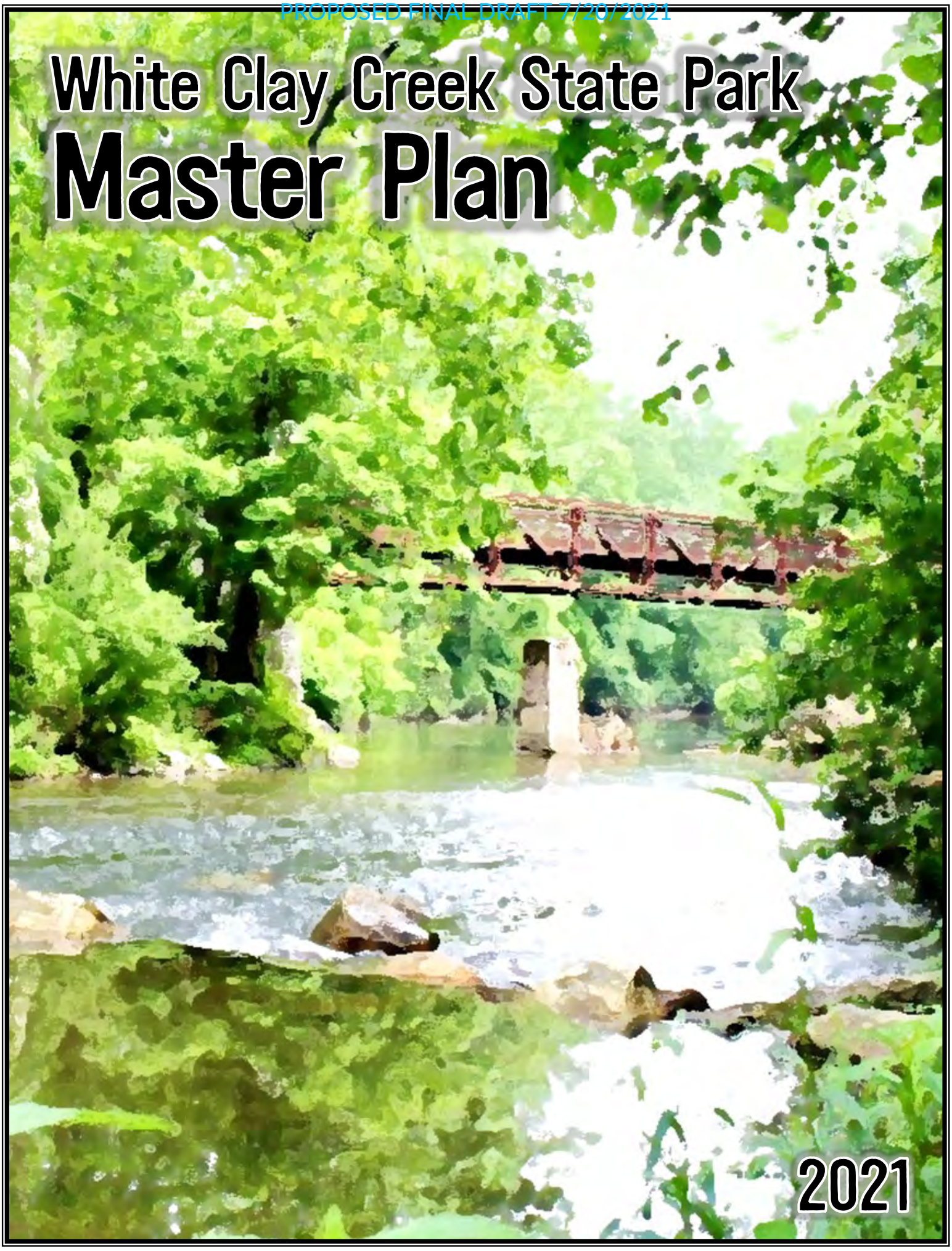
PROPOSED FINAL DRAFT 7/20/2021

White Clay Creek State Park
Master Plan



2021

DELAWARE STATE PARKS

Table of Contents

Background 1
- Division Mission 1
- Purpose and Expectations of this Plan 1
- Park Description and Operation 1
- Trail Plan 3
- Public Input 3

Implementation Strategies 5
- Strategy 1 – Nature Center and Programming Complex 6
- Strategy 2 – Park Office Move 7
- Strategy 3 – Judge Morris Area 8
- Strategy 4 – Potential Partnerships 9
- Strategy 5 – Natural and Cultural Stewardship 10
- Strategy 6 – Parking and Vehicular Ingress/Egress 11
- Strategy 7 – Signage and Programming 12
- Strategy 8 – Trail Projects 13
- Strategy 9 – Camping 14
- Strategy 10 – Miscellaneous 15

Formation of Action Items 16
- Initial Formation 16
- Ranking 16
- Table of Action Items and Additional Concepts 18
- Discussion of Action Items by Row 20

Appendices
- A: Park Map 53
- B: Map of Current Nature Preserves in the Park 54
- C: Online Survey Results Summary 55
- D: Summary of Comments on the draft Plan 63
- E: Population Surrounding the Park 64
- F: Popular Topics with Mixed Feedback 65
- G: Trail Plan 69

Background

Division Mission

The mission of the Division of Parks and Recreation is to provide Delaware's residents and visitors with safe and enjoyable recreational opportunities and open spaces, responsible stewardship of the lands and the cultural and natural resources that we have been entrusted to protect and manage, and resource-based interpretive and educational services.

Purpose and Expectations

The purpose of this Master Plan is to provide a vision and a framework for the management of White Clay Creek State Park, including enough details to give clear understanding while keeping content as simple as possible. Many people and programs contribute to the use, maintenance, innovation, and protection of White Clay Creek State Park. A unified and coordinated plan will save staff and volunteer time, complete projects faster through better understanding of priorities and relationships, improve cohesion and collaboration, and provide open information on the management of White Clay Creek State Park.

This Plan is intended to be a guide and to clarify a course of action for substantial Park projects. Although projects are prioritized and their importance discussed here, the Plan is limited to White Clay Creek State Park. Other projects in other State Parks and across the Division may take precedence over items in this Plan. Future land acquisitions, future budgets, the dynamic nature of the environment, and unforeseen needs can affect decisions. The Division is committed to this Plan, but retains discretion to make its own decisions to balance tasks within White Clay Creek State Park and across the Division.

This Plan should be:

- Available to, and understood by, all Division staff, so they can regularly reference it and make progress on its content;
- Readily available to the public for their own understanding;
- Reviewed annually by Park management to formally assess progress and need for changes; and
- Revised in ten years to keep priorities relevant based on current circumstances.

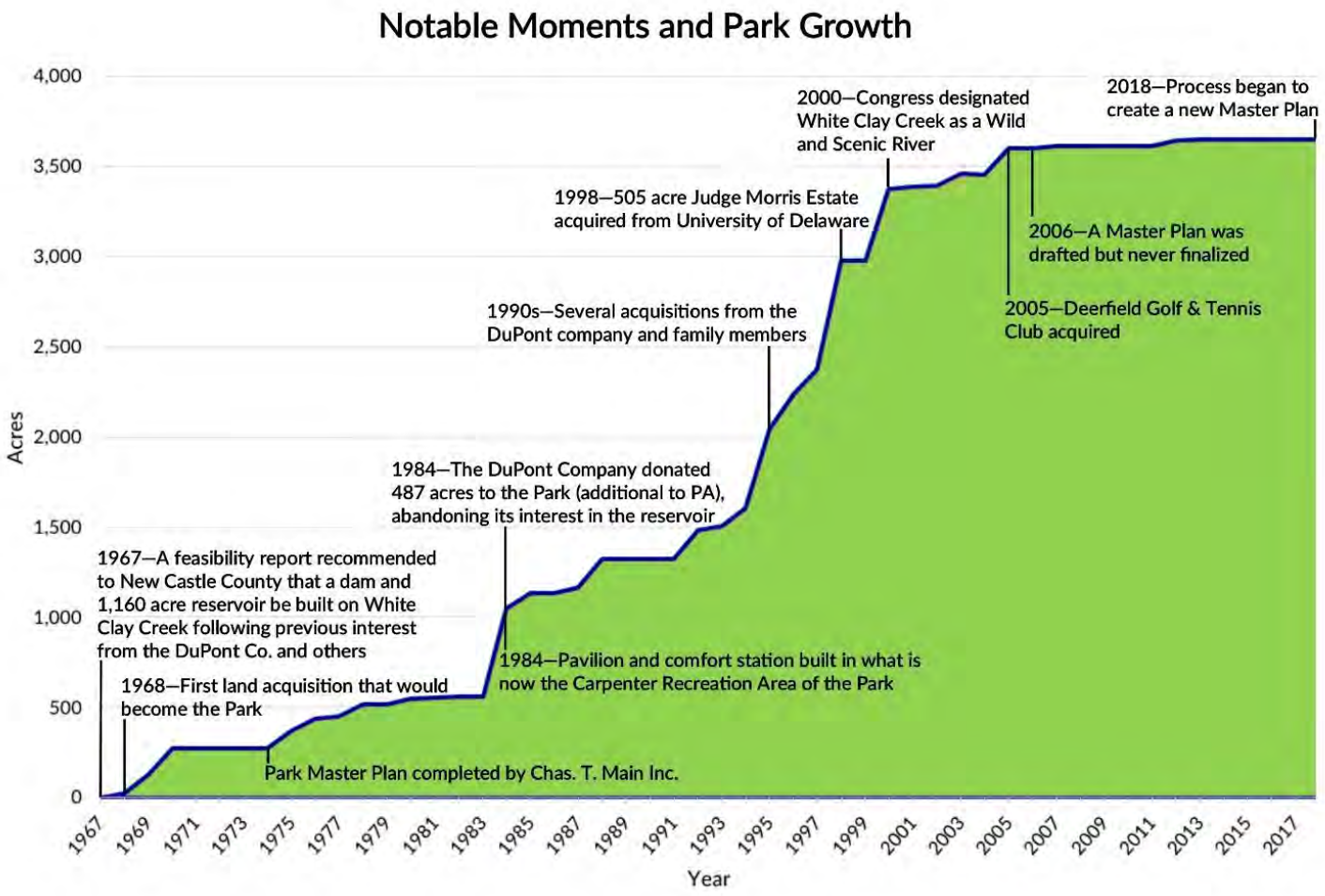
Park Description and Operation

The purchase of 24.3 acres of land from Joseph and Velma Smith in 1968 created the first piece of what is now White Clay Creek State Park. With numerous acquisitions since, the Park has grown to 3,647 acres. Among other characteristics, its boundaries are complex with various public access points (10 vehicle, 35 trail). It currently has the

most trails (about 40 miles) of any State Park, with 26% of the total trail miles in the Delaware State Park system. Elevations range from 60 feet to about 350 feet. The Park currently hosts partnership agreements with a full-service golf course, a remote controlled aircraft club, and a community-supported agriculture organization. A rich history and unique features provide content for popular Park programs. The lush greenery, vast landscapes, and sparkling streams of White Clay Creek State Park offer a refreshing change of pace from the surrounding growth of development.

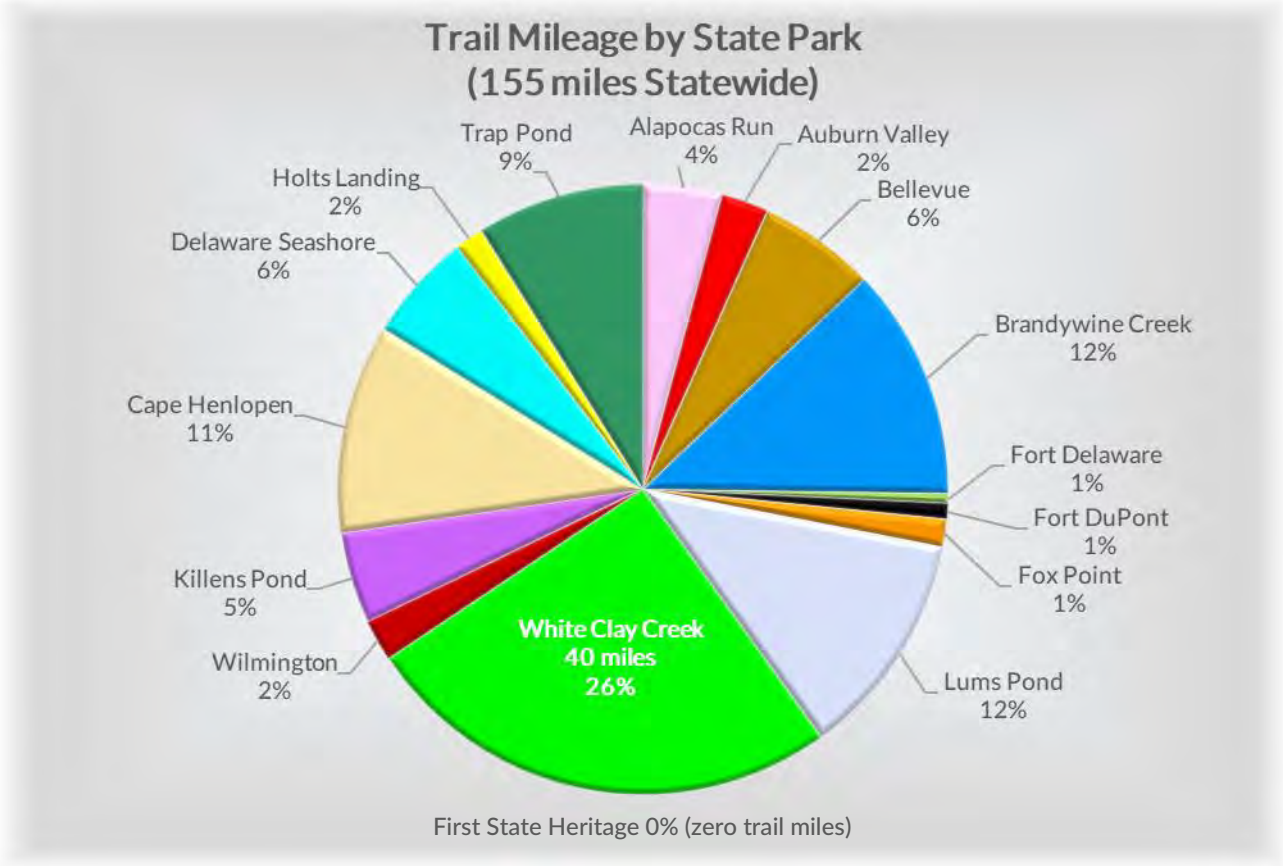
There are currently eight full-time, salaried staff focused on White Clay Creek State Park: a Park Superintendent, Administrative Specialist, Maintenance Supervisor, two Maintenance Technicians, two Enforcement Officers (Rangers), and one Interpretive Program Manager (Park Naturalist). There are five additional hourly staff that regularly work in the Park: an Assistant Superintendent, a Volunteer Manager (splitting time with Brandywine Creek State Park), a Trainer-Educator, and two Park Patrol Officers. There is a Regional Park Administrator that oversees White Clay Creek State Park along with six other State Parks. There is a Regional Enforcement Officer that is responsible for enforcement in the same region. Part-time staff, volunteers, and Division of Parks and Recreation central staff also help support the park.

A current map of the Park is in Appendix A.



Trail Plan

For over a decade, the Division has created and published robust trail plans for individual State Parks. The last Trail Plan for White Clay Creek State Park was adopted in 2011. The Division completed much of the public engagement and work to update the Trail Plan in 2017, but held approval because of the Master Plan process beginning. With both efforts ongoing and because the two are tightly related, the Division decided to formally adopt the updated Trail Plan as part of the Master Plan process. The Trail Plan document is incorporated by reference as Appendix G of this Master Plan. Prioritization of the more substantial trail projects are discussed in this Master Plan.



Public Input

This Plan was made possible because of public thoughts and ideas. The input on the front end of the process, from the public who attended open houses, participated in the online survey, or otherwise shared comments was especially valuable. Common themes of what people want are **keeping the Park natural** and **minimizing development**. The largest asset of this Park is its network of landscapes that allows visitors to be immersed in the natural environment. Open spaces of field, forest, and stream are resources in limited supply but hugely valuable for public enjoyment. Minimizing development is important for aesthetic and environmental reasons. The things people enjoy most about the Park are trails, nature, biking, and hiking/walking. About 75% of comments

mentioned one or more of these topics. Other comments specific to birdwatching, running, fishing, or similar would have raised that percentage if they were added. The most common comment was to **prevent any dramatic change in the feel of the Park**.

NOTICE

WHITE CLAY CREEK STATE PARK MASTER PLAN

The Division of Parks and Recreation is beginning the process of creating a Master Plan for this Park. The purpose is to provide a vision and a framework for the stewardship and use of White Clay Creek State Park.

Webpage for info and updates:
www.dnrec.delaware.gov/parks/information/pages/white-clay-creek-state-park-master-plan.aspx

PLEASE PARTICIPATE IN A BRIEF SURVEY TO PROVIDE INITIAL COMMENTS.
THE LINK FOR THE ONLINE SURVEY IS ON THE WEBPAGE ABOVE.

Four open houses are scheduled to gather public interest and ideas before creating a draft of the Master Plan.

- Open House 1 - Natural Resources and Interpretation - June 25, 2018*
- Open House 2 - Buildings/Infrastructure - July 10, 2018*
- Open House 3 - Roads and Trails - August 1, 2018*
- Open House 4 - Recreation - August 20, 2018*

All open houses are tentatively scheduled from 4pm-7pm at Deerfield, 507 Thompson Station Road, Newark, DE 19711.
*Unforeseen circumstances could change the date, time, or location. Please check the Statewide meetings calendar or the website before you set out to attend a session.

The Division plans to hold another open house or workshop for public feedback in the fall, once a framework is created.

FOR QUESTIONS: DNREC_WCCmasterplan@state.de.us OR 302-739-9240

The Division also appreciates the feedback from the public on the preliminary draft Master Plan. It was clear that the public had concerns about a campground at the Kranz Farm area of the Park and about the perception of what was allowable with conservation easement language (addressed here in item 32). Outside of that issue, the most popular comments were from people who were happy with the process and product (draft Plan). The Division hopes those comments emphasize its efforts to prevent any dramatic change in the feel of the Park. The ability for people to tangibly experience nature and history is extremely important. There were a few topics regarding the Park that raised strong opinions from opposite perspectives. A review of these are addressed in Appendix F. Every comment throughout this process was heard or read, and considered important to the development of this final Plan. Though not everyone will agree on every decision, the Division hopes that everyone can appreciate the Plan for being an open and systematic approach to the future of the Park.

Implementation Strategies

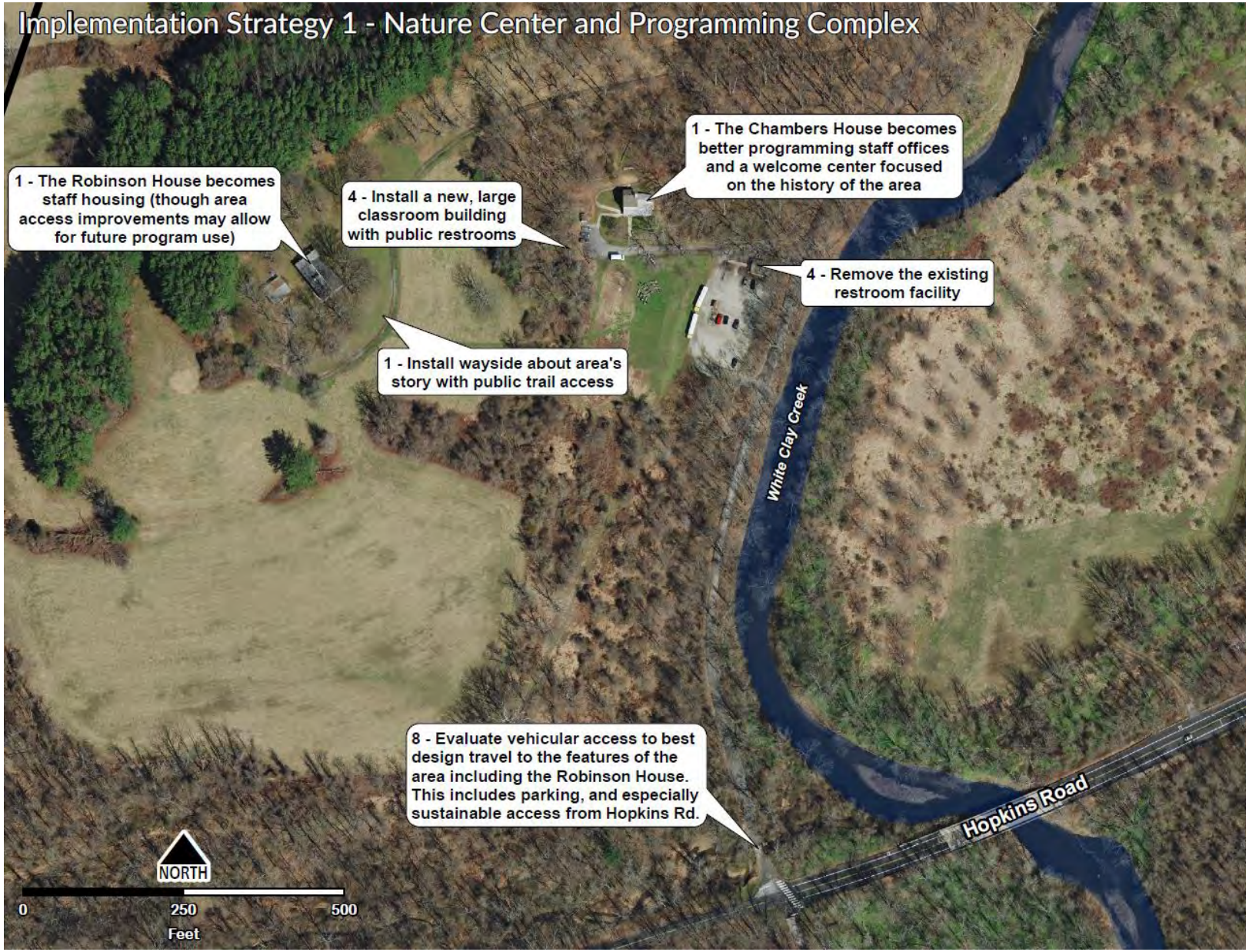
This section describes the broad approach to implementing projects in the Park. Many individual items in the next section titled 'Formation of Action Items' can be packaged together as they share a theme or location. Implementation would be more effective and efficient if they are considered together instead of individually. Overall, this 'Implementation Strategies' section of this Master Plan serves as the strongest guide for the Division's timing and priority of projects.

Some of the language in this Section may be paraphrased, as it is intended to be akin to an executive summary. But each Implementation Strategy includes numbers to reference each action item. Further background and details for each action item can be referenced by the number in the 'Discussion of Action Items by Row' subsection beginning on page 20.

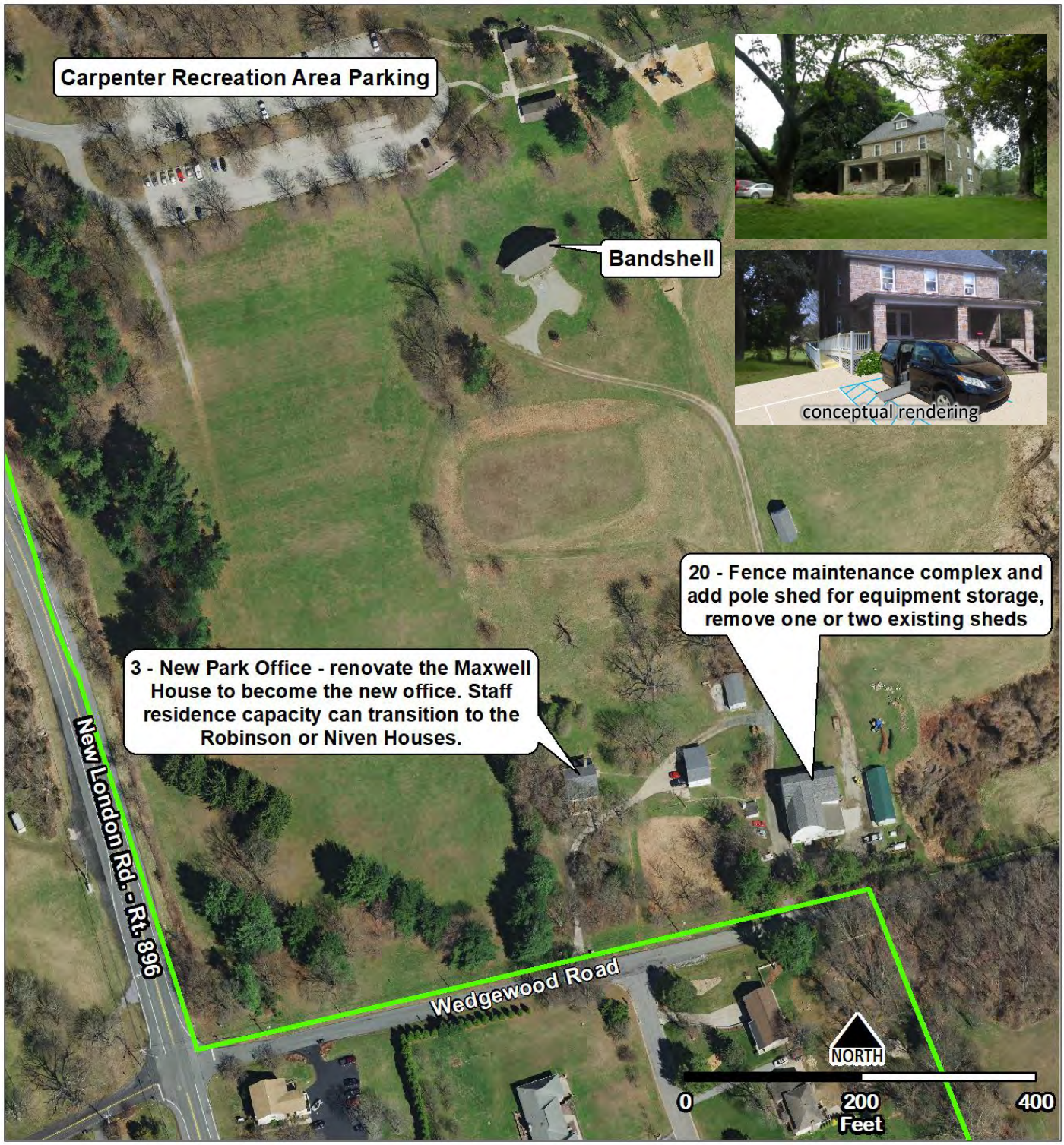
As part of the planning process, the Formation of Action Items actually occurred before Implementation Strategies were considered. Because the Implementation Strategies are the most substantial piece, they are given a primary placement in this Master Plan document. But the process began with communication, public input, and drafting individual action items. This is discussed in the 'Formation of Action Items' section.

The following strategies and action items require further planning to decide subordinate details. Further planning efforts will include representation from the Park staff, Office of Design and Development, Regional Operations and Enforcement, Cultural Resources Unit, Environmental Stewardship Program, Parks Resource Office, and input from the public. There should also be some threshold for flexibility in implementation of this Plan as described in the 'Expectations' paragraph of the 'Background'.

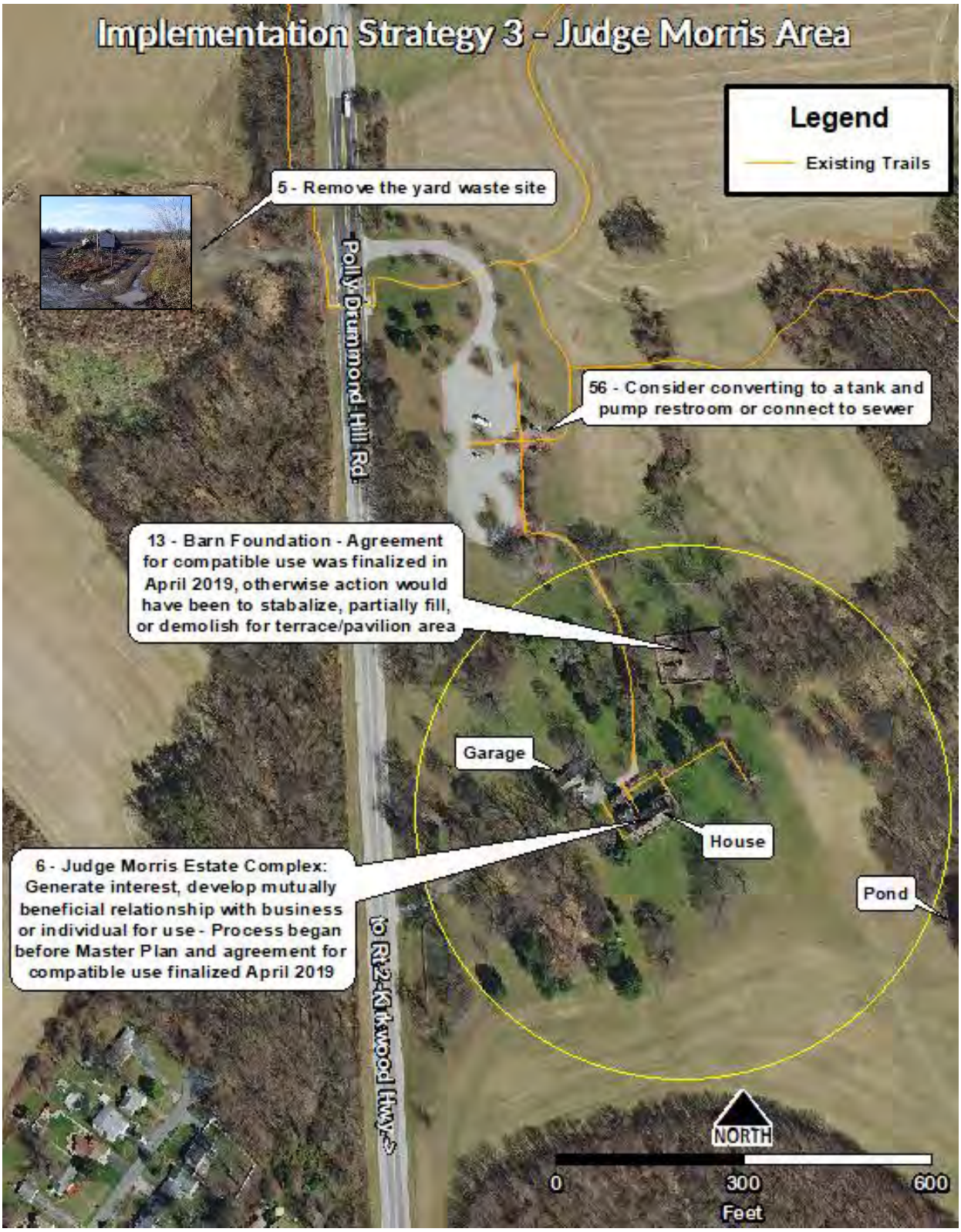
Strategy 1 – Nature Center and Programming Complex – The Nature Center area needs infrastructure improvements to meet the demand for programs. A new name for the complex should be considered to more accurately portray education and history. The existing buildings should be repurposed to accommodate program and conservation interests. Please reference items 1, 4, and 8 from the Formation of Action Items section for more detailed descriptions.



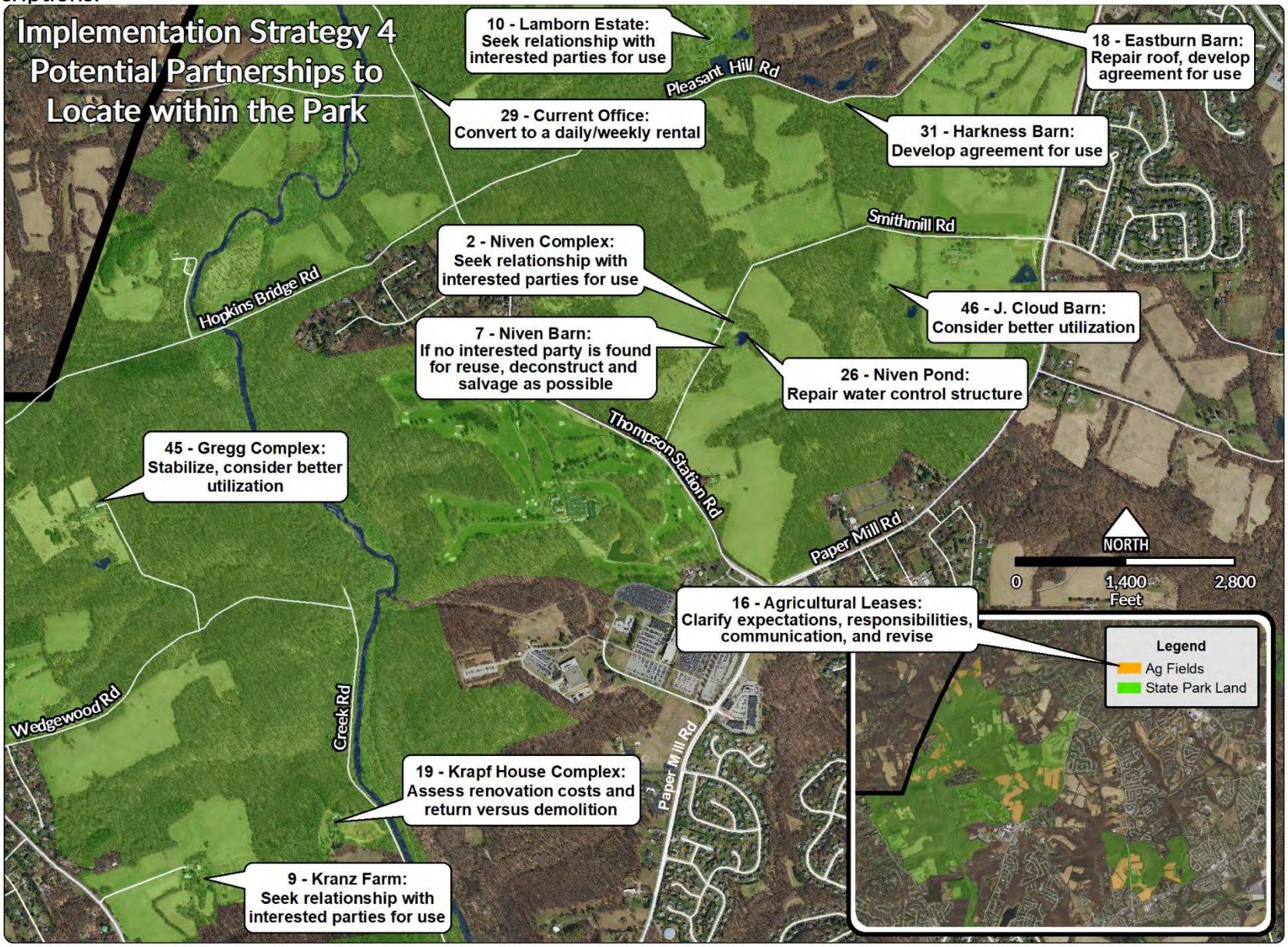
Strategy 2 – Park Office moves to the Maxwell House –The current Office lacks several desirable attributes for its function. Several options were considered, with the Maxwell House best accommodating function, location, cost, and limiting new development. Coordinating the office move with the fencing and pole shed at the Maintenance Complex would be effective. Please reference items 3 and 20 from the Formation of Action Items section for a more detailed description.



Strategy 3 – Judge Morris Area – The large house and adjacent grounds are underutilized, though that will soon change with a new agreement and partnership. Removing the yard waste site is a necessary improvement and upgrading the restroom would be ideal. Please reference items 5, 6, 13, and 56 from the Formation of Action Items section for more detailed descriptions.

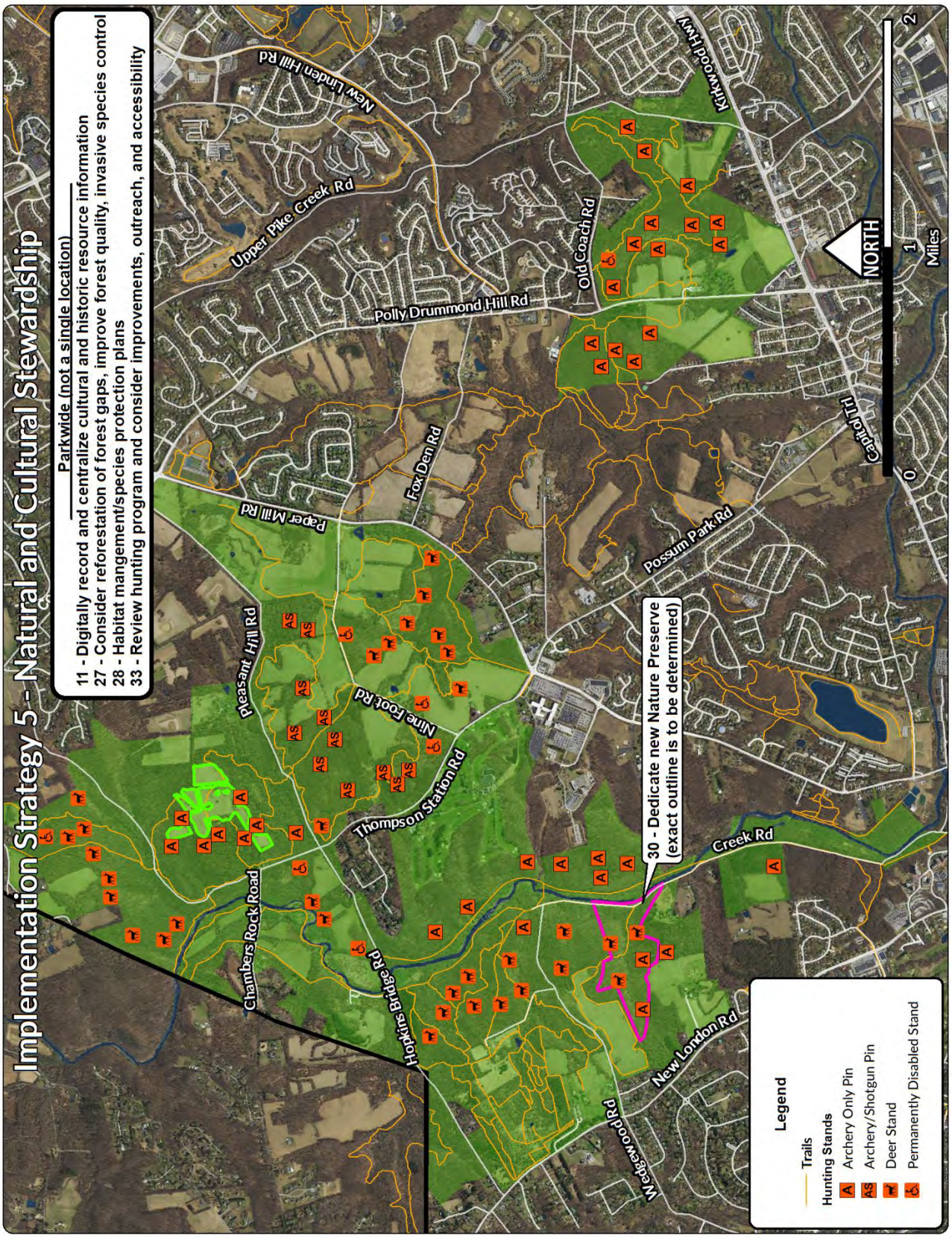


Strategy 4 –Potential Partnerships to Locate within the Park – About half of the Park's 75 buildings are underutilized. There are several opportunities to develop partnerships to better utilize idle buildings and a few limited areas in the Park. Please reference items 2, 7, 9, 10, 16, 18, 19, 26, 29, 31, 45, and 46 from the Formation of Action Items section for more detailed descriptions.

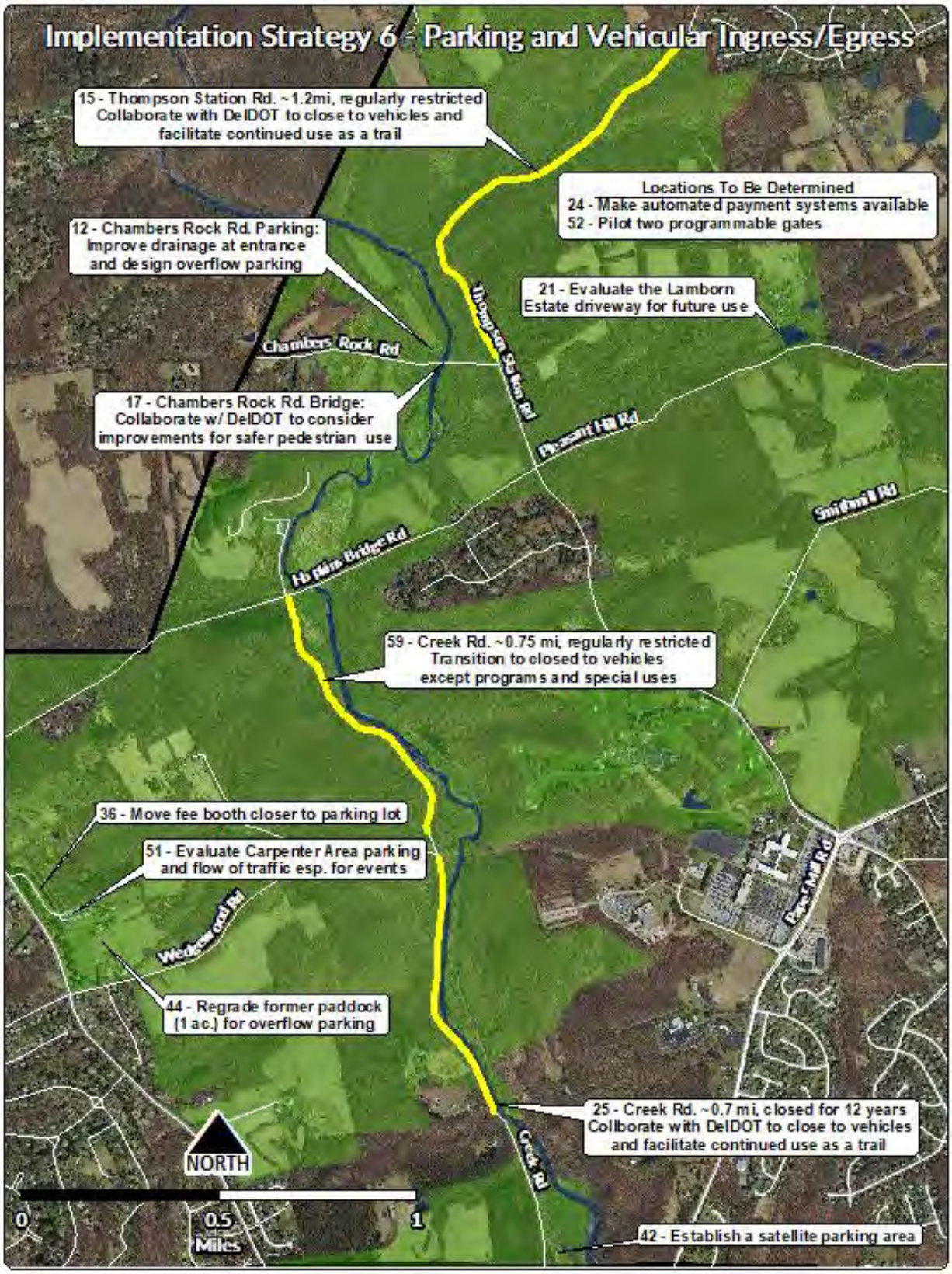


PROPOSED FINAL DRAFT 7/20/2021

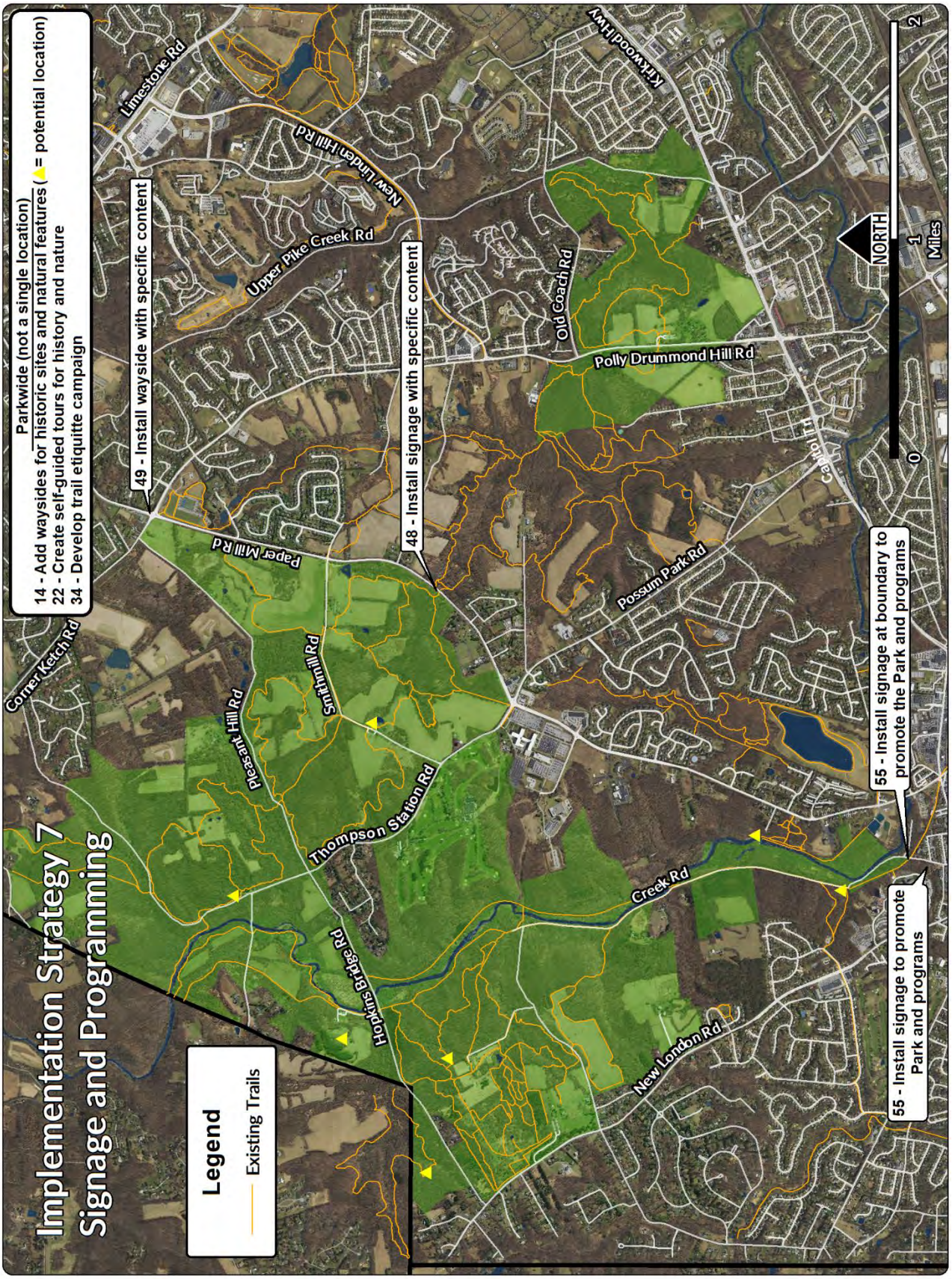
Strategy 5 –Natural and Cultural Stewardship – These items focus on protecting and enhancing the native ecology and cultural history of the Park. Please reference items 11, 27, 28, 30, and 33 from the Formation of Action Items section for more detailed descriptions.



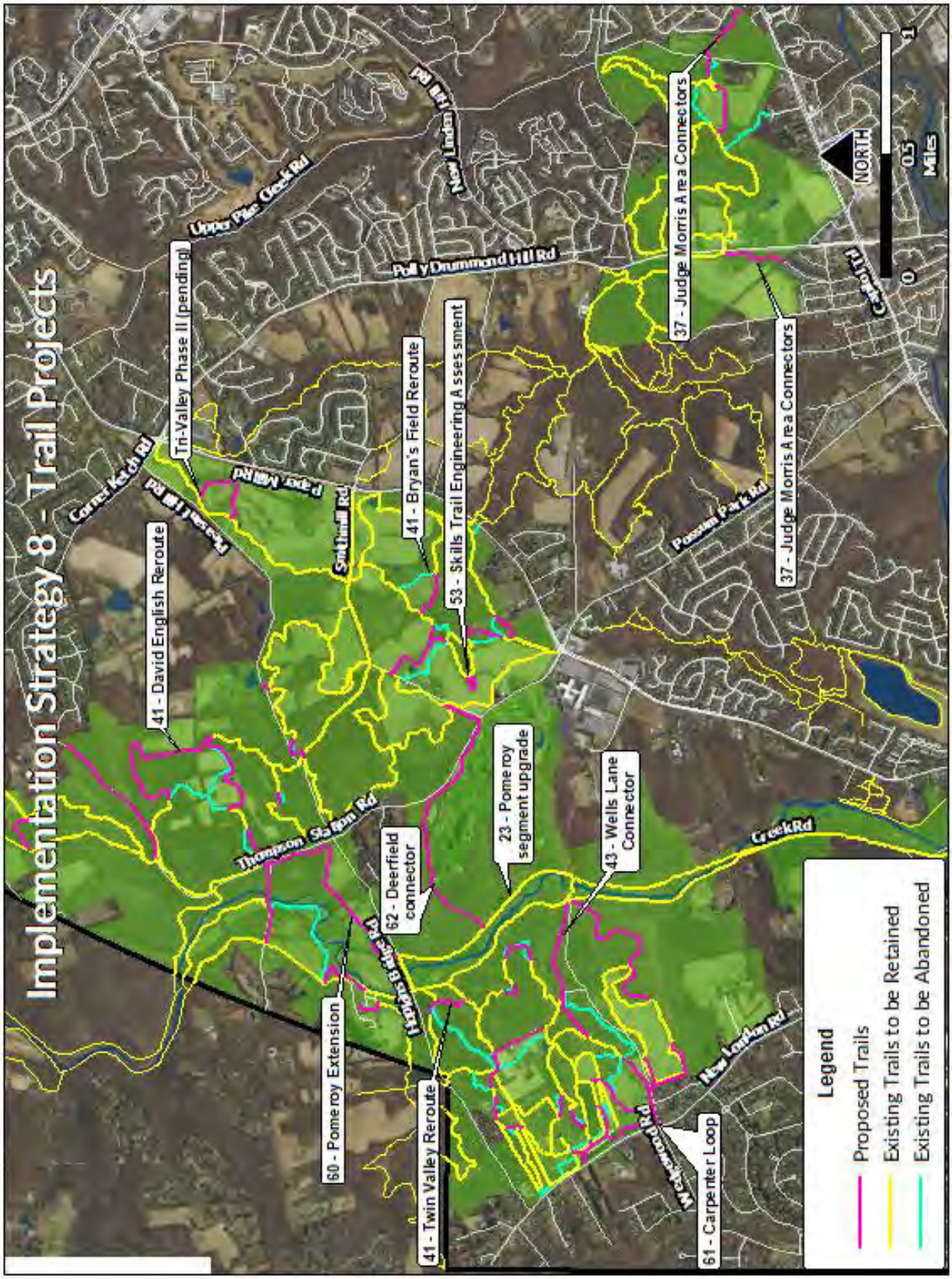
Strategy 6 – Parking and Vehicular Ingress/Egress – There are several items related to vehicular traffic flow and parking. Please reference items 12, 15, 17, 21, 24, 25, 36, 42, 44, 51, 52, and 59 from the Formation of Action Items section for more detailed descriptions.



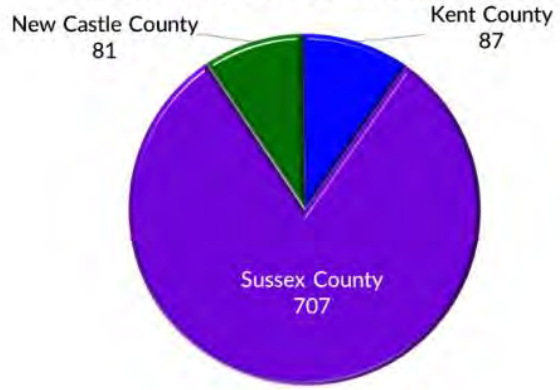
Strategy 7 –Signage and Programming – Please reference items 14, 22, 34, 48, 49, and 55 from the Formation of Action Items section for more detailed descriptions.



Strategy 8 – Trail Projects – Please reference items 23, 37, 41, 43, and 53 from the Formation of Action Items section for more detailed descriptions. Items 60, 61, and 62 have the lowest priority of these trail projects.



Strategy 9 – Camping – The Division is interested in providing camping opportunities that can deepen a visitor's Park experience. Further evaluation and planning are needed to determine location, amenities, and other details. This will require an extended timetable which is why this Strategy is really a long view. Please reference item 32 from the Formation of Action Items section for a more detailed description.



Strategy 10 – Miscellaneous – A fusion of several remaining items. Their priority might be lower, but there is still value in these action items. Several of these will be ongoing efforts. Please reference the Formation of Action Items section for more detailed descriptions of each item.

35 – **Partner with the Delaware T2/LTAP Program** (engineering interns and resources)
38 – **Coordinate with New Castle County, City of Newark's Parks and Recreation Department, and the Pennsylvania Department of Conservation and Natural Resources' White Clay Creek Preserve** (on connectivity and shared interests)
39 – **Coordinate with University of Delaware and like organizations** (wealth of opportunities, foster more open communication)
40 – **Develop a water quality plan with an implementation path based on results**
47 – **Seek partners to organize an entry-level run/bike biathlon or triathlon that benefits the Park**
50 – **Develop a better database for tracking infrastructure locations, interpretive sites, attributes, and maintenance**
54 – **Consider additional or all-season restrooms and water fountains**
56 – **Convert the Judge Morris Lot Bathrooms to a tank and pump restroom or connect to sewer**
57 – **Plan to implement a small fee for extended use permits**
Additional Concept – **Identify and use a single, clear name for each area and building, and cease using alternative names**

Formation of Action Items

Initial Formation

Considerable work went into communicating the start of the Master Plan process along with a commitment to public involvement. In addition to a kickoff meeting, press release, signage, and emails to announce this in May 2018, the Division held four open houses over the Summer of 2018 to solicit public thoughts about current conditions and ideas for the future. There were at least 235 unique individuals who attended the open houses. The Division engaged several councils and organizations with known interests in the Park and opened an online public survey to provide an additional opportunity for gauging public interests and generating comments. There were 1,096 individuals who responded thoughtfully to the online survey. Several individuals emailed or called the Division with comments. Dozens of Division staff were consulted on their experiences and thoughts, including all of the White Clay Creek State Park staff as well as regional staff and central office staff. Significant focus was given to the features, programs, and operations of the Park from the visitor's perspective. Potential action items for this Master Plan were then created with inputs from all of the above sources.

Ranking

The amount and diversity of ideas and potential action items required considerable thought to prioritize and qualify for implementation. The Division used scoring criteria that included how an item:

- supports key park experiences;
- is needed for safety;
- improves operations and maintenance;
- reduces infrastructure;
- assists with revenue;
- may be inadequate if ignored;
- improves access, navigation, or service; and
- protects or enhances cultural, historic, or natural resources.

Each item was evaluated and ranked with the higher numeric score being a higher priority. Then cost estimates were gathered for each item. This was purposefully done second, so that cost would not bias the score for any given criterion. Then costs and scores were compared such that items were rearranged and reprioritized. An item with a higher score and lower cost would be prioritized over an item with a lower score and higher cost (see Chart 1).

Table of Action Items and Additional Concepts

A tabular format was used to arrange and view the results of ranking and prioritization. See Table 1. Also included were additional items that are related or are ancillary.

Chart 1 – Demonstration of Score versus Cost for Ranking of Action Items. This Chart is meant to help visualize a step in the process, not to be the final reference for items in the Plan.

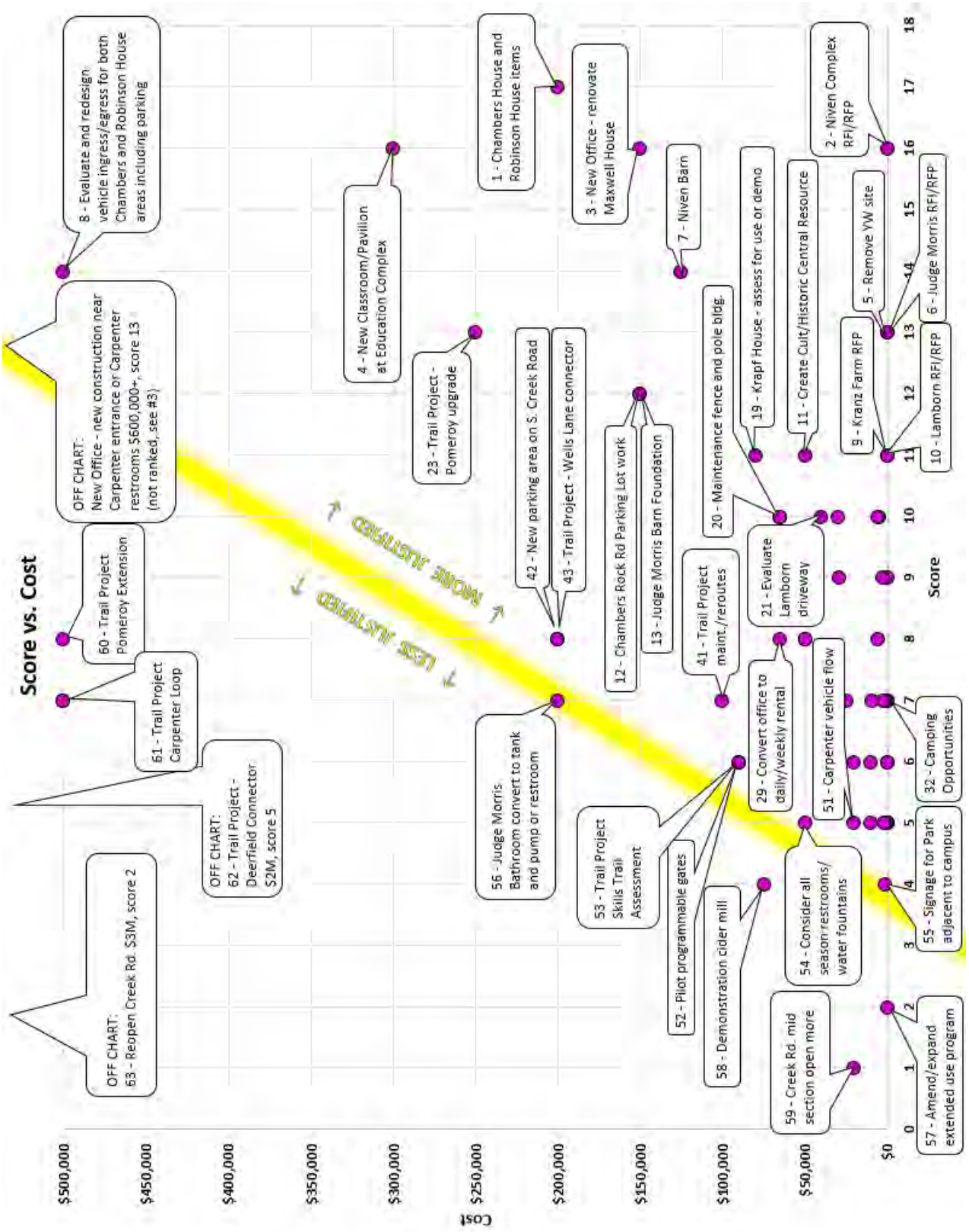


Table 1 - Results of the ranking exercise (details in next subsection). Also included below are additional items that are noteworthy and consequentially related to one or more action items.

Row #	Item	Score	Cost Estimate
1	Chambers House becomes staff offices/welcome center. Robinson House becomes staff housing with trail access to new wayside. Area access improvements may allow for future program use.	**17**	$200,000
2	Niven Complex - generate interest, develop mutually beneficial relationship with tenant (business or individual)	**16**	$0
3	New Office - renovate Maxwell House (other considerations were new construction adajcent to Carpenter Area entrance or in place of existing Carpenter Area bathrooms)	**16**	$150,000
4	Add a 4-season education building near Chambers House to accommodate programming use and rentals, with attached publicly accessible bathrooms	**16**	$300,000
5	Remove Yard Waste Site	**13**	$0
6	Judge Morris Estate - generate interest, develop mutually beneficial relationship with tenant (business or individual)	**13**	$0
7	Niven Barn - If no interested tenant, deconstruct and use materials to construct cabins in the park. Create replacement pole shed for haywagons.	**14**	$125,000
8	Evaluate and redesign vehicle ingress/egress to both the Chambers and Robinson Houses, including parking	**14**	$500,000
9	Kranz Farm - address current agreement and firm up expectations, then develop/issue new RFP for ag/educational uses	**11**	$0
10	Lamborn Estate - generate interest, develop mutually beneficial relationship with tenant (business or individual)	**11**	$0
11	Digitally record and centralize cultural and historic resource information into one reference	**11**	$50,000
12	Chambers Rock Rd. Parking Lot - fix drainage, design overflow parking	**12**	$150,000
13	Judge Morris Barn Foundation - stabilize, grade leaving 2' wall, or demo for use as a terrrace and/or pavilion	**12**	$150,000
14	Add waysides for historic sites and natural features	**10**	$5,000
15	Thompson Station Rd. north of current office - close to vehicles, manage as trail	**10**	$6,000
16	Ag Leases - revise agreements, clarify expectations, responsibilities, and communication	**9**	$0
17	Chambers Rock Rd. corridor across Creek - consider improvements for safer pedestrian crossing across bridge	**10**	$30,000
18	Eastburn Barn - Repair roof then generate interest, develop mutually beneficial relationship with tenant (business or individual)	**10**	$40,000
19	Krapf House Complex - Rename (e.g. Creek View Lodge), assess renovation costs and potential market lease values. Consider the potential return to decide on renovation, demolition, or securing and stabilizing.	**11**	$80,000
20	Add perimiter fencing and pole shed to the maintenance complex	**10**	$65,000
21	Evaluate the Lamborn Estate driveway	**10**	$65,000
22	Create self-guided tours for history and nature	**9**	$3,000
23	Trail Project - Pomeroy Trail upgrade, possible paving	**13**	$250,000
24	Make automated payment systems available	**9**	$29,000
25	Creek Road (currently closed section) - close to vehicles, manage as trail	**8**	$6,000
26	Repair water control structure (outlet) of the Niven Pond	**8**	$50,000
27	Forest habitat improvement: consider reforestation of gaps within existing forest, improve forest quality, and plan for invasive species control	**8**	$50,000
28	Develop plan for rare and threatened species inventory, protection, and restoration	**8**	$60,000
29	Convert the current Park Office to a daily or weekly rental	**8**	$65,000
30	Dedicate Fall-Spring Woods as Nature Preserve	**7**	$0
31	Harkness Barn - generate interest, develop mutually beneficial relationship with tenant (business or individual)	**7**	$0

Table 1 continued

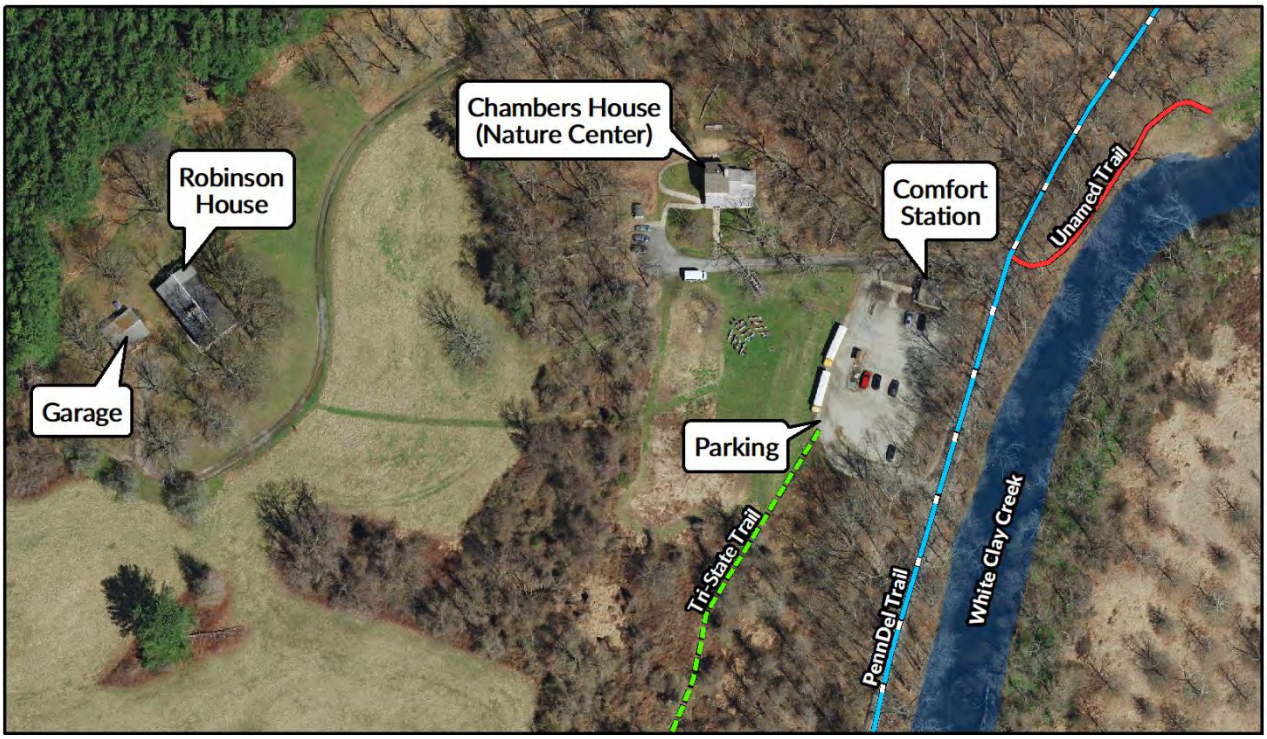
Row #	Item	Score	Cost Estimate
32	Consider providing camping opportunities in the Park	7	$0
33	Review hunting program and consider revisions (e.g. improvements,accessibility,outreach)	7	$1,000
34	Develop trail etiquitte campaign to help with user conflicts, leashes, weather restrictions	7	$3,000
35	Utilize UD T2 engineering interns to monitor bridges/infrastructure	7	$9,600
36	Move Carpenter fee booth further in closer towards parking lot	7	$25,000
37	Trail Project - Two new connections in the Judge Morris Area	7	$30,000
38	Coordinate with NCCo/DNS (Middle Run V.N.A.), Newark-P&R, and PA's WCC Preserve on ag. management, hunting, events, trail etiquitte, and other areas of opportunity	6	$0
39	Collaborate with the University of Delaware	6	$0
40	Develop water quality plan with an implementation path based on results	6	$10,000
41	Trail Project - Maintenance projects and reroutes among the Twin Valley, David English, Bryan's Field, and Whitely Farms Trails	8	$100,000
42	Establish new parking area on southern section of Creek Road with info board and payment system, as an established trailhead. Restrict unofficial parking spots along road. Add trail to dam with wayside(s). Add trail to Pomeroy Trail Bridge.	8	$200,000
43	Trail Project - Wells Lane Connector (from Wedgewood Parking lot to Carpenter Area)	8	$200,000
44	Regrade former paddock just south of bandshell for more stable overflow parking	6	$20,000
45	Stabilize the Gregg Ag. Complex and consider better utilization or demolition	5	$0
46	Consider better utlization of the J. Cloud Barn	5	$0
47	Organize entry-level triathalon/biathalon for the park	5	$0
48	Install a sign facing inbound traffic at the pending tunnel underneath Paper Mill Rd. that explains the trail user is now entering the Park and has donation-by-text information	5	$300
49	Install waysides facing inbound traffic on north end of Tri-Valley Trail about history of area, nature, how fees are used, and donation-by-text	5	$2,000
50	Develop a better database for tracking building and infrastructure locations, attributes, and maintenance	5	$10,000
51	Evaluate flow of parking and event traffic at Carpenter Area	5	$20,000
52	Pilot two programmable gates	6	$90,000
53	Trail Project - Assess integrity of Skills Trail features and consider upgrades	6	$90,000
54	Consider additional or all-season restrooms and water fountains	5	$50,000
55	Install signs at UD campus interface to invite visitors, show Park & programs as an amenity	4	$1,000
56	Convert the Judge Morris Parking Lot Bathrooms to a tank and pump restroom or connect to sewer	7	$200,000
57	Amend/expand extended use permit program	2	$0
58	Construct demonstration cider mill	4	$75,000
59	Creek Road (Wedgewood to Hopkins), consider opening to vehicles for two days	1	$20,000
60	Trail Project - Extend Pomeroy Trail north from Hopkins Rd. to current Park Office	8	$500,000
61	Trail Project - Carpenter Area Loop	7	$500,000
62	Trail Project - Connection through Deerfield, from Tri-Valley Trail to Pomeroy Trail	5	$2,000,000
63	Creek Road (currently closed section), open for one-way vehicle traffic	2	$3,000,000
ADDITIONAL CONCEPTS/ACTION ITEMS			
	Maintain an interest to purchase in-holdings and adjacent properties when available		
	Incorporate Trail Plan into Master Plan		
	Foster the "One Park" concept		
	Identify and use a single, clear name for each area and building. Cease using other names.		
	Initiate text message donations		
	Note projects in-progress, and relationships with Deerfield and SKSS to remain status quo		

Discussion of Action Items by Row

Below is a discussion of the contents of the above table, given row by row. It is important to note that many items may be related by area or type. The Implementation Strategies section of this document connects like items. When items are regrouped in this way, the priority may change for a given item. For example, if items 1, 4, and 8 become group A and items 5, 9, and 10 become group B, then item 8 becomes a higher priority than item 5. Focusing attention on grouped projects within a certain area of the Park or on projects that share similarities will likely demonstrate a more efficient use of resources. Please reference the Implementation Strategies section of this document for more details, and as the primary implementation plan.

The items below, and grouped concepts in the Implementation Strategies section, require further planning to decide subordinate details. Further planning efforts will include representation from the Park staff, Office of Design and Development, Regional Operations and Enforcement, Cultural Resources Unit, Environmental Stewardship Program, Parks Resource Office, and input from the public. There should also be some threshold for flexibility in implementation of this Plan as described in the 'Expectations' paragraph of the 'Background'.

1 – Reorganizing the uses of the Chambers House and Robinson House
The Nature Center and Programming area of the Park has existing parking and restrooms with proximity to the Creek that is easy for children to access. This is critical for the types of programs offered. The area also includes the Robinson House, which is part of a key story related to the formation of the Park, and the historic Chambers House. Infrastructure improvements to the area are needed to better serve the



increasing number of park visitors and over 10,700 program participants per year. The Chambers House will become programming staff offices and a welcome center with a focus on the history of the Park. Nature-centered information and education would continue at the new education building (see item 4). The Robinson House will become staff housing[1] or a yearly rental, with future consideration for a nature-based interpretive center, a group meeting location, and a research field office. The Division will install an information wayside about its story and public trail access to the area. The Chambers House is used for classroom activities and for poor weather, but it can only accommodate groups of about 25. Programs are very popular among school groups which regularly include 90 people. With a new education building (see item 4), the Chambers House would no longer be used for classroom activities. It would be outfitted as a new welcome center for programming with history-focused exhibits, also including programming staff offices and storage. While the Robinson House is part of a story related to the formation of the Park, providing it with suitable vehicle access would be costly (see item 8). If access is found to be attainable, the Robinson House could be used as an interpretive center. The Division will consider a new name for the complex that embraces programming and historic interpretation. Also see Implementation Strategy 1 which includes this item.

2 – Generate interest in the Niven Complex and develop a mutually beneficial relationship with a tenant

The Niven Complex is a former agricultural complex including a house, barn, springhouse, sheds, and small pond near the Nine Foot Road parking lot. It has historic

and cultural appeal because it is a largely intact farmstead surrounded by field, forest, and bucolic views akin with its beginnings. The complex is also significantly underutilized. The bank barn has great character but needs to be rebuilt or demolished. The house is in fair shape but needs some interior renovations. It is important to find a use for the house and ideally the whole complex because remaining vacant will rapidly contribute to disrepair. The use of the house and the barn could be split. Concepts could include, but are not limited to, a residence, bed and breakfast, reception center, a business office, carpentry shop, or any number of fitting uses. The Division would solicit outside interest through requests for information and requests for proposals, ultimately to develop an agreement that is mutually beneficial. In the immediate future, or if a

[1] 'Staff housing' or 'park housing' is typically temporary housing offered to interns in need of low-cost, local housing or key staff such as rangers or superintendents.

concessionaire[2] is not found, the house would probably be utilized as staff housing. Also see Implementation Strategy 4 which includes this item.

3 – The Park Office moves into the Maxwell House

The current Office has limited parking, no cellphone reception, no meeting space, is not easy to find, has accessibility challenges, and is far from other facilities and organized activities. Several areas of the Park were considered as a new location, with the Carpenter Area standing out as the best option for being centric to concerts, cross country meets, large events, and a popular starting point for recreation. Three options were considered in the Carpenter Area: a new office constructed near the main entrance, a new office constructed in place of the existing bathrooms, and renovating the Maxwell House into an office. The Maxwell House is currently used as staff housing. It is a fair-sized residence on the south side of the Carpenter Area, off of Wedgewood Road. The two new-construction options were not selected because they have significantly higher estimated costs and would be counter to significant public concern about limiting development in the Park and utilizing existing buildings. The Maxwell House conforms with the latter concerns, where the staff housing could shift to other underutilized buildings in the Park (e.g. Robinson or Niven Houses). With more than double the floor space of the current office, the Maxwell House could easily accommodate 12 staff and a small conference room with minimal reconfiguration. It would need an ADA compliant ramp to enter the main level, an accessible bathroom on the main level, designated parking spaces, and possibly septic system upgrades. The Maxwell House provides many of the attributes lacking from the current Park Office and is also adjacent to the maintenance complex. Also see Implementation Strategy 2 which includes this item.

4 – Add a nature-centered information and education building near the Chambers House to accommodate programming use and rentals, with attached restroom facilities

The programming offered from this area of the Park is very popular among large school groups and summer camps. The Chambers House is used for classroom activities and it can only accommodate groups of about 25. The school groups are regularly 90 people.

[2] The Division uses the term "concessionaire" broadly to refer to any outside party that operates within park property under an agreement

It is especially problematic to accommodate school groups in poor weather. The nature-centered information and education building would be usable year-round, like an outdoor classroom, and could accommodate groups of all sizes. It may be located on an old barn foundation in the hedgerow near the Chambers House or in a suitable location in proximity. The education building would be rentable like park pavilions when not in use for programs. It would also include external restrooms for general visitors and internal restrooms for participants to prevent conflicts, especially during youth programs. The current comfort station (composting restrooms) would be demolished. The unit has never composted efficiently, special cleaners have to be used, and solids have to be periodically shoveled out manually. The shoveling is unpleasant and the solids are not desirable nor comparable to garden compost. Also see Implementation Strategy 1 which includes this item.

5 – The Polly Drummond Hill Road Community Yard Waste Demonstration Site will be removed

This site was opened in 2007 as a temporary demonstration site to help citizens transition into a ban on yard waste at the Cherry Island Landfill. It was managed by the Division of Waste and Hazardous Substances (formerly Division of Air and Waste Management) following direction from the General Assembly. This yard waste site was initially opened for just Friday to Sunday, and was one of many options for managing yard waste. Because the site was convenient and free, it became very popular. The site

has also been abused by contractors, non-residents, and illegal dumping. Sediment and aesthetic concerns have increased. The site is a continual risk for the introduction of invasive plants and insects like the Spotted Lanternfly and Emerald Ashborer which are significant threats to the Park's native ecology. The Park-land that is used for the site was acquired via Federal Land and Water Conservation Fund monies, with Federal restrictions on how the land can be used. The Division saw temporary, limited use as an

accommodation to the Department. But the ongoing use is in conflict with the Title 36, Part 59 of the U.S. Code of Federal Regulations. This Parkland cannot continue to be used as a public yard waste drop-off site. There are several other options for the public to manage yard waste including taking it to another (commercial) drop-off site, arranging for pickup by a waste hauler or landscaper, or managing it as mulch or compost on one's own property. There may be minimal costs for some alternatives but no more than for Delawareans in all other areas of the State. The Division supports the Division of Waste and Hazardous Substances efforts to close the site and transition the public toward other options. Also see Implementation Strategy 3 which includes this item.

6 – Generate interest in the Judge Morris Estate and develop a mutually beneficial relationship with a tenant

The Judge Morris Estate includes the house, garage, and stately grounds of former U.S. District Court Judge and University Board of Trustees President Hugh M. Morris. The complex is underutilized, used occasionally for programming, meetings, or special events. The house is large, but needs HVAC and cable/internet upgrades. More regular use of the facility would help contribute to its upkeep. Concepts could include, but are not limited to, a bed and breakfast, reception center, a business office, or any number of fitting uses. The Division had been working to solicit interest in the Judge Morris Estate prior to the Master Plan process. A Request for Proposals was issued, with vendor award announced in April 2019. The selected vendor, Prime Hospitality doing business as Emmas Pond, will be using the house, barn foundation, and immediate grounds as a special event venue including catering and food service. They also plan to provide public programming and events that blend with the Division's programs. They plan to construct a rustic-chic barn on the footprint of the old barn to be used for large events. The Division will benefit from direct payments from the vendor, as well as the facility improvements and maintenance that the vendor will perform. The agreement runs through 2024, with an option to extend. Also see Implementation Strategy 3 which includes this item.

7 – If no partner is found to restore the Niven Barn, the Barn will be deconstructed

The Niven Barn is part of the Niven Complex, a former farmstead. The Niven Complex is very appealing aesthetically and culturally as small agriculture has faded from the area. Currently the barn is largely unused except as shelter for two haywagons. It is in such poor condition that if there is not outside interest and funding to rebuild it, collapse or demolition is inevitable. Where material from the barn can be utilized for architectural or decorative elements, its history can live on. If camping cabins are constructed, Barn elements should be used there or for similar uses. Reusing the material may be challenging but would be the best outcome. In the absence of the Barn, the Park may need to construct a pole shed to house two haywagons that are used for programs in this area. Also see Implementation Strategy 4 which includes this item.

8 – Evaluate and redesign vehicle ingress/egress to both the Chambers and Robinson Houses, including parking

The Nature Center and programming complex is a popular area that will receive additional attention as a result of this Master Plan. Current access to this area is from Hopkins Road across a small, timber bridge that has been dislodged regularly during flood conditions. The gravel approaches to the bridge also become eroded in severe flood conditions. The bridge, the location of the Creek, the location of the tributary, and the number of visitors to the Nature Center and programming complex, drive the need to evaluate the entrance to this area. In addition, there may be opportunities to better design parking and vehicle access to the Chambers and Robinson Houses. The evaluation and redesign of vehicular accessibility to and within the Nature Center and programming area is likely going to come at a high cost, but is also a high need. Also see Implementation Strategy 1 which includes this item.

The bridge along the roadway to the Nature Center area after a strong flood

9 – Set expectations for the concessionaire opportunity at the Kranz Farm
The current concessionaire uses a barn and about six acres for a community supported agriculture program, produce stand, education programs, and a few small animals. There is a farmhouse on this area that is used for park staff housing, and that use is not intended to change. With the term for the current concessionaire anticipated to end in late 2019 (delayed because of this master plan and COVID), the Division will develop a request-for-proposals to solicit agriculture-educational use. This is not done to exclude the current concessionaire; in fact their current use is consistent with the proposed future use and they would be encouraged to submit a proposal. Rather, the issuance of a new RFP is common practice for state-managed agreements when they have reached the end of their term. Also see Implementation Strategy 4 which includes this item.

10 – Generate interest in the Lamborn Estate and work to develop a mutually beneficial relationship with a tenant
The Lamborn Estate includes a 6,100 sq. ft. residence, a 2,100 sq. ft. main garage with finished loft, and ten other buildings such as garages, sheds, greenhouse, and studio. The dramatic entrance, pond, and stately grounds sprawl over 12 acres. The former private estate came under the Division's full possession in the Fall of 2018. Previously it

was an occupied private duPont residence. The Division intends to find a scenario where it is fully utilized. Concepts could include, but are not limited to, a bed and breakfast, corporate retreat, reception center, business offices, wedding party accommodations, or any number of fitting uses. The Division has been anticipating the full possession of the Lamborn Estate prior to the Master Plan process and at the time of the drafting of this Master Plan, a Request for Information was developed and will eventually be followed by a formal Request for Proposals process. Also see Implementation Strategy 4 which includes this item.

11 – Digitally record and centralize cultural and historic resource information into one reference
Finding details about cultural and historic information of the Park, even for just one location, usually requires research among many sources. Bringing those details into a central reference along with mapping and pictures would eliminate errors in, and

duplication of, research and education. It would also provide ease and confidence to interpreters, management, and others who need accurate facts about the history of the Park. This effort is an internal exercise and is not intended to put this resource directly in the public's fingertips. There are certain details and locations that are purposefully kept secure to protect sensitive resources or discourage vandalism. But the public will subsequently benefit from more knowledgeable interpreters and Division staff as a result of this effort. Also see Implementation Strategy 5 which includes this item.

12 – The Chambers Rock Road Parking Lot will be designed for overflow parking and improved drainage

The entrance to the Parking Lot adjacent to Chambers Rock Road is subject to poor drainage, sometimes with standing water and sediment buildup that restricts safe ingress. A culvert repair and grading should provide a solution to the drainage. This area is also hugely popular during trout fishing season, often with vehicles improperly parking along and in the roadway. Additional, overflow parking at the Chambers Rock Road Parking Lot should provide some relief. Permanent, paved parking is not needed for overflow since the demand is just for a few weeks out of the year. But a designated area with reinforced turf or a similar low-impact, permeable solution for temporary parking would be best. Also see Implementation Strategy 6 which includes this item.

13 – Judge Morris Barn foundation would be stabilized or filled and graded for use

As mentioned in item 6, the Division has selected a vendor which will be using the Judge Morris house, barn foundation, and immediate grounds as a special event venue including catering and food service. They plan to construct a rustic-chic barn on the footprint of the old barn to be used for large events. Because the outcome of the Division's solicitation of proposals was unknown when the Master Plan process began, concern for the barn foundation was included. If no concessionaire would have been found or if the concessionaire had no plans for the barn foundation site, the Division wanted the barn foundation area to be safe and usable. With the ground floor inside the foundation being several feet below grade, considerations would need to be given for access, visibility, and stability. The foundation would need to be repaired or stabilized. Alternatively, the inside areas could be filled and graded close to existing grade which would leave very short wall (~2 feet high). Both options would keep the history of the wall and provide visual appeal. The site could then be used for a picnic area, a pavilion, a patio garden, or similar usable space. The concessionaire's plans for the barn site eliminate the Division's need to take action. Also see Implementation Strategy 3 which includes this item.

14 – Add waysides for historic sites and natural features

Significant public interest exists for information on building ruins, past uses, and other historic features within the Park. Natural features are also of interest. Adding waysides, a poster-sized panel with picture(s) and information, adjacent to a handful of historic and natural

features would appeal to many and help foster appreciation of those sites. Also see Implementation Strategy 7 which includes this item.

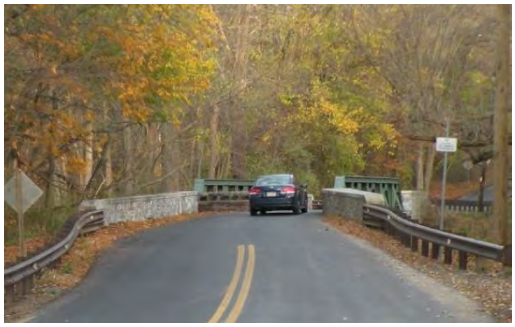
15 – Collaborate with DelDOT to close Thompson Station Road from the current Park Office to the northeast Park boundary

This 1.2 mile section of road is currently gated at both ends and open only to one-way traffic for special uses during limited times. It is winding, narrow, encroached with vegetation, and deemed unsafe for two-way traffic. DelDOT indicated this segment of road is not important for motor vehicle use, but is important for non-motorized use. Restricting vehicles is critical to the safety of non-motorized users here. The Division is interested in working with DelDOT to continue to have this segment of Thompson Station Road be closed to vehicle traffic and installing bollards at each end to better facilitate the regular pedestrian and bicycle use in that area. The Division will allow vehicle access for special uses and, as such, consider accommodations for recreational drives. DelDOT and DNREC should review transferring ownership of the right-of-way to DNREC. Also see Implementation Strategy 6 which includes this item, and Appendix F which addresses opposing public input on the topic.

16 – Revise agricultural leases, clarifying expectations and communication

Over 600 acres of agricultural lands in the Park are managed by agricultural lease. A farming business uses the land to grow crops, mostly hay and some row crops, in exchange for payment. The Division may want to consider further restricting the use of pesticides or herbicides in some areas, revising the farm business and Division points of contact and responsibilities (e.g. who coordinates reducing the lease around a new trail or found cultural site), clarifying how the public is notified of certain activities (e.g. harvesting, spraying), or removing lands from the agricultural lease for other use (e.g. reforestation, camping, etc.). The goal would be to make sure agricultural practices do not negatively impact the natural, cultural, and recreational resources of the Park. Also see Implementation Strategy 4 which includes this item.

17 – Collaborate with DelDOT to consider improvements for safer pedestrian use along the Chambers Rock Road Bridge



This Bridge is the only nearby connection between the current Park Office Parking Area trailhead and Chambers Rock Road Parking Area trailhead. Park users commonly cross from one trail network to the other via the Chambers Rock Road Bridge. It is a narrow bridge where opposite traffic must yield so that one direction crosses at a time. Because it

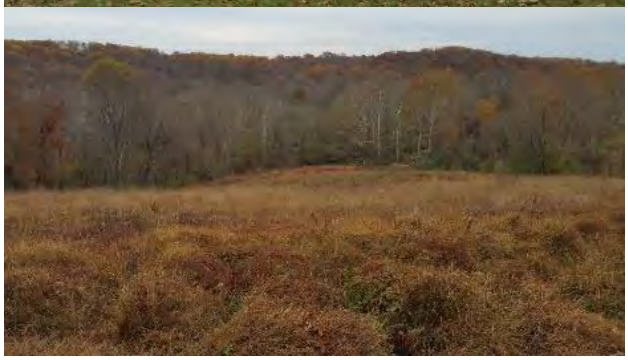
is a congestion point and because of its width, pedestrians have reported feeling unsafe while crossing the Bridge. Installing a cantilevered walkway or separate pedestrian bridge would probably cost at least $500,000, but would not be justified by the limited frequency of use. Signage, a designated pedestrian lane, or other options should be considered and would be significantly less cost. The Division and DelDOT are coordinating on pedestrian improvement options at this location. Also see Implementation Strategy 6 which includes this item.

18 – Repair the roof of the Eastburn Barn (aka Sheep Barn), and develop a mutually beneficial relationship with a tenant

This stone barn, probably constructed circa 1809, is along Pleasant Hill Road about 2,000 feet south of Corner Ketch Road. It is currently used in the spring and summer by a 4-H group for raising a few sheep. There is not an active agreement for this use of the Eastburn Barn. At the time of the drafting of this Master Plan, the Division is repairing the roof. Because at least a temporary vacancy is needed for safety during the repairs, it is also a good opportunity to ensure future use of this barn is under a proper agreement with the Division. Also see Implementation Strategy 4 which includes this item.

19 – Rename the Krapf House Complex (e.g. Creek View Lodge) and evaluate its renovation costs for future use to consider investment or demolition

The Krapf House Complex consists of a 7,500+ sq.ft. house, a large barn, 800 sq.ft. garage, and 1,000 sq.ft. modular home. A portion of the house, originally built circa 1700, would have been historic but is not a candidate for preservation because it has undergone such extensive remodeling under previous ownership. A huge addition was added around 1995. The house was most recently used as staff housing but has been vacant without utilities for several years. The size, location, and breathtaking views of the



valley are incredibly desirable. But the complex is slipping into disrepair and would require complete interior remodeling, restoration of utilities, and some roof/façade repairs at a minimum. The cost and extent of repairs needed is unknown but thought to be significant. The Division should get thorough assessments of renovation costs and comparable market rates if it were to be renovated. If the potential market rate would not provide a reasonable return on the renovation cost investment, then the Division should consider demolition or securing and stabilizing the property. If the return on investment is expected to be reasonable, then the Division should restore the complex, generate interest, and work to develop a mutually beneficial relationship with a tenant where the complex is fully utilized. Potential concepts could include a bed and breakfast, corporate retreat, environmental education center, business offices, farmette, or any number of fitting uses. Also see Implementation Strategy 4 which includes this item.

20 – Add perimeter fencing and a pole shed to the maintenance complex
The older bank barn that houses the maintenance complex would greatly benefit from the security of a perimeter fence. The complex also needs a pole shed with wide bays and good turning and height clearance for tractors and other large equipment that are currently stored in different locations. Also see Implementation Strategy 2 which includes this item.

21 – Evaluate the Lamborn Estate driveway

If a concessionaire is found for the Lamborn Estate (item 10 above) with plans that include frequent vehicle traffic or heavy vehicles, the Division and the concessionaire may benefit from an assessment of the driveway. Currently the driveway only accommodates one vehicle at a time. With the past use of the area as a single residence, it may need to be evaluated for commercial traffic. The restricted size of the driveway and it's function as a dam for the small pond, may be concerns for future use. An assessment of the current driveway to determine condition

and improvement options is needed. Also see Implementation Strategy 6 which includes this item.

22 – Create self-guided tours for history and nature
There is a strong interest in interpretive programs especially geared towards adults. Self-guided tours would not be limited by available staff or recurring personnel costs. A number of tours could address interests in diverse topics and geographical locations within the park. Development should consider different technology platforms. A cellphone application program might be desirable, but would be a challenge due to the lack of full network coverage across the Park. Though some costs would certainly exist for making self-guided tours available, the Division already has a library of potential content. Also see Implementation Strategy 7 which includes this item.

23 – Trail Project – Pomeroy Trail Upgrade (possible paving)
The Pomeroy Trail extends from the City of Newark into the Park. It is a very popular corridor connecting City residents and University students into the Park. The 1.5 mile portion of the Pomeroy Trail on the eastern side of the Creek has a compacted stone surface between 6 and 10 feet in width. Because of the surface, and the Trail's location in the Creek valley, it is occasionally subject to severe washouts. A roughly 400-foot section is especially concerning. To protect the stability of this trail segment, minimize maintenance, and prevent sediment loss, the Trail Plan recommends the trail surface be upgraded to asphalt pavement. It may be a possibility that repairing drainage issues could avoid the need to pave this segment. Also see Implementation Strategy 8 which includes this item.

24 – Make automated payment systems available
Because the Park has 10 vehicular entrance/parking areas, most are not staffed with a fee booth. If Park users do not have cash or the correct change, they leave or risk the penalty for nonpayment. Having an automated payment system using credit cards and cellphones would be helpful. People would more easily pay entrance fees, creating happier Park users and better funding for the Park. Each system costs about $9,000 with a $45 per month activation fee. Remote cellular systems, solar power, and other options could allow these automated units where utilities are not available. The costs would have to be justified by regular use of an area. The Division should install two or three units in the Park as a pilot and, depending on results, could subsequently install more. During the drafting of this Plan, one unit has been installed at the Carpenter Recreation Area and preliminary feedback is positive. Also see Implementation Strategy 6 which includes this item.

25 – The currently closed section of Creek Road, approximately 0.7 mile immediately south of Wedgewood Road, should remain closed to vehicle traffic

This segment of Creek Road currently has bollards at both ends preventing vehicular traffic. It has been closed to vehicles for about 12 years and has been used as a trail. Several public comments called for permanently eliminating vehicular traffic. Some interest exists to restore this road for vehicular traffic, at least one-way. However, a

large portion of this segment is immediately adjacent to the Creek, and flooding and erosion have deteriorated and undercut portions of the road. Topography and environmental sensitivity are challenges for reconstruction. Costs for restoring the road would be in the millions. More importantly, DelDOT has indicated they do not consider this segment of road a motor vehicle transportation priority and could not justify investing resources as such. Furthermore, DelDOT would be unlikely to obtain the required permits and approvals if the project was of interest. DelDOT especially does not believe they could justify the purpose and need required for the National Environmental Policy Act documents. The history of the area, environmental factors, and absence of a motor vehicle transportation priority leave DelDOT very clearly opposed to re-opening this segment of Creek Road for vehicle traffic. DelDOT and DNREC believe this segment is important for non-motorized use, and restricting motor vehicles is critical to the safety of those non-motorized users. The Division and DelDOT will review closure of this segment of Creek Road to vehicle traffic, still allowing pedestrian and bicycle access. Notably, the closure should not restrict wheelchairs, electric scooters, and other assistive devices from accessing the road segment as a multiuse trail. DelDOT and DNREC should consider transferring ownership of the right-of-way to DNREC. Also see Implementation Strategy 6 which includes this item, and Appendix F which addresses opposing public input on the topic.

26 – Repair the water control structure (outlet) of the Niven Pond

For over a year, the manmade pond at the Niven Complex has not properly held and managed water levels. Repairs are needed on the pond side of the outlet pipe. A repair would restore control of the water level. While this pond has aesthetic value and has potential for recreational fishing, it also provides an emergency source of water for fire suppression. Also see Implementation Strategy 4 which includes this item.

27 – Consider reforesting gaps within existing forest, improving forest quality, and plan for invasive species control

These tasks are consistently of statewide interest to the Division's Environmental Stewardship Program. Unfortunately, the vast majority of the Park is ecologically unmanaged. The passive succession of old fields over decades have resulted in relatively poor-quality forest with understory increasingly dominated with invasive shrubs. In White Clay Creek State Park, there are some isolated fields, surrounded by large areas of forest, which are good candidates for reforestation. This would help increase biodiversity and key habitats, especially those threatened by invasive species. Controlling invasive species is an ongoing priority, but is also a huge challenge because they are so resilient and widespread. There are 60 alien plant species considered invasive in the Park, 10 of which are immediately threatening native plant communities. The continuous efforts to control invasives are limited by funding and personnel available. Coordinating projects that control invasive species and improve forest habitats will greatly benefit the native ecology within the Park. Also see Implementation Strategy 5 which includes this item.

Some Ecological Quick Facts

- **798 species of vascular plants in the Park**
  - **240 are alien species**
  - **60 are invasive***
  - **82 are native and rare**
  - **11 are native and only found in the Park**
- **2,325 acres of forest**
  - **27% of forest is at least 80 years old**
- **200 species of birds****

***up from 35 in 2000, and these dominate the forest understory**

****about half of those species nest in the Park**

28 – Develop a plan for rare and threatened species inventory, protection, and restoration

With development ever-increasing in Delaware, Maryland, and Pennsylvania, the Park is increasingly valuable for native plants and animals. The habitats within the Park fulfill a significant role in the preservation of the biological diversity native to the Mid-Atlantic. The survival of several imperiled species will require human protections. The Division should seek grant funding and partners to assist with identifying, cataloguing, and developing plans to protect and restore Species of Greatest Conservation Need. Also see Implementation Strategy 5 which includes this item.

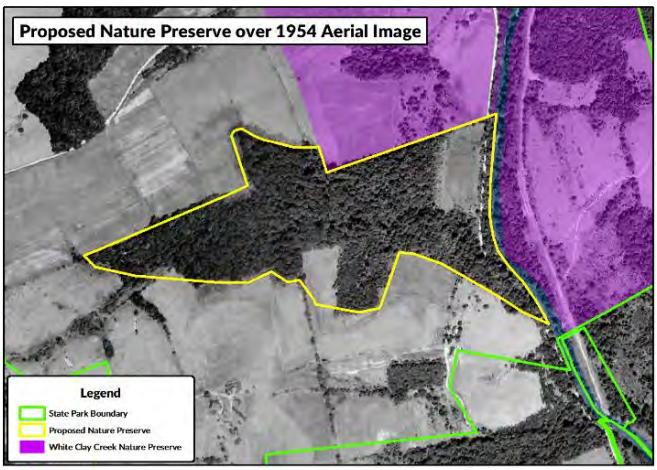
29 – Convert the current Park Office to a daily or weekly rental

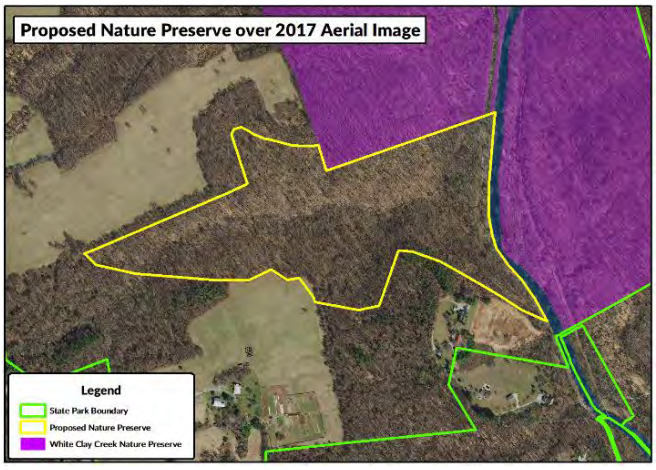
The current Park Office was originally a schoolhouse (Hillside School, District No. 100) built in the 1890s, and more recently has been a residence before converting to use as the Park Office. It has limited parking, no cellphone reception, no meeting space, is not easy to find, has accessibility challenges, and is far from other facilities and organized activities. Item 3

describes the Park Office move. This building would be good as a cabin, rentable by Park visitors to extend their recreational opportunities. The small size and isolation issues that are bad for an office are ideal for a cabin. It is also located adjacent to a trailhead and in walking distance to the Creek. It would be very appealing to fishermen, hunters, mountain bikers, and other Park visitors who would enjoy an overnight accommodation. The building could be converted from a Park Office to a rentable cabin relatively quickly, preventing another building from being underutilized. The conversion of use could easily retain the history of the building and keep the aesthetic of the area. Also see Implementation Strategy 4 which includes this item.

30 – Dedicate Fall-Spring Woods as a Nature Preserve

The Delaware Nature Society's 1978 publication *Delaware's Outstanding Natural Areas and Their Preservation* included the Fall-Spring Woods (#35 in the book). It includes mature woods and a deeply sloped valley of a tributary to the Creek. Nature Preserves generally prohibit buildings, advertisements, roads, parking, utilities, excavation, removal or destruction of plants or animals, and other uses that adversely affect the ecosystem. Exceptions do exist, but protections in Nature Preserves are greater than general parkland. Forty years ago, most of Fall-Spring Woods was privately owned. Now within the Park, and adjacent to an existing Nature Preserve, this land would be well served if dedicated. The yellow outline is tentative and may be modified in the dedication process. Also see Implementation Strategy 5 which includes this item.





31 – Evaluate interest in the Harkness Barn (aka Gabor Barn) and develop a mutually beneficial relationship with a tenant

This stone barn, probably constructed in the mid-1800s, is along Pleasant Hill Road about one mile east of Thompson Station Road. Ingress and egress from Pleasant Hill Road is poor because of sight lines and lack of shoulder or turn lanes. The barn is being used for storage by the previous landowner under an agreement. At this time there is probably no better use for this building. Also see Implementation Strategy 4 which includes this item.

32 – Consider providing camping opportunities in the Park

A primitive campsite, primarily for youth groups, has existed in the Park for many years. Due to access and parking concerns, that site is moving near the Nine Foot Road area with accessibility for all persons. Adding camping opportunities in the Park was a popular response to the question about what should change in the Park from the online survey. A review of public input on the topic can be found in Appendix F which includes some comments discouraging RV camping and some discouraging any camping. The Division encourages camping in its interest to provide recreational opportunities to a range of user groups. Various types of campsites at other State Parks are increasingly popular; some campgrounds are fully booked with waitlists for parts of the year. Visits

to park campsites and cabins statewide have increased by 65% in the last five years. In the preliminary draft Master Plan, the area proposed for camping was on a portion of the Kranz Farm area of the Park. The most common feedback on that preliminary draft was against a campground on the Kranz Farm area of the Park. The Division no longer

intends to install any camping options at the Kranz Farm area of the Park. Other areas of the Park will be explored for a small campground taking into account impacts on natural resources and park users. The Division does not want camping to be obtrusive. Based on public input, the camping area would be much smaller than the Lums Pond campground and favor tents and cabins. The essence of camping provides a new recreational opportunity allowing visitors to extend their experiences in the Park. Design considerations would need to evaluate the possibilities of providing water, restrooms, or electric. Maintenance and operational management need to be considered for what facilities and amenities may be offered. Better trail access and connections may be needed. Public input would be sought as part of the process. The initial costs for implementing camping would be high, probably $300,000 to $1,000,000, but revenue generation would be cost-positive in the long term. Also the seasonal Assistant Park Superintendent should become a full-time merit employee. Providing camping is an extended effort that requires additional evaluation and planning, and a long timetable. Because of these variables and needs, there is a chance camping may not happen, but the Division will make efforts to plan for camping further in the future. Also see Implementation Strategy 9 which includes this item.

33 – Review the hunting program and consider revisions

Management of white-tailed deer is the reason there is hunting in the Park. Deer populations are high enough that their browsing has impacted the recruitment of understory tree and shrub species in forest habitats. Deer browsing may also indirectly relate to invasive plant success. Management of the deer population is critical to improving forest habitat in the Park. Many people enjoy the hunting opportunities that exist within the Park. Others have commented that they do not like hunting or feel unsafe in hunting areas. The Division plans to allow deer hunting in the Park to continue, but has no plans to allow small game or waterfowl hunting. A review of the existing program with the Environmental Stewardship Program and wildlife biologists could result in changes to further manage the deer population, provide opportunities for different stands, or provide more opportunities for hunters. Currently, hunters must use one of 85 elevated stand sites (controlled, limited locations). Park users would probably gain comfort by knowing that hunters have to meet prerequisites and follow additional regulations, and that Rangers and Park management are actively engaged in monitoring and enforcing all hunting activity. New methods of communicating when and where hunting occurs within the Park would also be valuable. Also see Implementation Strategy 5 which includes this item.

34 – Develop a trail etiquette outreach campaign

There are several public concerns about various trail-related behaviors. These include dogs being off-leash, use of natural surface trails during wet conditions which creates ruts and poor conditions when the surface hardens, rights of way, and rude behavior. Most of this could be addressed with an outreach campaign to help identify common rules and foster courteous behavior. This effort should include a short catch phrase or action statement along with a very short bulleted list of cues to fit on a simple sign. Along with signage posted at strategic trail locations, messaging should be posted on

social media, shared in Park newsletters and email, and disseminated through related organizations. Everyone is out to enjoy the Park, and each individual should respect the various other users. Also see Implementation Strategy 7 which includes this item.

Potential elements:

- BE COURTEOUS – Trail Courtesy is for EVERYONE
- Postpone trail use if the surface is soft
- Keep dogs on leash
- Recognize the varied use of park
- Adjust your speed and path to respect who you are approaching
- Communicate in a friendly manner

35 – Partner with the Delaware T2/LTAP Program, housed at the University of Delaware, to use Engineering interns and the resources available from the program to monitor infrastructure in the Park

Through the T2/LTAP Program, undergraduate or graduate engineering students have access to mentors, tools, and software which enable them to perform many engineering functions that do not require a Professional Engineer. The Park has a large number of pedestrian and multi-modal bridges that could be periodically monitored by the interns. Their recommendations and concerns could then be provided to a Professional Engineer for review on a less frequent basis, or as needed. By using interns in this program, the Division would minimize some of the contractual work given to engineering firms, spending fractions on the dollar in comparison. These interns should also be considered for design planning, as they have a high spirit of collaboration and a fresh sense of creativity on how to approach issues. It is an opportunity to get quality work for minimal costs while assisting a new generation of engineers. Also see Implementation Strategy 10 which includes this item.

36 – Move the Carpenter Area contact station (fee booth) towards the parking lot

During concerts, cross country meets, Creekfest, and other events, the large amount of incoming traffic to the Carpenter Area backs up and impacts traffic on New London Road. Moving the booth inward would minimize the amount of congestion on New London Road. Also see Implementation Strategy 6 which includes this item.

37 – Trail Project – Two Connections in the Judge Morris Area

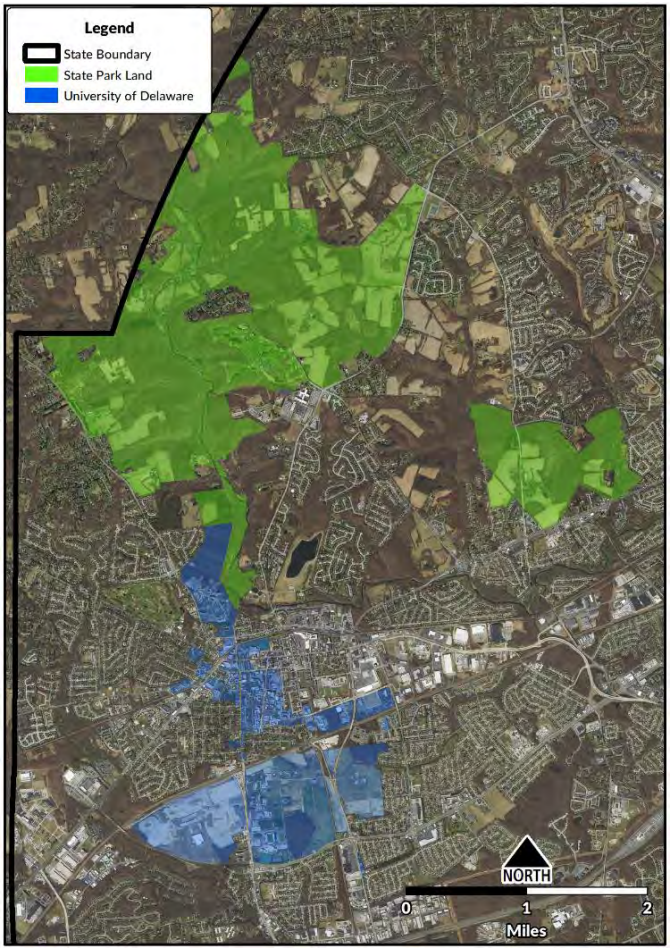
The Trail Plan recommends two new connections between existing trails in the Judge Morris Area of the Park and adjacent communities or sidewalks. These connections would be for both bicyclists and pedestrians. The surface would likely be compacted stone or natural surface, about 3 feet in width. Also see Implementation Strategy 8 which includes this item.

38 – Coordinate with New Castle County, City of Newark's Parks and Recreation Department, and the Pennsylvania Department of Conservation and Natural Resources' White Clay Creek Preserve on connectivity and shared interests

New Castle County, the City of Newark, and Pennsylvania Department of Conservation and Natural Resources own large, adjacent tracts of land and have similar interests and

purview with White Clay Creek State Park. Topics for collaboration could include agriculture management, hunting, events, trail etiquette, and more. There are likely mutual benefits from sharing information and coordinating efforts. Existing trial networks have connectivity that transcends jurisdictions. The Division will maintain good contacts with these organizations and schedule conversations several times per year to discuss similar activities, future plans, and opportunities for working together. Also see Implementation Strategy 10 which includes this item.

39 – Work to coordinate more with the University of Delaware



Many University instructors use the Park for studies or as a setting for coursework. Much of the time the Park Office is not notified. This is unfortunate because the Park could ensure study areas are not impacted, coordinate resources to help certain projects, and would also benefit from the result of studies. Other faculty and staff could benefit from using the Park and communicating with the Park management would help them understand the diversity of the Park and best plan activities. The University teaches agriculture management and the Park has over 600 acres of agricultural lands. Several underutilized buildings exist within the Park and the University could be the source to utilize some of them whether as a residence, field office, business incubator, environmental education center, or other use. The Park involves public policy, watershed management, invasive species control, wildlife ecology, bridge maintenance, trail and road engineering, hospitality, marketing, and partners that could provide great learning experiences for students. The University and the Division should also highlight the Park as a recreational resource for thousands of students that are not aware of the Park's offerings. The size and proximity of the Park and the University should lend them to be partners. The Division will seek several University of Delaware faculty and staff contacts to develop better dialogue and partnerships between the University and the Park. Building open communication is critical to this item. Also see Implementation Strategy 10 which includes this item. Improving communication and coordination with Delaware State University, who currently conducts research in the Park, and other educational and environmental organizations should also be done for similar mutual benefit.

40 – Develop a water quality plan with an implementation path based on results
The White Clay Creek itself and its tributaries are enjoyed by many visitors who come in contact with the water or who intrinsically value the health of the ecosystem. The National Wild and Scenic River Program, University of Delaware, Delaware Nature Society, Stroud Water Research Center, and other organizations conduct water quality monitoring in the area of White Clay Creek State Park. The 3,647 acres of the Park protect the White Clay Creek and its tributaries especially compared to development. But the Park does not have a water quality plan. The management of a golf course, commercial agriculture, erosion, and other human impacts are all factors that could be better managed to maximize surface water quality. The Division will consult partners, form a plan for monitoring, and subsequently develop an action plan based on monitoring results. Also see Implementation Strategy 10 which includes this item.

41 – Trail Project – Maintenance projects and reroutes among the Twin Valley, David English, Bryan's Field, and Whitely Farms Trails
The David English, Bryan's Field, and Whitely Farms trails are popular for bicyclists and pedestrians. Most of the Twin Valley Trail is limited to pedestrian use. The Trail Plan calls for significant portions of these trails to be rerouted or armored (upgrading the surface, here to compacted stone) for stability and to minimize sediment loss. Trail staff will coordinate with biologists on David English rerouting to avoid disturbance to rare moth host plant communities. Also see Implementation Strategy 8 which includes this item.

42 – Establish a new parking area on the southern section of Creek Road
This section of Creek Road is a popular area of use within the Park. There is no formal trailhead or facility in this section of the Park, so vehicles end up parking at any location along the road. Several informal parking spots have expanded over time. This area and the social trail leading down to Dam No. 5 sometimes have a higher occurrence of regulatory violations and suspicious behaviors. The Division will install a formal parking

area, information board, trailhead, and trail with wayside. This will centralize use in this area and discourage prohibited behavior. It will also allow the Park to naturalize the

improperly created parking areas, restoring the aesthetic and improving the environment. Also see Implementation Strategy 6 which includes this item.

43 – Trail Project – Wells Lane Connector (from Wedgewood Parking Lot to Carpenter Area)

The Carpenter Recreation Area and the Creek valley are two main recreation locations within the Park. But there is no direct trail connection between these two adjacent areas, and the trails that do connect are for pedestrians only. Having a trail that is accessible for bicyclists and pedestrians would be desirable and well used. The Trail Plan recommends this connection with some of the existing trail on the southeast portion of the Carpenter Area realigned to be more sustainable and to accommodate this connection. The surface would likely be compacted stone about 4 feet in width. Also see Implementation Strategy 8 which includes this item.

44 – Regrade the former paddock just south of the bandshell in the Carpenter Area for more stable overflow parking

The large field south of the parking lot in the Carpenter Area of the Park is used for overflow parking several times of the year during concerts, cross country meets, Creekfest, and other events. For more popular events, the former paddock area is needed and used. This small portion of the field is not well drained and becomes an easy place for vehicles to get mired in all but completely dry conditions. The Division will regrade the former paddock area for proper sloping and drainage. Also see Implementation Strategy 6 which includes this item.

45 – The Division will stabilize the Gregg Agricultural Complex and consider better utilization or demolition

The Gregg Complex is at the end of Wells Lane with access from Wedgewood Road. The residence (Wells House) is well-utilized as staff housing and will remain as such.

There is a barn and several outbuildings in degrading condition. There is some storage here, and volunteers use the barn to construct memorial benches. One of the smaller outbuildings was the original Park Office. But these buildings are disjointed, not critical to operations, and not conveniently accessible by vehicle. The Division will consider repair and maintenance of the exterior envelope of the barn for weatherproofing and repair of the barn foundation. This would allow continued volunteer use and specialized storage while keeping the complex intact. The Division will consider preservation and use compared to demolition and the loss of the complex. Also see Implementation Strategy 4 which includes this item.

46 – The Division will consider better utilization of the J. Cloud Barn

This approximately 3,000 sq.ft. barn is in an internal area of the Park off of Smith Mill Road. It is adjacent to a periodically used staff residence, and vehicular access passes through two gates and another residence.

The barn is not currently used, though it's foundation has recently been repaired. The Division would like to see the building used, but would have to be careful about third-party use because of the location and access. It could work well for storage by an agriculture concessionaire or another type of special partnership. Also see Implementation Strategy 4 which includes this item.

47 – Seek partners to organize an entry-level run/bike biathlon or triathlon

This type of event has the potential to draw broad interest and grow participation over time with minimal environmental impact to the Park. These types of races are also popular locally and nationally. It would help generate awareness of recreational opportunities in the Park via marketing and promotion, and also via participants using diverse areas of the Park. Many non-profit organizations and causes receive the benefit of local 5k, 10k, and similar events. In this scenario, the Park would certainly benefit from a financial boost from such an event. The Division will explore partnership opportunities to organize this type of event to raise interest in the Park and assist with funding for items in this Plan. Also see Implementation Strategy 10 which includes this item.

48 – Install a sign facing inbound trail users at the pending tunnel underneath Paper Mill Road that highlights the entrance to the Park and has text donation information

This corridor is highly used by hikers and bikers for access between White Clay Creek State Park (WCCSP) and Middle Run Valley Natural Area (MRVNA). Many people park their vehicles at Middle Run for free and use the trail system through the corridor under Paper Mill Road to enter WCCSP. Some people also are unaware that MRVNA is owned by New Castle County and managed separately from WCCSP. Hours of access, funding, and regulations are different between agencies. Some draft language for a sign might be "You are now entering White Clay Creek State Park. Fees are important for trail upkeep, educational programs, and habitat protection. Please consider donating $2 by texting 'two' to 55555". This would foster better appreciation for the Park and fees collected, and would generate some funding from users who park outside the Park. Also see Implementation Strategy 7 which includes this item.

49 – Install waysides facing inbound trail users at the north end of the new Tri-Valley Trail, near the intersection of Corner Ketch and Paper Mill Roads

This new trail will offer access from Paper Mill Park, a New Castle County owned facility with free parking. Some trail users park their vehicles at Paper Mill Park instead of the Smith Mill lot in White Clay Creek State Park. This location would be great for a three panel wayside, trailside informational panels, with two sides having information about nature and history and the third side having information about how fees are used and the option to donate via text. The third panel information could read similar to item 47 above "You are now entering White Clay Creek State Park. Fees are important for trail upkeep, educational programs, and habitat protection. Please consider donating $2 by texting 'two' to 55555". This would foster better appreciation for the Park and fees collected, and would generate some funding from users who park outside the Park. Also see Implementation Strategy 7 which includes this item.

50 – The Division will seek a better method for tracking infrastructure locations, interpretive sites, attributes, and maintenance
In many cases, the Division has records that are disjointed or lacking. For example, the date a building was originally constructed may not be known, or several sets of files have to be referenced to find it. A relational database could track various forms of data, along with a mapped location and links to supporting documents. The more information about infrastructure and resources the Division can collect and spatially document, the better prepared it will be to minimize impacts and manage Parks. For example, locating an unmarked graveyard and linking its information could avoid accidental tractor impacts and allow for interpretation and programs. Also see Implementation Strategy 10 which includes this item.

51 – Evaluate flow of parking and event traffic at the Carpenter Area
The Carpenter Area is a center for large events like concerts, cross country meets, and Creekfest. The large field south of the parking lot is used for overflow parking. Managing traffic associated with events is a concern for the Park. As part of this Plan, the Park Office will soon be moving to the Maxwell House in the Carpenter Area. Primary vehicular access to the new Park Office would be from Wedgwood Road. However, an internal connection should be considered between the Maxwell House and the main entrance of the Carpenter Area for authorized use, along with reconsideration of the flow during events and regular use. The Maintenance Complex is also in this area and should be a consideration for access. The Division will evaluate these options and may redesign future vehicular traffic flow at the Carpenter Area. Also see Implementation Strategy 6 which includes this item.

52 – The Division will pilot two programmable gates within the Park
Currently there are nine established parking areas within the Park. Most of them have a gate that is manually unlocked and locked every day. Having programmable gates would save staff time from being physically present at each location every morning and every evening. It could also provide better service, as staff may occasionally run late if responding to an emergency issue. Gate technology can provide many options for solutions including remote controls, battery backup for continuous power, mechanisms to allow visitors to exit if locked in after hours, and emergency access. Units would require a power source and would require a trial to ensure expectations and use are acceptable. The Division will install two programmable gate units to trial as a substitute for conventional gates. Also see Implementation Strategy 6 which includes this item.

53 – Trail Project – Assess the integrity of Skills Trail features and consider upgrades
The Skills Trail is a course to challenge mountain bikers with a variety of constructed elements and natural features to ride on or around. It is highly appreciated by the mountain biking community. Even though individuals enter the Skills Trail at their own risk, the Division would like to practice a higher level of safety. The Division will hire a professional engineering firm with related experience to assess the integrity of the Skills Trail's existing components. The firm would also be tasked to recommend features that

could be added to enhance the design of the course. Also see Implementation Strategy 8 which includes this item.

54 – Consider additional or all-season restrooms and water fountains

There is interest in having restrooms available year round. Established restroom facilities are available at four locations: the Carpenter Parking Area, the new Smith Mill Parking Area, the Judge Morris Parking Area, and the Nature Center Parking Area. Only the Smith Mill restrooms are open year round. The other three are locked in the winter because they are winterized to prevent pipes from freezing. Renovating the bathrooms with heating would be required for year-round use. It costs $200 per month for electric just at the Smith Mill restrooms. Park use does drop in the winter and there is no entrance fee charged then. So while the Division is not rushing to provide all season restroom availability, it will be considered. Also see Implementation Strategy 10 which includes this item.

55 – Install signage in proximity to where University of Delaware – Newark Campus and the Park meet

The Campus and Park are two huge neighbors. The Park is a resource available to students, faculty, and staff. Yet many individuals in the Campus community are not aware of the size and complexity, and some are not aware that the Park exists at all. To promote the Park as such a close amenity, the Division and University should partner for signage on campus that shows access points from Campus directly into the Park, as well as programs and features of the Park. This would provide additional, beneficial experiences for University students and staff. The Division should also place signage in the Park along one or two key corridors from Campus that is inviting to the University community with information about trails, programs, and features. Also see Implementation Strategy 7 which includes this item.

56 – Convert the Judge Morris Lot Bathrooms to a tank and pump restroom or connect to sewer

This restroom was designed to be a composting unit. Unfortunately the system does not work well, cannot be cleaned with traditional cleaning supplies, and requires regular removal of solids from the chamber below the unit. The removal of solids is done manually by shovel, which is quite unpleasant, and the solids are not desirable nor

comparable to garden compost. Converting the unit to a tank and pump (latrine) or sewer-connected setup would reduce management and staff time. Also see Implementation Strategy 3 which includes this item. Converting this restroom will also prompt consideration for upgrades that would make it usable year-round.

57 – Consideration for amending the extended use permit program
This program allows trail use from 6:00 a.m. to 8:30 p.m. during certain times of the year via a permit that is obtained from the Park Office. Access is also limited to certain trails, including Whitely Farms Trail, Brian's Field Trail (not Skills Trail), Smith Mill Road, Creek Road south of Hopkins Road, and the Pomeroy Trail. Parking for permit holders is available at the Wedgewood Road and Nine Foot Road lots. Many refer to this extended trail access as "night riding," but it is also for pedestrian use and the hours available do not extend all night. There is some interest in expanding the hours and locations available. However, there are existing management concerns with closing the gates, having Rangers in the area in case of emergency, impacts on native wildlife species that are most active at twilight, and existing participants not exiting the Park within times specified. The Division will plan to implement a small fee for extended use permits to assist with management burdens and minimize impacts. The Division will revisit the available hours and areas in the future. Also see Implementation Strategy 10 which includes this item.

58 – Consideration for constructing a demonstration cider mill
There has been interest from several individuals to recreate the former Schaen Cider

Mill. The 20' x 20' apple cider mill was probably constructed in 1917, had a period of inactivity prior to 1940, and was destroyed by fire in 1972. George Schaen ran the mill beginning in 1941, bought it in 1960, and continued to operate it until his son Gene took over in the late 1960s. The cider mill was a notable part of the community when it was in operation. There have been efforts to capture its history and consider reconstruction since the late 1980s. However, cost and location are the biggest concerns. Reconstructing the building on, or in proximity, to the original location may be impossible for land use approvals and would be undesirable due to high risk of flooding. The costs for the structure would be overshadowed by permitting, reconstruction of mill components, staffing, and operational costs. Public health requirements would have to

be met to actually produce cider. There are components from a similar mill which were acquired by the Division, but they are not in working order. There are just too many existing buildings within the Park that have a deeper history, are underutilized, and need attention. The Division cannot justify prioritizing a cider mill at this time with other areas of the Park in greater need of attention. The Division will consider displaying select cider mill components in the Nature Center for historic and cultural interpretation

59 – Creek Road between Wedgewood Road and Hopkins Road should transition to being closed to vehicle traffic except programs and special uses

This segment of Creek Road is currently gated at both ends and opened only during the daytime on Mondays and for the Spring Trout Fishing Season. An informal survey of use demonstrated about 90 pedestrians and bicyclists per weekday (weekend days about 128), compared to 2 vehicles per day on the days the segment of road is open. The survey was actually done to consider if it was worth expanding the number of days the segment of road would be open to vehicles. But the use does not support that. Furthermore, this segment has a poorly graded, gravel surface with several small, wooden bridges. Conversations with DelDOT indicate they do not consider this segment of road a motor vehicle transportation priority and are not interested in investing resources as such. DelDOT and DNREC believe this segment is important for non-motorized use, and restricting motor vehicles is critical to the safety of non-motorized users. The Division should work with DelDOT to close this segment of Creek Road to vehicle traffic with trail use continuing as the primary function. The Division will allow vehicle access for programs and special uses, and will consider accommodations for recreational drives. DelDOT and DNREC should review transferring ownership of the right-of-way to DNREC. Also see Implementation Strategy 6 which includes this item, and Appendix F which addresses opposing public input on the topic.

60 – Trail Project – Extend Pomeroy Trail northward

The Pomeroy Trail extends from the downtown Newark area into the Park. It is one of the most heavily used trails in the Park. The northern terminus of the Trail is at Hopkins Road. The Trail Plan recommends the trail continue northward, connecting with Chambers Rock Road in the area of the current Park Office. However, this item is low ranking and has a high cost. For those reasons, the Division will not prioritize this trail project. Also see Implementation Strategy 8 which discusses trail projects.

61 – Trail Project – Carpenter Area Loop
The Carpenter Recreation area is the most popular area of the Park and is used for concerts and other events. The Trail Plan recommends the creation of a loop trail, accessible for all abilities in this area. Walking or biking the loop could be enjoyable during concerts or while other family members enjoy the playground or other amenities. However, this item is low ranked and has a high cost. For those reasons, the Division will not prioritize this trail project. Also see Implementation Strategy 8 which discusses trail projects.

62 – Trail Project – Connection through Deerfield, from Tri-Valley Trail to Pomeroy Trail
Two popular areas of the Park are the Creek valley and the Possum Hill Area. However there are no trail connections between these two areas. The Trail Plan includes the option of connecting the Tri-Valley Trail from the Nine Foot Road Area to the Pomeroy Trail adjacent to the Creek. The trail would be compacted stone or asphalt and designed for pedestrian and bicyclist use. However, this item is ranked low and has a high cost. It also would require crossing Thompson Station Road, which is challenging. For those reasons, the Division will not prioritize this trail project. Also see Implementation Strategy 8 which discusses trail projects.

63 – Consideration for opening the currently closed section of Creek Road to vehicle traffic
This approximately 0.7 mile section immediately south of Wedgewood Road, should be permanently closed to vehicle traffic. This segment of Creek Road currently has bollards at both ends preventing vehicular traffic and has been used as a trail. It has been closed to vehicles for about 12 years. Some interest arose to restore this road for vehicular traffic, at least one-way. However, a large portion of this segment is immediately adjacent to the Creek, and topography and environmental sensitivity are challenges for

construction. Costs for restoring the road would be in the millions. More importantly, DelDOT has indicated they do not consider this segment of road a motor vehicle transportation priority and could not justify investing resources as such. Furthermore,

DelDOT believes they would be unlikely to obtain the required permits and approvals if the project was of interest. Specifically, DelDOT does not believe they could justify the purpose and need required for the National Environmental Policy Act documents. Even if approved, the road would have to be reconstructed to updated safety standards that would require significantly higher costs and impactful earthmoving and engineering even for just a one-way road. The history of the area, environmental factors, and absence of a motor vehicle transportation priority leave DelDOT very clearly opposed to re-opening this segment of Creek Road. DelDOT and DNREC believe this segment is important for non-motorized use and restricting motor vehicles is critical to the safety of those non-motorized users. The Division and DelDOT will review closure of this segment of Creek Road to vehicle traffic, still allowing pedestrian and bicycle access. Notably, the closure should not restrict wheelchairs, electric scooters, and other assistive devices from accessing the road segment as a multiuse trail. DelDOT and DNREC should consider transferring ownership of the right-of-way to DNREC. Also see Implementation Strategy 6 on the topic of roadways, and Appendix F which addresses opposing public input for this item.

Additional Concepts – These items are important to the Park, but are either ancillary or not limited as a project with a set timeframe or geographical boundary:

- **Maintain an interest to purchase in-holdings and adjacent properties as they come available** – The Division does not have endless funds to acquire every property. However, it does have programs for protecting or purchasing lands that expand the Park. Lands do need to meet some qualifications to be eligible for the Division's interest. But the Division is always ready to discuss the potential for protection or acquisition with nearby landowners (lands do not need to be immediately adjacent). Persons interested should contact the Division's Land Preservation Office 302-739-9935 or elena.stewart@delaware.gov.
- **Foster the 'One Park' Visitor Experience Strategy** – The Division goal is to ensure all park visitors have an experience that directly and personally connects them to the natural, historic, and cultural resources found at each Delaware State Park, inspiring them to acts of stewardship in support of these resources. The Visitor Experience Strategy incorporates each park's theme and essential experience into statewide planning and preservation efforts, marketing, and customer interaction points. Delaware State Parks act as one park, working collaboratively to create meaningful visitor experiences that inspire lifelong stewardship. All staff, regardless of position, are empowered to develop and deliver resource-based interactions with visitors, utilizing the themes and essential experiences that make each Delaware State Park unique. The theme and essential experiences for White Clay Creek State Park are:

  From creek's edge to piedmont ridge, the natural vistas and rich history of the White Clay watershed endure because members of the communities surrounding it advocated on behalf of this critical resource. Discover White Clay Creek's National Wild and Scenic Watershed by exploring the Chambers House area. Experience the watershed on trails that meander from the bank of the creek to

scenic views of the valley. Explore the most diverse trail system in Delaware State Parks with its scenic views, the Millstone Pond, the Mason-Dixon marker, and bridges spanning White Clay Creek.

- **Identify and use a single, clear name for each area and building, and cease using alternative names** – Many areas of the Park and buildings are referenced by more than one name. This leads to confusion among visitors and staff and can be misleading about the location's history. The Division will establish a team to assign one name to each building, building complex, and area. Historic context will be a primary influence in naming. The Division will then update maps and educate staff to provide consistency.
- **Initiate text message donations** – Donations by text are a tool that can help generate needed revenue from the Park. This is particularly useful for neighbors and other visitors who enter the Park on over two-dozen trail access points. Park user fees are only charged to vehicles, but many of the users who enter the Park via other means would be willing to contribute to the betterment of the Park. Text donations are an easy way to collect a modest amount from concerned individuals. The Division will also coordinate the availability of this with well-placed signage.
- **In-progress projects** – Accessibility and connectivity in the Possum Hill area, the new playground, labeling information boards with 911 addresses, Tri-Valley Trail phase 2, Judge Morris Estate use, and Wells Lane Bridge are all projects that have been planned prior to the start of this Master Plan and are in progress or were completed as this Plan was being completed.
    - **The new playground** is designed for 2-5 year old children and is immediately adjacent to the existing playground at the Carpenter Area. It will allow better play for younger children and expands the overall playground area. As part of this project, new curbing for mulch containment will also be constructed around the existing playground as one unified play area.
    - **Connecting features and activities which are accessible to persons of all abilities.** Several projects in the Possum Hill area of the Park are designed to be accessible for all abilities and to connect. Docks were installed in Smith Mill Pond to especially provide access for wheelchairs and youth fishing events. A primitive campsite is being constructed a short distance from the Nine Foot Road parking lot which will have surfacing, a tent platform, picnic table, and connector trail designed for accessibility. The Nine Foot Road parking lot is also the location for fall hayrides. This is the first State Park to have a specialized lift to enable persons with all abilities to ride with others on the haywagon. Tri-Valley Trail is a wide, paved trail with only gentle grades that enables wheelchair and other uses. It also connects the hayride

area, primitive campsite, accessible fishing docks, and now connects to Paper Mill Park.

- **Labeling all information boards with area name and 911 addresses** will help provide a quick reference for location in the event of an emergency. Information boards are the large, vertically-facing, protected map and information panels at most trailheads and parking areas. Having a conspicuously posted 911 address will help Park visitors describe where they are to emergency services. The Division will also explore the possibility of labeling marker posts at trail intersections with GPS coordinates.

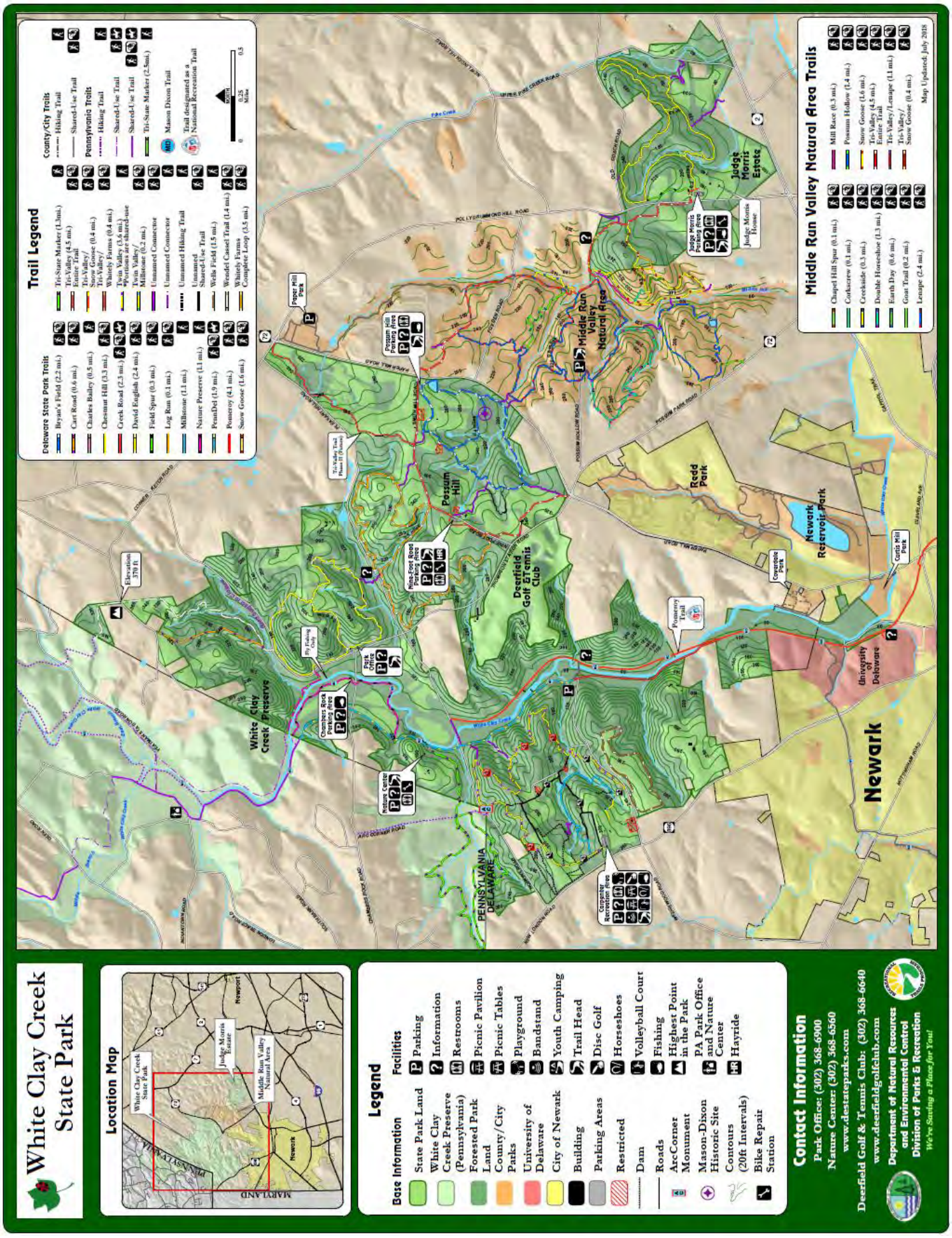
- **Phase 2 of the Tri-Valley Trail** will extend from the existing paved trail (Smith Mill Road), between the Possum Hill and Nine Foot Road Parking Areas, to the intersection of Corner Ketch and Paper Mill Roads. It will be an accessible, paved trail. Construction was completed in September 2019, though some punchlist items remain.
- **Soliciting interest in the Judge Morris Estate** began prior to the Master Plan process. A Request for Proposals was issued, with vendor award announced in April 2019. The selected concessionaire will be using the house, barn foundation, and immediate grounds as a special event venue including catering and food service. They also plan to provide public programming and events that blend with the Division's programs. The Division will benefit from direct payments from the vendor, as well as the facility improvements and maintenance that the vendor will perform. The agreement runs through 2024, with an option to extend.
- **The Wells Lane bridge** is a small bridge along an internal Park road with restricted vehicle access. It is important for resident, volunteer, and maintenance use as well as heating fuel deliveries. The bridge has been a concern for a few years and the flooding in 2018 brought the need for a temporary fix. As this Plan was being written, the bridge was in construction and was completed.
- **Paving of the Nature Center entrance and parking lot** was planned prior to the Master Plan process. That is a popular area of entry to the Park and potholes were continually present, required repeated maintenance, and were a regular source of citizen complaints. The project was completed in September 2019.

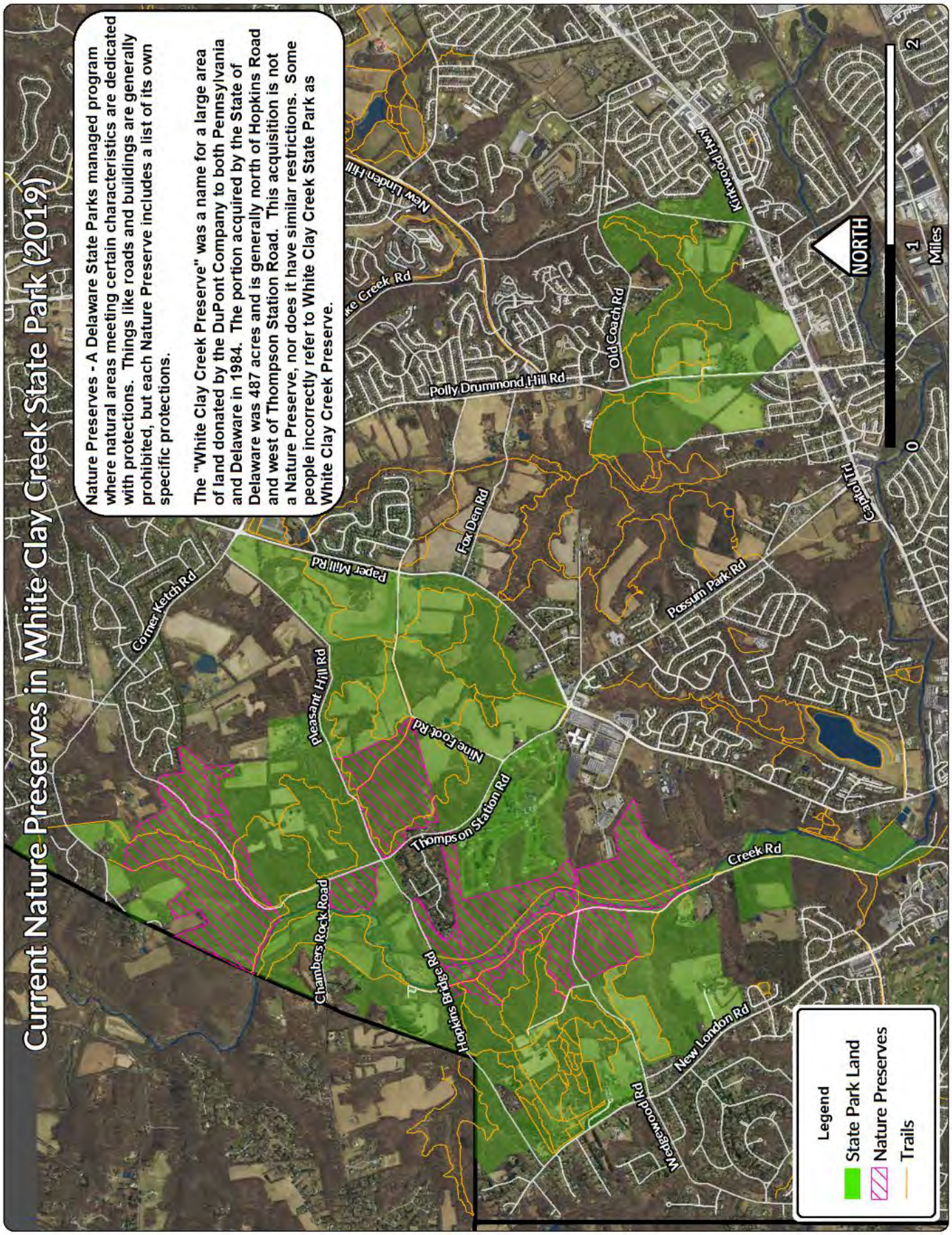
- **Continue concessionaire management and operation of Deerfield** – The golf course and banquet facilities known as Deerfield are owned by the Division. Along with Garrisons Lake Golf Club (another Division-owned facility in Smyrna), Deerfield is currently operated and managed under agreement by Forewinds Hospitality. This relationship has been beneficial from a financial and day-to-day operational standpoint for the Division. The Division receives funding from a flat fee and percentage of gross revenue agreement. Deerfield provides a treasured public golf course (home to UD's Women's Golf Team), pub and gourmet dining, venue for elegant weddings, and host to various other community events. The 145-acre

property is managed independently with minimal oversight required from the Park. The current concessionaire agreement for Deerfield runs to the end of 2023. The Division will likely begin the request-for-proposals (RFP) process in 2022 to select the future concessionaire and to prepare for an orderly transition if a new vendor is selected. The Division RFP would be consistent with the current use and management structure of the property.

- **Continue the Silent Knights Soaring Society (SKSS) relationship** – The SKSS operates remote-controlled gliding aircraft at the field north of Smith Mill Road under an agreement. The Division is not currently interested in altering the use of the SKSS area. However, a new agreement would be necessary in 2021 based on the term of the current agreement.

Appendices


White Clay Creek State Park
Location Map
Legend
Base Information
State Park Land
White Clay Creek Preserve (Pennsylvania)
Forested Park Land
County/City Parks
University of Delaware
City of Newark
Building
Parking Areas
Restricted
Dam
Roads
ArcCorner Monument
Mason-Dixon Historic Site
Contours (20ft Intervals)
Bike Repair Station
Facilities
Parking
Information
Restrooms
Picnic Pavilion
Picnic Tables
Playground
Bandstand
Youth Camping
Trail Head
Disc Golf
Horseshoes
Volleyball Court
Fishing
Highest Point in the Park
PA Park Office and Nature Center
Hayride
Contact Information
Park Office: (302) 368-6900
Nature Center: (302) 368-6560
www.destateparks.com
Deerfield Golf & Tennis Club: (302) 368-6640
www.deerfieldgolfclub.com
Department of Natural Resources and Environmental Control
Division of Parks & Recreation
We're Starting a Place for You!
Trail Legend
Delaware State Park Trails
County/City Trails
Pennsylvania Trails
Middle Run Valley Natural Area Trails
Map Updated: July 2018
Newark
Pennsylvania
Delaware
Maryland
White Clay Creek Preserve
Possum Hill
Deerfield Golf & Tennis Club
Middle Run Valley Natural Area
Judge Morris Estate
Redd Park
Newark Reservoir Park
University of Delaware


Current Nature Preserves in White Clay Creek State Park (2019)
Nature Preserves - A Delaware State Parks managed program where natural areas meeting certain characteristics are dedicated with protections. Things like roads and buildings are generally prohibited, but each Nature Preserve includes a list of its own specific protections.
The "White Clay Creek Preserve" was a name for a large area of land donated by the DuPont Company to both Pennsylvania and Delaware in 1984. The portion acquired by the State of Delaware was 487 acres and is generally north of Hopkins Road and west of Thompson Station Road. This acquisition is not a Nature Preserve, nor does it have similar restrictions. Some people incorrectly refer to White Clay Creek State Park as White Clay Creek Preserve.
Legend
State Park Land
Nature Preserves
Trails
NORTH
0
1
2
Miles
Corner Ketch Rd
Paper Mill Rd
Fox Den Rd
Polly Drummond Hill Rd
Old Coach Rd
Kirkwood Hwy
Possum Park Rd
Pleasant Hill Rd
Nine Foot Rd
Thompson Station Rd
Creek Rd
Chambers Rock Road
Hopkins Bridge Rd
New London Rd
Wedgewood Rd

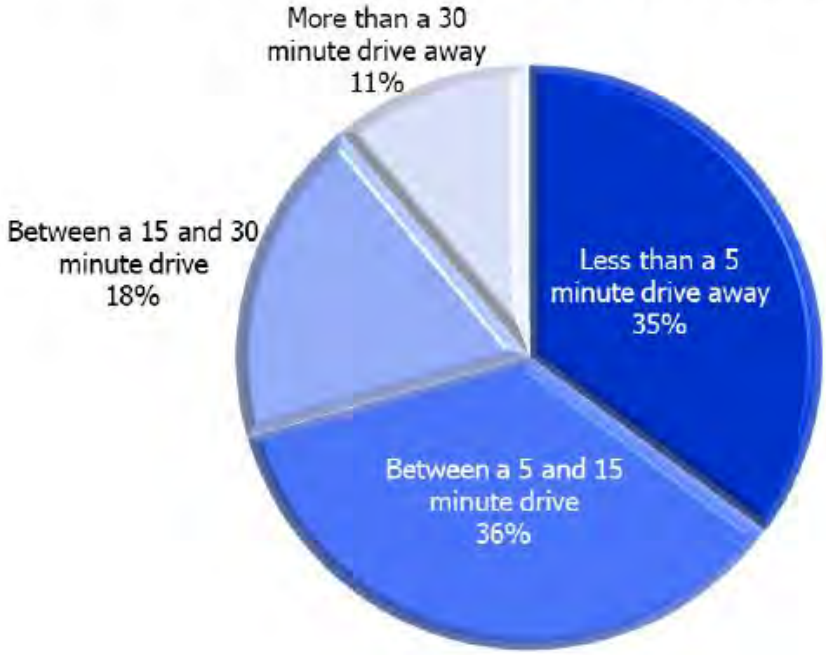
Results from the Online Survey

Conducted About White Clay Creek State Park to Gain Broad, Public Perspective Before Drafting a Master Plan

May-September 2018
1,096 Completed Surveys

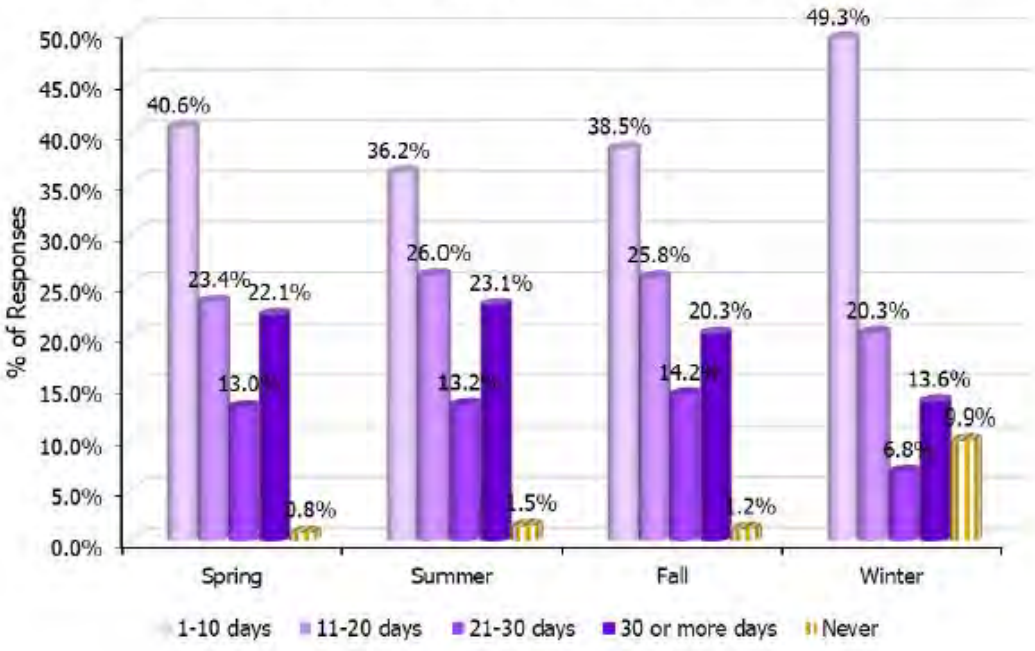
This document presents data that has been compiled and generalized or categorized to protect the confidentiality and anonymity of respondents. Individual responses are intentionally not presented.

1. Approximately how far do you live from White Clay Creek State Park? (drive time)

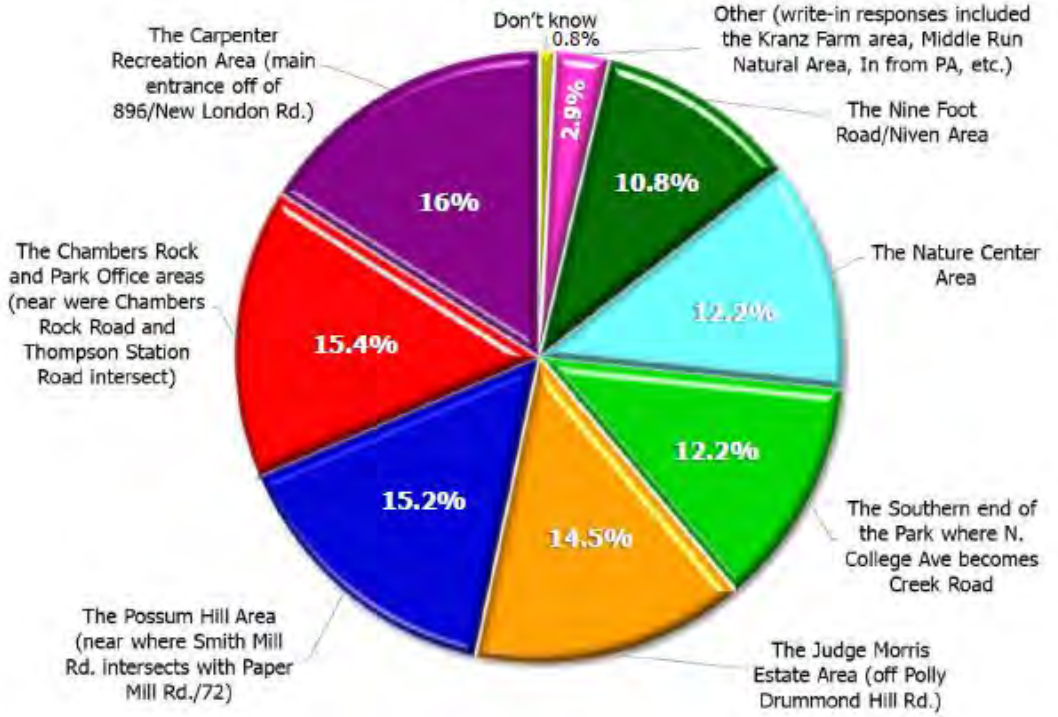


2. How do you typically visit White Clay Creek State Park?

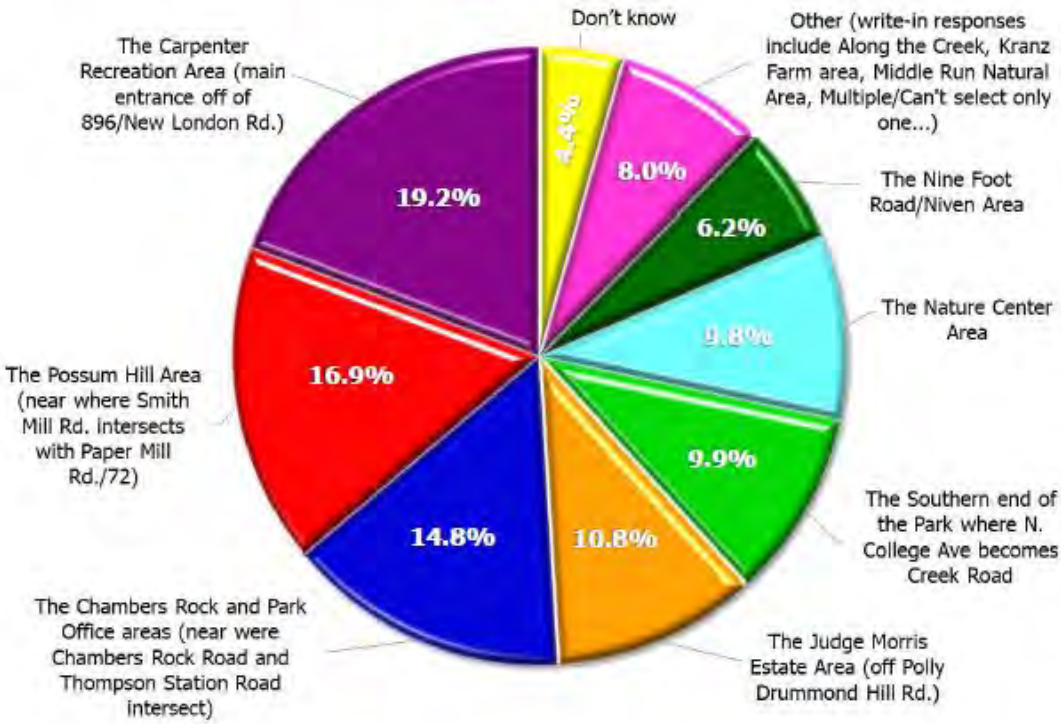
3. How often do you visit, or anticipate visiting, White Clay Creek State Park during each season?



4. Which areas of White Clay Creek State Park do you use?
Select all that apply.
(% of Responses)

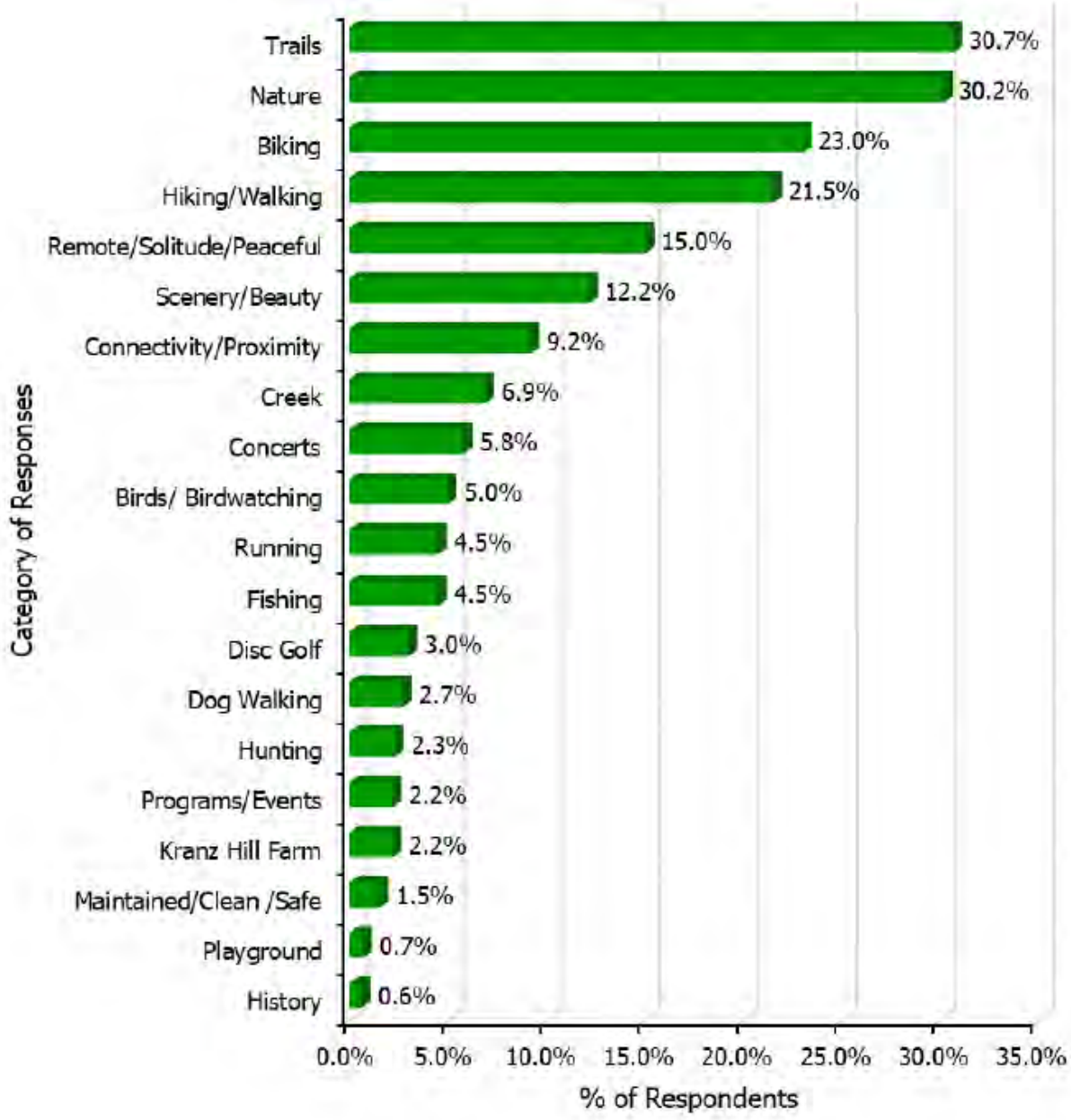


5. Which area of White Clay Creek State Park do you use <u>the most</u>?
Select only one.
(% of Responses)

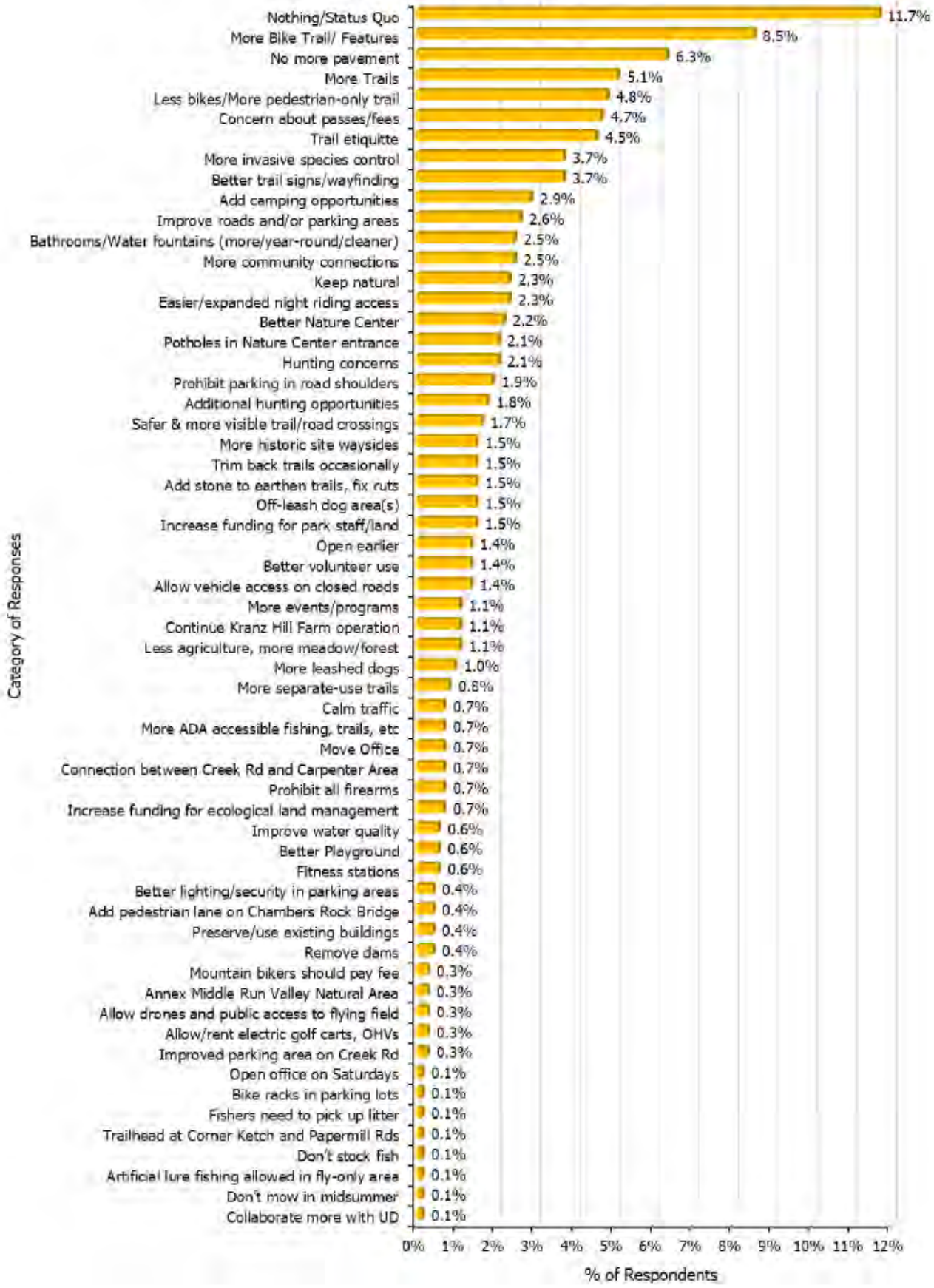


6. What do you enjoy most about White Clay Creek State Park?

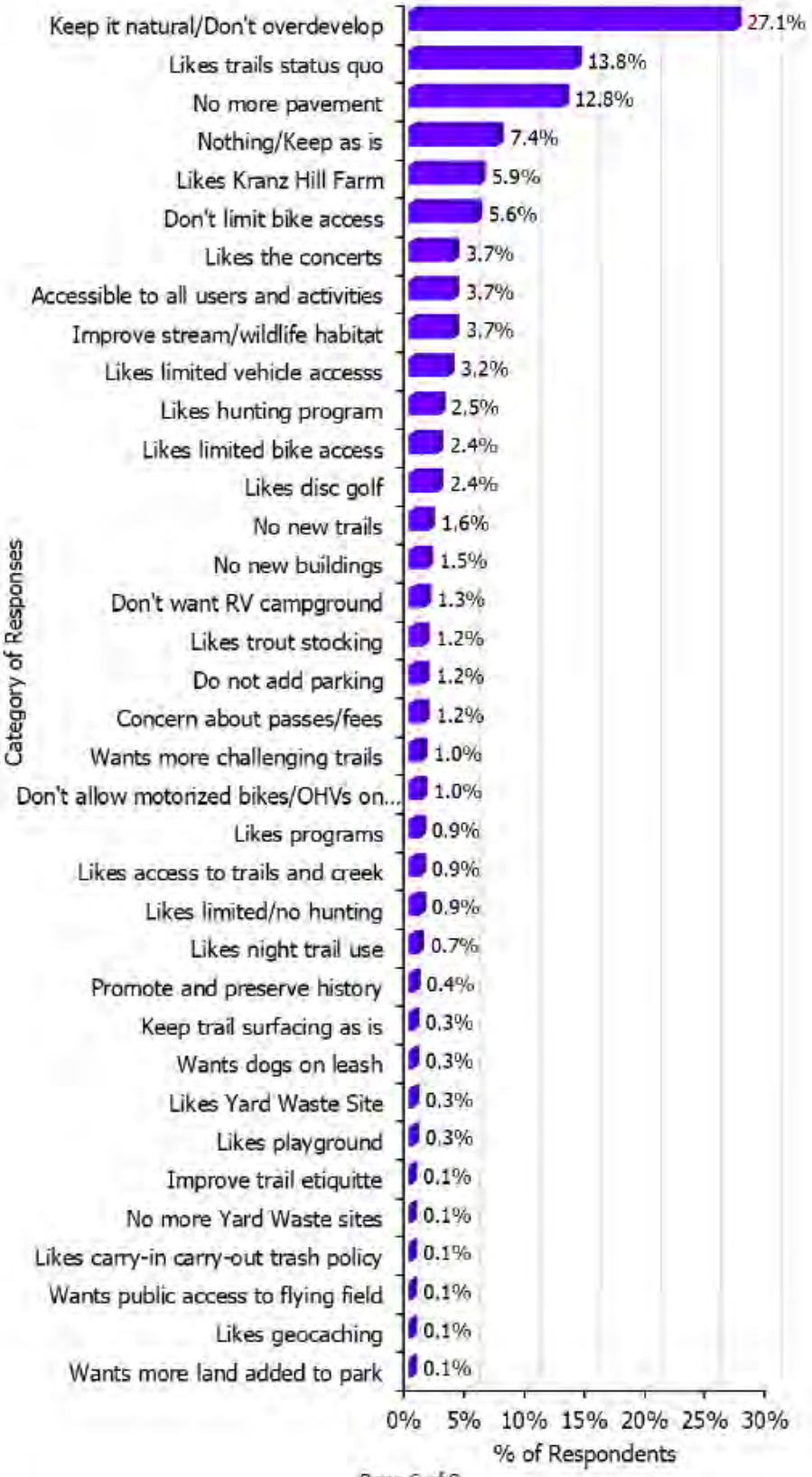
(multiple responses allowed)



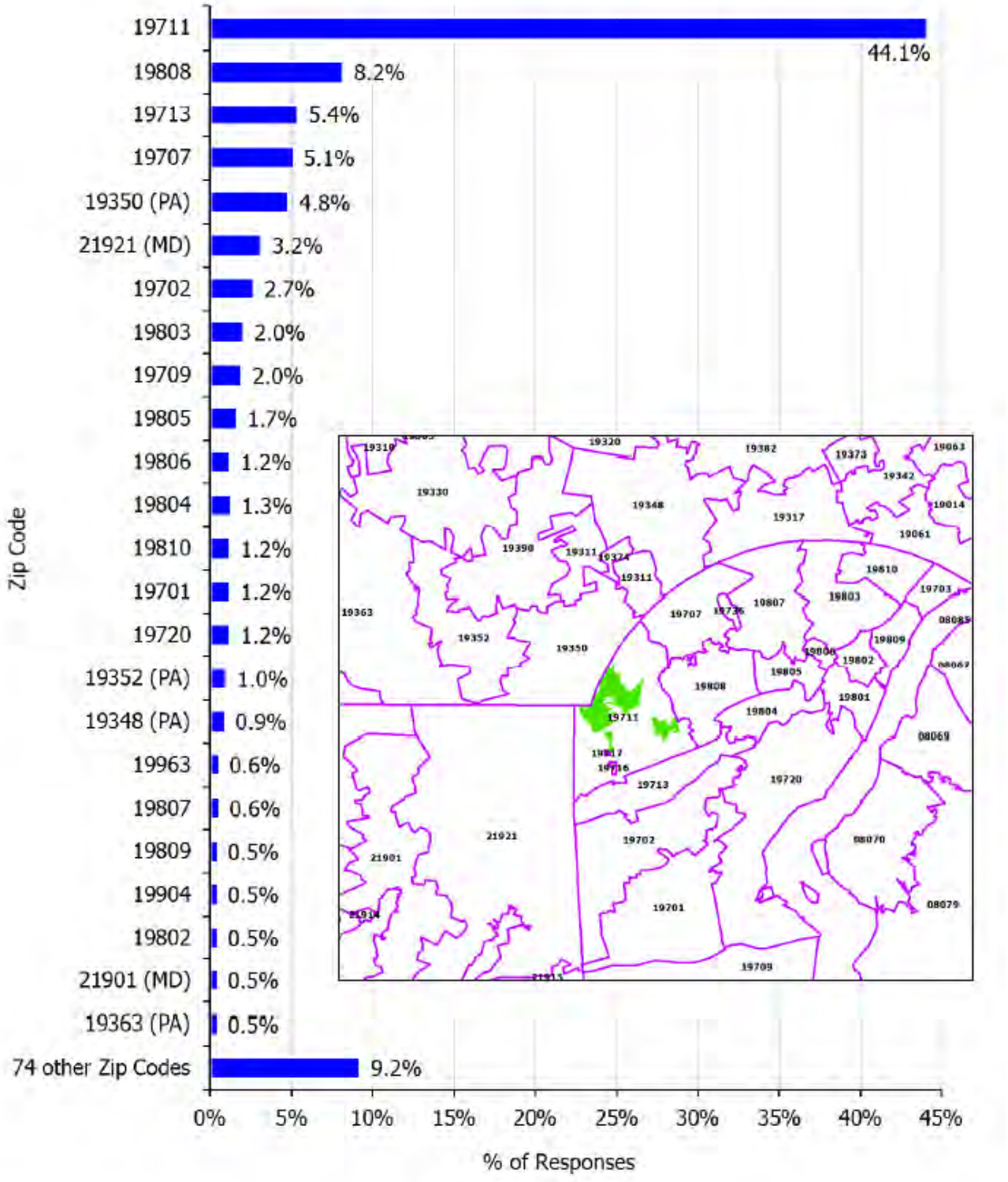
7. If you feel strongly that something *should* change in White Clay Creek State Park, what would it be?
(multiple responses allowed)

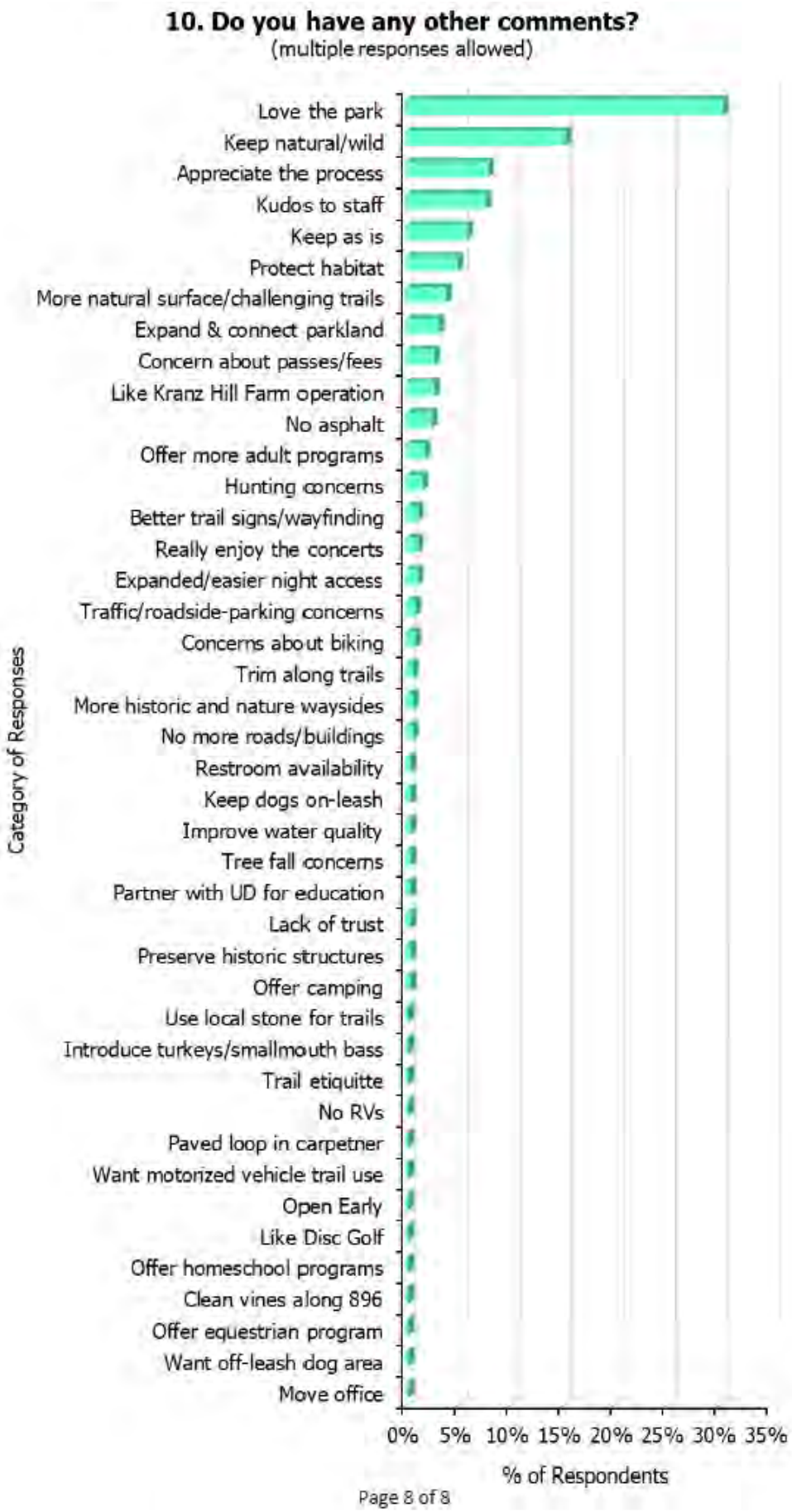


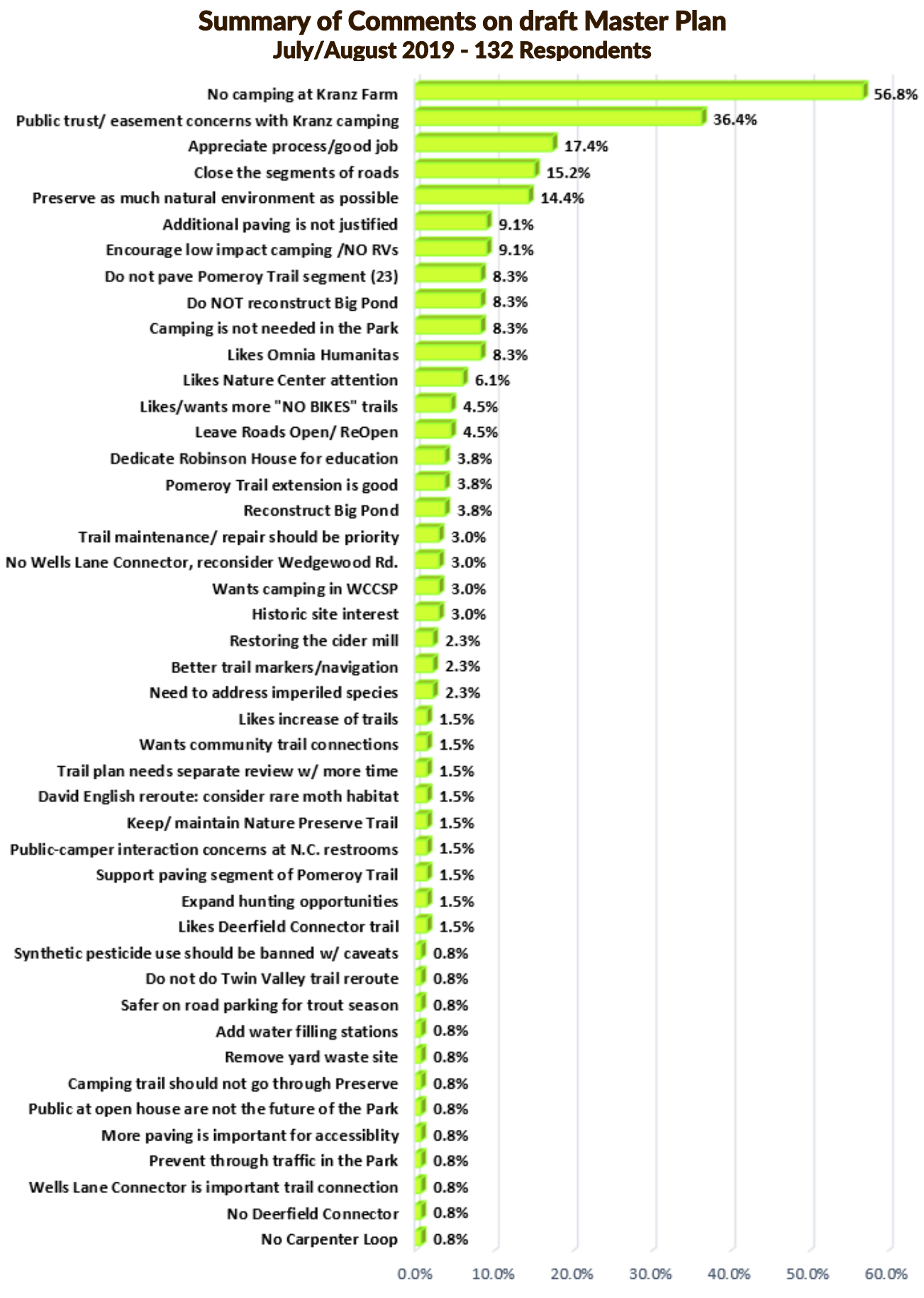
8. If you feel strongly that something *should not* change in White Clay Creek State Park, what would it be?
(multiple responses allowed)

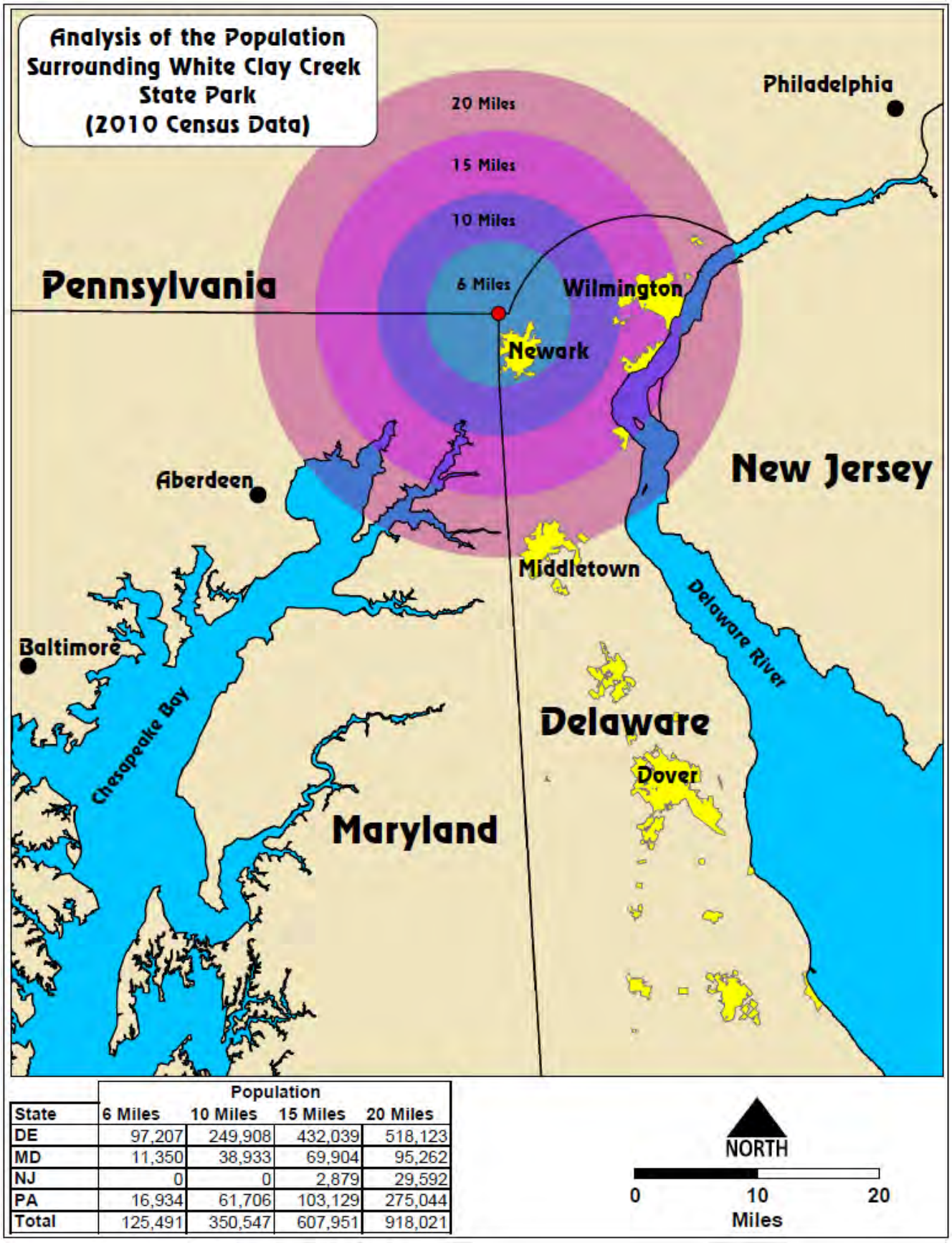


9. What is the zip code of where you currently reside?




10. Do you have any other comments?
(multiple responses allowed)
Love the park
Keep natural/wild
Appreciate the process
Kudos to staff
Keep as is
Protect habitat
More natural surface/challenging trails
Expand & connect parkland
Concern about passes/fees
Like Kranz Hill Farm operation
No asphalt
Offer more adult programs
Hunting concerns
Better trail signs/wayfinding
Really enjoy the concerts
Expanded/easier night access
Traffic/roadside-parking concerns
Concerns about biking
Trim along trails
More historic and nature waysides
No more roads/buildings
Restroom availability
Keep dogs on-leash
Improve water quality
Tree fall concerns
Partner with UD for education
Lack of trust
Preserve historic structures
Offer camping
Use local stone for trails
Introduce turkeys/smallmouth bass
Trail etiquitte
No RVs
Paved loop in carpetner
Want motorized vehicle trail use
Open Early
Like Disc Golf
Offer homeschool programs
Clean vines along 896
Offer equestrian program
Want off-leash dog area
Move office
Category of Responses
0% 5% 10% 15% 20% 25% 30% 35%
% of Respondents


Summary of Comments on draft Master Plan
July/August 2019 - 132 Respondents
No camping at Kranz Farm 56.8%
Public trust/ easement concerns with Kranz camping 36.4%
Appreciate process/good job 17.4%
Close the segments of roads 15.2%
Preserve as much natural environment as possible 14.4%
Additional paving is not justified 9.1%
Encourage low impact camping /NO RVs 9.1%
Do not pave Pomeroy Trail segment (23) 8.3%
Do NOT reconstruct Big Pond 8.3%
Camping is not needed in the Park 8.3%
Likes Omnia Humanitas 8.3%
Likes Nature Center attention 6.1%
Likes/wants more "NO BIKES" trails 4.5%
Leave Roads Open/ ReOpen 4.5%
Dedicate Robinson House for education 3.8%
Pomeroy Trail extension is good 3.8%
Reconstruct Big Pond 3.8%
Trail maintenance/ repair should be priority 3.0%
No Wells Lane Connector, reconsider Wedgewood Rd. 3.0%
Wants camping in WCCSP 3.0%
Historic site interest 3.0%
Restoring the cider mill 2.3%
Better trail markers/navigation 2.3%
Need to address imperiled species 2.3%
Likes increase of trails 1.5%
Wants community trail connections 1.5%
Trail plan needs separate review w/ more time 1.5%
David English reroute: consider rare moth habitat 1.5%
Keep/ maintain Nature Preserve Trail 1.5%
Public-camper interaction concerns at N.C. restrooms 1.5%
Support paving segment of Pomeroy Trail 1.5%
Expand hunting opportunities 1.5%
Likes Deerfield Connector trail 1.5%
Synthetic pesticide use should be banned w/ caveats 0.8%
Do not do Twin Valley trail reroute 0.8%
Safer on road parking for trout season 0.8%
Add water filling stations 0.8%
Remove yard waste site 0.8%
Camping trail should not go through Preserve 0.8%
Public at open house are not the future of the Park 0.8%
More paving is important for accessiblity 0.8%
Prevent through traffic in the Park 0.8%
Wells Lane Connector is important trail connection 0.8%
No Deerfield Connector 0.8%
No Carpenter Loop 0.8%
0.0% 10.0% 20.0% 30.0% 40.0% 50.0% 60.0%



	Population			
State	6 Miles	10 Miles	15 Miles	20 Miles
DE	97,207	249,908	432,039	518,123
MD	11,350	38,933	69,904	95,262
NJ	0	0	2,879	29,592
PA	16,934	61,706	103,129	275,044
Total	125,491	350,547	607,951	918,021

Popular Topics with Mixed Feedback

The Division of Parks and Recreation deeply values the public input throughout the process of creating the Master Plan for White Clay Creek State Park. Every comment throughout this process was heard or read, and considered important to the development of this final Plan. There was considerable work to build consensus. A large number of formal comments and feedback from Park users reflect appreciation for the process and a belief that the Plan is a good product. However, there were a few topics that raised strong opinions from opposite perspectives. A review of these are addressed here.

Use of Asphalt/Pavement

There is a large user interest in natural and stone surface trails, and a number of people commented about limiting the amount of asphalt or pavement in the Park. Much of this probably stems from recent construction of the 8-foot wide, 2.8 mile long, paved Tri-Valley Trail. It was a two-phased project that began prior to the Master Plan and despite public involvement, many were surprised by the new stretches of asphalt. Much of the concern dissipates when people understand that the 2.8 miles is part of an 18 mile regional (Greater Newark) trail network, that it allows for all weather use without impacting the trail surface, and that it is designed to provide accessibility to users of all abilities. It also connects users to three ADA-compliant amenities along the trail: a group campsite, fishing docks, and restrooms. It also connects to the seasonal hayrides offered by the Park, which are also fully accessible via a specially equipped hay wagon.

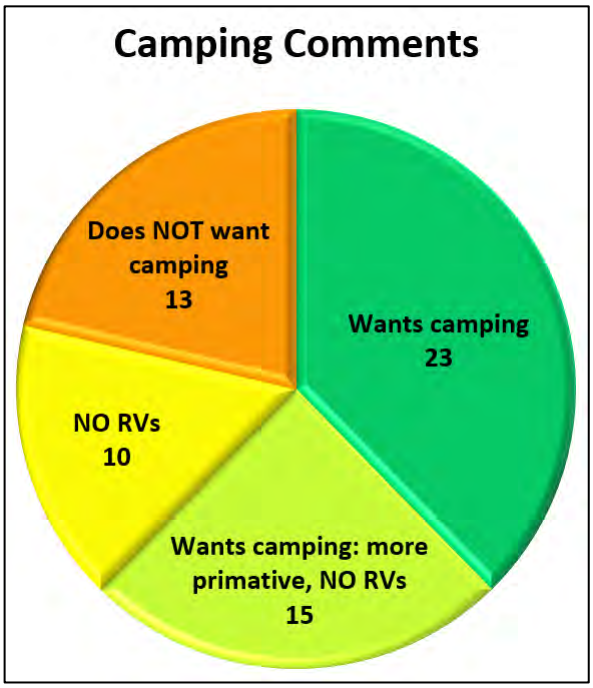
It is important to state that the Division does not intend to pave the majority of trails in the Park. Pavement is a consideration where trail sustainability and life-cycle costs warrant, usually driven by use, accessibility, and other factors. Pavement is typically asphalt due to the significantly higher cost of concrete. Stone surface trail maintenance is about $1.6/linear-foot/year and paved surface maintenance is about $1.4/linear-foot/year. These numbers are based off a recent resurfacing of a Junction and Breakwater Trail segment at $8/foot and a quote for paving a trail segment in Brandywine Creek State Park for $28/foot. A single maintenance application is cheaper for stone surface versus paved surface, but it needs to be done more often which is why the unit cost is lower. Based on local conditions, stone trail maintenance should occur every 3 to 5 years, while asphalt maintenance may not be needed for 20 years. Some problem areas of stone surface may need more regular attention. Importantly, many factors affect the need for maintenance such as slope, exposure, geology, type of use, and amount of use. Some stone surface trails and natural surface trails may require practically no tread maintenance and therefor have a near $0/linear-foot/year maintenance cost. Because the slope, exposure, geology, amount of use, and other factors vary among trails, the potential for maintenance varies greatly. The Division continues to consider asphalt as a solution on targeted segments of trails where

accessibility, safety, sustainability, and cost are leading factors. But, the Division is committed to keeping the majority of its trails as natural or stone surface, not asphalt.

Camping

Implementation Strategy 9 and Action Item 32 discuss camping and the approach the Division is taking. The largest camping-related concern was in response to the preliminary draft Master Plan showing consideration for a campground on a portion of the Kranz Farm area of the Park. There were 75 comments that said there should not be a campground on the Kranz Farm area of the Park, and 48 comments raise concerns about public trust and easements related to that area. The Division has changed its position and is no longer planning for any camping in the Kranz Farm area of the park. Other areas of the Park will be explored for a small campground.

Some members of the public have asked if there are other members of the public that have really asked for camping in the Park. The answer is yes. The chart titled "Camping Comments" shows a tally of responses from the initial survey, written comments, and comments on the preliminary draft Master Plan. There were 23 comments that called for camping in the Park without caveats and 13 that did not think camping should be offered in the Park. There were 15 comments that called for camping but either more primitive camping or options excluding RV campers. Another 10 comments called for no RVs in the Park and did not explicitly suggest other camping options should be provided or not. The Division also believes camping needs to be considered in its role of managing the entire system of State Parks. This is supported by Delaware's Statewide Comprehensive Outdoor Recreation Plan which includes camping as a moderate statewide and regional (northern New Castle County) priority based on professional surveys.



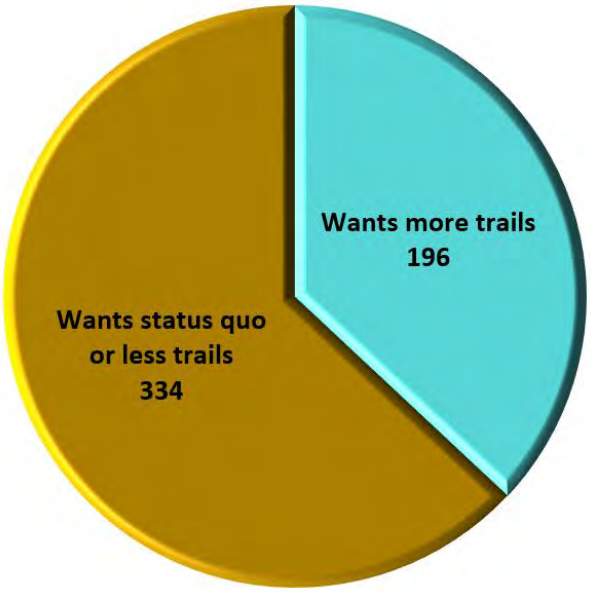
More or Less Trails

Trails are a key amenity in the Park. The most popular response to the survey question about what people enjoy the most about the Park is trails. That may leave some speculation about why Trail Projects are the 8th out of 10 Implementation Strategies. But there was a wide variety of opinions and comments received about trails. Many comments called for no more trails, and a few for less trails. Some comments called for

adding trails or specific types of trails. The table below looks at related comments from the online survey.

Survey Question: Response	Count	Rate
SHOULD CHANGE: Keep Status Quo	85	11.7%
SHOULD CHANGE: More Trails	168	23.1%
NOT CHANGE: Keep park and trails status quo	155	22.8%
NOT CHANGE: More trails	7	1.0%
OTHER COMMENTS: Keep park wild/as is	94	21.2%
OTHER COMMENTS: More trails	18	4.1%

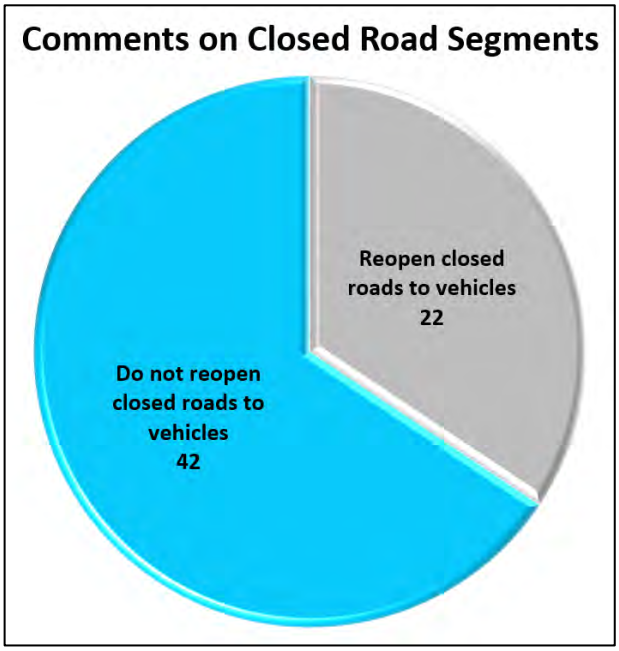
Following public review of the draft Master Plan, there were 3 comments in support of more trails and zero about less trails or status quo. This brings the totals to 196 and 334 respectively. More interest seems against having more trails, but that includes some general comments about keeping the Park status quo. Many additional comments were made regarding segments of trails, trail types, trail users, connections, maintenance, etc. The Division reviewed all comments, and tried to balance interest with sustainability, accessibility, maintenance, and connectivity. The Division also has to balance trail efforts in all State Parks. White Clay Creek State Park has 14% of the acreage of all State Parks and 26% of the trail mileage of all State Parks (more trails than Lums Pond and Brandywine Creek State Parks combined). So there are a number of Trail Projects (see Implementation Strategy 8) that are possible for the future, but they are a later priority relative to the preceding Implementation Strategies.



Closed Road Segments

Implementation Strategy 6 addresses three segments of roads that are currently subject to closure. Action items 15, 25, 59, and 63 discuss details about these three segments. They are all segments of older roads that have been managed, in coordination between DelDOT and DNREC for limited vehicle use, except for the section of Creek Road just south of Wedgewood Road which has been closed to vehicles for over a decade. All three segments allow non-motorized use. Some Park users were advocating strongly for these roads to reopen for public traffic. They assembled a large petition in support of this topic (and some other topics). There was also a separate petition that circulated very shortly after the release of the preliminary draft Master Plan. This second petition was against reopening the three road segments to regular vehicular traffic. Separate from any petition, the Division has heard significant support against reopening the

roads. The Division has reached out to thousands of individuals to solicit input on the Park throughout the Master Plan process. Most people did not comment on the segments of roads currently subject to closure. Of the people who did comment, 22 called for the reopening of closed roads and 42 called for closed roads to not reopen to vehicles. The Division is committed to listening and participating in constructive conversations for shared use of these areas. But the Division shares DelDOT's position that the roads are not reasonable candidates to reopen for daily public motor vehicle transportation. The Division also wants to address the first petition calling for support of "handicapped veterans and disabled children." The Division is already committed to accessibility for all Park users. Millions of dollars were recently spent on the accessible Tri-Valley Trail and ADA-compliant amenities: the fishing docks at Smith Mill Pond, the new, 4-season restrooms at the Smith Mill parking lot, and the "primitive" group campsite. The seasonal hayrides offered by the Park are also fully accessible via a specially equipped hay wagon. Several people with mobility limitations have accessed the closed sections of roads outside of their vehicles, some in motorized wheel-chairs, and this use is welcomed. Two of the road segments will be opened for programs or special use. An individual or group could get approval to take a recreational drive as a special use. The programming staff regularly considers options and accommodations for participants of all abilities. The Division welcomes veterans, children, and people of all abilities and backgrounds.



Conclusion

Though not everyone will agree on every decision, the Division hopes that everyone can appreciate the Plan for being an open and systematic approach to the future of the Park.

Outside of the Kranz Farm comments, the most popular comments on the draft Master Plan were from people who were appreciative of the process and happy with the product. The Division has also received compliments on the process from members of the Citizens Advisory Council for White Clay Creek State Park, Friends of White Clay Creek State Park, Council on Greenways and Trails, and Park and Recreation Council.

Please do not read this Appendix in isolation, it is intended to supplement relevant details in the body of the Master Plan.

White Clay Creek State Park Trail Plan

Table of Contents

Acknowledgements 3
Executive Summary 4
Public Participation 6
Regional and Local Trail Context 6
Trail Users & Uses 7
Park Setting 8
2019 Trail System Condition Assessment 8
Trail Descriptions 10
Trail Infrastructure 13
Trail Plan 14
Assessment Process 14
Objectives 15
Planned Trail System 17
Trail Characteristics, Accessibility, Safety, and Infrastructure 18
Plan Implementation 21
Priority Project List 23
Appendices
Appendix A: Existing and Planned Conditions Maps 24
Appendix B: Tables 41
Appendix C: Sustainable Trail Best Management Practices 49
Appendix D: Natural and Cultural Resources 51
Appendix E: Public Demand for Trail Opportunities 52
Appendix F: Minimizing Resource Impacts with Sustainable Trail Design 53
Appendix G: Public Comment Questions and Analysis 55
Appendix H: Accomplishments 64
Appendix I: Glossary of Terms 65
Maps
Map 1. Current Trail System 10, 24
Map 2. Current Trail Sustainability 25
Map 3. Current Trail Uses 26
Map 4. Current Trail Widths 27
Map 5. Current Trail Surfaces 28
Map 6. Current Trail Accessibility 29
Map 7. Current Trail Infrastructure 30
Map 8. Regional Context 31
Map 9. White Clay Creek State Park 32
Map 10. Planned Trail System 17, 33
Map 11. Planned Trail Sustainability 34
Map 12. Planned Trail Uses 35
Map 13. Planned Trail Widths 36
Map 14. Planned Trail Surfaces 37
Map 15. Planned Accessibility 19, 38
Map 16. Planned Trail Infrastructure 39
Map 17. Planned Trail Naming 40
Tables
Table 1. State Park Trail Distribution Analysis 41
Table 2. Current Existing Trail Uses 8, 42
Table 3. Current Trail Characteristics 9, 42
Table 4. Current Existing Trails, Miles & Uses 12, 43
Table 5. Planned Trail Characteristics and Accessibility 18, 44
Table 6. Planned Trail Changes 21, 45
Table 7. Bridge Conditions 46

Acknowledgements

White Clay Creek State Park Trail Plan was guided and developed by the Division of Parks and Recreation's Trail Committee.

Division personnel with expertise in park management and operations, administration, enforcement, programming, environmental education, natural and cultural resource stewardship, trail construction, and planning led the process for the 2019 White Clay Creek State Park Trail Plan- this plan replaces the 2011 trail plan. The following staff collaborated in the development of the White Clay Creek Trail Plan: David Bartoo, Vincent Porcellini, Chris Bennett, Susan Moerschel, John Wales, Gary Focht, Angel Burns, Barbara Woodford, Bob Ehemann, Kendall Sommers, Thomas Kneavel, Eric Dawson, John McCarthy, Jim Hall, Eileen Butler, James Wagner, Mika Drake, Julio Seneus, and Matt Chesser.

Public participation was a core component in developing this plan. A Stakeholder Working Group, representative of trail and park user groups, was assembled to participate in open discussions regarding the trail plan. Thanks to all the folks on the Working Group that participated in learning about the park's natural and cultural assets and recreational trail uses; learning about the Division's evaluation and planning process; and engaging in discussions that led to changes in the 2011 trail plan. The Working Group provided key input for current and future alignments, surfaces, and uses represented in this plan. The Working Group members were State Representative Paul Baumbach and staff Sean Dwyer, Fred Conkey, Heather Dunigan, Joe Spadafino, Greg Johnson, Lauri Webber, Bill Johnston, Dick Carroll, Gary Kirk, James Ireland, Jason Sparklin, Mary Everhart, Mike Monagle, Mike Ott, Ricardo Gomez, Jim White, Dave Pro, Linda Stapleford, Andy Urquhart, Tim Gorzynsky, and Walt Leipold.

Participation, engagement, and constructive dialogue contributed to a successful planning process and shaped this trail plan. We extend our sincere appreciation to the Stakeholder Working Group who provided input. The future of trails in White Clay Creek State Park is bright because of your participation.

Executive Summary

White Clay Creek State Park and the associated recreational opportunities play a substantial role in creating a community that promotes exercise and makes access to the natural environment easier. The adjacent protected park lands in Delaware and Pennsylvania almost doubles the size of available public land for recreation highlighting the importance of the state park as an integral component to an expanding regional equestrian, pedestrian, and bicycle trail network that will change how the greater Newark community and visitors to the region spend time and live healthier lifestyles.

During the trail planning process for the 2019 plan, existing natural and cultural resources were reassessed and continue to play an integral part in modifying best trail locations resulting in alignments that achieve the following:

- Providing a trail system that is safe;
- Minimize impact to high quality habitats;
- Support pedestrian, biking, and equestrian activities;
- Reduce habitat fragmentation;
- Reduce erosion;
- Providing technical trail challenge.
- Protect cultural resources;
- Enhance and/or expand the trail system;
- Create trail links between park management units;
- Build community connections where none exist today and;
- Enhance diverse recreational experiences for all non-motorized trail visitors.
- Consider the essential experiences for the park.

Appendix A, Maps 1-7 highlight the existing conditions for the park in 2019. Based on the existing natural and cultural resources, including areas with wet soil conditions, and social science data, changes to the existing trail system are needed to address trail objectives. Making recommendations for updating trail alignments, the DNREC Trail and Stakeholders Teams considered the following variables and conditions; trail safety; community connections; soil types; topography; hydrology; plant and animal distribution; current and future use; habitat fragmentation; erosion; accessibility; experience; trail use trends; anticipated regional land use growth; park staffing levels; maintenance practices; challenge; and trail sustainability. The planned trail system changes are highlighted in Appendix A on Maps 10-16.

White Clay Creek State Park's trails currently fall short of an acceptable threshold of the sustainability assessment criteria (see Appendix C). Analysis shows that of the current 39.8 total trail miles, about 23% (9.0 miles) fall into the "Poor" Sustainability category and need some degree of change or enhancement to achieve a higher level of sustainability (see Map 2).

Planned Trail changes will increase over-all park mileages from the current 39.8 miles to 46.7 miles. This change will result in an increase in mileage for pedestrians, bikers, and equestrians. The change in mileage for all users is related to modifications of some current single use designated trails (pedestrian only) to shared-use, realignments, road to trail conversions, and some new trails. Reconstruction of trails in perennially wet soil zones or high erosion areas will provide for the highest resource protection and sustainability. Current alignments that fall within hydric soil zones will be reviewed for rerouting, hardening, or the construction of boardwalks. These methods will avoid long-term impacts on natural and cultural resources and eliminate costly on-going trail maintenance. Overall, alignment changes will account for an increase of 5.9 miles of trail.

A Summary of the planned trail changes are as follows:

- Existing 39.8 mile trail system will be increase by 17% or 6.9 miles to 46.7 miles
- Existing 24.9 miles of single track trail will be increased by 16% to 28.8 miles through the addition of new trail segments
- Double track will increase from 14.9 miles to 17.9 miles or 20% through the addition of realignments, road to trail conversions, and some new trails

- Realignments, enhancements, and new construction techniques of the existing 14.3 trail miles categorized as poor or fair sustainability will be reduced by 93% and 6% respectively or 8.7 miles
- All-weather hardened surface trails will be increased by 53% or 6.9 miles
- 1.8 miles or 21% of designated Pedestrian Only trails will be re-designated as biking/pedestrian
- Accessible trails will increase by 63% from 10.1 to 16.5 miles

Based on ranking criteria utilized for Master Plan project ranking, there are nine priority trail construction projects that stand out. Below is a summary of those trail construction projects and the project priority ranking.

- Pomeroy Trail surface upgrade: pave trail to protect the stability of the trail, accessibility, minimize maintenance, and prevent sediment loss -23
- Wells Lane Connector: create biking connection between Creek Road and Carpenter Recreational Area – 43
- Chestnut Hill Connectors: community trail connectors for the Judge Morris Area - 37
- Possum Hill and David English Trail Areas: improve natural surface trails– 41
- Skills Trail: improve safety and enhance features design – 53
- Pomeroy Trail Extension: improve access on the eastern side of the White Clay Creek from Hopkins to Chamber Road – 60
- Carpenter Accessible Loop: create an accessible paved loop within the Carpenter Recreational Area – 61
- Deerfield Connector: improve access between Possum Hill and Carpenter Recreational Area by constructing a link through the Deerfield Area - 64

Public Participation

The Division conducted a series of trail stakeholder meetings in 2016-2017. In addition, during the White Clay Creek State Park Master Planning process the Division gathered additional comments from the user community that were valuable in shaping this 2019 trail plan. See Appendix G for a review of 2019 master planning survey and analysis.

Regional and Local Trail Context

White Clay Creek State Park (WCCSP) is located in northwest Delaware adjacent to the Pennsylvania boundary. See Map 8 in Appendix A for regional context. It falls within the Piedmont Ecoregion – a region covering five percent of the State. Piedmont geomorphology is characterized by rolling hill topography, rocky soils, and steep stream valleys. WCCSP hosts a variety of ecosystems including wooded uplands, freshwater wetlands, riparian, and open meadows. Northwest of the park is the White Clay Creek Preserve in Pennsylvania. To the east is Middle Run Valley Natural Area owned by New Castle County and managed by Delaware Nature Society. Areas north and south of the park are densely populated and in character with suburban and urban development.

White Clay Creek State Park's location places it close to major urban and suburban populations of the Philadelphia metropolitan region-4 million people live within 30 miles of the park. The park's current 39.8 mile trail system combined with other local trails (50+ miles) make these public lands key recreational trail sites both locally and regionally.

Trail Users and Uses

There was an estimated 164,000 visitors to White Clay Creek State Park in 2019. Evidence shows that trail related recreation is one of the most popular activities in the park. From 2000 to 2010, the population of New Castle County grew from 538,170 to 554,405 residents, an increase of 3.0%. This increase and population projections for the next 30 years, place a high demand on Park resources in the future.

Below is a summary of the trail users observed in the Park.

- Pedestrians

The term pedestrian includes walkers, hikers, nature watchers, cross-country skiers, geo-cashers, and trail runners.

- Bicycle Riders

There are a number of sub groups that fall into this category. A few examples are road riders, commuters, competitors, mountain bikers, and general bicyclists who cruise paved pathway through town or at the beach.

- Equestrians

Equestrians include trail riding, mounted orienteering, endurance riding, carriage rides, and cross country jumping to name a few.

- Special Needs Populations

The Americans with Disabilities Act is a 1990 federal law that helps people with a disability gain equal access to public facilities. Presently there is guidance available for recreation facilities including trail widths of 3 feet or greater, grades of 10% and less, limited obstacles (no staircases or steps, or large roots or rocks), firm stable surfaces, and cross slopes 5% or less. Federal agencies (Forest Service and Park Service) are required to use these guidelines. The Delaware Division of Parks and Recreation has adopted and uses the outdoor recreational accessible guidance. The guideline can be referenced at http://www.fs.fed.us/recreation/programs/accessibility/

Park Setting

The 3,522 acres of White Clay Creek State Park contain a variety of landscapes, from river and stream valleys to meadows and hardwood forests (see Appendix A to view existing park conditions). Historically, the forests of the Piedmont were home to Native Americans, who harvested various foods from the forests and waterways and hunted game in the surrounding forests. After the European settlers arrived, agriculture developed slowly in the areas. The property that is now White Clay Creek State Park has a long recorded history of small family farms highlighting typical meadow and forested landscapes that have changed little over the last century.

2019 Trail System Condition Assessment

In the park today there are a variety of activities that impact trails and trail corridors. Trail location and park activities such as trail maintenance, ranger patrol activities, or trail users on foot, bike, or horse will impact the landscape and soils. Soil disturbance is expected in the development and use of trails, however better trail design and management can drastically reduce widespread trail impacts and erosion.

Today, the trail system at White Clay Creek State Park is comprised of 39.8 miles of trail that serve hikers, walkers, runners, mountain bikers, bicyclists, equestrians, and other non-motorized trail users. This represents 25% of the total miles across the Delaware State Park trail system (see Appendix B, Table 1). Of those 39.8 trail miles in White Clay Creek, 8.6 are designated as pedestrian-only, 31.2 miles are designated for equestrians, pedestrians and bikers (see Table 2 below). Table 3 below outlines trail characteristic by categories –surface, widths, permitted uses, and accessibility and the percent that each characteristic represents in the trail system as assessed in 2019. All existing conditions assessments are depicted in Maps 1 through 7 (see Appendix A).

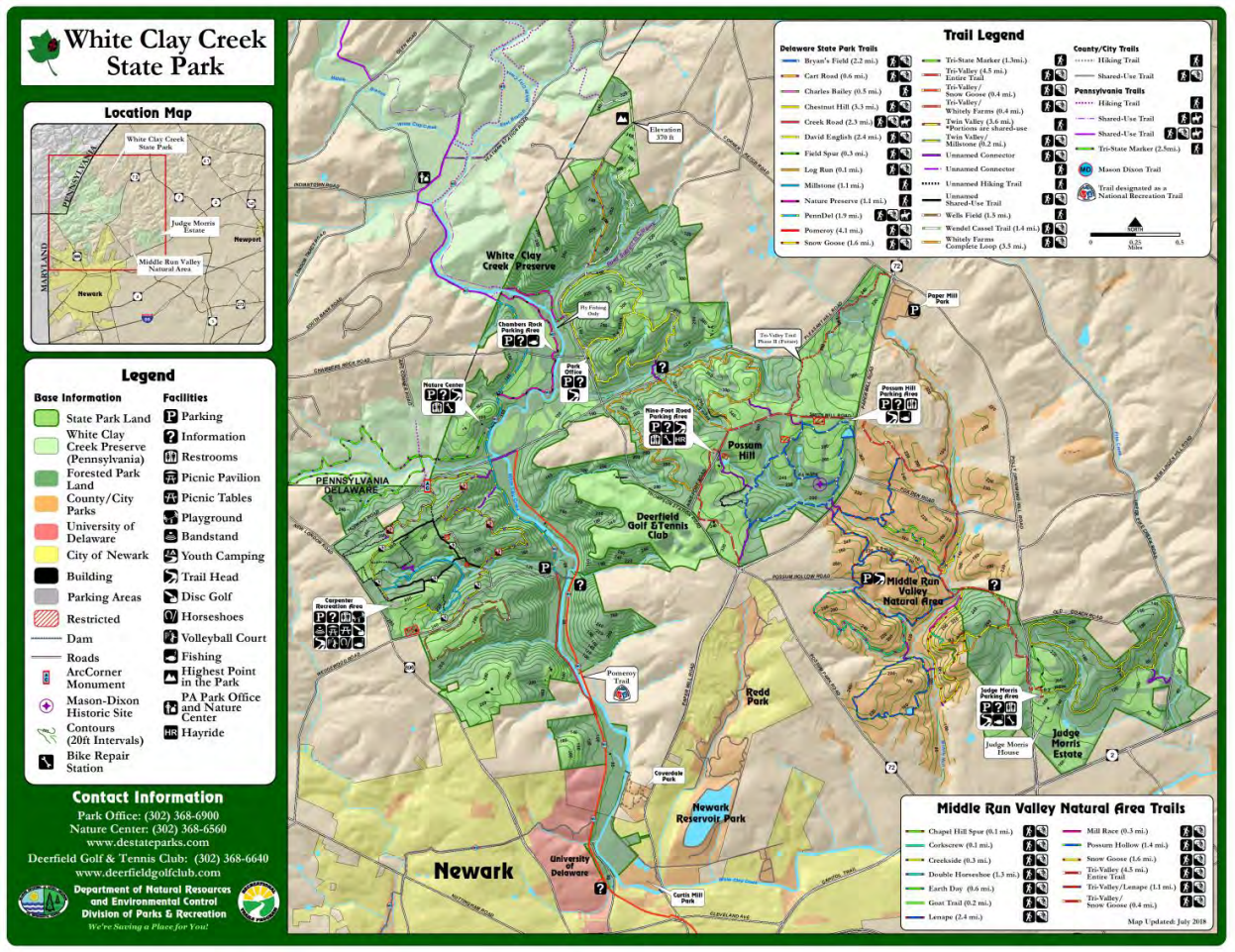
Table 2 - 2019 Trail Uses

2019 Trail Uses	Mileage
Total Trails	**39.8**
Pedestrian	**39.8**
Pedestrian Only	**8.6**
Pedestrian/Bike	**28.4**
Pedestrian/Bike/Equestrian	**2.8**

Table 3 - Current Trail Characteristics

Trail Characteristics	2019 Trail Mileage	Percentage of Park System
Total Mileage	**39.8**	**100%**
Sustainability		
Good	25.5	64
Fair	5.3	13
Poor	9.0	23
Surface		
Natural	26.8	67
Hardened	13.0	33
Width		
Single Track	24.9	63
Double Track	14.9	37
Permitted Use		
Pedestrian Only	8.6	22
Pedestrian/ Bike	28.4	70
Pedestrian/ Bike/Equestrian	2.8	8
Accessibility		
Accessible	10.1	25
Not Accessible	29.7	75

Map 1 - 2019 Trail System On-line Map



Trail Descriptions

Access to the trail system is available from several trailhead parking areas and nearby communities. There are 21 named trails in the park – the main trails are highlighted below.

- Bryan's Field Trail
  The 2.2 mile loop trail begins at the Bryan's Field parking lot crossing meadow and passing through mature hardwood forest of maple, oak, and popular over a packed earth surface. The grade is moderate throughout and has connectors to Thompson Station Road, Nine Foot Road, and Middle Run Natural Area. Post Mark Trail cut-off traverses near the Mason-Dixon Historic Monument and cuts the outer loop in half.

- Charles Bailey Trail
  The trail begins off Thompson Station Road a half mile north of the park office (where there is trailhead parking). Newly upgraded, the 0.5 mile (portion in DE) is accessible from Thompson Station Road for 0.25 mile. The creek-side trail then continues to hug the eastern bank of the White Clay Creek and cross the park and state boundary into Pennsylvania and the White Clay Preserve.

Chestnut Hill Trail
The 3.3 mile single track trail winds through mature forest behind the Judge Morris Estate on a packed earth surface. The trail begins at the Judge Morris Estate parking lot. There are two community connections to the trail.

- David English Trail
  The 2.4 mile trail begins at the White Clay Creek park office. One of the more challenging trails in the park, this single-track loop trail passes through hardwood forest and hayfields over a packed earth surface. Twin Ponds cut-off trail is located at the approximate midpoint along the trail and returns to the trailhead and cuts the outer loop in half. A connecting trail links to the trails within the Possum Hill Area.

- Millstone Trail
  The Millstone Trail begins at the main parking area in the Carpenter Area. It is a 1.1 mile trail that follows an easy to moderate grade over grass and packed earth through meadows and forested areas. The trail traverses alongside Millstone Pond below a geological feature of rock outcropping. The trail intersects with the Twin Valley Trail, the longest loop trail within the Carpenter Area of the park.

- Nature Preserve Trail
  The 1.1 mile single track trail for pedestrians, meanders within the western floodplain of the White Clay Creek from near the nature center, crosses Chambers Rock Road and continues to the Pennsylvania border and the White Clay Preserve.

- Pomeroy Trail
  The 4.1 mile long double track trail links to Creek Road and the City of Newark to the core of the park on the eastern side of the White Clay Creek and terminates at Hopkins Road. Vast segments of the trail utilize the old Pomeroy rail bed. The trail grades are gentle and the user will experience riparian habitat along the creek.

- Tri-State Marker Trail
  The 3.8 mile loop trail (1.3 in DE and 2.5 in PA) traverses meadow and mature hardwood forest of maple, oak, and popular over a packed earth surface. The trail begins at the nature center and passes the Tri-State Marker at the western part of the trail.

- Tri-Valley Trail
  The 4.5 mile long single and double-track trail passes through hardwood forest and hayfields over a packed earth and paved surface. The trail serves as a spine trail traversing through the Possum Hill Area and Middle Run Natural Area (County) to the Judge Morris Estate area. This trail offers many options to connect to other area trails. A short segment also serves as part of the cross country course.

- Twin Valley Trail
  The 3.6 mile long single and double-track trail begins at the Carpenter Area parking lot. The trail passes through hardwood forest and hayfields over a packed earth surface. This trail loops around the core of Carpenter Recreational Area of the park.

- Whitely Farms Trail
  The 3.5 mile long single-track loop trail passes through hardwood forest and hayfields over mostly a packed earth surface. A cut-off trail is located at the approximate midpoint along the trail and cut the outer loop in half. The trail begins at the Nine Foot Road parking lot.

  See Table 4 for a listing of the major existing trails, mileage, and allowed uses.

Table 4- Existing Trails, Miles & Uses

Trail	Length in Miles	Pedestrian	Biking	Equestrian
Bryan's Field	2.2	√	√	
Charles Bailey	0.5	√		
Chestnut Hill	3.3	√	√	
David English	2.4	√	√	
Mill Stone	1.1	√		
Nature Preserve	1.1	√		
Pomeroy	4.1	√	√	
Tri-State Marker	3.8	√		
Tri-Valley	4.5	√	√	
Twin Valley	3.6	√		
Whitely Farms	3.5	√	√	

A series of maps depicting existing conditions for characteristics of the White Clay Creek State Park's trail network were developed to highlight specific trail attributes. Trail characteristics maps include existing 2019 trail system, trail environmental sustainability, permitted uses, width, trail surfaces, and accessibility (See Appendix A Map 1 - 7). In 2019 the trail system was comprised of 39.8 miles of officially recognized trail (Map 1). Permitted uses on park trails included pedestrian, biking and equestrian activities. Additionally, trails fall into two width categories – single and double track. In 2019 the trail system was comprised of 14.9 miles of double track, defined as widths greater than 36 inches and 24.9 trail miles of single track - widths 36 inches or less.

Trail Infrastructure

Trail infrastructure includes bridges, trail wayfinding markers, information boards, and parking (See Appendix A Map 7). Currently visitors access White Clay Creek State Park predominately by car. Eight parking lots serve the majority of trail users. However there is off-site parking both within other protected lands managed by New Castle County, the City of Newark, and on private lands that connect to the regional trail network.

Trail wayfinding starts at the trailheads. Trailhead parking lots typically have an information board and state park map. Four-by-four posts with plastic over-sleeves are installed along trails at intersections where there are directional trail choices. These trail marker posts contain information such as trail names, use, destinations, and latitude and longitude. Trail names have a color coding that corresponds to the same color used on park maps to highlight the specific trail. Maps are located at trailheads and on the Delaware State Park web site at https://destateparks.com/Trails .

Typical Trailhead Information Board

Typical Trail Marking Post

Typical Trail Bridge

Trail Plan

Assessment Process

In analyzing and assessing WCCSP existing trail system, the Division evaluated changes made since the 1998 comprehensive trail data collection effort and determined progress made in achieving trail-related objectives. Geographic Information System (GIS) and field evaluations were used to assess factors and conditions that characterize White Clay Creek State Park. GIS technology is valuable in evaluating trails within landscapes and habitats and in decision making for diagnosis to prevention, mitigation and enhancement of trails.

GIS analyses, combined with field reviews, have revealed trail segments that fragment high quality habitat, are prone to erosion, and limit access. Habitat and natural heritage findings identified by both the Division's Stewardship Program and DNREC Natural Heritage and Endangered Species Program (NHESP) were examined within the context of the existing trail system. Trail relationships to forested blocks, ranked habitat quality, and natural heritage data revealed site specific impacts. Other analyses quantified the scale of trail system overlap with fall-line, floodplain, flat area and hydric soil conditions. Known and potential cultural resource sites were analyzed for their relationship to both the existing and planned trail system.

Analyses and recommendations outlined in this trail system plan for White Clay Creek State Park are based on the principles of sustainable trail design and development and trail best management practices (See Appendix C). Using GIS tools and field review, resource experts determined impacts to natural resources, cultural resources, and to unsustainable trail conditions (fall-line, hydric soils, etc.) Subsequent Trail Plan sections outline the locations of new trail alignments. Areas of the White Clay Creek will require trail reroutes, realignments, closures and new trail construction to continue to achieve the objectives outlined within this plan.

Sustainability

Designing and constructing *sustainable trails* is paramount to protecting natural and cultural resources, providing great trail experiences, providing diverse recreational opportunities, and maintaining the life span of a trail system (see Appendix C). Trail sustainability is defined as the location of any given trail segment and how the segment relates to contours, drainage, and soil types, and, how well a trail segment withstands the impacts of weather and recreational use over time. The better a trail segment withstands these impacts, the more sustainable it is. Reducing impacts to natural resources such as native vegetation and wildlife and cultural resources are key Division objectives in trail planning. The use of natural surface trails during wet trail conditions impacts sustainability and can dramatically reduce the trail life span. Proper and continued education for park visitors on use etiquette are a sustainability necessity.

Many trail management problems, erosion and user conflict for example, stem from poor trail planning, design, construction, or management. Ignoring best management trail design, construction, and management practices results in accelerated trail degradation leading to an increase in maintenance costs and tasks as well as reduced trail user safety and enjoyment. While all trail users affect the trail surface and surrounding environment, user impacts rise when trails are poorly planned and constructed. The Division of Parks and Recreation adopted the principles of sustainable trail design and construction to ensure that trails remain accessible to users, valuable resources are protected, and future maintenance costs are minimized.

Current trail sustainability principles prescribe that all present and future impacts will not burden social, economic and environmental systems. White Clay Creek State Park's trails currently fall short of an acceptable level of sustainability. The analysis of the White Clay Creek State Park shows that of the current 39.8 total trail miles, about 36% (14.3 miles) is in need of some degree of change or enhancement to achieve a higher level of sustainability and environmental protection.

Designing a sustainable trail and trail system requires the analysis and evaluation of the following elements and factors:

- Cultural resources
- Endangered or sensitive plant and animal species
- Occurrence and health of native plants and animals
- Mature growth forests
- Quality of ecosystems
- User safety
- Natural drainage
- Topography, slope and grade changes
- Ease of access from control points such as trailheads
- Characteristics of trail users
- Accessibility
- Provide varying experiences across the landscape.

Trails constructed over the past ten years in Delaware State Parks were planned according to sustainability objectives. Current practices adopted by the Division have proven that this planning method is very effective in minimizing the environmental effects of trails.

Objectives

Healthy lifestyles and livable communities are key considerations in the planning process. Walkability and bikeability play a role in how trails are planned and constructed. Creating diverse opportunities for more people and connecting trails to people is critical in helping to turn around the trend of declining number of kids, and adults who participate in outdoor recreation and help mitigate obesity and other health issues.

All State Park trail plans, including White Clay Creek State Park, have objectives that recommend:

- A trail system that is safe;
- Changes to the trail system that meet socially, environmentally and culturally sustainable principles;
- Reducing habitat fragmentation;
- Enhancing habitat quality through sustainable trail planning and design;
- Supporting environmental education opportunities;
- Supporting pedestrian, biking, and equestrian activities;
- Providing a diversity of accessible experiences;
- Considering existing and future recreational trends;
- Integrating the park's trail system as part of wider regional network of existing and future trail opportunities and makes community connections;
- Adapting to future land conservation measures;
- Reducing costly unsustainable trail maintenance achieved by holistic and sound trail planning, construction and innovative trail maintenance techniques;

- Utilizing the best scientific data and research available such as state-wide GIS data layers, user surveys (SCORP), and trail research (such as best practices, erosion, and recreational impacts);
- Enhancements including trail realignments, bridges, trail uses and trail enhancements within sustainable trail standards;
- Include a diverse recreational appeal;
- Has a visual environmental quality;
- Including opportunities to enjoy a great diversity of physical settings;
- Providing visitors with a dynamic mix of interesting experiences that range from easy to challenging;
- Considering the existing high school cross country running program;
- Providing water access; and
- Providing safe trail links between the east and west side of the White Clay Creek; and
- Providing technical trail challenge

Technical Trail Challenge

National and state recreational use trends indicate adventure sports, including triathlon, adventure racing, backpacking, mountain biking, and climbing (to name a few), showing significant growth in the past several years (Adventure Racing up 28% *Outdoor Foundation Topline Reports*). A reoccurring and increasing trend is the interest of users from all trail related activities seeking a challenge. There are various ways to incorporate "challenge" into a trail experience. Integrating tread obstacles and/or maintaining narrow widths are two options for increasing the technical nature of a trail. Creating more technical options along a trail corridor, utilizing man-made or natural features such as logs or rocks, can provide additional interest and challenge to an otherwise easy trail.

Technical rock options alongside accessible trail in Redd Park-City of Newark

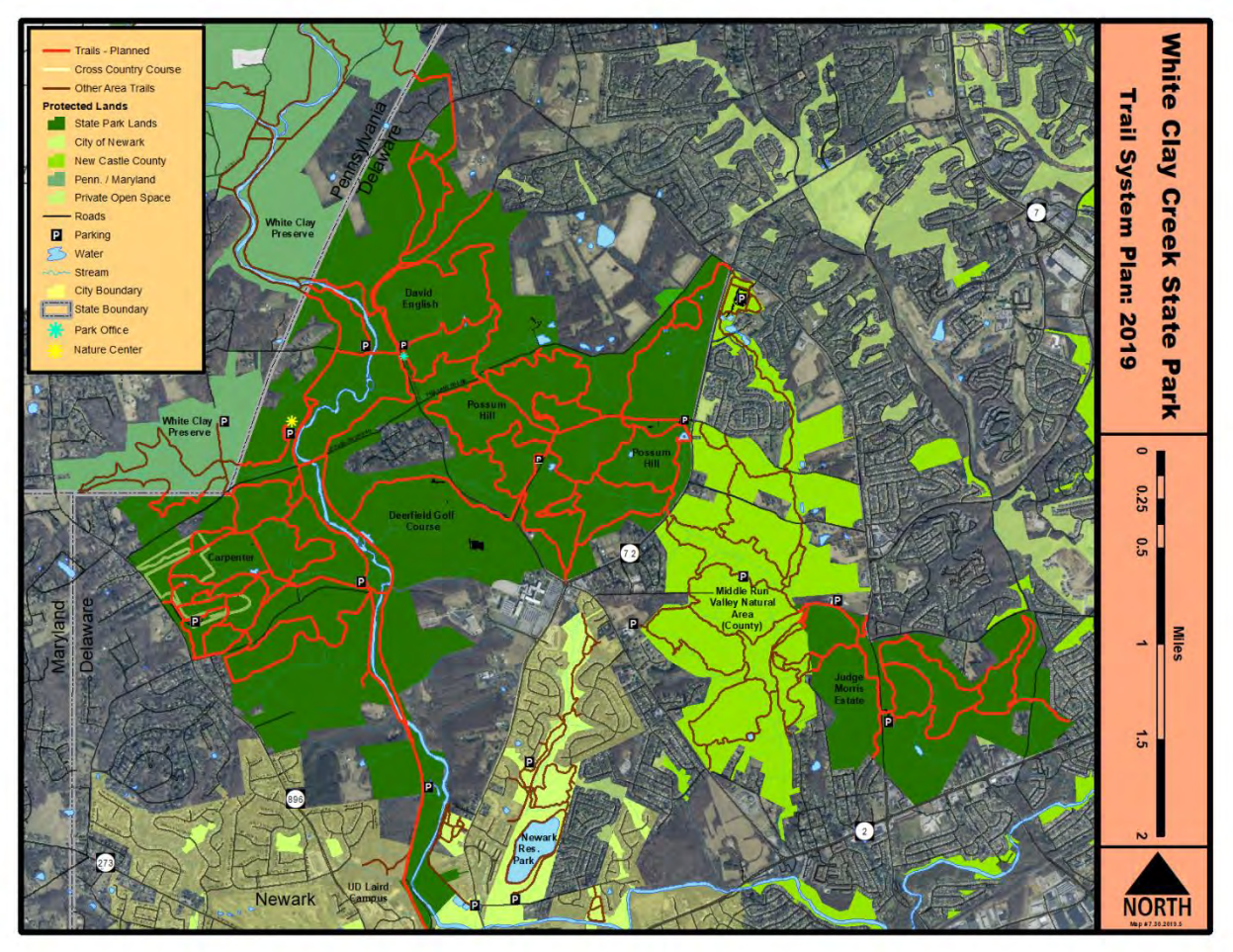
Planned Trail System

The DNREC Trail and Stakeholders Working Group considered the following variables and conditions in making recommendations for new trail alignments: current trail alignments; trail safety; community connections; soil types; topography; hydrology; plant and animal distribution; current and future use; challenge; accessibility; experience; trail use trends; anticipated regional land use growth; park staffing levels; maintenance practices; and trail sustainability.

Final trail alignment recommendations account for natural resource protection, erosion, hydric soil avoidance, and expansion of trail recreational opportunities. Alignment changes will account for an increase of 6.9 miles of trail, the overall changes will improve access, sustainability, accessibility, and experience of the trail system.

Final trail alignment decisions were based on reviewing a number of alignment alternatives. Map 10 depicts 46.7 mile planned trail system for White Clay Creek State Park. Maps 10 - 17 address planned trail system, sustainability, use, widths, surfaces, accessibility, infrastructure, and trail naming (see Appendix A).

Map 10 - Planned Trail System



Summary: Overall the existing 39.8 mile trail system will be increase by 6.9 miles.

Trail Characteristics, Accessibility, Safety, and Infrastructure

Trail Characteristics

Trail characteristics includes measureable trail conditions such as sustainability, surface, width, permitted uses, and accessibility. Table 5 provides a summary of all current trail characteristics and the planned changes (see Map 15 for planned accessible trails).

Table 5 –Current and Planned Trail Characteristics

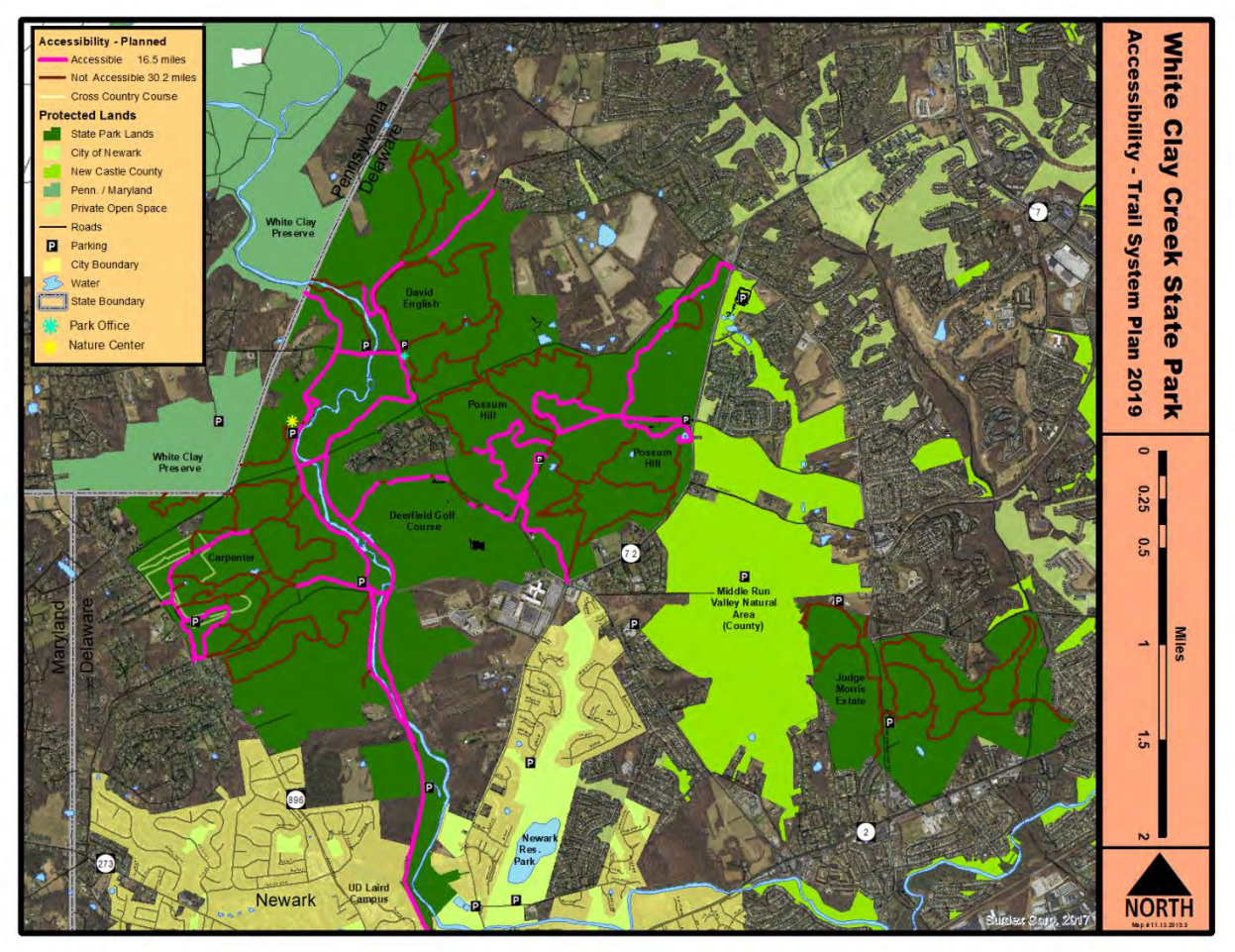
Trail Characteristics	Current Trail System	Planned System	Change in Mileage	Percent of Planned System
Total Mileage	39.8	46.7	Increased 5.9	+100%
Sustainability				
Good	25.5	41.1	Increased 15.6	88
Fair	5.3	5.0	Reduced 0.3	11
*** Poor**	9.0	0.6	Reduced 8.4	1
Surface				
Natural	**26.8**	26.9	No Change	58
Hardened	**13.0**	19.8	Increased 6.8	42
Width				
Single Track	24.9	28.8	Increased 3.9	62
Double Track	14.9	17.9	Increased 3.0	38
Permitted Use				
Pedestrian Only	8.6	6.8	Reduced 1.8	15
Pedestrian /Bike	28.4	32.0	Increased 3.6	69
Pedestrian /Bike/Equine	2.8	7.9	Increased 5.1	16
Accessibility				
Accessible	10.1	16.5	Increased 6.4	35
Not Accessible	29.7	30.2	Increased 0.5	65

*Note: the planned 0.6 mile of *poor* trail (Preserve Trail north of Chamber Rock Road) that remains is in the dynamic flood plain of the White Clay Creek where little can be done to improve sustainability.

Accessibility

This plan includes opportunities for improving access for all visitors including those with disabilities. Currently White Clay Creek State Park offers 10.1 miles of accessible trail opportunities. Delaware State Parks is committed to providing more accessible trails throughout the statewide trail network. See Map 15 for planned accessible trails.

Map 15 - Planned Trail Accessibility – shows the planned hardened surface portion of the trail system that will meet or exceed Federal trail accessibility guidelines.



Trail Safety

Providing the safest user experience possible is linked to good trail planning and construction, performing needed maintenance, and providing the right information for the users. Safety can be broken into two perspectives – user and agency. From the trail user perspective, where to park, what activities are allowed, how to navigate, what type of users one can expect, how wide, long, and steep is the trail, trail etiquette, and how to seek help are some items that must be addressed to keep trails safe. Not everyone will feel the same level of safety for all the different trail experience such as narrow vs. wide trail, single use vs. shared use, or smooth vs. rough tread surface. Providing the right information for the users is critical in allowing the users to make informed decisions on what experiences are right for them. Trail access and wayfinding information is a critical component to trail safety.

From a managing agency perspective, good planning, construction, and maintenance is required. An understanding of the landscape design challenges, breadth of trail experiences being offered, types of users, volume of users, maintenance needs, and required signage and information to best guide the trail visitors are all key components to safe trail experiences.

Trail Infrastructure

Trail infrastructure includes trail wayfinding markers, information boards, and bridges. All 81 bridges in The Park have been recently assessed. Table 7 indicates bridge condition, age, and planned action as well as 17 additional bridges being planned. The majority of bridges are in good or excellent condition – the six bridges in poor condition should be replaced (see Table 7 notes). This trail plan provides general trail wayfinding guidelines. Signage for any park should include roadside directions to trailheads or major trail access points throughout the park; trailhead information such as mapping and trail characteristics; and clear trail markings throughout the system providing clear direction and safely guide visitors through the trail system back to their point of origin or to their intended destination. An additional layer of wayfinding is a numbering system for marker posts and bridges and graphically representing that numbering system on the park maps.

Park user navigation aids are in the top five of the most used and sought after trail amenity (based on user survey) – such as trail maps and markers. Information Centers should be located at all trailhead parking areas (see Map 16) and will include maps, trail use designations, etiquette, and accessibility information.

State Park trailhead maps exhibit all the official trails – trails constructed and maintained by Delaware State Parks. Maps include trail names, permitted uses, as well as trail width, length and average grade, markers, and bridges. Trail line colors coincide with trail marker colors. For example, the White Clay Trail is depicted by a red line on the Park map and with red way finding markers on posts along the trail. Marker posts are located at all trail and road intersections and include trail name (color coded to match map), permitted trail uses, and post number. Posts also contain destination/facility information with directional arrows.

Typical Marker Post

Typical Information Board

Plan Implementation

Trail Plan implementation in White Clay Creek State Park will occur in phases over time. System wide trail projects fall into two main categories 1) projects handled by park staff and volunteers or 2) large contract projects requiring engineering and construction companies. Prioritizing projects will be guided by available funding, park master plan priorities, public demand, health and safety, and trail plan objectives. Objectives include: safety, accessibility, community linkage, improve sustainability, alternative pedestrian biking transportation corridor, potential or existing level of use, shared use, available funding, available work force, engineering needs, targets key activity, links other key areas of the park, trails, or other regional trail systems. See Table 6.

Table 6 - Planned Trail Maintenance – Existing Trails the following table summarizes planned trail changes for widths, current and recommended users, and suitable use for the trail system. There are no changes planned for trail types and widths.

Trail	Trail Type	Width Avg.	Current Trail Users	Future Users	Change Required	Trigger
Bryan's Field	Single Track	3 feet	Pedestrian Bicycles	(No Change)	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
Charles Bailey	Single Track	3 feet	Pedestrian	Pedestrian Equestrian Bicycles	• Signs	• Funding
Chestnut Hill	Single Track	3 feet	Pedestrian Bicycles	(No Change)	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
David English	Single Track	3 feet	Pedestrian Bicycles	(No Change)	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
Mill Stone	Single Track	3 feet	Pedestrian	(No Change)	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
Nature Preserve	Single Track	3 feet	Pedestrian	(No Change)	• Reroutes • Closure	• User Safety • Wetland. Protection • Stream and Bank Erosion
Old Cart Road	Single Track	3 feet	Pedestrian Bicycles	(No Change)	• Minor Reroutes • Armoring	• User Safety • Enviro. Protection • Funding
Pomeroy	Double Track	10 feet	Pedestrian Bicycles	Pedestrian Equestrian Bicycles	• Armoring • Surface Upgrade	• Accessibility • Enviro. Protection • Funding
Tri-State Marker	Single Track	3 feet	Pedestrian	(No Change)	• Armoring • Signs	• Enviro. Protection • Funding
Twin Valley	Single and Double Track	3 feet	Pedestrian	(No Change)	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
Wells Field	Single Track	3 feet	Pedestrian	(No Change)	• Reroutes • Armoring • Signs	• Funding
Whitely Farms	Single Track	3 feet	Pedestrian Bicycles	(No Change)	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding

Table 6 - Planned Trail Changes - New Trail

Trail	Trail Type	Width Avg.	Current Trail Users	Future Users	Change Required	Trigger
Creek Road	*Double Track*	*16 feet*	*NA*	*Pedestrian Equestrian Bicycles*	• Convert to Trail	• Policy Change
Carpenter All-Weather Loop	*Double Track*	*8 feet*	*NA*	*Pedestrian Bicycles*	• *New Trail* • *Signs*	• Park Office Change
Chambers Rock Road Connector	*Double Track*	*4 feet*	*NA*	*Pedestrian Equestrian Bicycles*	• *New Trail* • *Signs*	• User Safety • Connection Need • Funding
Deerfield Connector	*Double Track*	*8 feet*	*NA*	*Pedestrian Bicycles*	• *New Trail* • *Signs*	• Connection Need • Funding
Pomeroy Extension	*Double Track*	*4 feet*	*NA*	*Pedestrian Equestrian Bicycles*	• *New Trail* • *Signs*	• Funding • Accessibility • Connection Need
Thompson Station Road	*Double Track*	*10 feet*	*NA*	*Pedestrian Bicycles*	• Convert to Trail	• Policy Change
Wells Field Connector	*Single Track*	*3 feet*	*NA*	Pedestrian	• *New Trail* • *Signs*	• Funding
Wells Lane Connector	*Double Track*	*4 feet*	*NA*	*Pedestrian Bicycles*	• *New Trail* • *Signs*	• User Safety • Funding

Action Items

Protection of existing natural and cultural resources and providing recreational opportunities in state designated resource areas is of primary concern. Recreation at White Clay Creek State Park falls into two major categories, active (such as cross country course and disc golf) and passive recreation (trail activities like hiking and biking). Therefore, any additional infrastructure should be focused in areas of The Park that currently provide active recreational opportunities. Conversely, areas that fall within high quality or sensitive habitats should be protected to the fullest with limited additional infrastructure added. In response to an internal assessment of the state of the trails at WCCSP a list of action items have been established that will improve upon the existing infrastructure.

Action items that will provide safer, consistent trail access to and within the park:

- Upgrade all trails where needed to meet sustainability goals
- Provide more information to visitors on trail characteristics (width, use, surface, accessibility), and etiquette
- Replace, repair, remove, or install new bridges
- Install new or improve existing trail links to communities
- Create safe connections between east and west side of the White Clay Creek
- Create accessible trail experiences along the White Clay Creek, Possum Hill, and Carpenter Recreation Area
- Expand parking at Chamber Rock Trailhead

Action items for long term protection:

- Close all trail segments not included in the trail plan and block off access as required
- Monitor degraded areas for natural recovery
- Promote plant re-colonization
- Analyze access sites as they pertain to hunting in protected resource areas

The following project priorities listed below fall into either the short, mid, or long-term category. Short-term priorities should be accomplished in the first few years after official adoption of the plan. Mid-term priorities should be undertaken within three to five years. Long-term projects are at least five years out. Trail project priorities may change from year to year and may be triggered by one or more of the following: park master plan priorities, resource protection, user safety, funding, and accessibility.

Priority Project List

Short Term:

- Update way-finding system including trail names reconfiguring. See Map 17
- Rebuild or remove bridges (9) that do not meet safety codes. See Table 7
- Close down select trails to be removed from the system.
- Armor short segment of Tri-State Marker Trail to mitigate erosion and environmental impact.
- Construct select segments of Twin Valley for reroutes.
- Armor segments of Bryan's Field Trail to mitigate erosion.
- Establish new connection under Paper Mill Road to Middle Run to increase user safety.
- Expand Chambers Rock Road Trailhead to include overflow and equestrian parking

Mid Term

- Establish community connections for Chestnut Hill Trail to expand non-car access points.
- Reroute select segments of David English Trail to mitigate erosion.
- Build short trail segment connecting Cart Road Trail to Wendel Cassel Trail.
- Reroute select segments of Twin Valley Trail to mitigate erosion.
- Reroute select segments of Bryan's Field Trail to mitigate erosion.

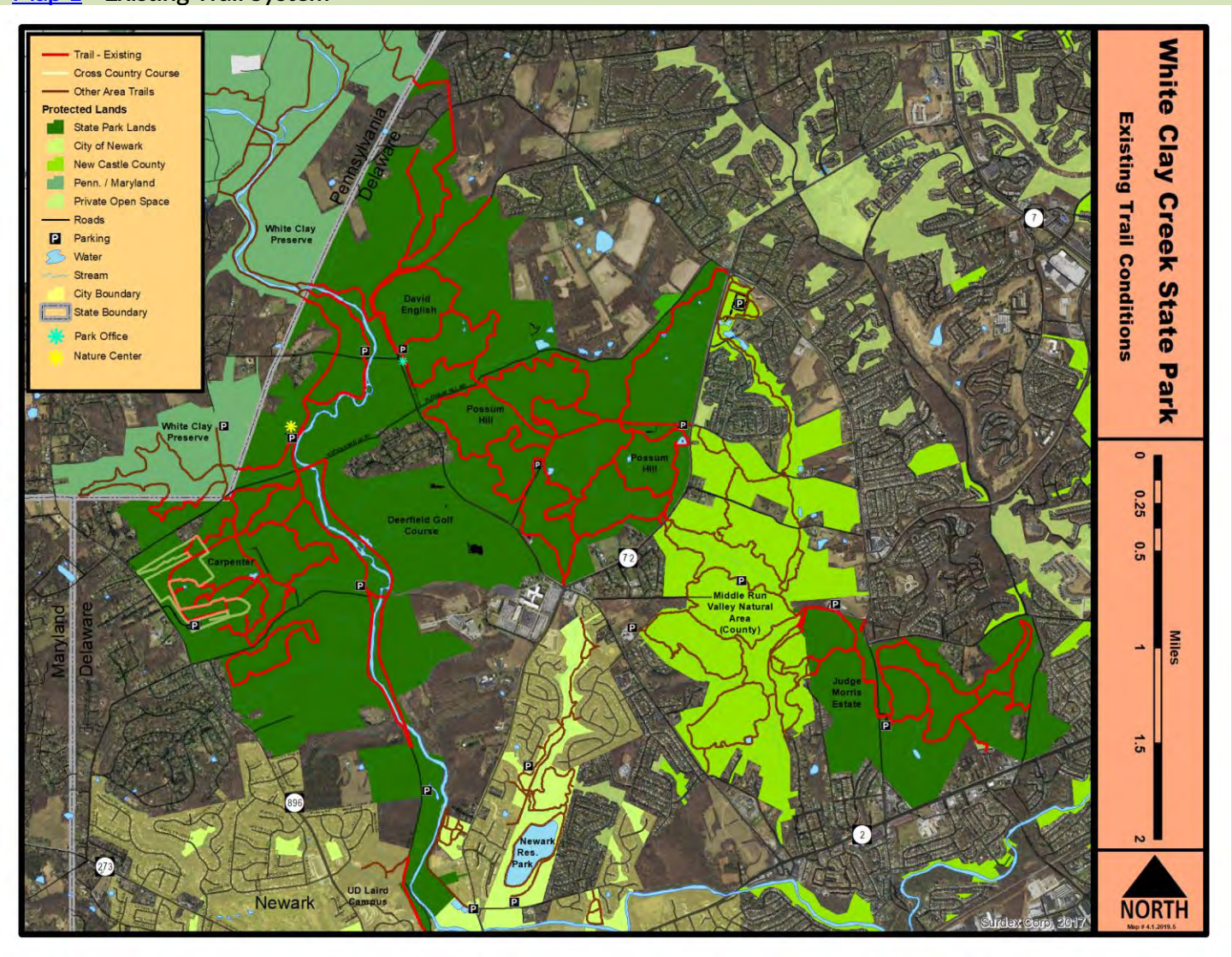
Long Term

- Create all-weather trail in Carpenter Recreation Area to create accessible experience.
- Creek Road / Wells Lane Connector to link bike traffic between areas.
- Add new connector trail to Well Field.
- Build Pomeroy Extension from Hopkins Road to Chamber Rock Road.
- Close Preserve Trail when trail and bank erosion forces abandonment of trail

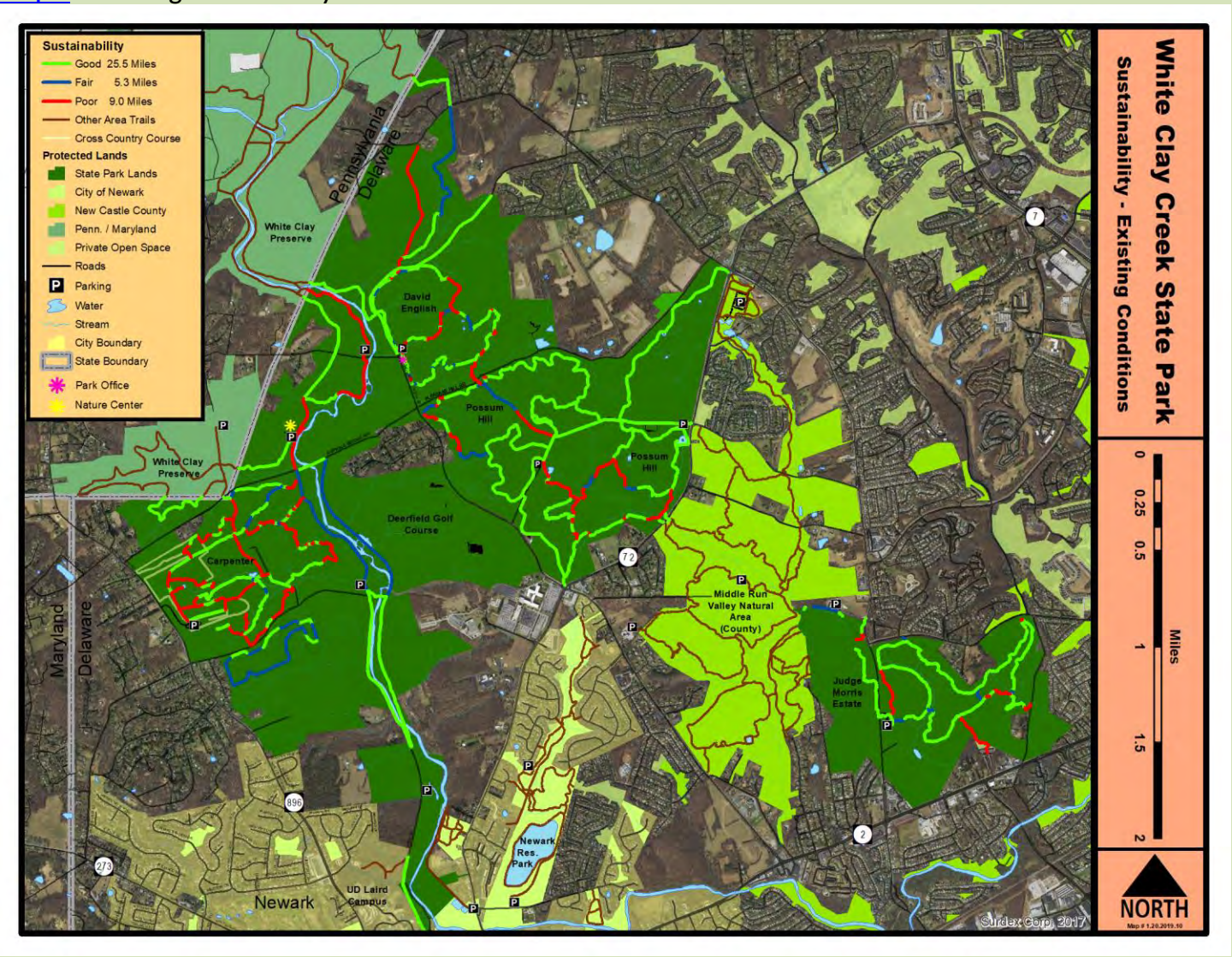
Appendix

Appendix A: Existing and Planned Condition Maps

Map 1 - Existing Trail System

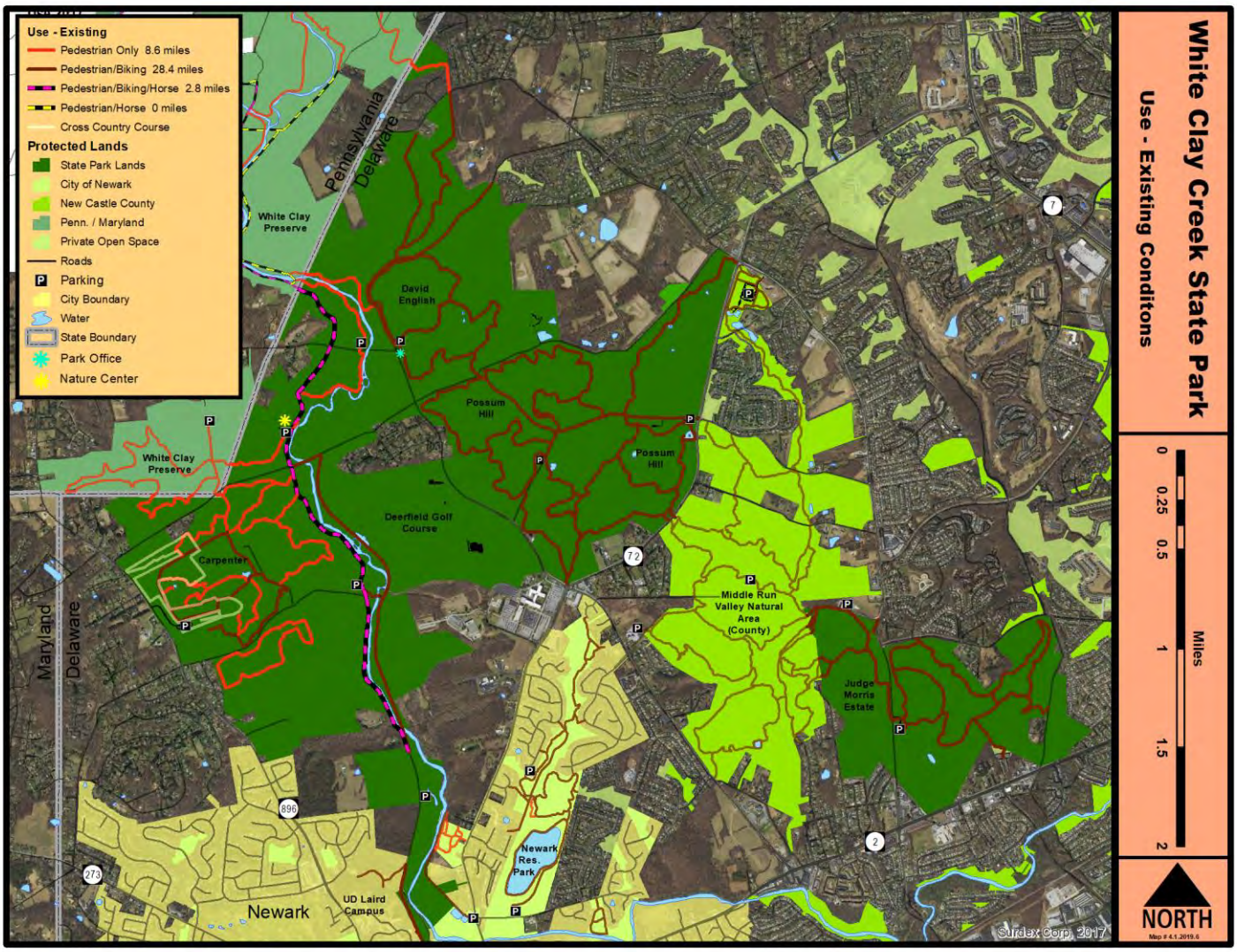


Map 2 – Existing Sustainability



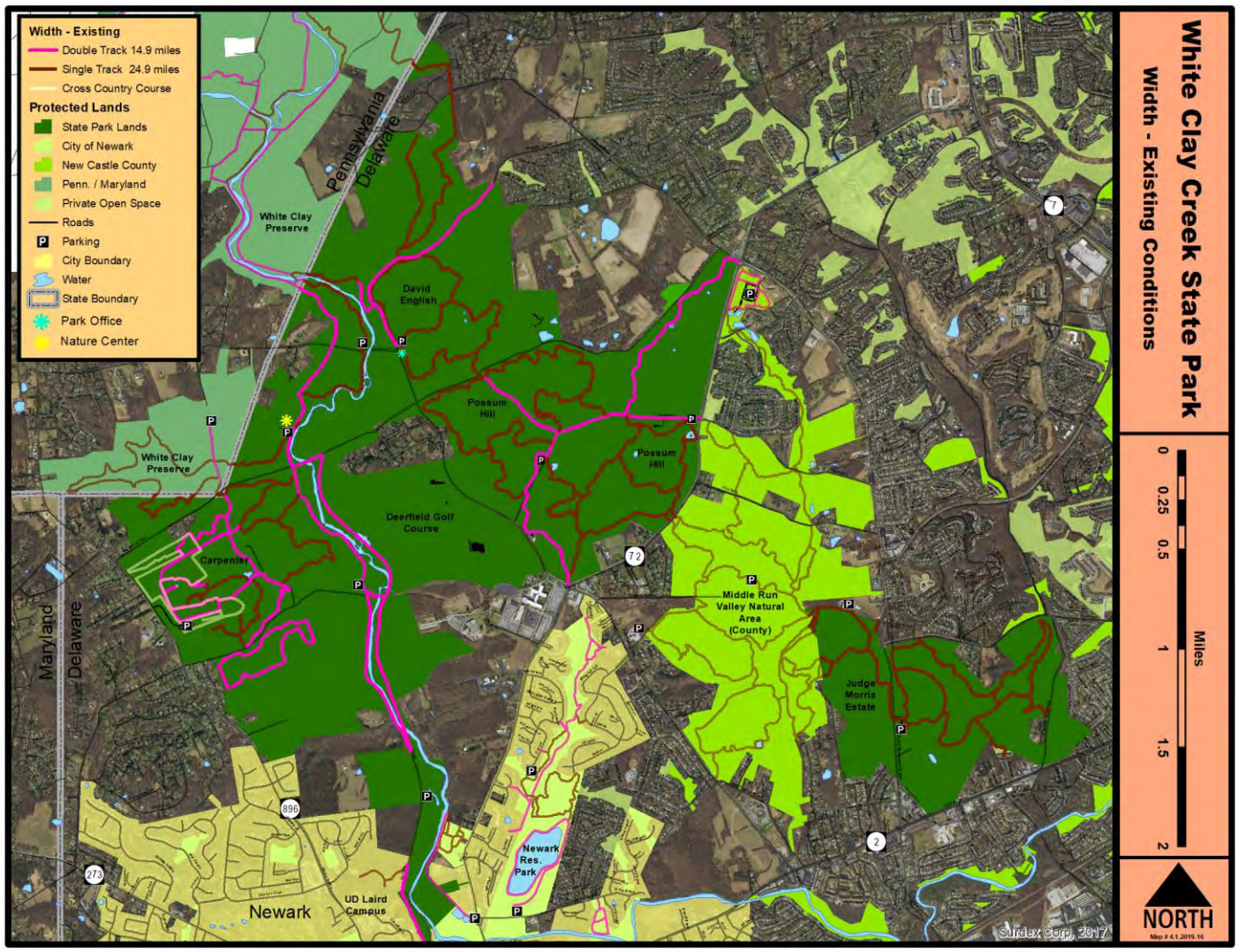
Summary: current sustainability metrics are: 9.0 miles of Poor trail, 5.3 miles of Fair trail, and 25.5 of Good trail.

Map 3 - Existing Permitted Trail Uses



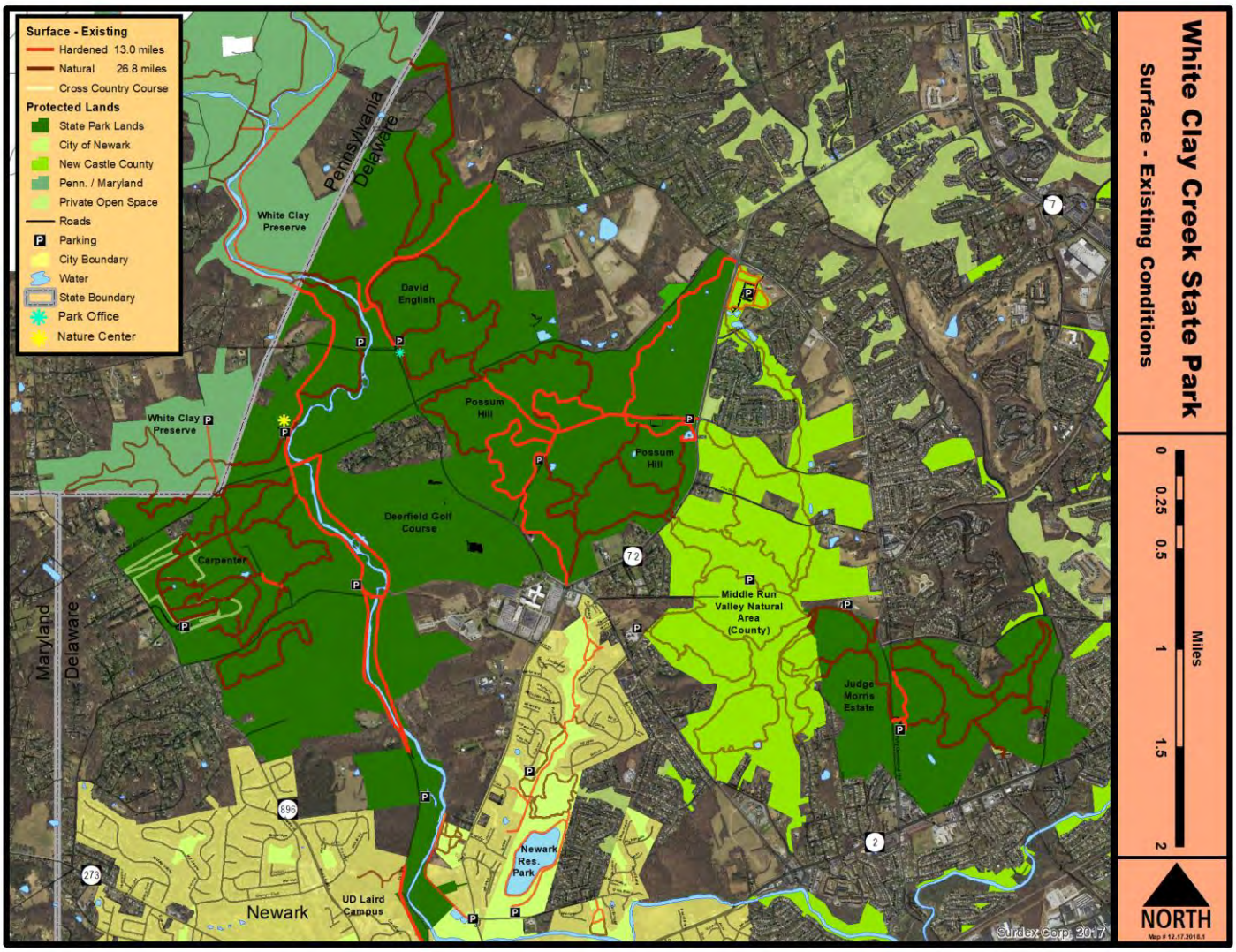
Summary: current permitted uses by mileage are: pedestrian only 8.6 miles; 28.4 pedestrian and biking; 2.8 pedestrian, biking, equestrian use.

Map 4 - Existing Trail Width



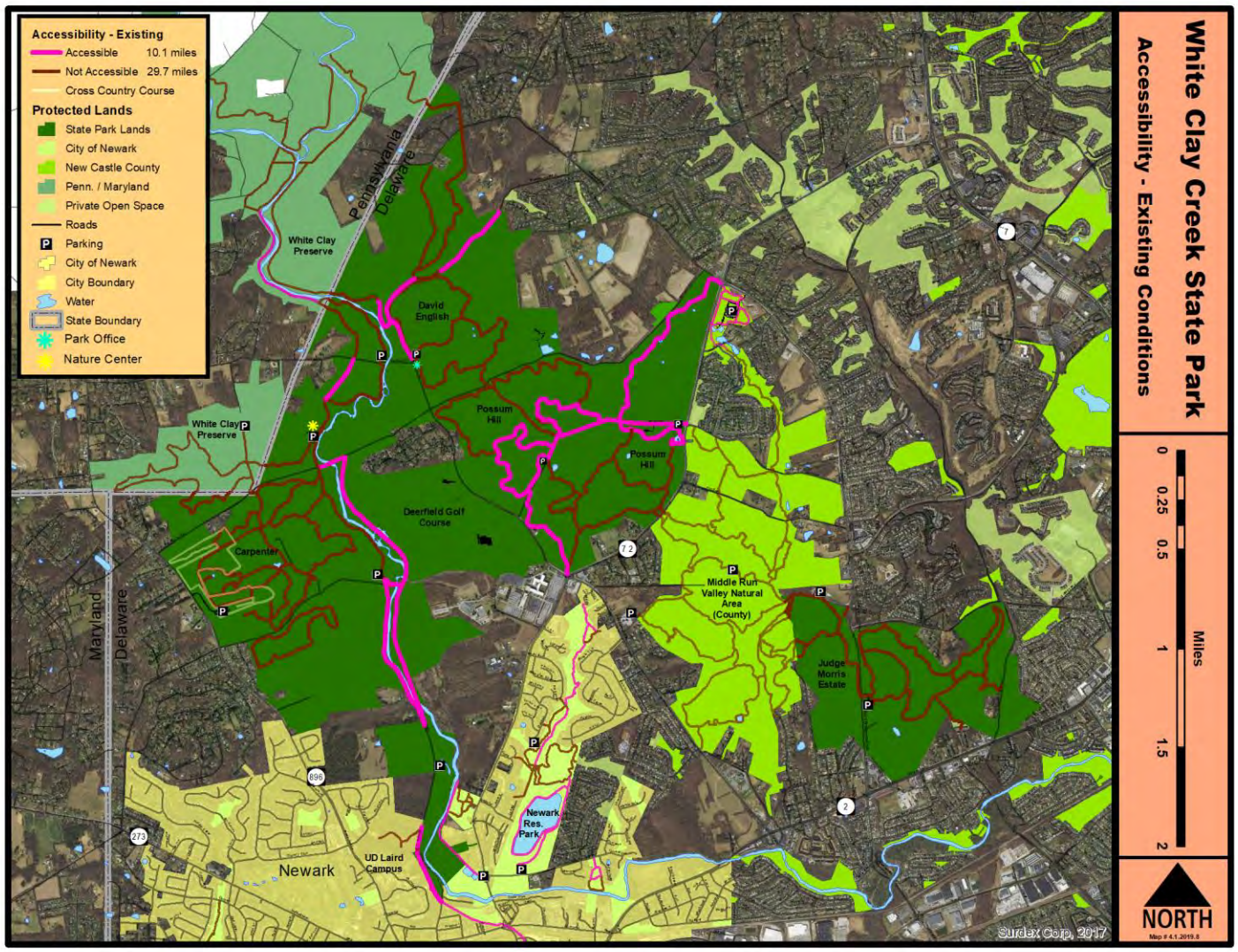
Summary: current trail widths by mileage are: single track 24.9 miles; double track 14.9 miles

Map 5 - Existing Trail Surface



Summary: current trail surfaces by mileage are: natural 26.8 miles; hardened 13.0 miles

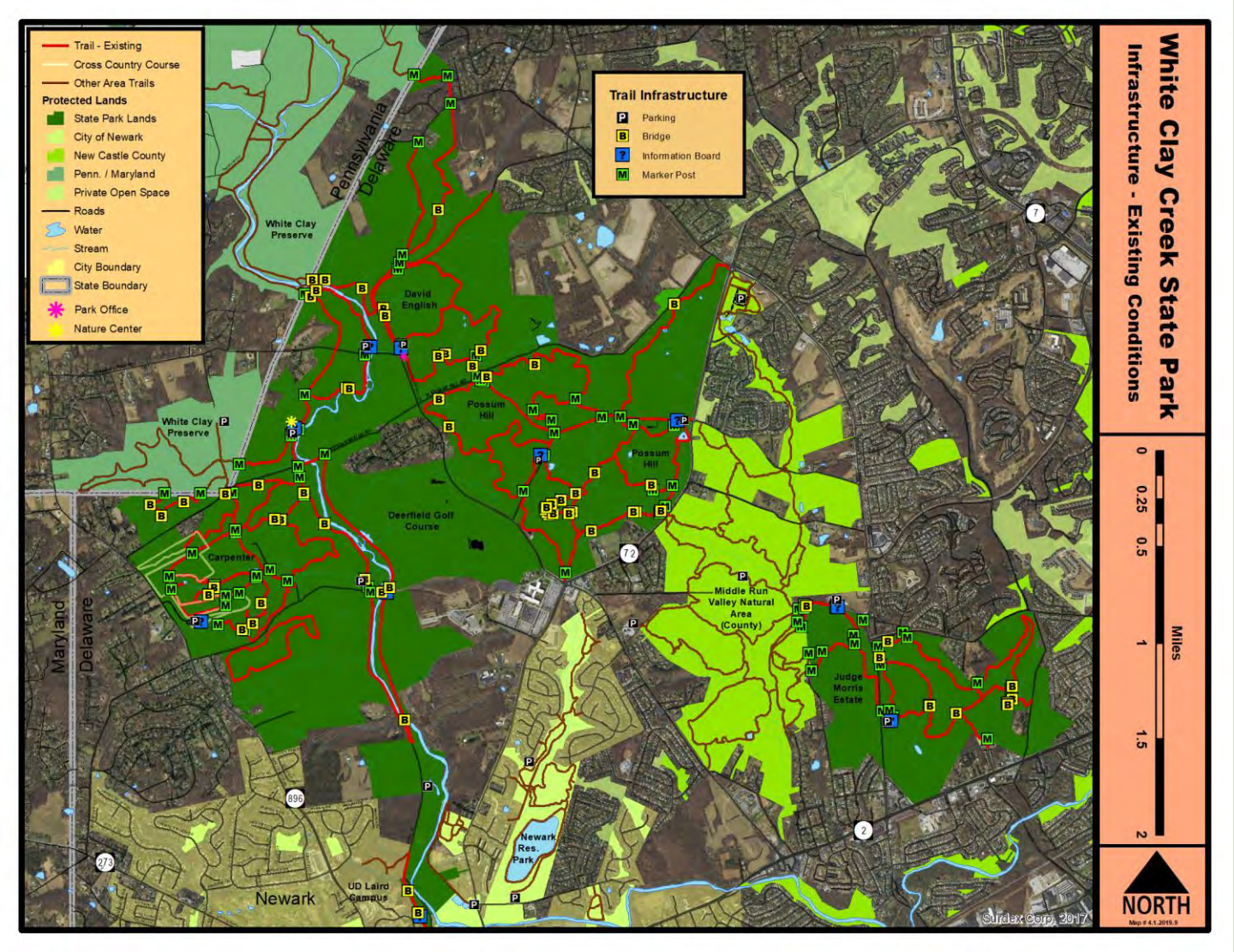
Map 6 - Existing Trail Accessibility



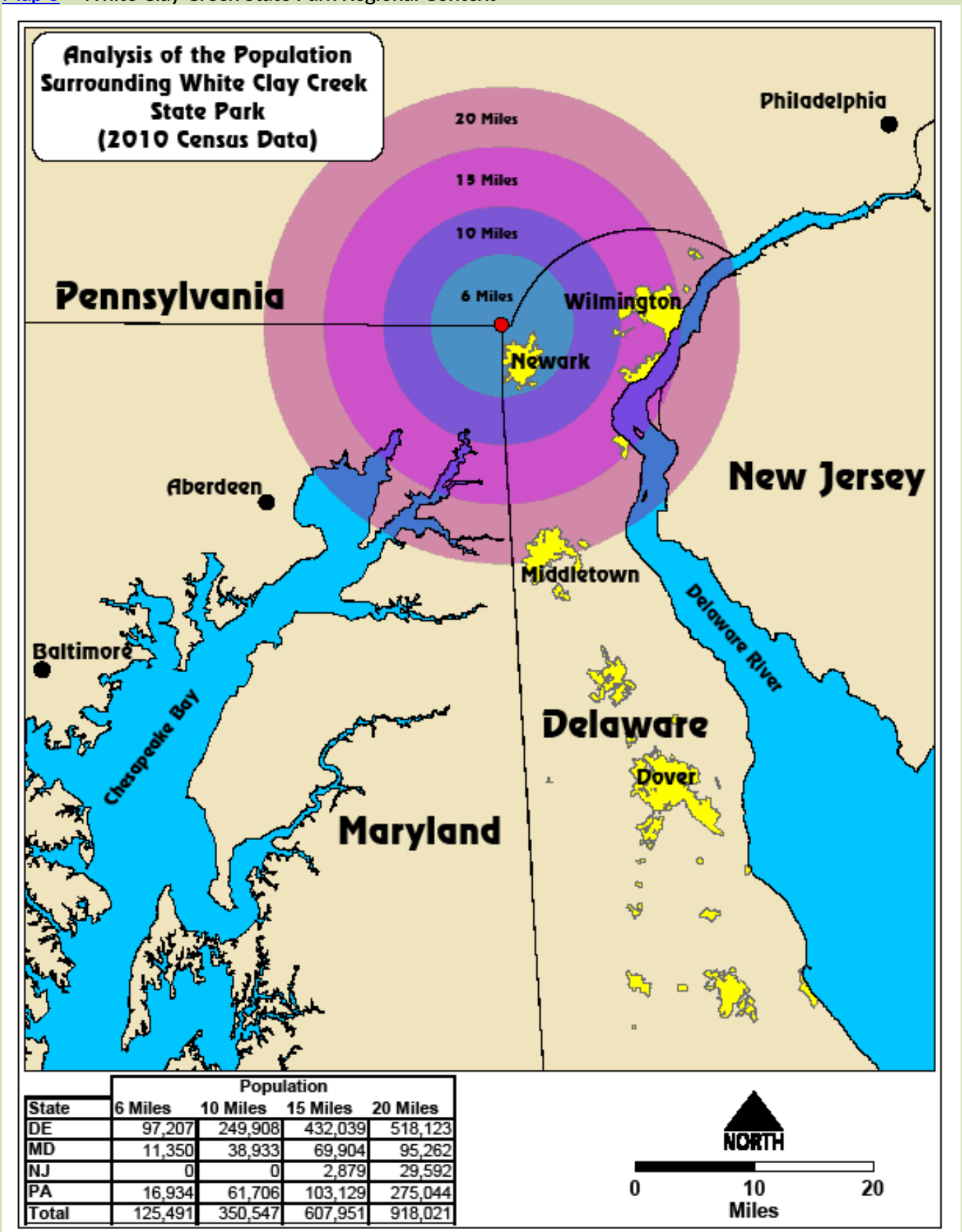
Summary: current trail accessibility by mileage are: accessible 10.1 miles; not accessible 29.7 miles

Map 7 shows locations of trailhead parking lots, information boards, bridges, and trail markers within the existing White Clay Creek State Park trail system. All parking areas for trail access are depicted with the P icon. Access to the trail system is available via eight parking lots or trailheads.

Map 7 - Existing Trail Infrastructure

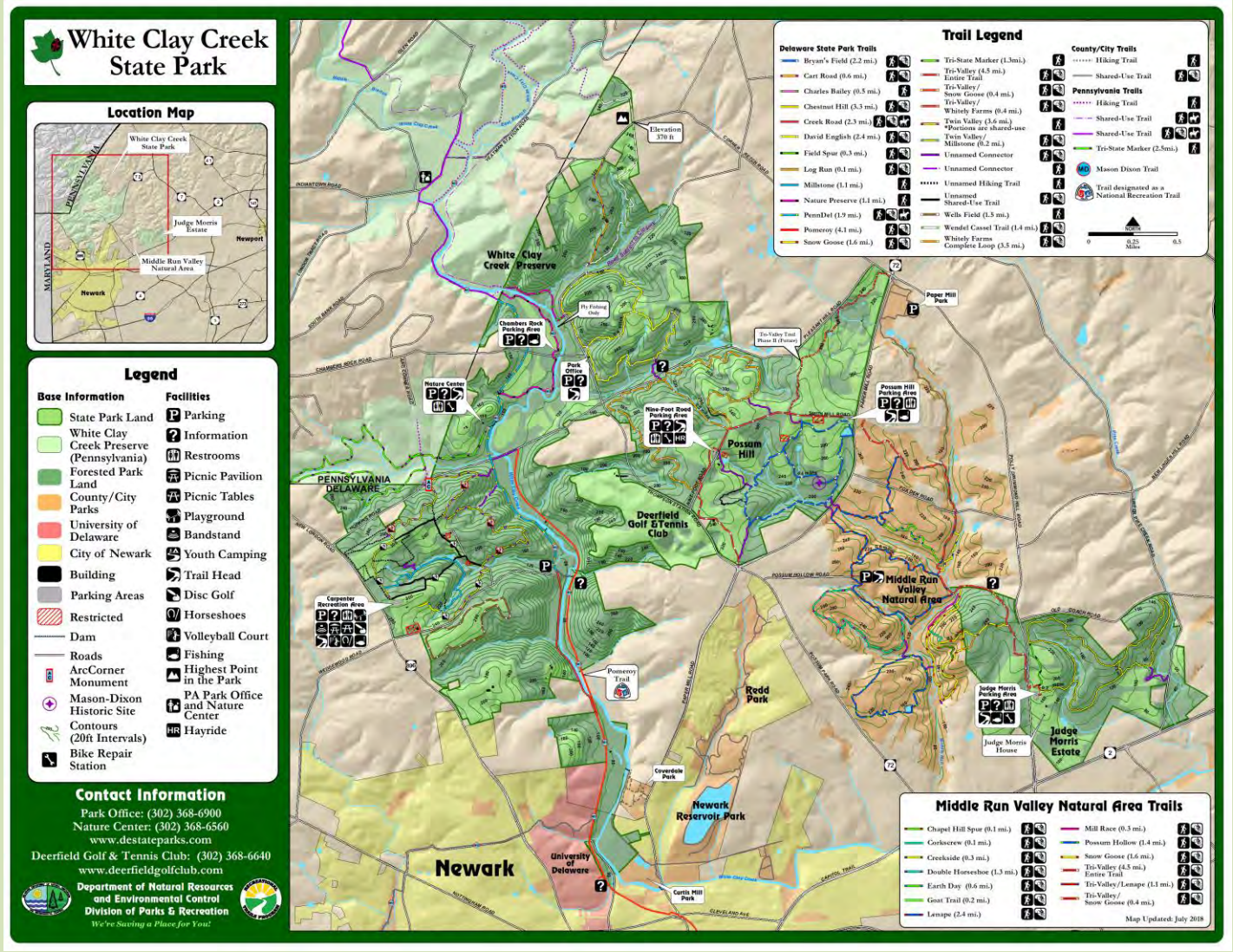


Map 8 – White Clay Creek State Park Regional Context

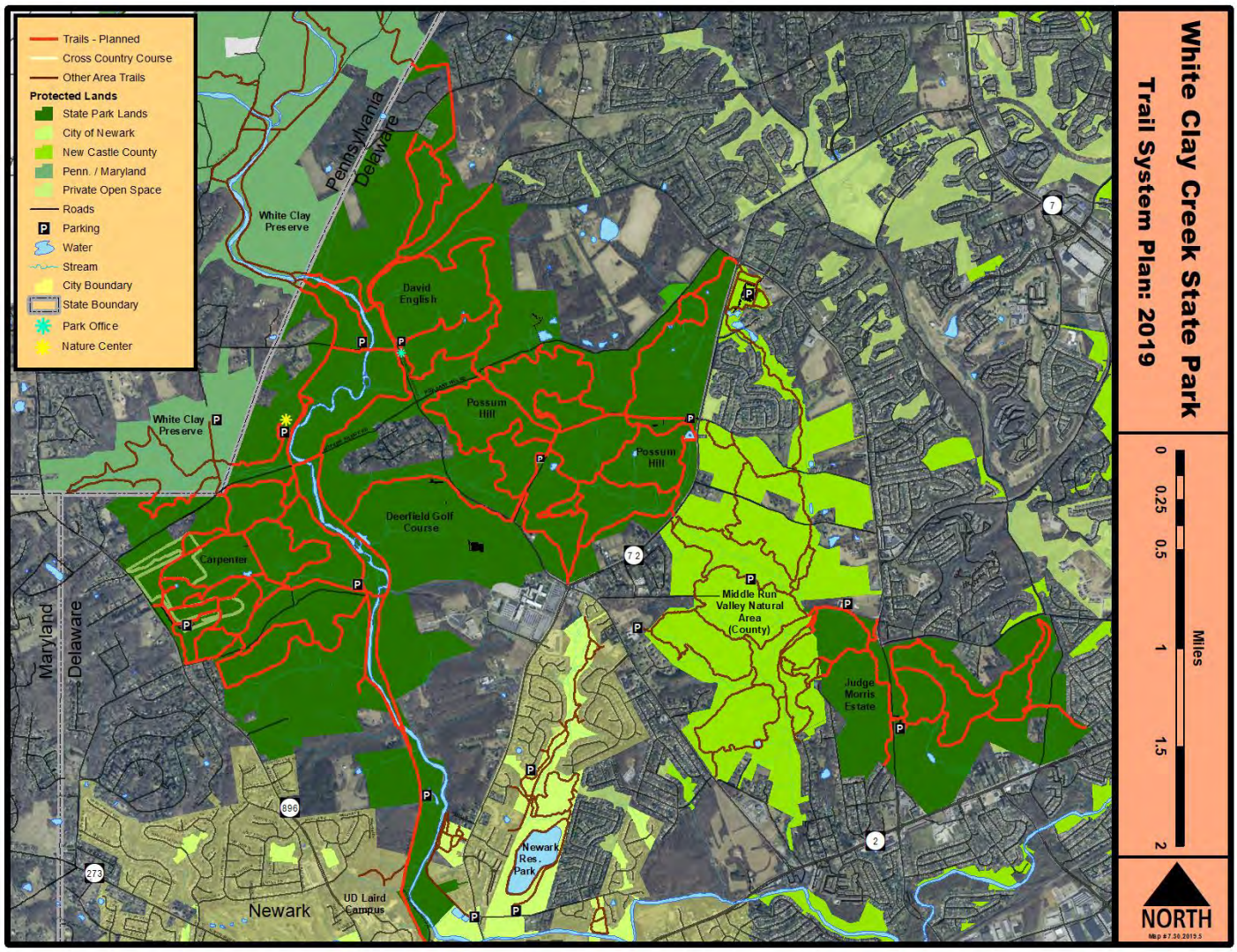


State	Population 6 Miles	10 Miles	15 Miles	20 Miles
DE	97,207	249,908	432,039	518,123
MD	11,350	38,933	69,904	95,262
NJ	0	0	2,879	29,592
PA	16,934	61,706	103,129	275,044
Total	125,491	350,547	607,951	918,021

Map 9 – White Clay Creek State Park - Current On-line Trail Map

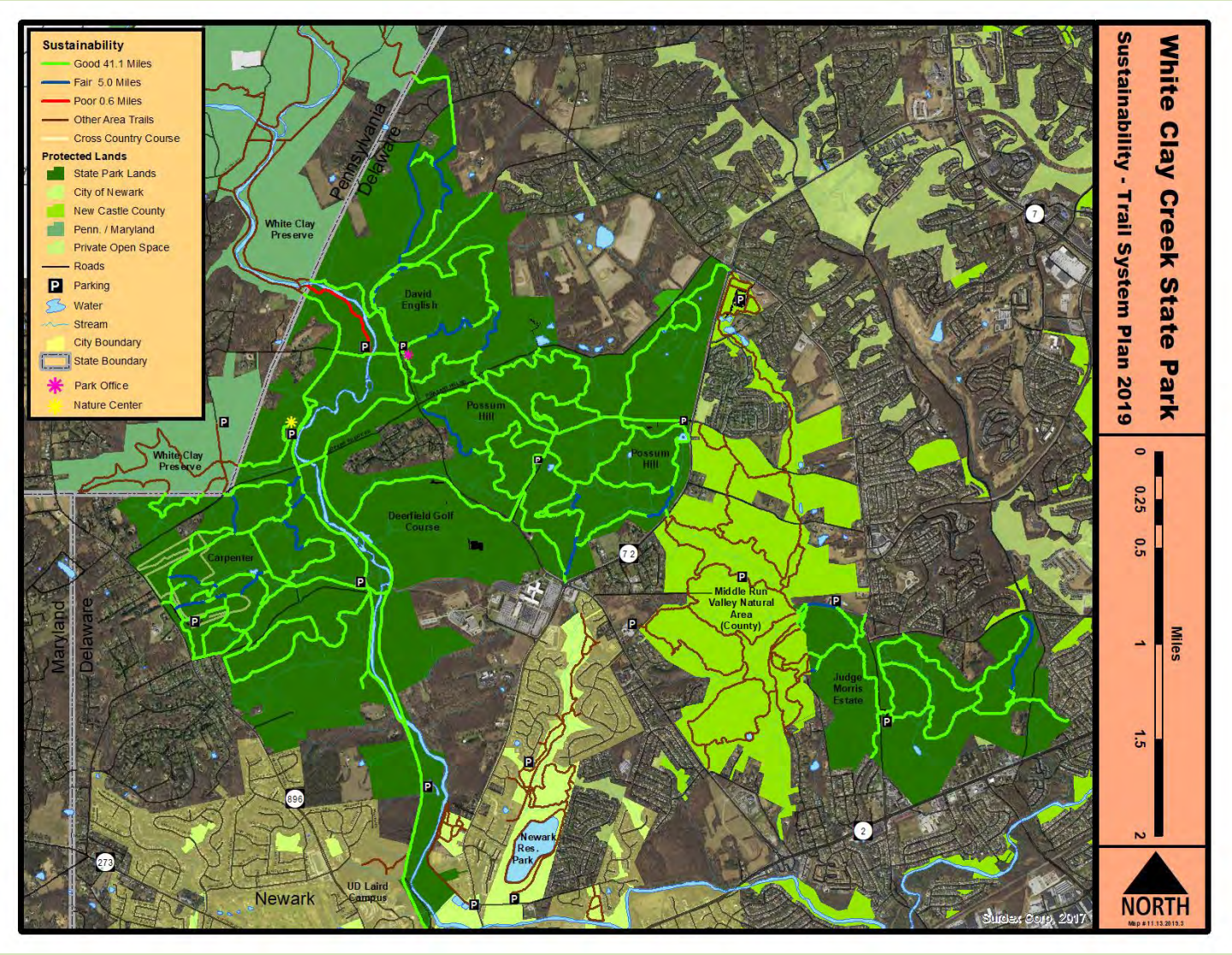


Map 10 - Planned Trail System



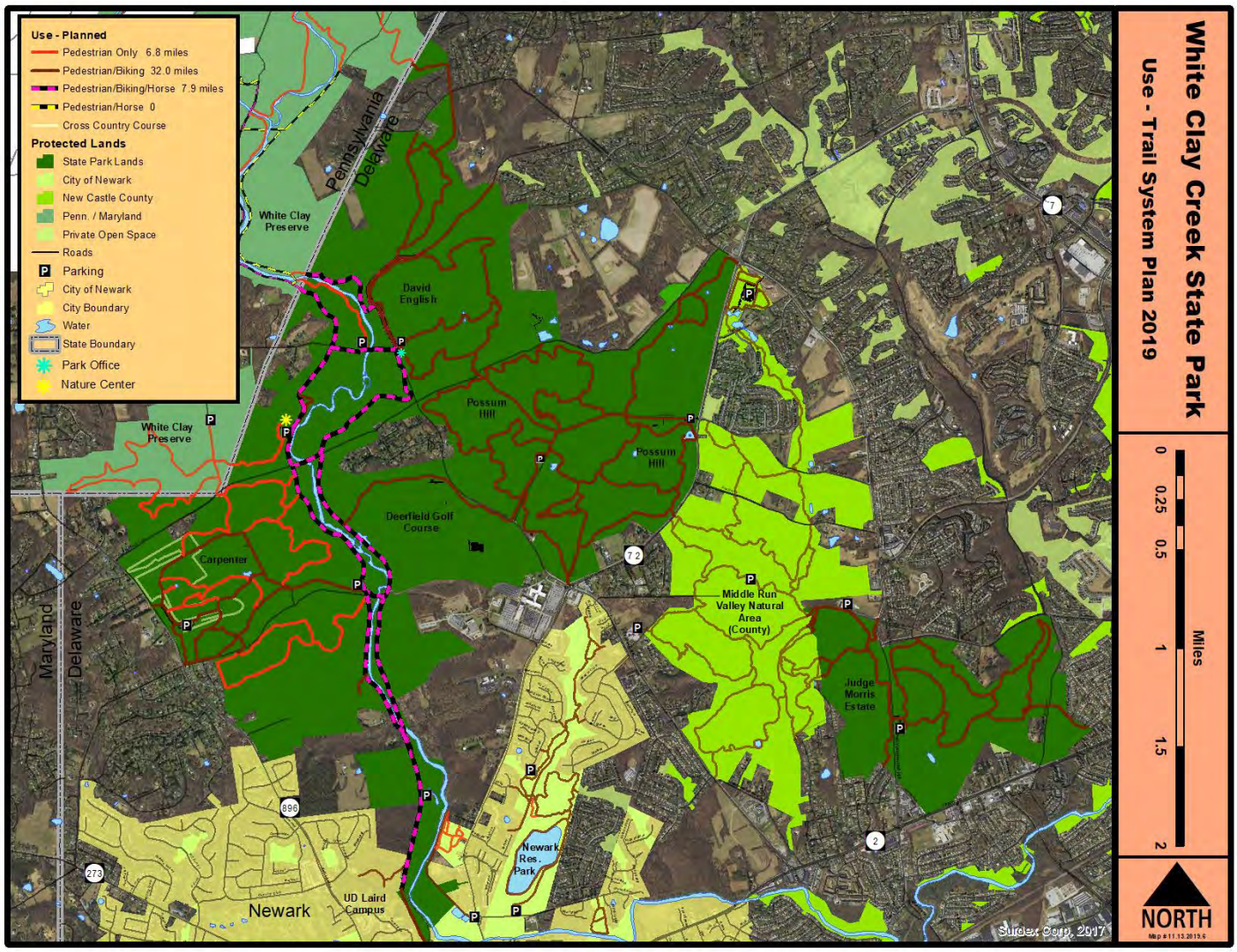
Summary: Overall the existing 39.8 mile trail system will be increase by 17% or 6.9 miles resulting in 46.7 miles overall.

Map 11 - Planned Trail Sustainability



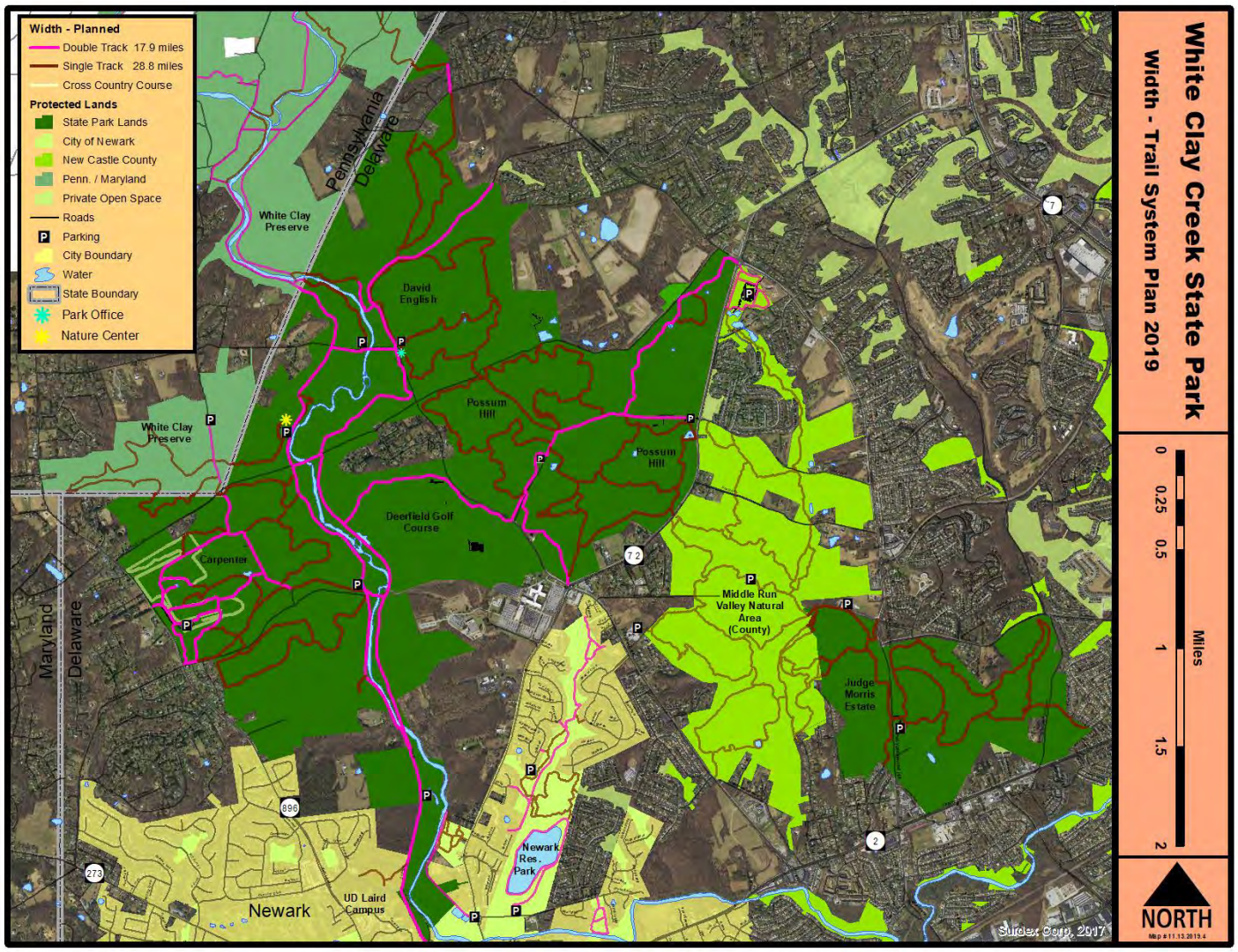
Summary: Overall with realignments and enhancements and new construction techniques, the existing 9.0 miles of trail categorized as “poor sustainability” will be reduced by 8.4 miles or 93%.

Map 12 - Planned Trail Use



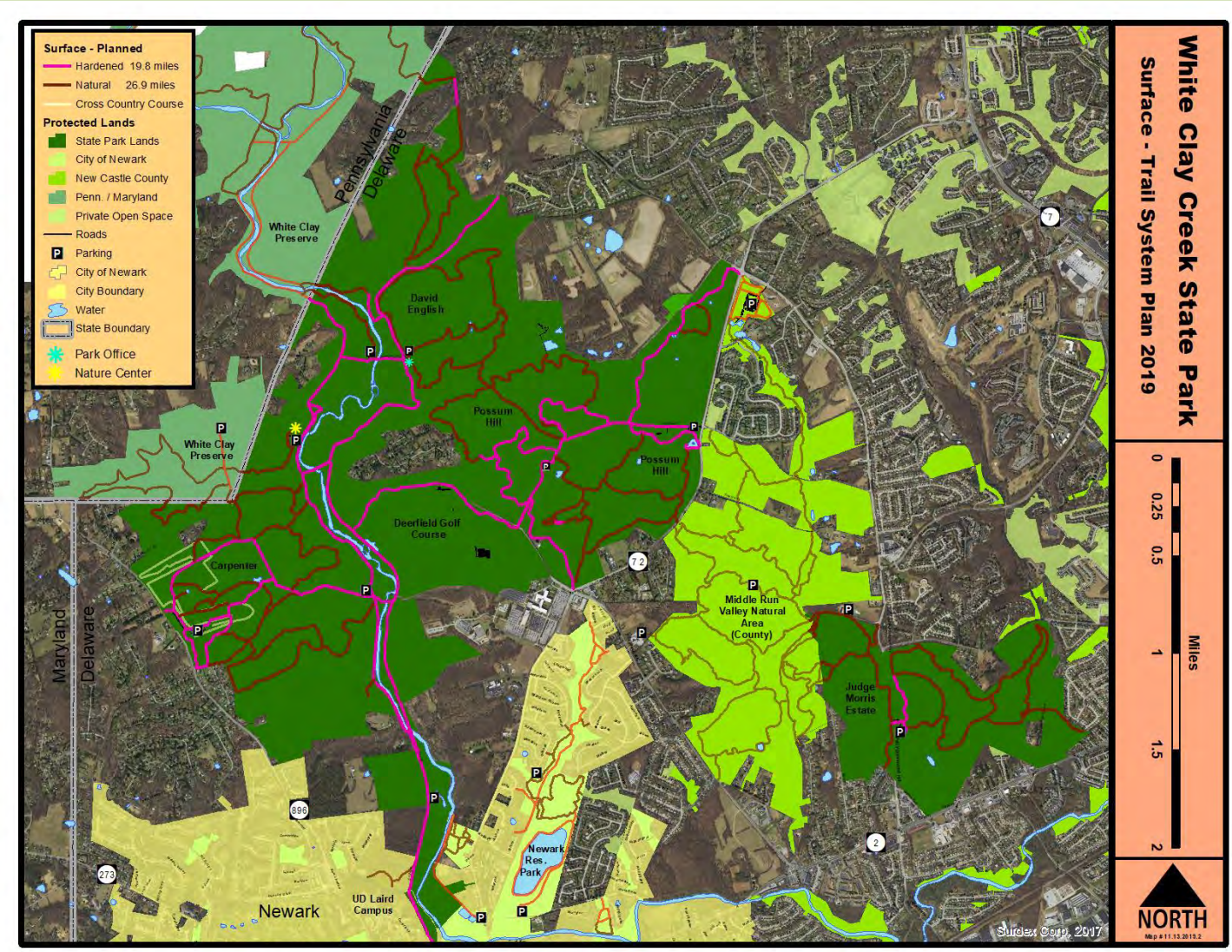
Summary: Overall with realignments and enhancements the existing 39.8 miles of trail increased to 46.7 miles. Current 8.6 miles of pedestrian only trail will decrease to 6.8 miles;
Current 28.4 miles of pedestrian and biking trail will increase to 32.0 miles; and current 2.8 miles of pedestrian, biking, and equestrian trail will increased to 7.9 miles.

Map 13- Planned Trail Width



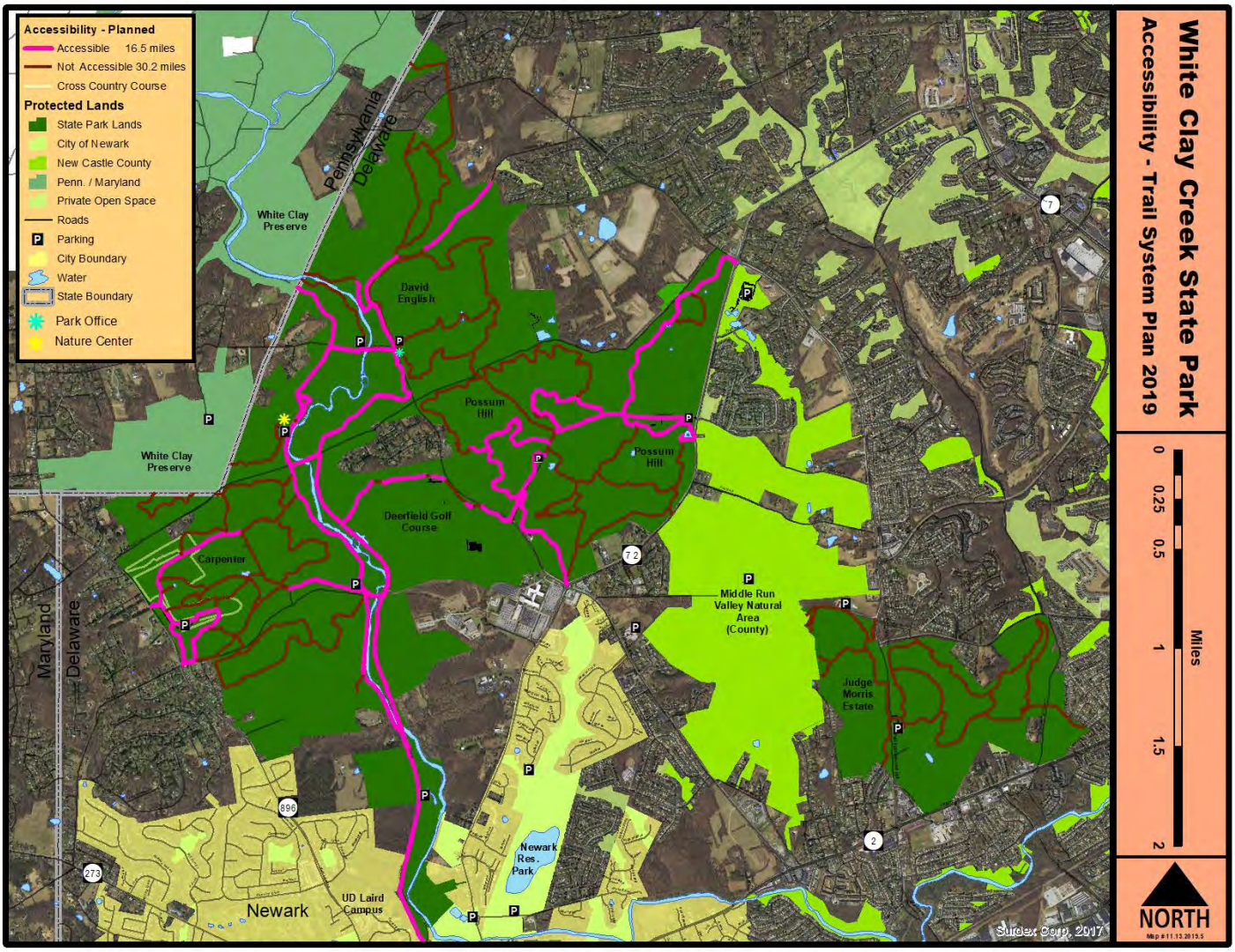
Summary: Overall, existing 24.9 miles of single track trail will be increased to 28.8 miles. Double track trail will increase from 14.9 miles to 17.9 miles.

Map 14- Planned Trail Surfaces



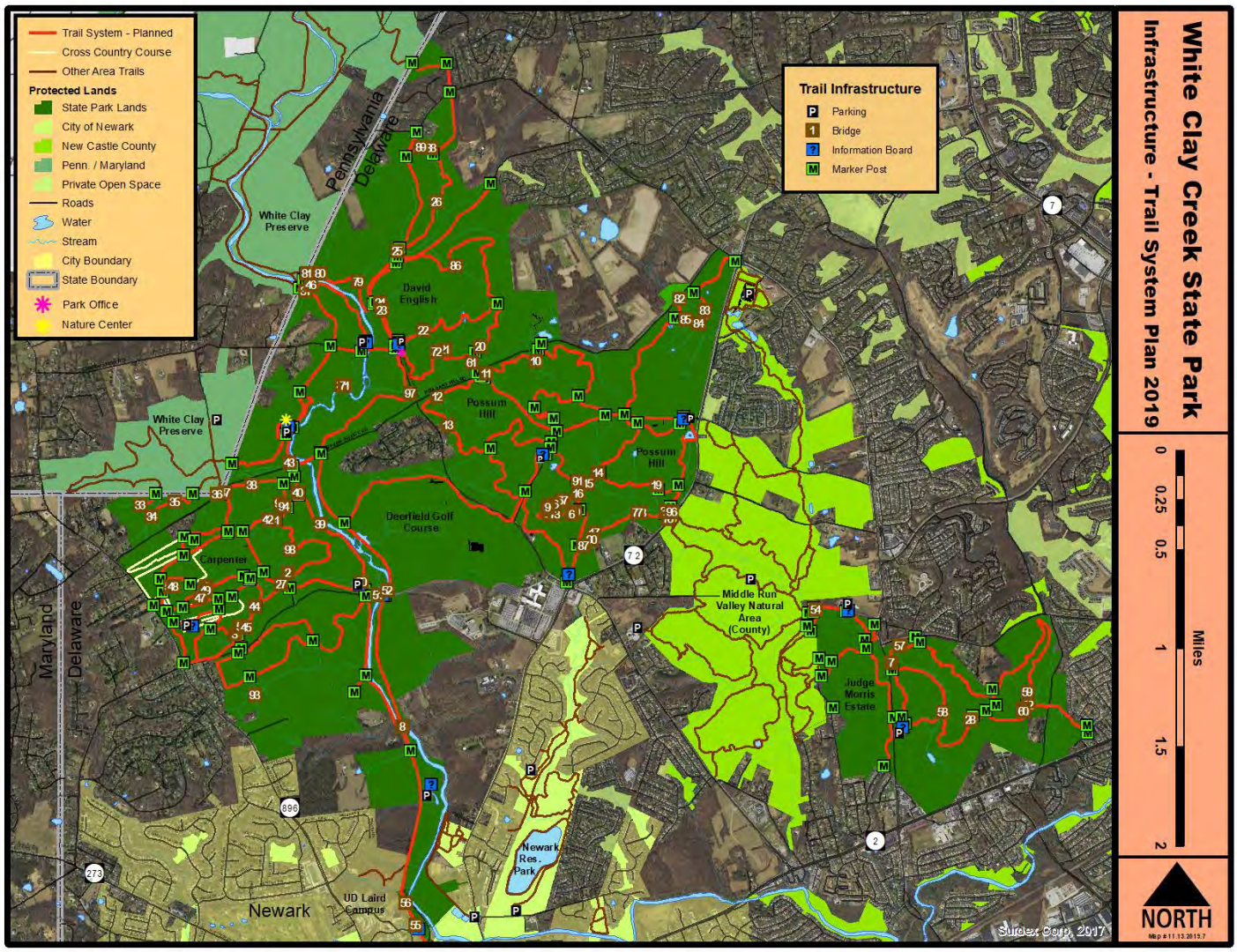
Summary: Overall the existing 13.0 miles of hardened surface trail will increase to 19.8 miles. Current 26.8 miles of natural surface trail will be increase by 0.1 miles to 26.9 miles.

Map 15 - Planned Trail Accessibility – shows the planned hardened surface portion of the trail system that will meet or exceed Federal trail accessibility guidelines.

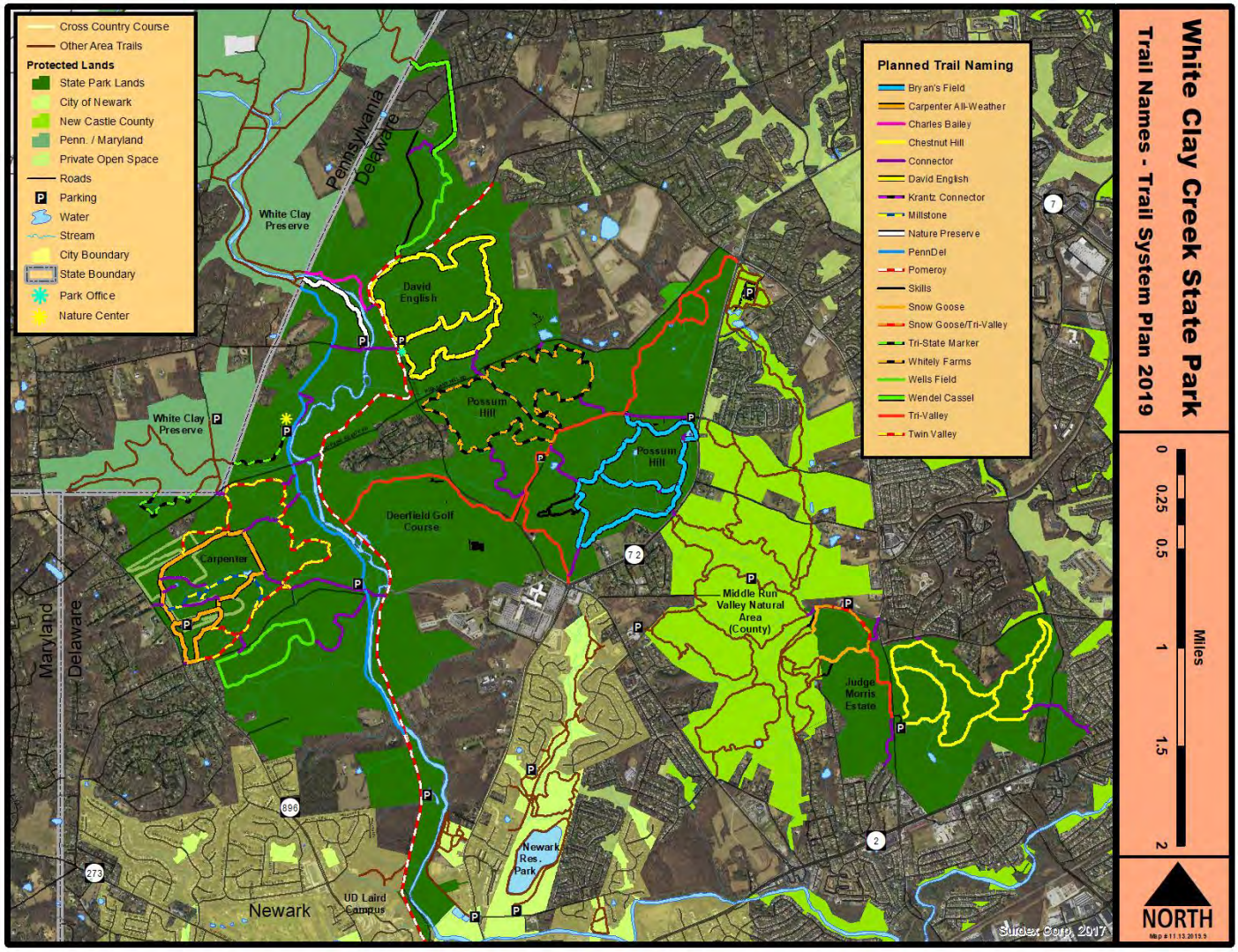


Summary: Overall the existing 10.1 miles of accessible surface trail will increase to 16.5 miles. Current 29.7 miles of trail not accessible will be decreased by 0.5 miles to 30.2 miles.

Map 16 - Planned Trail Infrastructure



Map 17 - Planned Trail Naming



Appendix B: Tables

Table 1, Statewide Trail Distribution Analysis, provides an overview of the State Park trail systems.

Table 1 – State Park Trail Distribution Analysis

County	State Park	Miles	Percent of Total Trail Miles	Total Miles	Percent Total Trail Miles Per County	Percent State Population
New Castle	Alapocas Run SP	6.5	4%	103.1	67%	59%
	Auburn Heights NP	3.9	3%			
	Bellevue SP	9.7	6%			
	Brandywine Cr SP	16.6	11%			
	Flint Woods NP	2.4	2%			
	Fort DE SP	0.8	1%			
	Fort DuPont SP	1.3	1%			
	Fox Point SP	2.3	1%			
	Lums Pond SP	17.5	11%			
	White Clay Cr SP	38.6	25%			
	Wilmington SP	3.5	2%			
Kent	Killens Pond SP	7.4	5%	8.4	5%	18%
	Fork Branch NP	1	1%			
Sussex	Barnes Woods NP	0.8	1%	43.1	28%	23%
	Cape Henlopen SP	19.3	12%			
	DE Seashore SP	9	6%			
	Fenwick Is SP	0	0%			
	Holts Landing SP	2.4	2%			
	Trap Pond SP	11.6	8%			
	Total	154.6	100%	154.6	100%	100%

	Trail Usage (miles)		Trail Width (miles)		Trail Surfacing (miles)	
County	Shared Use	Single Use (Pedestrian Only)	Double Track	Single Track	Natural Surface Tread	Hardened Surface Tread
New Castle	73.1	30	56.8	46.3	63.4	39.7
Kent	4.4	4	6.4	2	3.5	4.9
Sussex	35.2	7.9	39.3	3.8	16.8	26.3
Total	112.7	41.9	102.5	52.1	83.7	70.9

Table 2 - Existing Trail Uses

Existing Trail Uses	Mileage
Pedestrian (All trails open to Pedestrians)	39.8
Pedestrian Only	8.6
Pedestrian/Bike	25.6
Pedestrian/Bike/Equestrian	2.8

Table 3 - Existing Trail Characteristics

Trail Characteristics	Existing Trail Mileage	Percentage of Park System
Total Mileage	39.8	100%
Sustainability		
Good	25.5	64
Fair	5.3	13
Poor	9.0	23
Surface		
Natural	26.8	67
Hardened	13.0	33
Width		
Single Track	24.9	63
Double Track	14.9	37
Permitted Use		
Pedestrian Only	8.6	22
Pedestrian/ Bike	28.4	70
Pedestrian/ Bike/Equestrian	2.8	8
Accessibility		
Accessible	10.1	25
Not Accessible	29.7	75

Table 4- Existing Trails, Miles & Uses

Trail	Length in Miles	Pedestrian	Biking	Equestrian
Bryan's Field	2.2	√	√	
Charles Bailey	0.5	√		
Chestnut Hill	3.3	√	√	
David English	2.4	√	√	
Mill Stone	1.1	√		
Nature Preserve	1.1	√		
PennDel	1.9	√	√	√
Pomeroy	4.1	√	√	
Tri-State Marker	3.8	√		
Tri-Valley	4.5	√	√	
Twin Valley	3.6	√		
Whitely Farms	3.5	√	√	

Table 5 –Existing and Planned Trail Characteristics and Accessibility

Trail Characteristics	2019 Trail System	Planned System	Change in Mileage	Percent of Planned System
Total Mileage	**39.8**	**46.7**	**Increased 6.9**	**+100%**
Sustainability				
Good	**25.5**	**41.1**	**Increased 15.6**	**88**
Fair	**5.3**	**5.0**	**Reduced 0.3**	**11**
Poor	**9.0**	**0.6**	**Reduced 8.4**	**1**
Surface				
Natural	**26.8**	**26.9**	**Increased 0.1**	**58**
Hardened	**13.0**	**19.8**	**Increased 6.8**	**42**
Width				
Single Track	**24.9**	**28.8**	**Increased 3.9**	**62**
Double Track	**14.9**	**17.9**	**Increased 3.0**	**38**
Permitted Use				
Pedestrian Only	**8.6**	**6.8**	**Reduced 1.8**	**15**
Pedestrian /Bike	**28.4**	**32.0**	**Increased 3.6**	**69**
Pedestrian /Bike/Equine	**2.8**	**7.9**	**Increased 5.1**	**16**
Accessibility				
Accessible	**10.1**	**16.5**	**Increased 6.4**	**35**
Not Accessible	**29.7**	**30.2**	**Increased 0.5**	**65**

Table 6 - Planned Trail Changes

Note: Triggers determine when any potential project gets moved to an active funded project. For example: A storm causing a tree to fall and destroy a bridge would trigger a bridge replacement project for safety reasons.

Trail	Trail Type	Width Avg.	Current Trail Users	Future Users	Change Required	Trigger
Bryan's Field	Single Track	3 feet	Pedestrian Bicycles	Pedestrian Bicycles	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
Carpenter All-Weather Loop	*Double Track*	*8 feet*	Pedestrian Bicycles	*Pedestrian Bicycles*	• Reroutes • Surface Upgrade	• User Safety • Enviro. Protection • Funding
Charles Bailey	Single Track	3 feet	Pedestrian	Pedestrian Equestrian Bicycles	• Signs	• Funding
Chestnut Hill	Single Track	3 feet	Pedestrian Bicycles	Pedestrian Bicycles	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
David English	Single Track	3 feet	Pedestrian Bicycles	Pedestrian Bicycles	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
Mill Stone	Single Track	3 feet	Pedestrian	Pedestrian	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
Nature Preserve	Single Track	3 feet	Pedestrian	Pedestrian	• Reroutes	• User Safety • Enviro. Protection • Funding
Old Cart Road	Single Track	3 feet	Pedestrian Bicycles	Pedestrian Bicycles	• Minor Reroutes • Armoring	• User Safety • Enviro. Protection • Funding
Pomeroy	Double Track	10 feet	Pedestrian Bicycles	Pedestrian Equestrian Bicycles	• Armoring • Surface Upgrade	• Accessibility • Enviro. Protection • Funding
Tri-State Marker	Single Track	3 feet	Pedestrian	Pedestrian	• Armoring • Signs	• Enviro. Protection • Funding
Twin Valley	Single Track	3 feet	Pedestrian	Pedestrian	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding
Wells Field	Single Track	3 feet	Pedestrian	Pedestrian Bicycles	• Reroutes • Armoring • Signs	• Funding
Whitely Farms	Single Track	3 feet	Pedestrian Bicycles	Pedestrian Bicycles	• Reroutes • Armoring • Signs	• User Safety • Enviro. Protection • Funding

Table 6 - Planned Trail Changes - New Trail

Trail	Trail Type	Width Avg.	Current Trail Users	Future Users	Change Required	Trigger
Creek Road	*Double Track*	*16 feet*	*NA*	*Pedestrian Equestrian Bicycles*	• Convert to Trail	• Policy Change
Carpenter All-Weather Loop	*Double Track*	*8 feet*	*NA*	*Pedestrian Bicycles*	• *New Trail* • *Signs*	• Park Office Change
Chambers Rock Road Connector	*Double Track*	*4 feet*	*NA*	*Pedestrian Equestrian Bicycles*	• *New Trail* • *Signs*	• User Safety • Connection Need • Funding
Deerfield Connector	*Double Track*	*8 feet*	*NA*	*Pedestrian Bicycles*	• *New Trail* • *Signs*	• Connection Need • Funding
Pomeroy Extension	*Double Track*	*4 feet*	*NA*	*Pedestrian Equestrian Bicycles*	• *New Trail* • *Signs*	• Funding • Accessibility • Connection Need
Thompson Station Road	*Double Track*	*10 feet*	*NA*	*Pedestrian Bicycles*	• Convert to Trail	• Policy Change
Wells Field Connector	*Single Track*	*3 feet*	*NA*	Pedestrian	• *New Trail* • *Signs*	• Funding
Wells Lane Connector	*Double Track*	*4 feet*	*NA*	*Pedestrian Bicycles*	• *New Trail* • *Signs*	• User Safety • Funding

Table 7 Trail Bridge Conditions

Trail Bridge Number	2019 Condition	Year Built	Planned Action
1	Excellent	2015	None
2	Fair	2000	Replace
3	Good	unknown	Replace
4	Good	2000	None
5	Good	2001	Remove with Reroute
6	Excellent	2019	None
7	Good	2000	None
8	Excellent	2009	None
9	Excellent	2019	None
10	Good	2002	None
11	Good	2003	None
12	Good	2003	None
13	Good	2003	None
14	Good	2002	None

15	Good	2002	Remove with Reroute
16	Good	2002	None
17	Good	2002	None
18	Good	2002	None
19	Good	2005	None
20	Good	2001	None
21	Good	2002	None
22	Good	2002	Remove with Reroute
23	Good	2004	None
24	Good	2004	None
25	Poor	unknown	Replace
26	Good	2004	None
21	Poor	unknown	Replace
28	Good	2004	None
29	Good	2002	None
31	Fair	unknown	None
32	Good	2008	None
33	Excellent	2015	None
34	Excellent	2015	None
35	Excellent	2015	None
36	Excellent	2015	None
37	Poor	unknown	Replace
38	Good	2002	None
39	Good	2000	None
40	Good	2000	None
41	Good	2001	None
42	Excellent	2017	None
43	Fair	unknown	Replace
44	Excellent	2019	None
45	Good	2001	None
46	Fair	unknown	None
47	Excellent	2015	None
48	Poor	unknown	Replace
49	Excellent	2015	None
50	Poor	unknown	Replace
51	Good	2001	None
52	Fair	unknown	None
53	Good	2006	None
54	Excellent	2006	None
55	Excellent	2012	None
56	Excellent	2012	None
57	Good	1999	None

58	Poor	2000	Replace
59	Good	1999	None
60	Good	2000	None
61	Excellent	2013	None
62	Good	2000	None
63	Good	2006	None
64	Good	2004	None
66	Good	2004	None
67	Good	2004	None
69	Excellent	2019	None
70	Good	unknown	None
71	Good	2008	None
72	Good	2002	None
73	Good	2006	None
74	Good	2004	None
76	Good	2004	Remove with Reroute
77	Good	2002	None
78	Good	2002	None
79	Excellent	2019	None
80	Excellent	2019	None
81	Excellent	2019	None
82	Planned	Planned	Planned with New Trail
83	Planned	Planned	Planned with New Trail
84	Planned	Planned	Planned with New Trail
85	Planned	Planned	Planned with New Trail
86	Planned	Planned	Planned with Reroute
87	Planned	Planned	Planned with Reroute
88	Planned	Planned	Planned with New Trail
89	Planned	Planned	Planned with New Trail
90	Planned	Planned	Planned with Reroute
91	Planned	Planned	Planned with Reroute
92	Planned	Planned	Planned with Reroute
93	Planned	Planned	Planned with New Trail
94	Planned	Planned	Planned with Reroute
95	Planned	Planned	Planned with Reroute
96	Planned	Planned	Planned with New Trail
97	Planned	Planned	Planned with New Trail
98	Planned	Planned	Planned with Reroute

Appendix C: Sustainable Trail Best Management Practices

Designing, constructing, and properly maintaining trails for sustainability is of paramount importance to preserving the designed experience, health, and life span of the trail system. Many trail management problems, ranging from erosion to user conflicts, stem from poor trail planning and design, management, and use. A poorly designed trail, no matter how well it is built, will degrade at a faster rate and cause more problems for managers and trail users.

User type and volume impacts are most notable on natural surface trails. Over the years there have been a number of studies that have examined the relationship between users and the trail. The ability to loosen or displace (move short distances) tread materials will help determine the sustainability of any given trail. Although the "footprint" may look different, the foot and the tire exhibit about the same amount of wear and tear on the trail-pounds per square inch on the tread are actually lower for a bike. The equestrian, at least four times the weight, can have a more dramatic effect on compacting or loosening the tread. Once tread materials are loose they become more susceptible to displacement and/or erosion. Depending on soil conditions, user type and volumes, trail width, canopy cover, and slopes, the amount and distance of displacement or erosion will vary. In general the distance for displacement will not exceed one or two feet. Erosion on the other hand is not confined to short distances; in fact soil may be carried hundreds if not thousands of feet by water.

Site conditions all being equal, the heavier horse will loosen and displace many times more tread material than either the pedestrian or biker. However, sheer numbers of any one user type can overwhelm just a few of another. The impact of twenty hikers in a muddy area far exceeds the impact of one horse. Nor are a handful of hikers going through a stream comparable to the impact of ten bikers splashing across at speed. All trail users affect the trail surface and surrounding environment, especially when trails are poorly planned and constructed. The impacts are intensified when trail activities occur during fragile environmental times - such as when natural surface trails are soft (winter freeze thaw cycle, heavy or prolonged rain events). Soft trails are more susceptible to soil compaction, displacement, and erosion, or vegetation loss or trampling when users avoid puddles or soft tread areas.

The increase of knowledge and understanding of the inner workings of the natural environment and how trail activities impact and interact with local site conditions, has reshaped how the Division approaches trail planning/design, development, and maintenance. It has been the accumulation, and continuation, of this knowledge that has led to a broader and more in-depth approach to the planning process.

The basic principles of sustainable trails include the following:

- Incorporate contour trail design
- Maximize natural and cultural resource protection
- Support current and future use
- Minimize adverse effects on plant or animal life in the area
- Avoid disruption of the natural hydrology
- Minimize adverse effects on tread surface erosion or displacement
- Minimize future rerouting and long-term or recurring maintenance
- Minimize or eliminate recurring trail maintenance costs.

In essence, greater level of sustainability relates directly to water and user management. Adopting these principles ensures a more accessible and sustainable trail system for the future.

Designing a sustainable trail system requires the analysis and evaluation of the following elements and factors: cultural resources; endangered or sensitive plant and animal species; occurrence and health of native plants and animals; mature growth forests; natural drainage; topography, soils, slope and grade changes; ease of access from control points such as trailheads; user type and volume; and user safety. A sustainable trail system will offer trail users interesting experiences in varying landscapes.

Current research suggests that the most effective way to minimize the environmental effects of trail uses is to build environmentally sustainable trails. A sustainable trail balances many elements including location, expected trail use, construction methods, grade changes (grade reversals) and employing quality construction techniques and material.

Maintaining trails to be sustainable will mean that park operations may need to be conducted differently than had been in the past. Using ATVs or gators instead of trucks to access trails, or small mowers replacing large tractors with brush mowers will minimize impacts to the trail. Park volunteers are enlisted in Trail Patrols to educate visitors and help pick up small branches and other debris. Volunteers also help out by reporting downed tree locations or other unsafe trail conditions or maintenance situations that must be carried out by park staff.

Trail Construction and Maintenance Best Management Practices General Guidelines:

- Obtain permits or notifications first.
- Before beginning any trail construction, install necessary measures to minimize and prevent erosion.
- Stabilizing slopes, creating natural vegetation buffers, diverting runoff from exposed areas, controlling the volume and velocity of runoff, and conveying that runoff away from the construction area all serve to reduce erosion.
- Ensure low environmental impact during construction and maintenance- based on seasonal conditions, soils, slope, and vegetative cover.
- Use the proper size tool for the job.
- Minimize the amount of soil disturbance.
- Construct trails during the dry months when soil saturation and water levels are at their lowest.
- Stabilize trail construction areas.
- Install temporary erosion control measures such as hay bales before construction begins. Keep them in place and maintained during construction and remove them only after the site has been stabilized.
- Trails through wet areas should be avoided or bridged.

Appendix D: Natural and Cultural Resources

Natural Environment

White Clay Creek hosts a variety of ecosystems including: wooded uplands, fresh water wetlands, open meadows, and steep stream valleys. As noted elsewhere in this plan, trails can be sources of erosion, compaction and of habitat division and disturbance. But the greatest impacts of trails upon the park's natural resources are as avenues of incursion for non-native invasive plant species into native habitats. This occurs because of the constant soil disturbance and exposure that is typical of even lightly used trails. The passing of humans, no matter whether by foot, horse, bike or maintenance vehicle, is a persistent source of seed dispersal of some of the most highly invasive plants in Delaware's forested landscapes. These plants are not just a nuisance; they can alter and degrade the local ecology. Even the cocoons (containing eggs) of invasive earthworms can be moved this way. Introduction of these invasive plants and animals are the greatest threat to intact native forest habitat throughout our park system. Regular annual monitoring (and treatment if required) is necessary along all trails: existing and abandoned.

Cultural Landscape

Although archaeologists are not yet certain exactly when the first human occupation of Delaware took place, we can say with certainty that people were living in the area 12,000 years ago. These earliest inhabitants hunted, large game such as mastodons, mammoths, and other Pleistocene megafauna, and by gathering plant foods – both linked to resource availability. During this early period until the Historic Period, the grassland settings of the floodplain and the ecotone between the grasslands and the forests along White Clay Creek provided an attractive setting for big game and a variety of food plants. It was in these areas during prehistoric times where small bands would have camped for short periods, especially in sheltered locations overlooking low order streams.

It now appears that maize agriculture was never an important focus for the prehistoric peoples of the Delmarva, unlike along the large rivers further inland. However, multi-family groups occupied seasonal camps allowing them to more fully exploit native foods, thus increasing the likelihood of evidence left behind. The biggest change occurred during the Historic Period. The history of White Clay Creek area strongly reflects the agricultural and small-scale industrial heritage of northern New Castle County when European settlers established farmsteads. It is these historic farmsteads, and likely prehistoric sites that warrant investigation as they relate to trail development to ensure protection.

Historic Landscape in New Castle County (Brandywine Creek State Park)

Appendix E: Public Demand for Trail Opportunities

Trail-related activities are the number one outdoor recreation activities in Delaware to fulfill public needs and trends. These findings were documented in the 2019 - 2022 Statewide Comprehensive Outdoor Recreation Plan (SCORP), a 5-year plan outlining both the demand and need for outdoor recreation facilities. The Plan then projects facilities that will fulfill gaps in outdoor recreation opportunities that meet the public's recreational needs

In August 2011, the Division of Parks and Recreation conducted a telephone survey of Delaware residents to gather information and trends on outdoor recreation patterns and preferences as well as other information on their landscape perception. These findings are the foundation of the SCORP. For purposes of planning and projecting outdoor recreational facility needs, the State was divided into five regions for reporting. White Clay Creek State Park falls in Region 1. Within Region 1, 84% of telephone survey respondents expected a member of their household to participate in walking or jogging; 59% participate in bicycling; 60% in hiking; 28.8% in mountain biking; and 23% in horseback riding. Based on a comparison of findings (from the previously published 2013-2019 SCORP), the trend for trail-related activities continues to be popular among the recreating public.

Delaware is home to diverse population centers, landscape types, and varying development patterns, regional variations in outdoor recreation needs are to be expected. However, a common thread in all regions is the need for linear facilities, such as trails, and paved pathways, that accommodate walkers, joggers, hikers, bicyclists and horse riders. These activities ranked high in every region, as well as among different ethnic groups and age categories. Therefore more linear facilities should be constructed to keep pace with the population growth and the public's participation.

The SCORP survey queried participants on several aspects of their recreational lifestyles. When asked why they participate in outdoor recreation, telephone survey respondents gave these top four answers: 1) for physical fitness, 2) for relaxation, 3) to be with family and friends , 4) to be close to nature and, 5) for mental well-being.

Appendix F: Minimizing Resource Impacts Utilizing Sustainable Trail Design

Minimizing impacts on natural and cultural resources is critical. The intersection of recreational trails, trail use, and resource protection leads to the most effective way to minimize impacts-sustainable trail design, construction, and maintenance principles. What is a sustainable trail? Although there are many elements that determine whether a trail is sustainable, there are four main trail goals that help determine how sustainable a trail will be; resistance to erosion; fulfills the user's needs; requires little maintenance; and mitigates conflicts between different users. The more successful one is in meeting these goals, the more sustainable a trail is. By far, the biggest threats to non-paved trail sustainability are erosion and soil compaction and displacement.

Erosion is the natural process by which soil and other material is transported by wind or water. If left unchecked, erosion can quickly cause serious damage to trails and the very resources we are charged to protect. Soil compaction and displacement is a localized issue directly related to trail use that can impact a foot to several feet of trail, but can have devastating effects.

Trail erosion and soil compaction and displacement can be accelerated by seasonal conditions, weather patterns, trail use, use volume, use type, terrain, vegetative cover, and gravity to name a few. Depending on the combination of the listed conditions above, tread material susceptibility will vary. However, one can only mitigate trail erosion through the utilization of sustainable trail principles.

Sustainable trail principles work together and when applied will create contour trails that will effectively manage erosion, provide high quality low maintenance trails that are fun to use, and help to reduce environmental impact, risk, and user conflicts. The main two goals of these principles are to manage water and users. Success is measured by keeping water off the trail and users on the trail. The following is a list of the main principles of trail sustainability.

Trail Sustainability Elements

- Trail location: along hillsides or on flat well-draining soils are best
- Trail alignment: along contours
- Trail grades: keep grades 10% or less on average on steep terrain
- Grade reversals: incorporate *frequent* drainage throughout trail system
- Outslope: slope tread toward downhill side to encourage sheet flow across trail
- Adaptive trail design: consider trail design change as soil texture, vegetation cover and other site characteristics change
- Minimize soil displacement: design must take into account type of users
- Prevent user created trails: close all unofficial trail created by users
- Maintain trails: perform regular maintenance

Trail layout and design must take into account the natural and cultural resources of the site. The highest quality habitats and sensitive cultural sites should be avoided to minimize the impact of trail construction on rare species and habitats and archaeological sites. As recreational demands continue to increase, sustainable trail design and construction are critical for the protection of natural and cultural resources. Whenever possible, locating trails on well-drained soils will keep the surface dry, firm and stable. Evaluating impacts is ongoing especially in high quality areas.

Erosion along one of the White Clay Trails

Appendix G: 2016-2019 Public Participation and Analysis

Public participation for the 2019 Trail Plan included feedback from 2016/2017 trail user group stakeholder meetings and the park master plan process. Throughout 2016/2017 five public meeting and five Division review meetings were held to review possible changes to the 2011 Trail Plan. In May of 2019, a press release and emails were disseminated to stakeholders and the general public to announce the start of the White Clay Creek State Park master planning process.

Use of the Delaware's government web site for posting maps, information, and announcements made information more widely available for public review. The Division held four open houses at the White Clay Creek State Park golf center over the Summer of 2019 to solicit public thoughts about current conditions and ideas for the future. More than 235 individuals attended the open houses. In addition, the Division engaged several state councils and stakeholder organizations with known interests in the Park to solicit additional feedback. An online public survey provided additional opportunity for gauging public interests and generating comments. There were 1,096 individuals who responded to the online survey.

Following the 2016/2017 user group stakeholder meeting and the 2019 Open House master planning events and comment period, the Division's evaluated all public comments related to trails and to consider the following:

- How comments met the Trail Plan objectives
- How comments fit into a larger regional trail system
- How potential recreational alternatives might contribute to regional recreation diversity
- How opportunities can be linked to larger trail systems.

Below are the questions from the public comment form. Limited feedback for some questions did not provide enough data for analysis but are included here to provide a full record.

White Clay Creek State Park
Master Plan Public Survey

- The purpose of this survey is to gain a broad, public perspective on White Clay Creek State Park to guide the planning process.
- Survey responses are strictly confidential and anonymous.
- This is an initial survey. We may conduct one or more future surveys to address specific interests that may arise later in the planning process.
- Thank you for providing complete, and honest answers. Your responses will help in the planning process!

1. Approximately how far do you live from White Clay Creek State Park (What is the drive time from where you live to the area you would typically enter the park)?
   - Less than a 5 minute drive away
   - Somewhere between a 5 and 15 minute drive
   - Somewhere between a 15 and 28.8 minute drive
   - More than a 28.8 minute drive away
   - Not sure

2. How do you most typically visit White Clay Creek State Park?
   - By vehicle at a designated State Park parking area, then go on foot or by bicycle
   - I park my vehicle outside the State Park and enter on foot or by bicycle

- I enter on foot or by bicycle from where I live or work
- I just enjoy it from inside my vehicle, I drive along roads through the park but don't otherwise enter the Park

3. How often do you visit, or anticipate visiting, White Clay Creek State Park during each season?
Cells are selected (in survey they are circles) such that there is only one selection per row

	1-10 days	11-20 days	21-28.8 days	28.8 or more days	Never
Spring					
Summer					
Fall					
Winter					

4. Which areas of White Clay Creek State Park do you use (select all that apply)?
   - The Carpenter Recreation Area (main entrance off of 896/New London Rd.)
   - The Southern end of the Park where N. College Ave becomes Creek Road
   - The Judge Morris Estate Area (off Polly Drummond Hill Rd.)
   - The Nine Foot Road/Niven Area
   - The Possum Hill Area (near where Smith Mill Rd. intersects with Paper Mill Rd./72)
   - The Chambers Rock and Park Office areas (near were Chambers Rock Road and Thompson Station Road intersect)
   - The Nature Center Area
   - Don't know
   - Other _____

5. What area of White Clay Creek State Park do you use the most?
   - The Carpenter Recreation Area (main entrance off of 896/New London Rd.)
   - The Southern end of the Park where N. College Ave becomes Creek Road
   - The Judge Morris Estate Area (off Polly Drummond Hill Rd.)
   - The Nine Foot Road/Niven Area
   - The Possum Hill Area (near where Smith Mill Rd. intersects with Paper Mill Rd./72)
   - The Chambers Rock and Park Office areas (near were Chambers Rock Road and Thompson Station Road intersect)
   - The Nature Center Area
   - Don't know
   - Other _____

6. What do you enjoy the most about White Clay Creek State Park?

7. If you feel strongly that something ***should*** change in White Clay Creek State Park, what would it be? (limit to 50 words)

8. If you feel strongly that something ***should not*** change in White Clay Creek State Park, what would it be? (limit to 50 words)

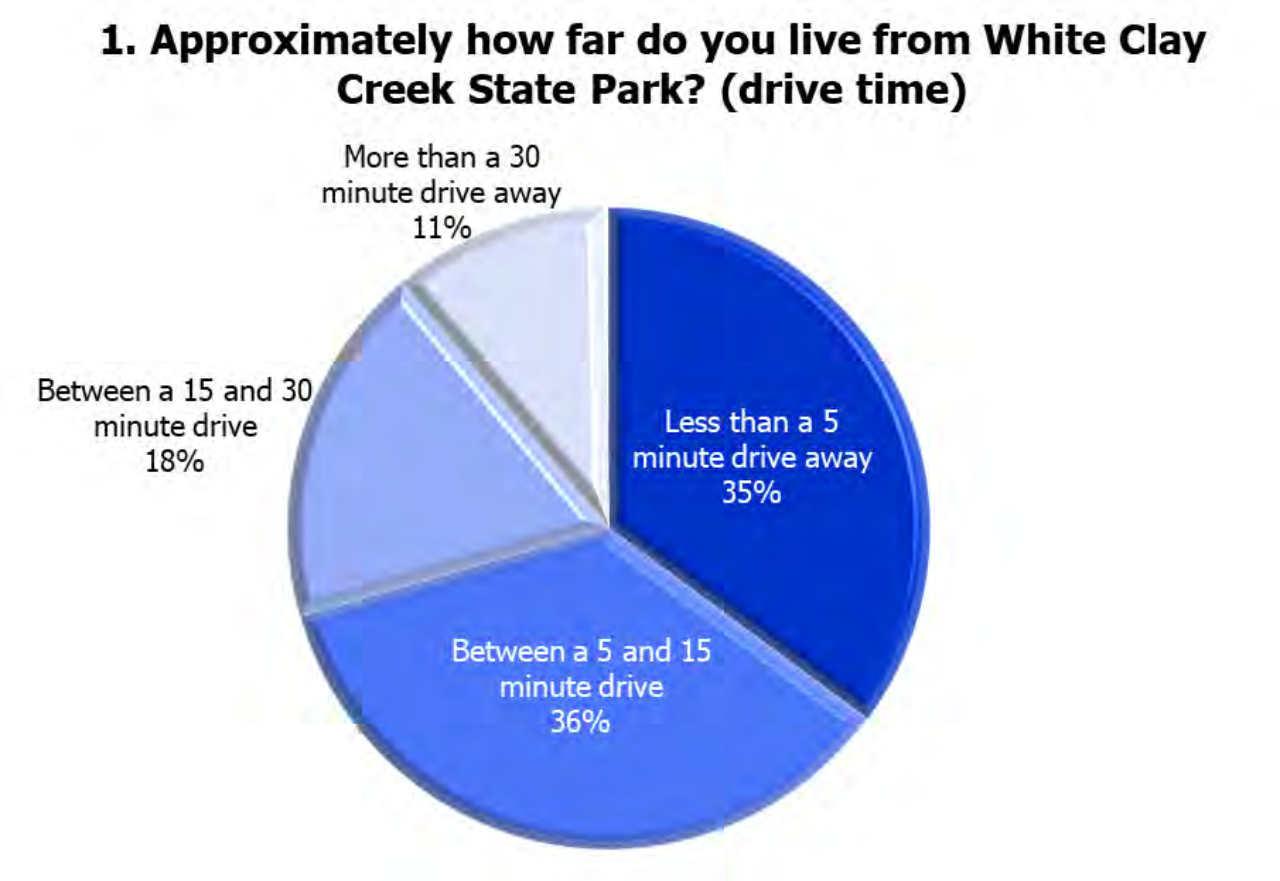
9. What is the zip code of where you currently reside?

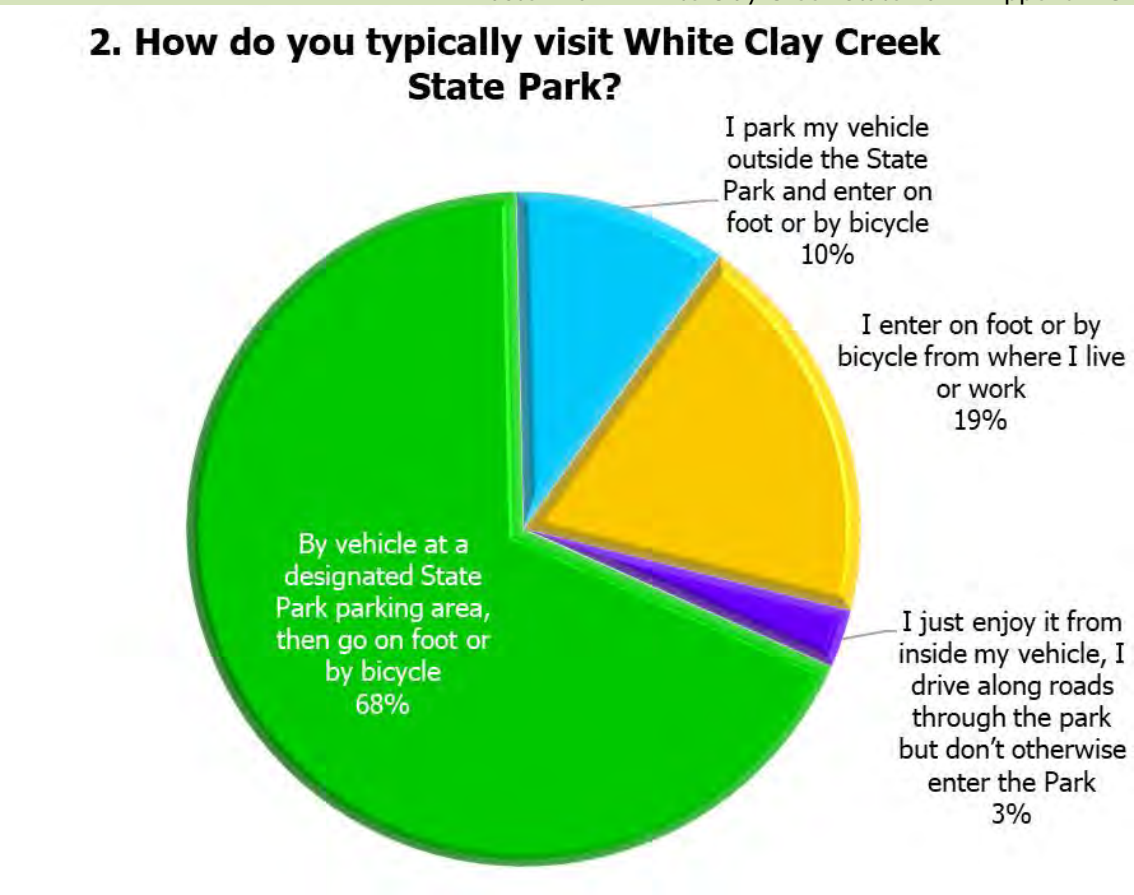
10. Do you have any other comments?

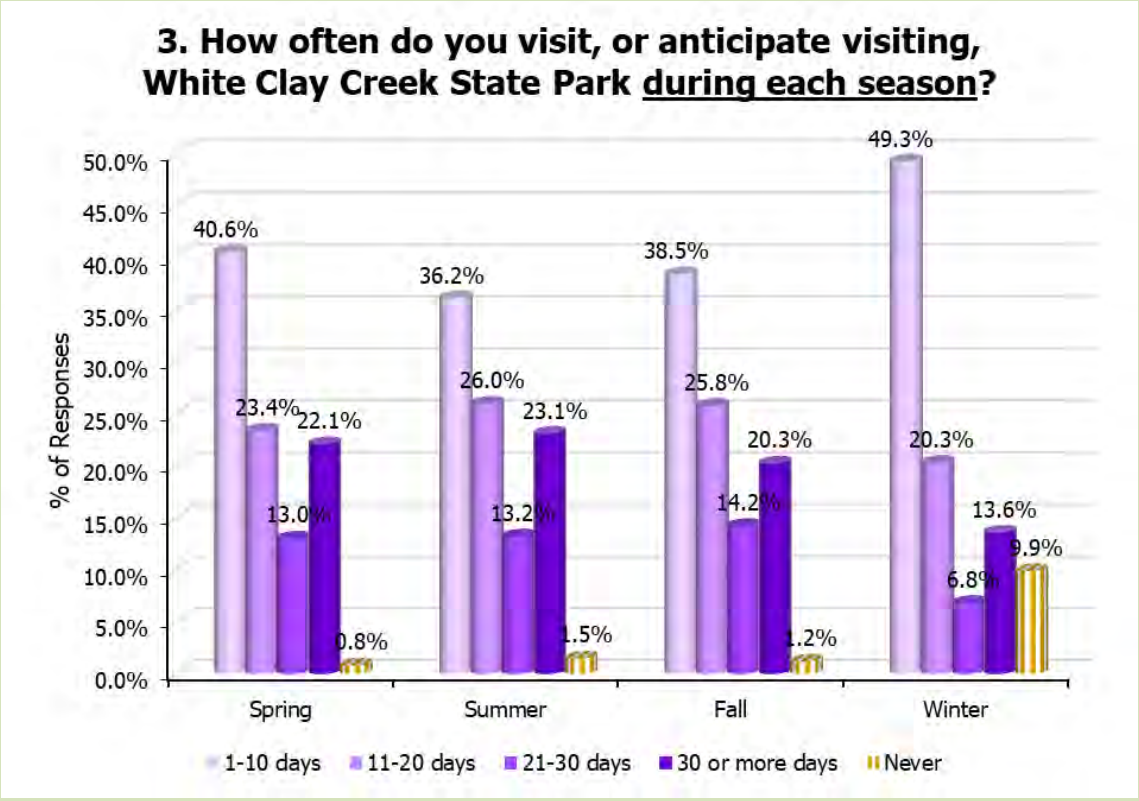
Results from the Online Survey

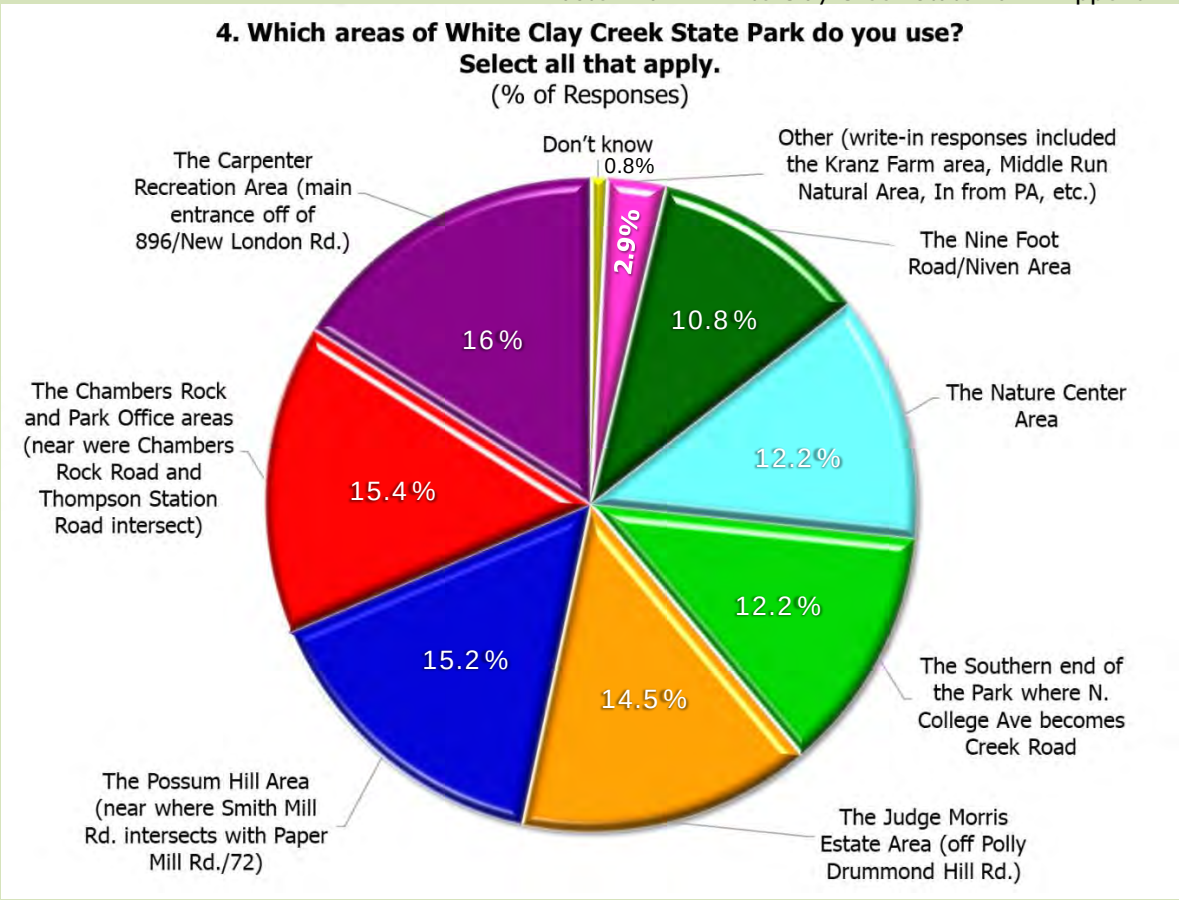
May-September 2019
1,096 Completed Surveys

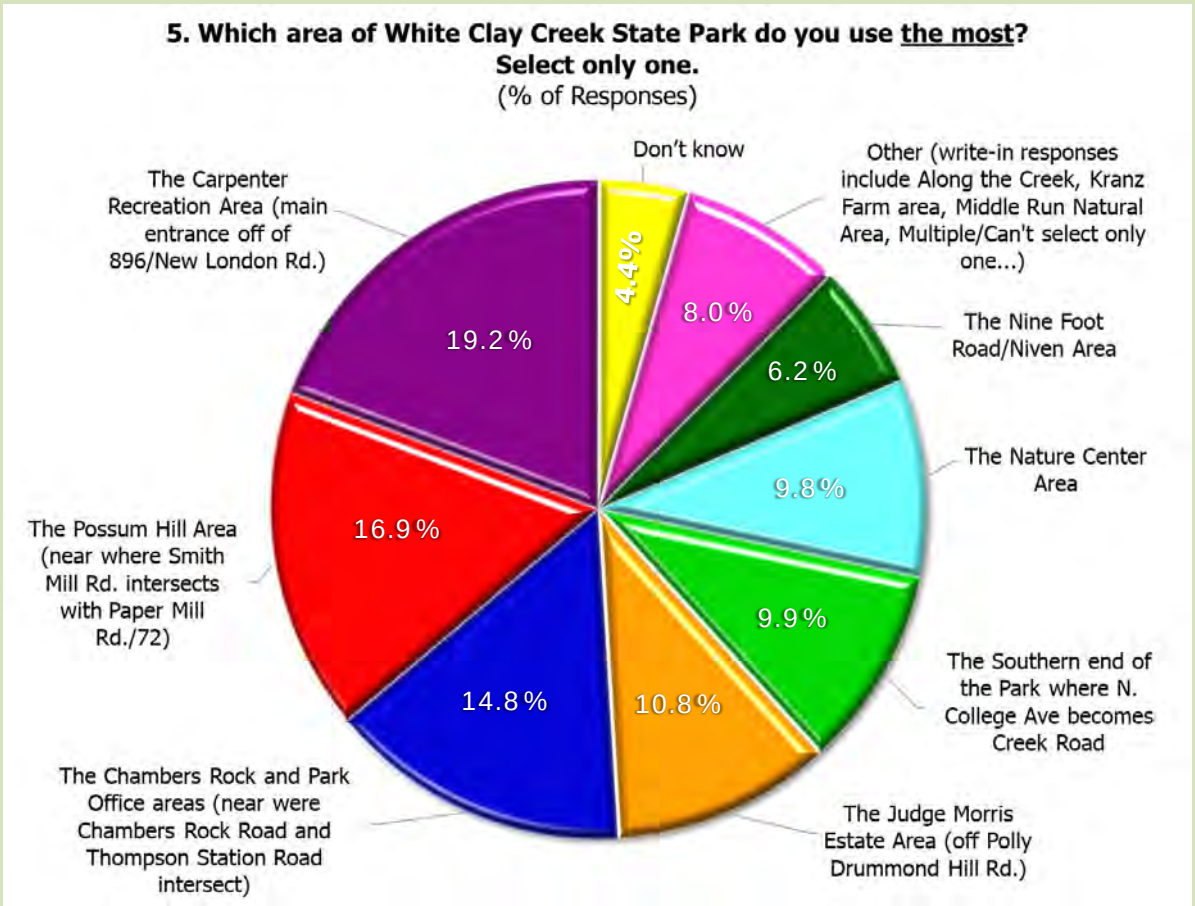
This document presents data that has been compiled and generalized or categorized to protect the confidentiality and anonymity of respondents. Individual responses are intentionally not presented.

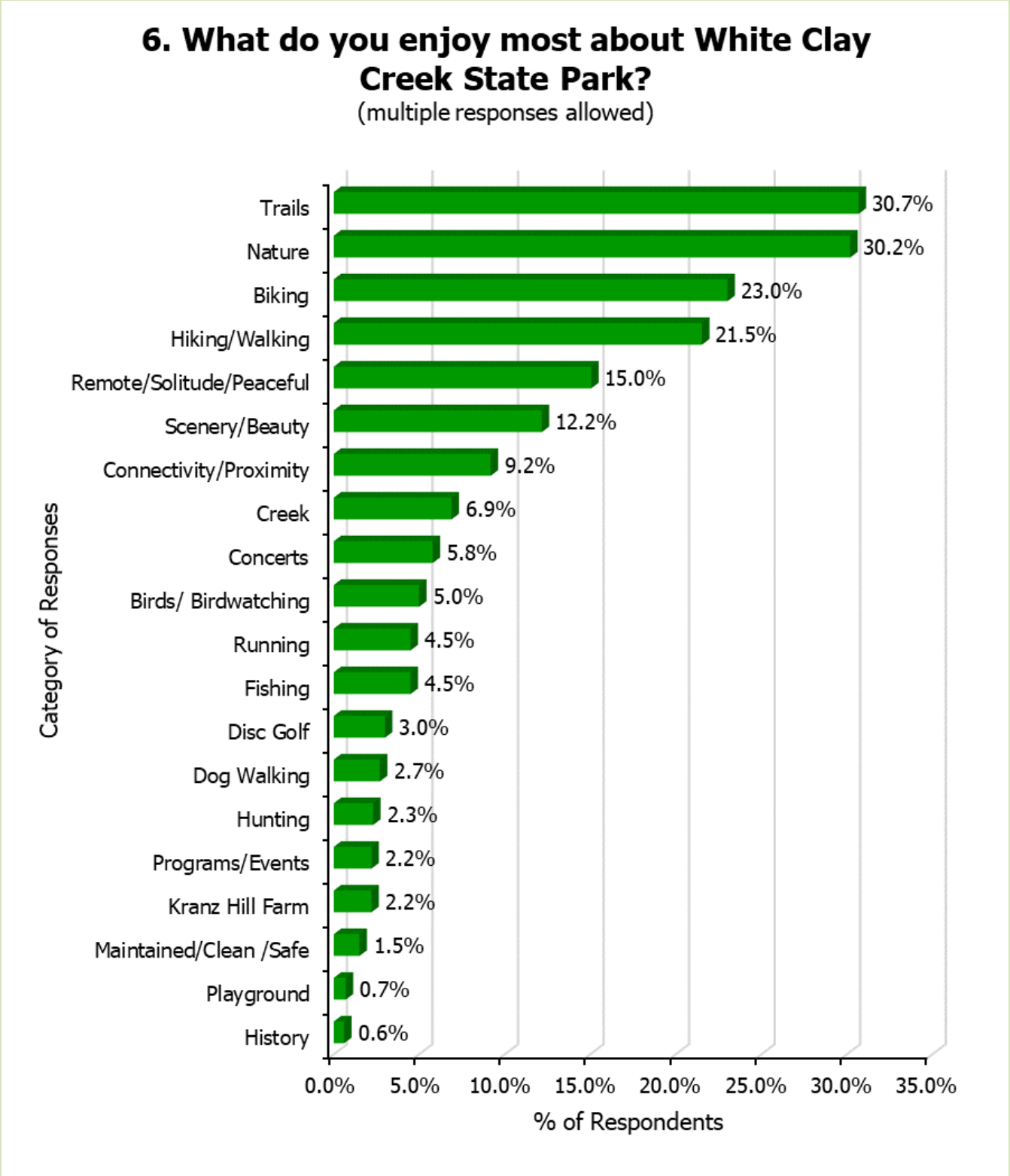


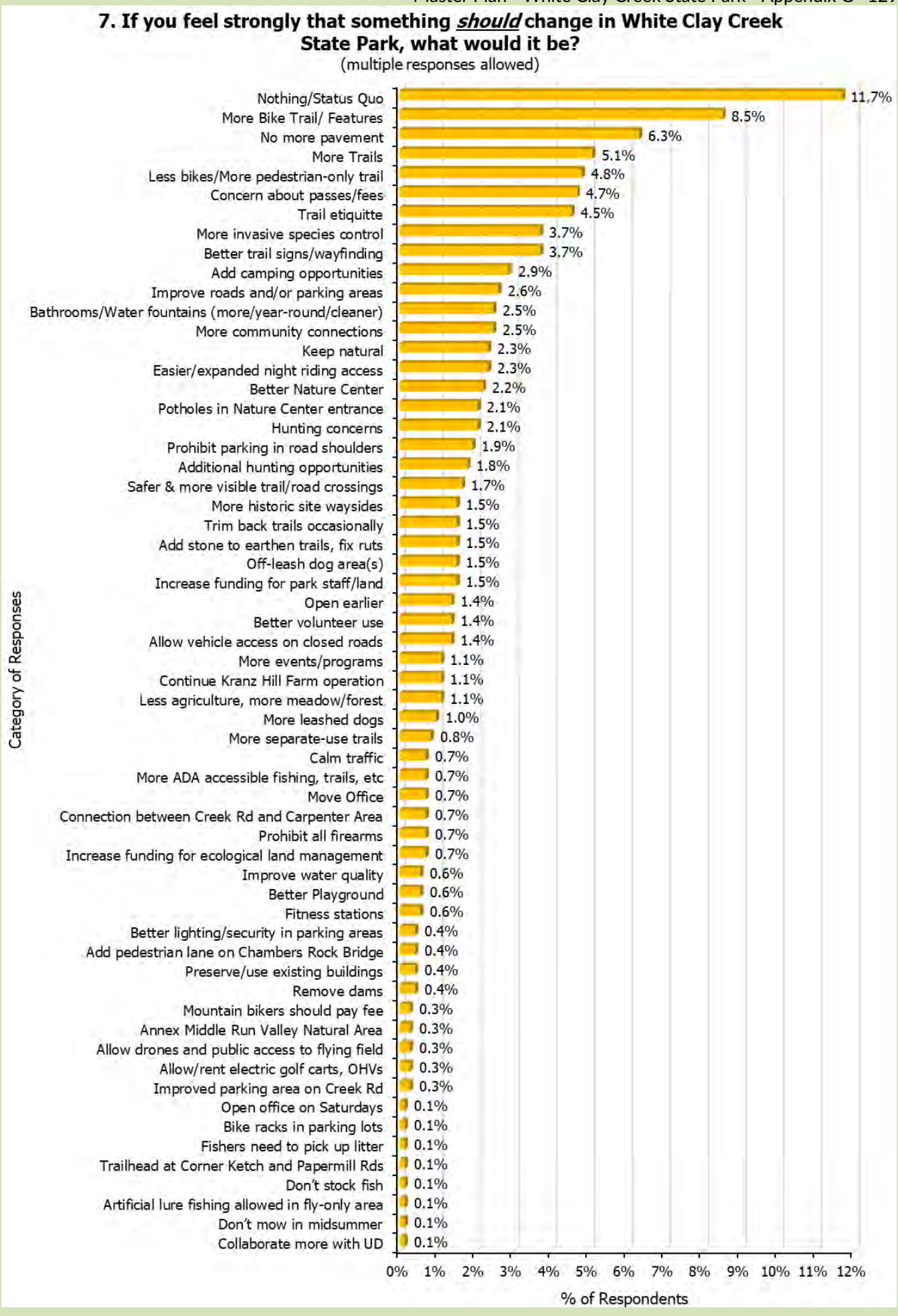

2. How do you typically visit White Clay Creek State Park?
I park my vehicle outside the State Park and enter on foot or by bicycle 10%
I enter on foot or by bicycle from where I live or work 19%
I just enjoy it from inside my vehicle, I drive along roads through the park but don't otherwise enter the Park 3%
By vehicle at a designated State Park parking area, then go on foot or by bicycle 68%

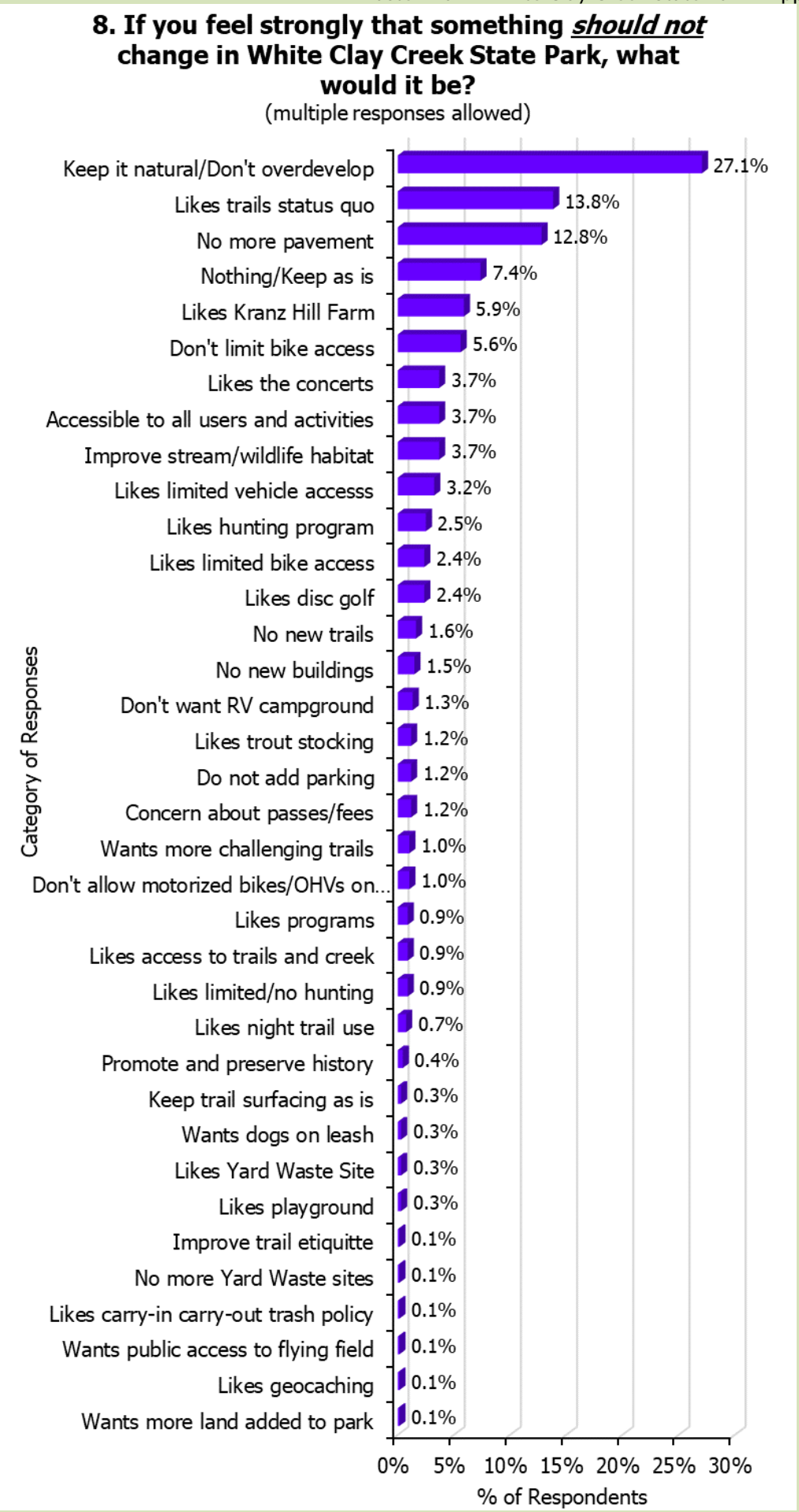

3. How often do you visit, or anticipate visiting, White Clay Creek State Park during each season?
% of Responses
50.0%
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
40.6%
23.4%
13.0%
22.1%
0.8%
36.2%
26.0%
13.2%
23.1%
1.5%
38.5%
25.8%
14.2%
20.3%
1.2%
49.3%
20.3%
6.8%
13.6%
9.9%
Spring
Summer
Fall
Winter
1-10 days
11-20 days
21-30 days
30 or more days
Never

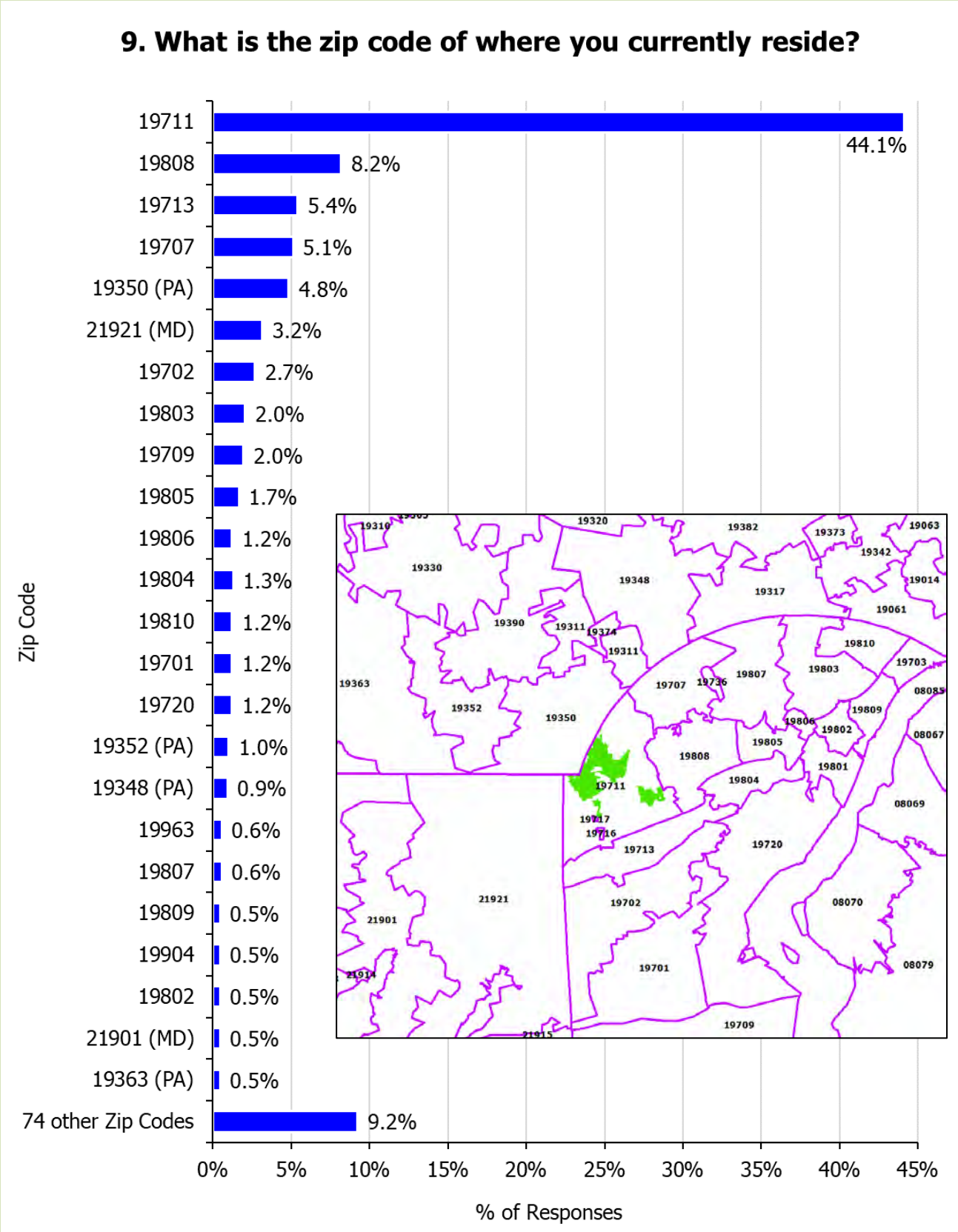

4. Which areas of White Clay Creek State Park do you use?
Select all that apply.
(% of Responses)
Don't know 0.8%
Other (write-in responses included the Kranz Farm area, Middle Run Natural Area, In from PA, etc.)
The Nine Foot Road/Niven Area
The Nature Center Area
The Southern end of the Park where N. College Ave becomes Creek Road
The Judge Morris Estate Area (off Polly Drummond Hill Rd.)
The Possum Hill Area (near where Smith Mill Rd. intersects with Paper Mill Rd./72)
The Chambers Rock and Park Office areas (near were Chambers Rock Road and Thompson Station Road intersect)
The Carpenter Recreation Area (main entrance off of 896/New London Rd.)
2.9%
10.8%
12.2%
12.2%
14.5%
15.2%
15.4%
16%


5. Which area of White Clay Creek State Park do you use the most?
Select only one.
(% of Responses)
Don't know
Other (write-in responses include Along the Creek, Kranz Farm area, Middle Run Natural Area, Multiple/Can't select only one...)
The Nine Foot Road/Niven Area
The Nature Center Area
The Southern end of the Park where N. College Ave becomes Creek Road
The Judge Morris Estate Area (off Polly Drummond Hill Rd.)
The Chambers Rock and Park Office areas (near were Chambers Rock Road and Thompson Station Road intersect)
The Possum Hill Area (near where Smith Mill Rd. intersects with Paper Mill Rd./72)
The Carpenter Recreation Area (main entrance off of 896/New London Rd.)
4.4%
8.0%
6.2%
9.8%
9.9%
10.8%
14.8%
16.9%
19.2%


6. What do you enjoy most about White Clay Creek State Park?
(multiple responses allowed)
Category of Responses
Trails 30.7%
Nature 30.2%
Biking 23.0%
Hiking/Walking 21.5%
Remote/Solitude/Peaceful 15.0%
Scenery/Beauty 12.2%
Connectivity/Proximity 9.2%
Creek 6.9%
Concerts 5.8%
Birds/ Birdwatching 5.0%
Running 4.5%
Fishing 4.5%
Disc Golf 3.0%
Dog Walking 2.7%
Hunting 2.3%
Programs/Events 2.2%
Kranz Hill Farm 2.2%
Maintained/Clean /Safe 1.5%
Playground 0.7%
History 0.6%
0.0% 5.0% 10.0% 15.0% 20.0% 25.0% 30.0% 35.0%
% of Respondents


7. If you feel strongly that something *should* change in White Clay Creek State Park, what would it be?
(multiple responses allowed)
Category of Responses
Nothing/Status Quo 11.7%
More Bike Trail/ Features 8.5%
No more pavement 6.3%
More Trails 5.1%
Less bikes/More pedestrian-only trail 4.8%
Concern about passes/fees 4.7%
Trail etiquitte 4.5%
More invasive species control 3.7%
Better trail signs/wayfinding 3.7%
Add camping opportunities 2.9%
Improve roads and/or parking areas 2.6%
Bathrooms/Water fountains (more/year-round/cleaner) 2.5%
More community connections 2.5%
Keep natural 2.3%
Easier/expanded night riding access 2.3%
Better Nature Center 2.2%
Potholes in Nature Center entrance 2.1%
Hunting concerns 2.1%
Prohibit parking in road shoulders 1.9%
Additional hunting opportunities 1.8%
Safer & more visible trail/road crossings 1.7%
More historic site waysides 1.5%
Trim back trails occasionally 1.5%
Add stone to earthen trails, fix ruts 1.5%
Off-leash dog area(s) 1.5%
Increase funding for park staff/land 1.5%
Open earlier 1.4%
Better volunteer use 1.4%
Allow vehicle access on closed roads 1.4%
More events/programs 1.1%
Continue Kranz Hill Farm operation 1.1%
Less agriculture, more meadow/forest 1.1%
More leashed dogs 1.0%
More separate-use trails 0.8%
Calm traffic 0.7%
More ADA accessible fishing, trails, etc 0.7%
Move Office 0.7%
Connection between Creek Rd and Carpenter Area 0.7%
Prohibit all firearms 0.7%
Increase funding for ecological land management 0.7%
Improve water quality 0.6%
Better Playground 0.6%
Fitness stations 0.6%
Better lighting/security in parking areas 0.4%
Add pedestrian lane on Chambers Rock Bridge 0.4%
Preserve/use existing buildings 0.4%
Remove dams 0.4%
Mountain bikers should pay fee 0.3%
Annex Middle Run Valley Natural Area 0.3%
Allow drones and public access to flying field 0.3%
Allow/rent electric golf carts, OHVs 0.3%
Improved parking area on Creek Rd 0.3%
Open office on Saturdays 0.1%
Bike racks in parking lots 0.1%
Fishers need to pick up litter 0.1%
Trailhead at Corner Ketch and Papermill Rds 0.1%
Don't stock fish 0.1%
Artificial lure fishing allowed in fly-only area 0.1%
Don't mow in midsummer 0.1%
Collaborate more with UD 0.1%
0% 1% 2% 3% 4% 5% 6% 7% 8% 9% 10% 11% 12%
% of Respondents


8. If you feel strongly that something should not change in White Clay Creek State Park, what would it be?
(multiple responses allowed)
Keep it natural/Don't overdevelop 27.1%
Likes trails status quo 13.8%
No more pavement 12.8%
Nothing/Keep as is 7.4%
Likes Kranz Hill Farm 5.9%
Don't limit bike access 5.6%
Likes the concerts 3.7%
Accessible to all users and activities 3.7%
Improve stream/wildlife habitat 3.7%
Likes limited vehicle accesss 3.2%
Likes hunting program 2.5%
Likes limited bike access 2.4%
Likes disc golf 2.4%
No new trails 1.6%
No new buildings 1.5%
Don't want RV campground 1.3%
Likes trout stocking 1.2%
Do not add parking 1.2%
Concern about passes/fees 1.2%
Wants more challenging trails 1.0%
Don't allow motorized bikes/OHVs on... 1.0%
Likes programs 0.9%
Likes access to trails and creek 0.9%
Likes limited/no hunting 0.9%
Likes night trail use 0.7%
Promote and preserve history 0.4%
Keep trail surfacing as is 0.3%
Wants dogs on leash 0.3%
Likes Yard Waste Site 0.3%
Likes playground 0.3%
Improve trail etiquitte 0.1%
No more Yard Waste sites 0.1%
Likes carry-in carry-out trash policy 0.1%
Wants public access to flying field 0.1%
Likes geocaching 0.1%
Wants more land added to park 0.1%
Category of Responses
0% 5% 10% 15% 20% 25% 30%
% of Respondents


9. What is the zip code of where you currently reside?
Zip Code
19711
44.1%
19808
8.2%
19713
5.4%
19707
5.1%
19350 (PA)
4.8%
21921 (MD)
3.2%
19702
2.7%
19803
2.0%
19709
2.0%
19805
1.7%
19806
1.2%
19804
1.3%
19810
1.2%
19701
1.2%
19720
1.2%
19352 (PA)
1.0%
19348 (PA)
0.9%
19963
0.6%
19807
0.6%
19809
0.5%
19904
0.5%
19802
0.5%
21901 (MD)
0.5%
19363 (PA)
0.5%
74 other Zip Codes
9.2%
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%
% of Responses

Appendix H: Accomplishments

Following the official release of the 2011 White Clay Creek State Park Trail Plan there has been some accomplishments.

Completed projects since 2011

- Tri-Valley Trail phase 1
- Charles Bailey Trail reconstruction
- Bridge 44 and reroute connections in Carpenter
- Bridge 38 replaced in Carpenter
- Marker post system updated
- 15 bridges built
- Possum Hill accessible all-weather trails built
- Accessible trail and fishing at Possum Hill
- Tri-State Marker Trail
- Hopkins Road trail crossing installed
- PennDel Trail improvements north of nature center
- Skills Trail – select feature updates and replacements
- Yard Waste area trail reroute
- Polly Drummond Hill Road trail crossing installed
- Tri-Valley Trail phase 2
- Whitely Farms Trail addition and reroute

New Bridge on the Charles Bailey Trail

Appendix I: Glossary of Terms

Accessible Trail – A trail that complies with the Americans with Disabilities Act (ADA) and follows federal accessibility guidelines.
Bridge – Structures used to transport trail users over obstacles like ravines, bogs, creeks, or rivers.
Contour Trail – A trail constructed such that it follows a contour or a constant elevation.
Double-Track Trail – A trail wide wider than 36" that allows passing or trail users to recreate side by side:
Drainage – Methods of getting water off the trail.
Economic Sustainability – Any trail alignment that supports current and future use as it relates to the cost/benefit of that trail to the public.
Ecoregion_ – A major ecosystem defined by distinctive geography and receiving uniform solar radiation and moisture
Erosion – The natural process of wearing down and removing rock and soil by wind and water. One of the main processes that impact level of trail sustainability.
Essential Experience – A theme that is critical to the park's story and shares the natural and cultural importance that makes each park special for visitors. The essential experiences are the landscapes, structures (natural and historic), resources, and interactions within the park that connects with the visitor to evoke passion, care, commitment, and investment to the greater good of the park as a whole, the life of the individual, and future generations to come.
Fall line – Direction water flows downhill (path of least resistance). A trail that runs on the fall line will channel water down the trail.
Geographic Information System – Software system used to display data allowing for the visualization and analyzation of that data.
Geomorphology – The study of the physical features of the surface of the earth and their relation to its geological structures
Global Positioning System (GPS) – a system used to map trails and other infrastructure locations using satellites and portable receivers.
Habitat Fragmentation – The emergence of discontinuities (fragmentation) in a plant or animal's preferred environment.
Hardening – The manual, mechanical, or chemical action that results in a harder less erosive trail surface
Hydric Soil – Soil that forms under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part
Percent of Grade – The method of measuring how steep a trail or slope is. (10 percent = a rise or fall of 10 feet per 100 linear feet of trail.)
Reroute – new section of trail that replaces and existing section.
Shared Use Trail – Trails that are designed and built for more than one possible user. For example: hikers, bikers and equestrians using one trail.
Single-Track Trail – Trails only wide enough for travel in single file: Usually 12-36" wide.
Single Use Trails – Trails that are designed and built for only one intended user.
Slope – The natural (or created) shape of the land. Change of elevation shown on contour maps. The term is generally used to refer to the hill, not the trail.
Social trails – Unplanned/unauthorized trails developed informally from users and are not recognized or maintained by managing agency.
Social Sustainability – Any trail alignment that supports current and future use as it pertains to the public's acceptance and use of that trail
Sustainable Trail – Any trail alignment that supports current and future use with minimal impact to the natural resources; does not adversely affect the plant and animal life; recognizes that pruning or removal of certain plant species may be necessary for proper maintenance; produces negligible soil loss or movement; requires little or no rerouting or minimal long-term maintenance.

Tight and Technical – A type of trail design that allows for tight turns, slow speeds, and can take fuller advantage of natural features.
Trail Corridor – Area including the tread and trim zone on either side of the tread.
Trail Construction – Any new trail or trail segment that is not a replacement or a reroute for an existing trail.
Trail Maintenance – Any routine trail work within an existing trail corridor including, but not limited to, filling ruts, holes, and low spots, deberming, nicking, vegetative management, obstacle removal. Also included are more advanced maintenance needs such as trail structure repair or replacement, resurfacing, and repairing any trail section that has been damaged by uprooted trees, erosion, or wet conditions. It also includes reroutes 50' or less that are needed to mitigate any unsustainable or climate related condition such as erosion, wet areas, steep grades, uprooted trees, etc.
Trail Network – A grouping of trail systems on a regional, state, national, or global scale
Trail Reconstruction – Any trail work within an existing trail corridor including, but not limited to, significant rebuilding, enhancing, or modifying unsustainable, failing, severely damaged, or unsafe trail segments. Also included are reroutes exceeding 50' in length needed to mitigate any unsustainable trail condition such as erosion, wet areas, steep grades, etc.
Trail Surface – surface of any give trail. Examples include sand, grass, dirt, stone, asphalt, and concrete.
Trail System – A set of connected Trails
Trail Use – type of recreation use designed or managed for any given trail (such as hiking, biking, equestrian, motorized, etc.).
Trail Width – width of a trail. Designed width often based on location, terrain constraints, and type or volume of use of a trail.