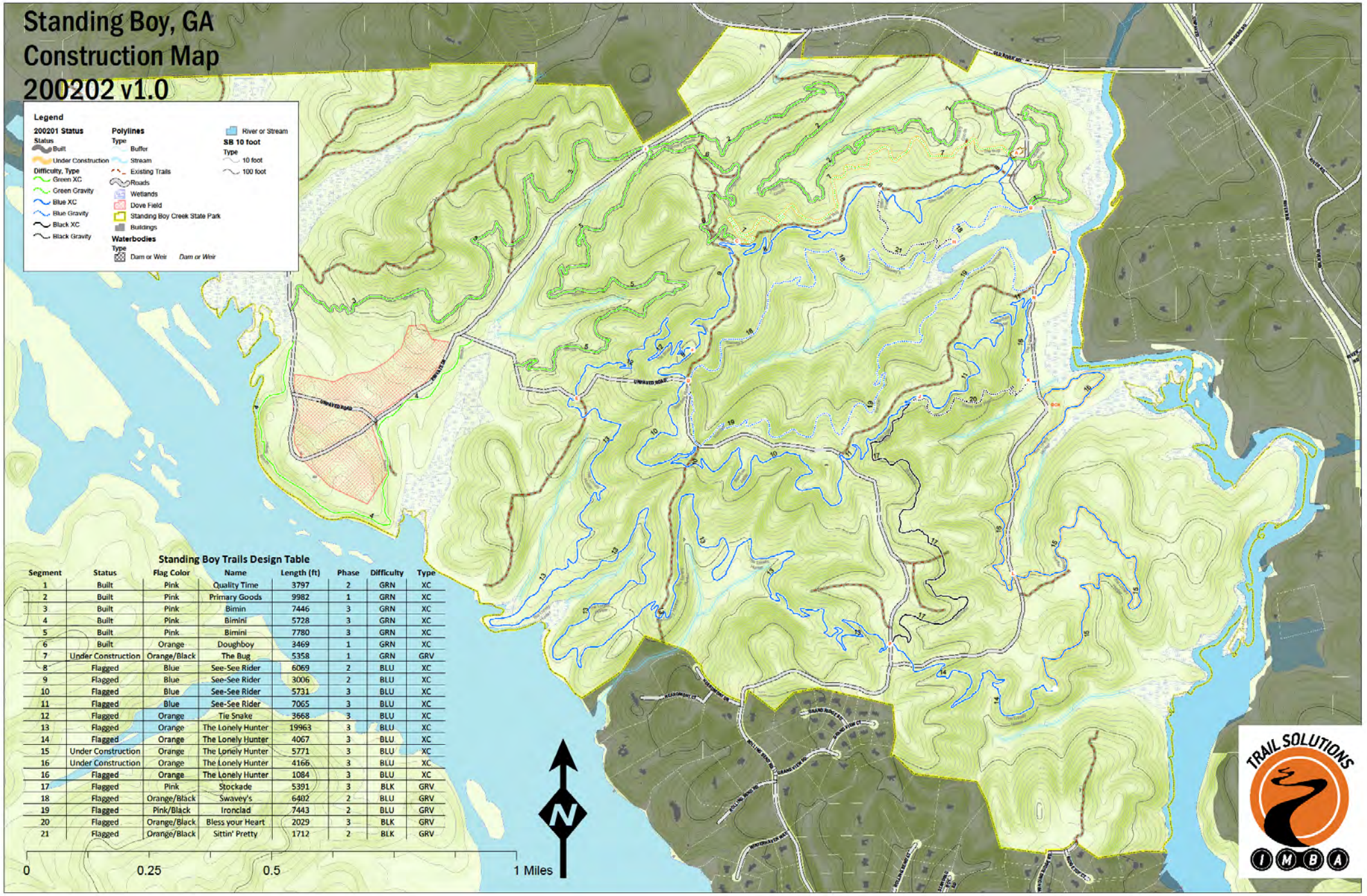

DRAFT Standing Boy Trails Design Table
Segment | Flag Color | Length (ft) | Phase | Difficulty | Type
1 | Pink | 3991 | 2 | GRN | XC
2 | Pink | 9292 | 1 | GRN | XC
3 | Pink | 7476 | 3 | GRN | XC
4 | Pink | 5728 | 3 | GRN | XC
5 | Pink | 7459 | 3 | GRN | XC
6 | Orange | 3798 | 1 | GRN | XC
7 | Orange/Black | 5962 | 1 | GRN | GRV
8 | Blue | 6137 | 2 | BLU | XC
9 | Blue | 2998 | 2 | BLU | XC
10 | Blue | 5731 | 3 | BLU | XC
11 | Blue | 6936 | 3 | BLU | XC
12 | Orange | 3668 | 3 | BLU | XC
13 | Orange | 19621 | 3 | BLU | XC
14 | Orange | 4067 | 3 | BLU | XC
15 | Orange | 5771 | 3 | BLU | XC
16 | Orange | 4166 | 3 | BLU | XC
16 | Orange | 1226 | 3 | BLU | XC
17 | Pink/Black | 3158 | 3 | BLK | GRV
18 | Orange/Black | 6402 | 2 | BLU | GRV
19 | Pink/Black | 7443 | 2 | BLU | GRV
20 | Orange/Black | 3238 | 3 | BLK | GRV
21 | Orange/Black | 1712 | 2 | BLK | GRV
DRAFT
Standing Boy, GA
DRAFT Trails Master Plan
190220 v1.4
Legend
Parking
2019 Planned Burn Areas
Neighborhood Safety Buffer
Trail Hubs
Type
Buffer
Stream
Existing Trails
Roads
Difficulty, Type
BLK, GRV
BLU, GRV
BLU, XC
GRN, GRV
GRN, XC
Wetlands
Dove Field
Standing Boy Creek State Park
Type
10 foot
100 foot
N
0
0.25
0.5
1 Miles

Standing Boy, GA
Construction Map
200202 v1.0



Standing Boy Trails Design Table

Segment	Status	Flag Color	Name	Length (ft)	Phase	Difficulty	Type
1	Built	Pink	Quality Time	3797	2	GRN	XC
2	Built	Pink	Primary Goods	9982	1	GRN	XC
3	Built	Pink	Bimin	7446	3	GRN	XC
4	Built	Pink	Bimini	5728	3	GRN	XC
5	Built	Pink	Bimini	7780	3	GRN	XC
6	Built	Orange	Doughboy	3469	1	GRN	XC
7	Under Construction	Orange/Black	The Bug	5358	1	GRN	GRV
8	Flagged	Blue	See-See Rider	6069	2	BLU	XC
9	Flagged	Blue	See-See Rider	3006	2	BLU	XC
10	Flagged	Blue	See-See Rider	5731	3	BLU	XC
11	Flagged	Blue	See-See Rider	7065	3	BLU	XC
12	Flagged	Orange	Tie Snake	3668	3	BLU	XC
13	Flagged	Orange	The Lonely Hunter	19963	3	BLU	XC
14	Flagged	Orange	The Lonely Hunter	4067	3	BLU	XC
15	Under Construction	Orange	The Lonely Hunter	5771	3	BLU	XC
16	Under Construction	Orange	The Lonely Hunter	4166	3	BLU	XC
16	Flagged	Orange	The Lonely Hunter	1084	3	BLU	XC
17	Flagged	Pink	Stockade	5391	3	BLK	GRV
18	Flagged	Orange/Black	Swavey's	6402	2	BLU	GRV
19	Flagged	Pink/Black	Ironclad	7443	2	BLU	GRV
20	Flagged	Orange/Black	Bless your Heart	2029	3	BLK	GRV
21	Flagged	Orange/Black	Sittin' Pretty	1712	2	BLK	GRV

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EXAMPLE PLANNING 1

SUMMARY

MORE THAN 25 MILES AVAILABLE WITH LOW TO MODERATE DENSITY

TO MAXIMIZE EXPERIENCES AND ENSURE A DAY'S DRIVE DESTINATION FOR MOUNTAIN BIKERS, UNIQUE EXPERIENCES FOR THE REGION WERE FOCUSED ON

THESE KEY SPECIAL EXPERIENCES INCLUDE A LONG (>2HRS RIDING, >4HRS HIKING), SHARED USE, BACKCOUNTRY STYLE LOOP WITH SCENIC LAKE VIEWS AND CHALLENGING ROCKY SECTIONS

A GRAVITY CLUSTER WHICH UTILIZES THE MAXIMUM AVAILABLE ELEVATION DIFFERENCE AND ENDS AT THE TRAILHEAD

A VARIETY OF BEGINNER TRAILS (SHARED USE AND BIKE-ONLY FLOW) CONFIGURED IN LOOPS ALLOW MANY NEW VISITORS TO EXPERIENCE TRAILS

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EXAMPLE PLANNING 2

COMMUNITY GOALS

HALF-DAY DRIVE DESTINATION

PRIMARILY SHARED-USE (HIKE/BIKE)

MODERN MOUNTAIN BIKE EXPERIENCES

MAINTAIN NATURAL SETTING

CREATE OPPORTUNITIES FOR EVENTS

LAND MANAGER GOALS

CREATE SIGNATURE TRAIL SYSTEM

SCHOLASTIC RACING VENUE FOR MOUNTAIN BIKERS

SHARED USE WITH MODERN BIKE-ONLY PODS

AVOID POLICE SHOOTING RANGE

AVOID LEAF DISPOSAL PILE

AVOID WATER RECLAMATION FACILITY

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EXAMPLE PLANNING 2

POSITIVE CONTROL

MELLOW SLOPE RIDGE TOPS

EXPOSED BEDROCK

STEEP SLOPES

SLIGHT VIEWS

NEGATIVE CONTROL

RECENT TIMBER HARVEST

EXPOSED BEDROCK

POLICE SHOOTING RANGE

LEAF DISPOSAL PILE

STEEP SLOPES

WATER RECLAMATION FACILITY

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EXAMPLE PLANNING 2

CONSTRAINTS AND OPPORTUNITIES

POLICE SHOOTING RANGE TO BE AVOIDED

EXPOSED BEDROCK = HARD BUILDING BUT GOOD OPPORTUNITY FOR TECHNICAL ADVANCED TRAILS

STEEP SLOPES = GOOD FOR ADVANCED TRAILS

RECENT TIMBER HARVEST ARE THICK AND GNARLY, NOT THE PRETTIEST PLACE FOR TRAILS

FLATTER SLOPES (IDENTICAL TO TIMBER HARVEST) ARE IDEAL FOR BEGINNER TRAILS

FLATTER SLOPES AT THE TOP OF THE HILLS, ACCESS?

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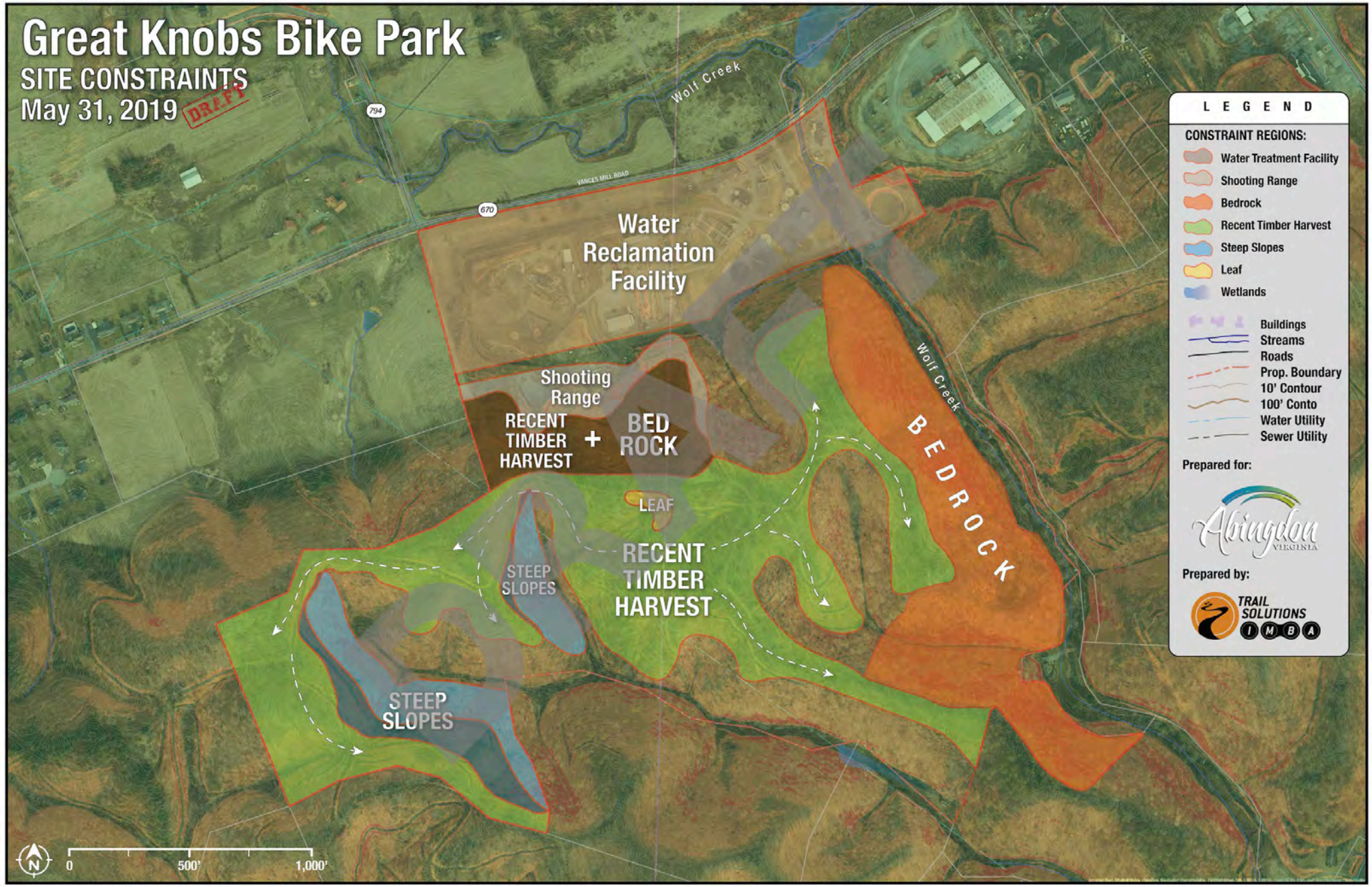

Great Knobs Bike Park
SITE CONSTRAINTS
May 31, 2019
DRAFT
Wolf Creek
794
VANGES MILL ROAD
670
Water Reclamation Facility
Shooting Range
RECENT TIMBER HARVEST
+
BED ROCK
LEAF
STEEP SLOPES
RECENT TIMBER HARVEST
STEEP SLOPES
Wolf Creek
BEDROCK
0
500'
1,000'
LEGEND
CONSTRAINT REGIONS:
Water Treatment Facility
Shooting Range
Bedrock
Recent Timber Harvest
Steep Slopes
Leaf
Wetlands
Buildings
Streams
Roads
Prop. Boundary
10' Contour
100' Conto
Water Utility
Sewer Utility
Prepared for:
Abingdon VIRGINIA
Prepared by:
TRAIL SOLUTIONS IMBA

Great Knobs Bike Park

TRAIL CONCEPT MAP

May 31, 2019 DRAFT

COST OPINION TABLE

ZONE	DIFFICULTY TRAIL TYPE	LENGTH (mi)	DESIGN	CONSTRUCTION
1	BEGINNER **CROSS COUNTRY (XC)**	2-3	$9,000	$142,500
2	BEGINNER **GRAVITY**	1-2	$6,500	$105,500
3	INTERMEDIATE **XC**	1-2	$6,000	$126,500
4	INTERMEDIATE **GRAVITY**	1-2	$6,500	$105,500
5	ADVANCED **XC**	½-1	$3,000	$126,500
6	ADVANCED **GRAVITY**	1-2	$4,000	$158,500
		6½-12 miles	$35,000	$765,000
			MASTERPLANNING	$20,000
			PERMITTING	$20,000
			SIGNAGE	$30,000
			SUBTOTAL	$870,000
			20% CONTINGENCY	$174,000
			GRAND TOTAL	**$1,044,000**

LEGEND

CONCEPTUAL TRAIL ZONES:

- BEGINNER **XC**
- BEGINNER **GRAVITY**
- INTERMEDIATE **XC**
- INTERMEDIATE **GRAVITY**
- ADVANCED **XC**
- ADVANCED **GRAVITY**

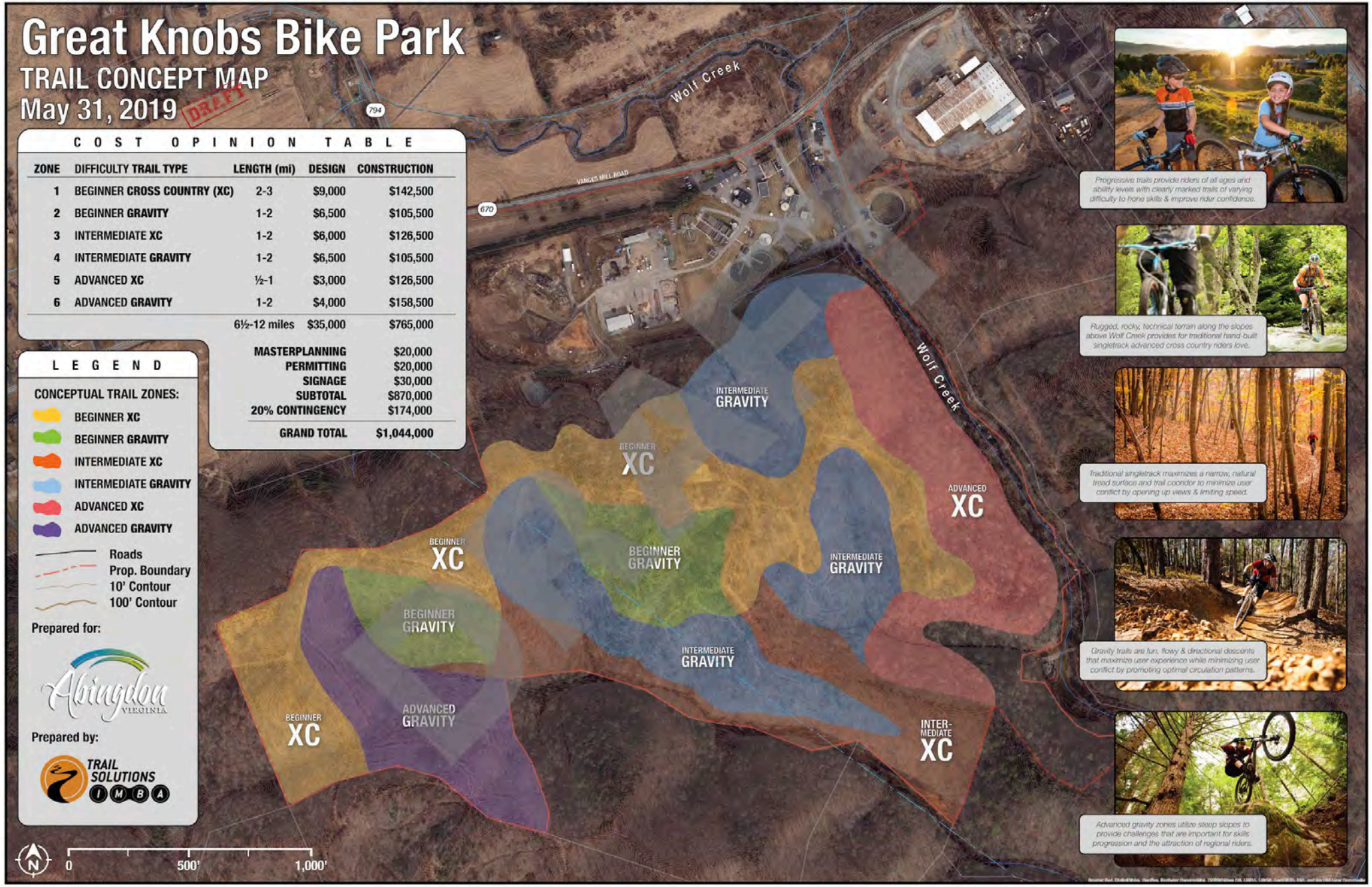
Roads
Prop. Boundary
10' Contour
100' Contour

Prepared for:

Abingdon Virginia

Prepared by:

Trail Solutions IMBA



Progressive trails provide riders of all ages and ability levels with clearly marked trails of varying difficulty to hone skills & improve rider confidence.

Rugged, rocky, technical terrain along the slopes above Wolf Creek provides for traditional hand-built singletrack advanced cross country riders love.

Traditional singletrack maximizes a narrow, natural tread surface and trail coordor to minimize user conflict by opening up views & limiting speed.

Gravity trails are fun, flowy & directional descents that maximize user experience while minimizing user conflict by promoting optimal circulation patterns.

Advanced gravity zones utilize steep slopes to provide challenges that are important for skills progression and the attraction of regional riders.

EXAMPLE PLANNING 2

SUMMARY

UNFEASIBLE

RELOCATING SHOOTING RANGE, STEEP SLOPES, AND LACK OF ROAD ACCESS TO MELLOW TERRAIN = TOO COSTLY

SAVED EFFORT IN THE LONG RUN BY ABANDONING THIS PROPERTY AND FOCUSING ON SIMILAR TERRAIN WITH BETTER ACCESS

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EXAMPLE PLANNING 3

COMMUNITY GOALS

HALF-DAY DRIVE DESTINATION

PRIMARILY SHARED-USE (HIKE/BIKE)

MODERN MOUNTAIN BIKE EXPERIENCES

MAINTAIN NATURAL SETTING

REVITALIZE DOWNTOWN ECONOMY

LAND MANAGER GOALS

CREATE SIGNATURE TRAIL SYSTEM

ENSURE BEGINNER/NEW TRAIL VISITOR ACCESS

DEVELOP A SYSTEM LOCAL KIDS CAN APPRECIATE

REVITALIZE DOWNTOWN ECONOMY

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EXAMPLE PLANNING 3

POSITIVE CONTROL

MELLOW SLOPE

ROCKY AREAS

STEEP SLOPES

RHODODENDRON THICKS

DOWNTOWN/SCHOOL NOISE

SCENIC VIEWS

NEGATIVE CONTROL

MELLOW SLOPE HAS EXPOSED BEDROCK

STEEP SLOPES

RHODODENDRON THICKS

I-26 NOISE

NEIGHBORHOOD NOISES

OLD BORROW/QUARRY SITES

HOMESTEADS

INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION

EXAMPLE PLANNING 3

CONSTRAINTS AND OPPORTUNITIES

MELLOW SLOPES ARE CLOSE TO TRAILHEAD = GOOD ACCESS

EXPOSED BEDROCK ON MELLOW SLOPES = MORE EXPENSIVE BEGINNER TRAIL, BUT WITH OPTIONAL PROGRESSIVE SKILLS FEATURES

MODERATE SLOPES = GOOD FOR FLOW STYLE BIKE-ONLY DESCENTS

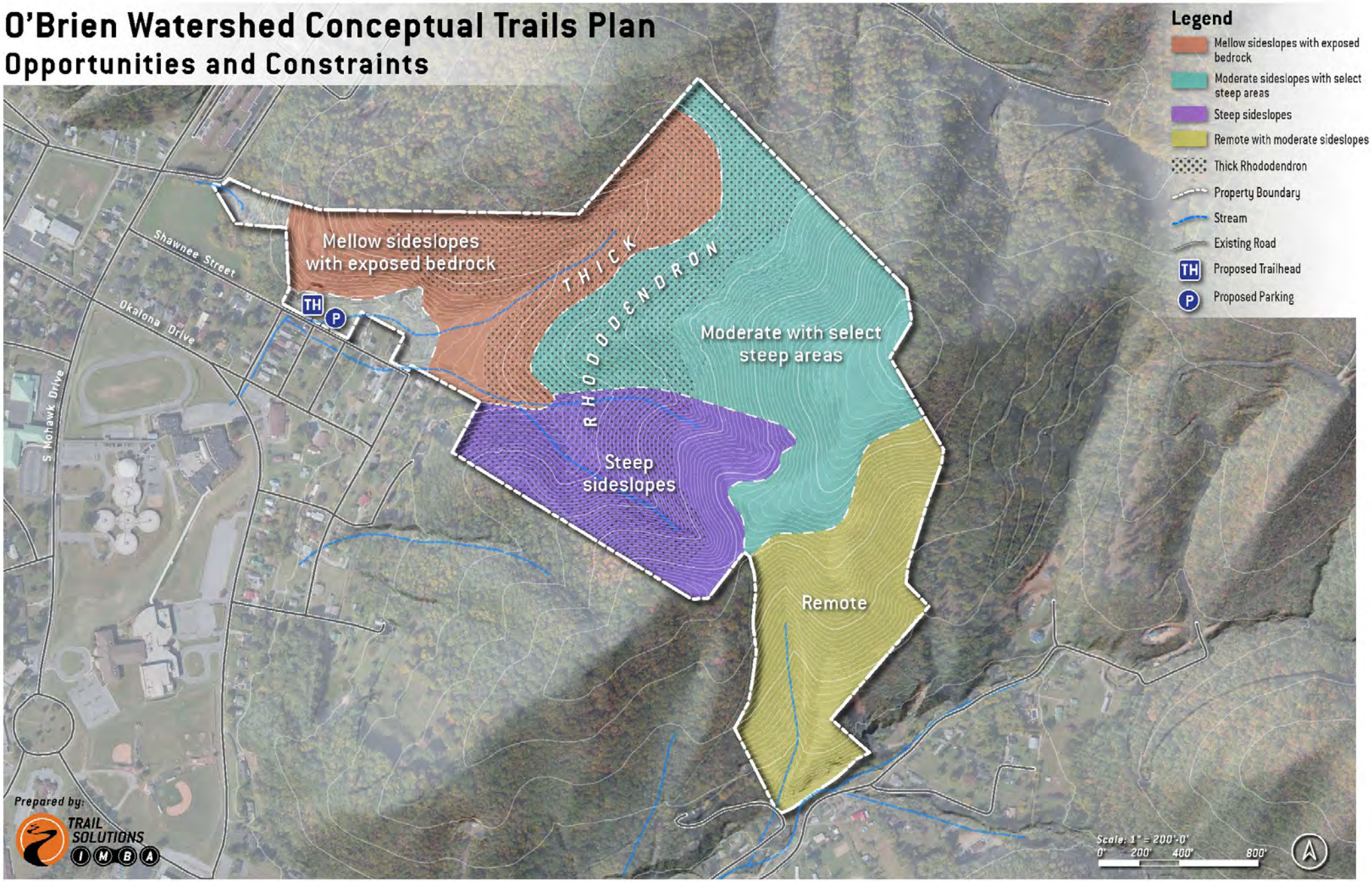
STEEP SLOPES = GOOD FOR ADVANCED TRAILS, MORE COSTLY

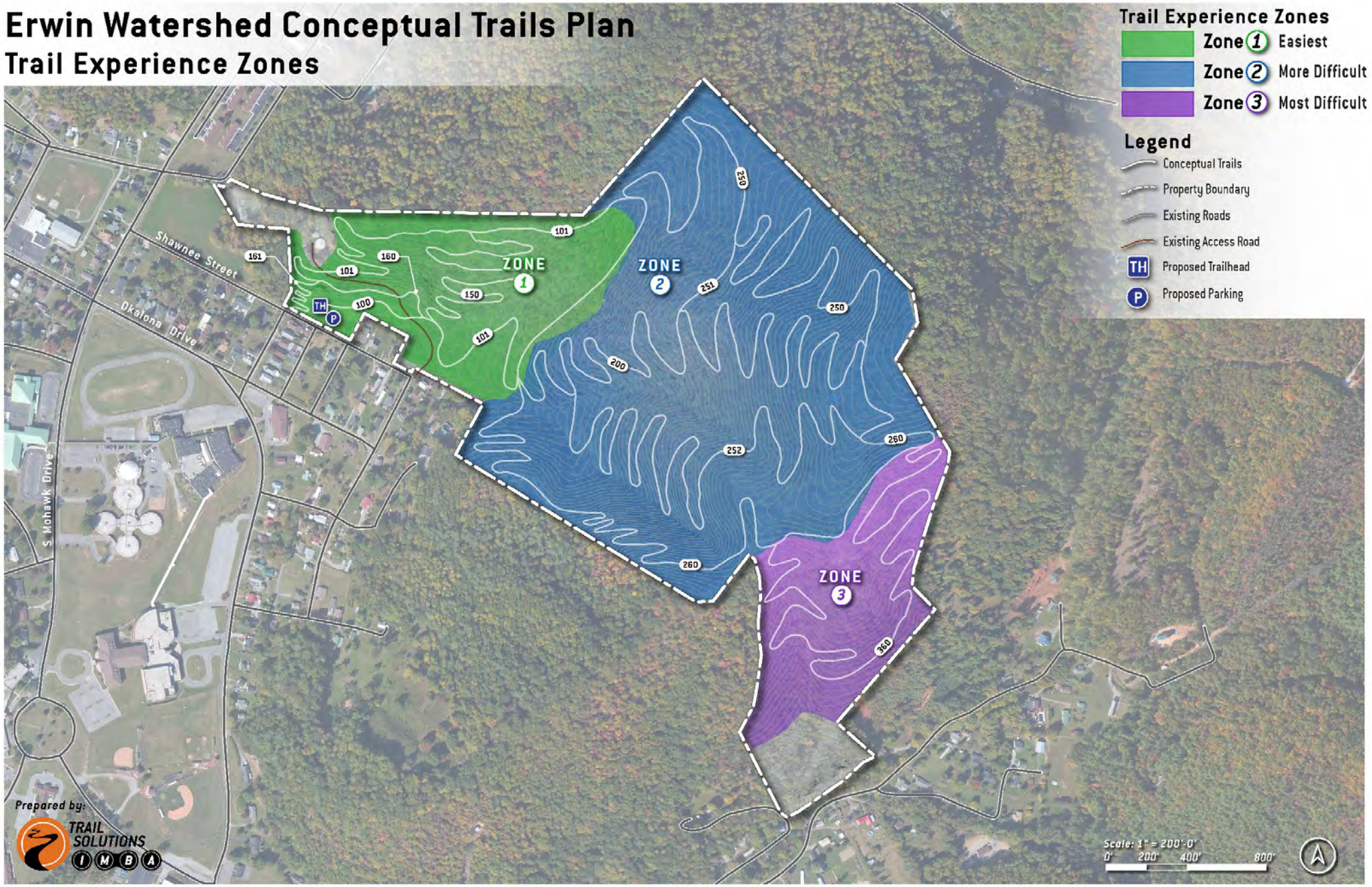
I-26, DOWNTOWN, AND THE SCHOOLS ECHO UP THE HOLLOW = GOOD FOR NEW VISITORS TO FEEL REASSURED IN THE FOREST, BAD FOR THOSE SEEKING ESCAPE AND SOLITUDE

REMOTE SECTION OF PROPERTY IS BLOCKED BY RIDGE AND FAR FROM TRAILHEAD WITH BEST VIEWS = LESS NOISE, DESTINATION FOR ALL VISITORS, ONLY ACCESSIBLE FOR MOST EXPERIENCED TRAIL USERS

O'Brien Watershed Conceptual Trails Plan

Opportunities and Constraints




Erwin Watershed Conceptual Trails Plan
Trail Experience Zones
Trail Experience Zones
Zone 1 Easiest
Zone 2 More Difficult
Zone 3 Most Difficult
Legend
Conceptual Trails
Property Boundary
Existing Roads
Existing Access Road
TH Proposed Trailhead
P Proposed Parking
ZONE 1
ZONE 2
ZONE 3
Shawnee Street
Okalona Drive
S Mohawk Drive
101
160
161
150
100
250
251
200
252
260
360
Prepared by:
TRAIL SOLUTIONS
IMBA
Scale: 1" = 200'-0"
0' 200' 400' 800'

EXAMPLE PLANNING 3

SUMMARY

GREAT OPPORTUNITIES, BUT HIGHER THAN NORMAL COSTS IN SOME AREAS

PROXIMITY TO SCHOOL (2 BLOCKS), DOWNTOWN (<1 MILE), AND I-26 (1.5 MILES) CREATE EASY COMMUNITY AND TOURISM ACCESS

PROXIMITY TO DOWNTOWN CAN HELP SPUR ECONOMIC GROWTH

MELLOW SLOPES CLOSE TO TRAILHEAD WILL ALLOW GOOD BEGINNER ACCESSIBLE TRAILS, BUT EXPOSED BEDROCK IN THIS AREA MEANS IT'LL BE MORE EXPENSIVE THAN NORMAL

MODERATE SLOPES ALLOW SHARED USE CLIMBS WITH BIKE-ONLY DESCENTS

NATURAL SEPARATION OF RIDGE CREATES REMOTE AREA WITH BEST VIEWS AND LITTLE HUMAN DISTRACTION

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“The mountains call and I must go.”
-John Muir