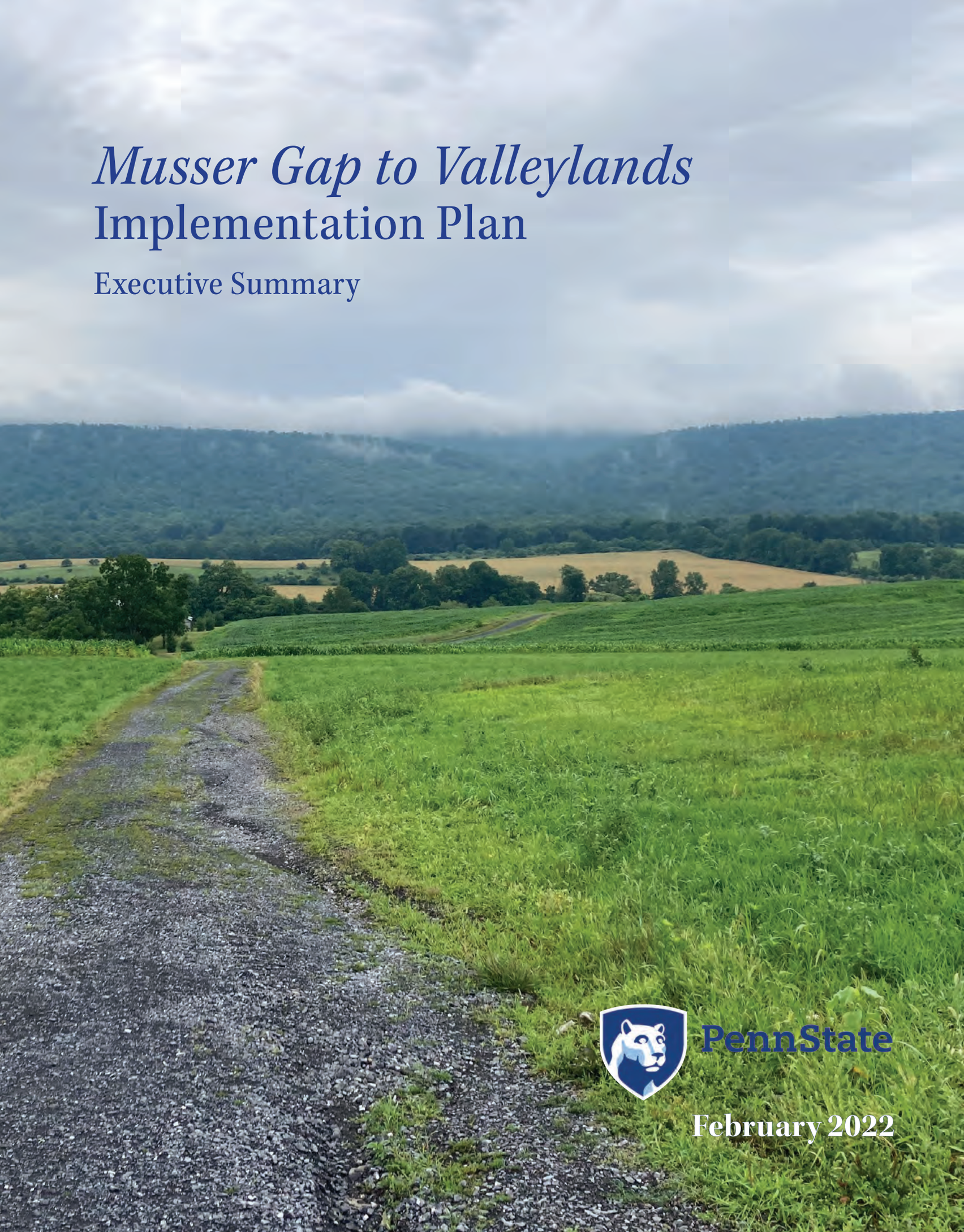
Musser Gap to Valleylands Implementation Plan

Executive Summary



PennState

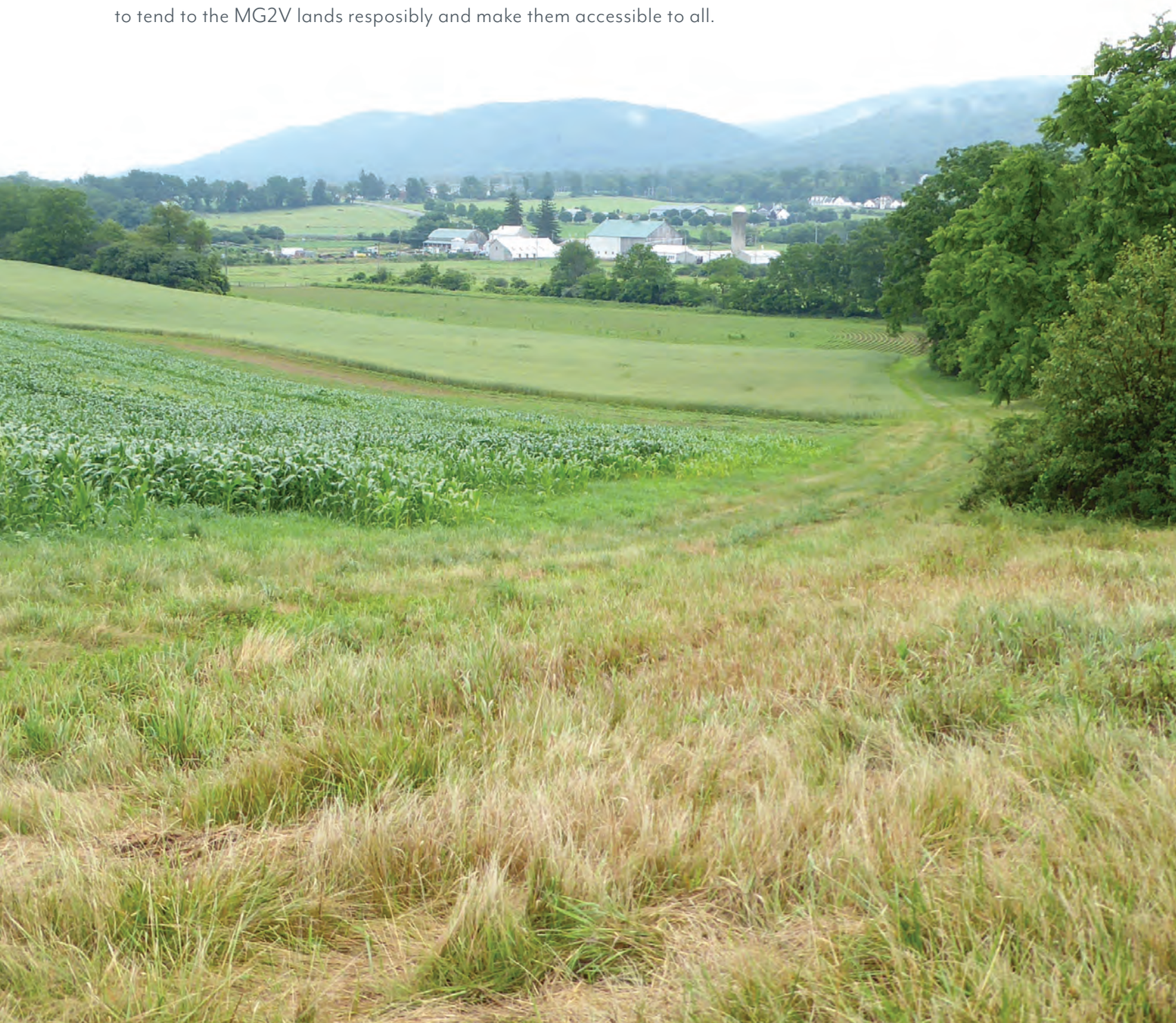
February 2022

Land Acknowledgement

The Pennsylvania State University campuses are located on the original homelands of the Erie, Haudenosaunee (Seneca, Cayuga, Onondaga, Oneida, Mohawk, and Tuscarora), Lenape (Delaware Nation, Delaware Tribe, Stockbridge-Munsee), Shawnee (Absentee, Eastern, and Oklahoma), Susquehannock, and Wahzhazhe (Osage) Nations. As a land grant institution, we acknowledge and honor the traditional caretakers of these lands and strive to understand and model their responsible stewardship. We also acknowledge the longer history of these lands and our place in that history.

Source: PSU Educational Equity in collaboration with the Indigenous Peoples Student Association (IPSA) and the Indigenous Faculty and Staff Alliance (IFSA): http://equity.psu.edu/acknowledgement-of-land

What follows is an effort to extend this sense of stewardship into the future through the implementation of a plan to tend to the MG2V lands resposibly and make them accessible to all.



Introduction

Musser Gap to Valleylands is envisioned as an important connection between State College and Rothrock State Forest; a space for learning, stewardship, respite and connection. After two years of intensive student, faculty, and community work led by the PSU Department of Landscape Architecture with support from ClearWater Conservancy, including site analysis, community engagement, and design development, the PSU Office of Physical Plant (OPP) and Penn State Outreach teams convened a planning process to bring more granularity to these efforts. The University engaged a consultant team to develop an Implementation Plan. This plan provides a final concept for achieving the Musser Gap to Valleylands vision, along with order-of-magnitude costs, phasing, and prioritization.

Vision

"Our vision for this area is not only to help protect the local water supply, plant and animal species, but also make it a place where people can enjoy nature, learn about the environment and be inspired."

– Dr. Eric Barron, President,
The Pennsylvania State University
December 11, 2018

PLANNING PROCESS

In June of 2018, the University asked PSU's Department of Landscape Architecture faculty with expertise in conservation and ecological restoration to offer an interdisciplinary course to study the Musser Gap to Valleylands properties, between Whitehall Road and Rothrock State Forest. It was envisioned that the student work would inform the University's long-term planning for the land, through a combination of science-based inquiry and community engagement. The University had made clear that this land is a critical environmental asset for the region. Penn State wanted to explore long-term ecological and conservation needs as well as ways to make the property more accessible to the student body and the wider community.

The Department of Landscape Architecture offered courses in the Fall of 2018 and Spring of 2019 co-sponsored by the Ecology+Design Center and in collaboration with the ClearWater Conservancy. The student work included both an examination and assessment of existing conditions (Fall 2018) and community engagement and concept development (Spring 2019). The implementation plan is based on significant public input, with the final concept reflecting community ideas shared through meetings, surveys and interviews.

The development of the final implementation plan presented here occurred over the course of six months in 2021, starting with a site visit in early July where the consultant team walked the site with members of PSU staff. After a thorough review of the documentation developed during the previous efforts of students, faculty, the community, and the ClearWater Conservancy, the team presented a summary of findings and observations to the PSU project Steering Committee.

Along with user safety and access, as visitors cross both active farming zones and State Route 45, the most significant issue is the stewardship of the water resources on the site. North of Route 45 there is great potential for continuing the reforestation work begun in the floodplain by ClearWater Conservancy and enhancing existing drainage corridors, while still supporting the centenary farmers who lease the land from the university. South of Route 45 there are a myriad of opportunities for increasing ecological function and water quality, through habitat restoration and stewardship of the natural lands abutting Rothrock State Forest.

With feedback from the Steering Committee on the important drivers for program, engagement, and trail design the team developed two alternative land use scenarios based on the seven established project priorities. These two scenarios explored very different approaches to experience, circulation, safety, transition and naturalization of land, restoration and management: Bridging Farm to Forest vs Forest and Farm Excursions.

Further Steering Committee feedback resulted in the refinement of a final preferred option that incorporates elements from both alternatives. This final refined option was used to develop order-of-magnitude costs for the various design elements. A final steering committee discussion focused on phasing and prioritization of the plan.

Principles

MUSSER GAP TO VALLEYLANDS IS...

...leading regional watershed stewardship for a healthy & regenerative Slab Cabin Run

...reflecting resilience and adaptive innovation

...celebrating both the regional farm heritage and the regeneration of native ecology

...connecting State College to Rothrock State Forest

Goals

- Steward, celebrate, and protect regionally unique natural resources
- Promote a deep understanding and respect for native ecology and hydrology
- Preserve and enhance unique views and landscape experiences of the Musser Gap to Valleylands trail connection between State College and Rothrock State Forest
- Ensure a safe and enjoyable experience for all users, visitors, and residents alike
- Balance innovation with practical steps to implementation

Seven MG2V Plan Elements

1 Providing a memorable and inspiring trail experience from State College to Rothrock State Forest – connecting campus across the Valleylands: connecting campus to Musser Gap through the enhancement of the existing trail corridor to celebrate a diversity of landscape typologies.

2 Creating a farm to forest evolution – transitioning active agricultural land back to nature through ecological restoration south of Route 45 and supporting changes to farm management north of Route 45 with further collaboration and support of farm leases.

3 Protecting the region's precious water resources through best practices to manage and filter water before it enters the aquifer and stream corridor; continued restoration of the Slab Cabin Run corridor buffer with a widened floodplain corridor planting.

4 Creating a safe and inclusive environment for all, with a focus on the crossing of Route 45 and design and program that welcomes a diversity of users. "We Are. Penn State."

5 Being a good neighbor while defining strategic access along the buffer with Whitehall Regional Park, enhancing plantings to support safe access and minimize conflicts with active farming.

6 Creating a variety of trail experiences across the site that connect the visitor to the cultural and ecological history of the landscape, with loops that branch out into the site organically and minimize conflicts with restoration and farming activities.

7 Focusing on forest health and stewardship south of Route 45, through increasing native biodiversity and decreasing impacts of NNI (nonnative invasive species); active management that decreases impacts to native forest regeneration.

The Plan: Farm to Forest Excursions

The final plan reinforces long views along a spine connecting north and south across the properties from State College to Rothrock State Forest. An enhanced entry through native forest and shrub vegetation creates a gateway from the north, connecting to the planned trail through Whitehall Regional Park (WRP). North of the Route 45 crossing, the primary trail adheres to the existing alignment supporting continued farming activities. Water bars are proposed as best management practices (BMPs) along this trail to discourage erosion during large storm events. A robust native planted buffer along WRP provides a defined edge between the active recreation space and this more passive open space area. A newly enhanced vegetated swale runs along the southern edge of the farmed land, providing increased management of runoff through the site as well as enhanced wildlife habitat. Long views are maintained across the valley from high points of the northern trail segments. Secondary trails loop along the edges of the farmed land for further excursions across the site through both restored areas and those maintained as productive agricultural lands. The trails provide opportunities for a variety of passive recreation activities including birding, photography, research, and citizen science.

As one moves south into the Slab Cabin Run floodplain, the forest is restored to promote further water quality enhancement and habitat. Eventually a pedestrian bridge crossing may be built to connect across Route 45 but initially safety features enhance the at-grade crossing. These would be done in coordination with PA DOT but would likely include enhanced striping, flashing warning beacons, a lower speed limit, speed humps, rumble strips, and possible removal of the existing passing lane in the vicinity of the crossing. Once on the south side of Route 45 the trail loops around to the east to take in long views across and through the restored prairie before looping back to the western edge. Edges are vegetated in a combination of native forest and successional shrub plantings. Secondary trails connect back to the existing Musser Gap trail that runs alongside the western edge of MG2V. One secondary trail loops through the existing forest, carefully traversing existing wetlands, springs, and sinkholes. The southern forest is managed for invasive species and deer browse, becoming an important parcel for research of management and control measures.

- Site Access Points
- Existing Trail
- Proposed Trail
- Rothrock Existing Trail
- Rothrock Proposed Trail
- Primary Bike Routes
- Bike Path
- Project Boundary
- Views

- Water Bars (SCM)
- Streams + Drainage
- Bioswale
- Prairie
- Forest
- Shrub + Hedgerow
- Agriculture
- Tree Groves
- Deer Exclosures

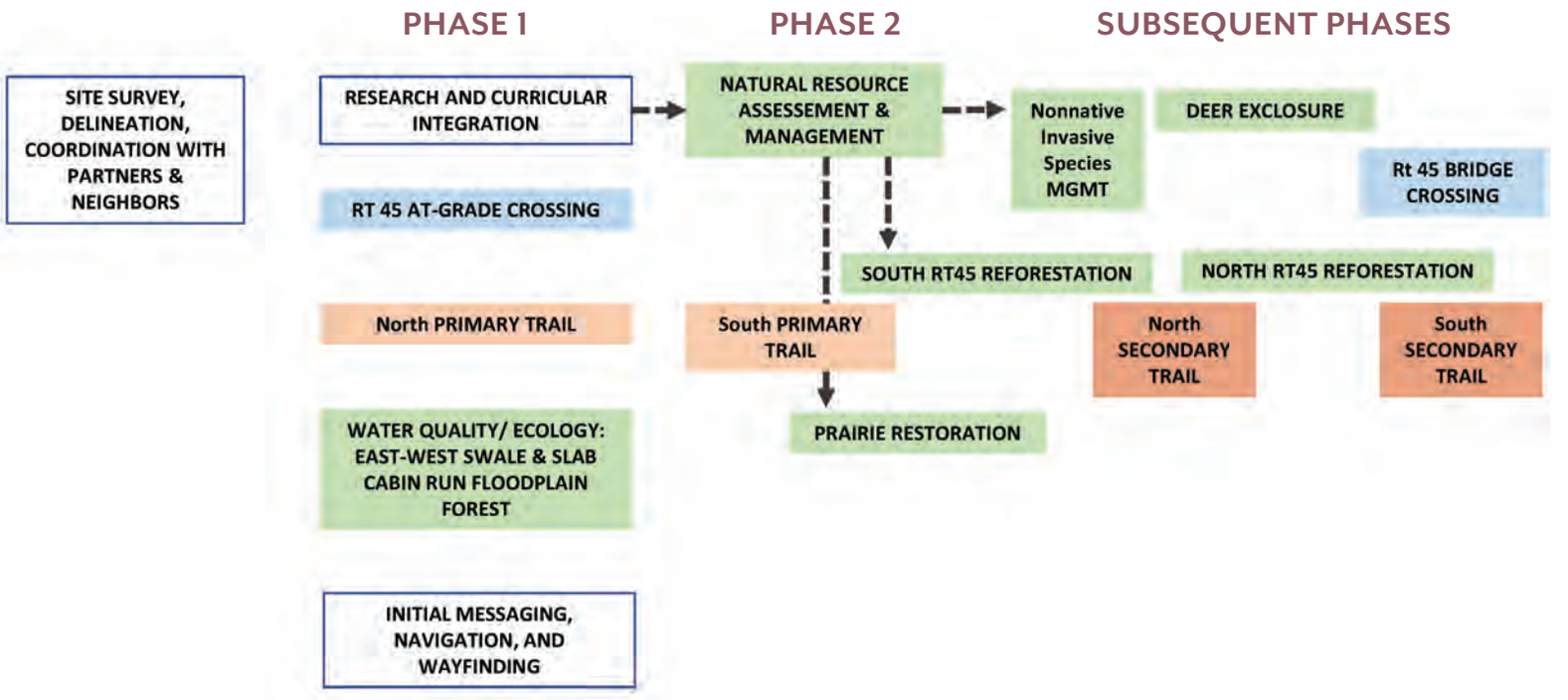
Design Strategies Matrix

The various design and implementation elements included in the plan are organized here to show potential impact on program and experience of the site as a whole.

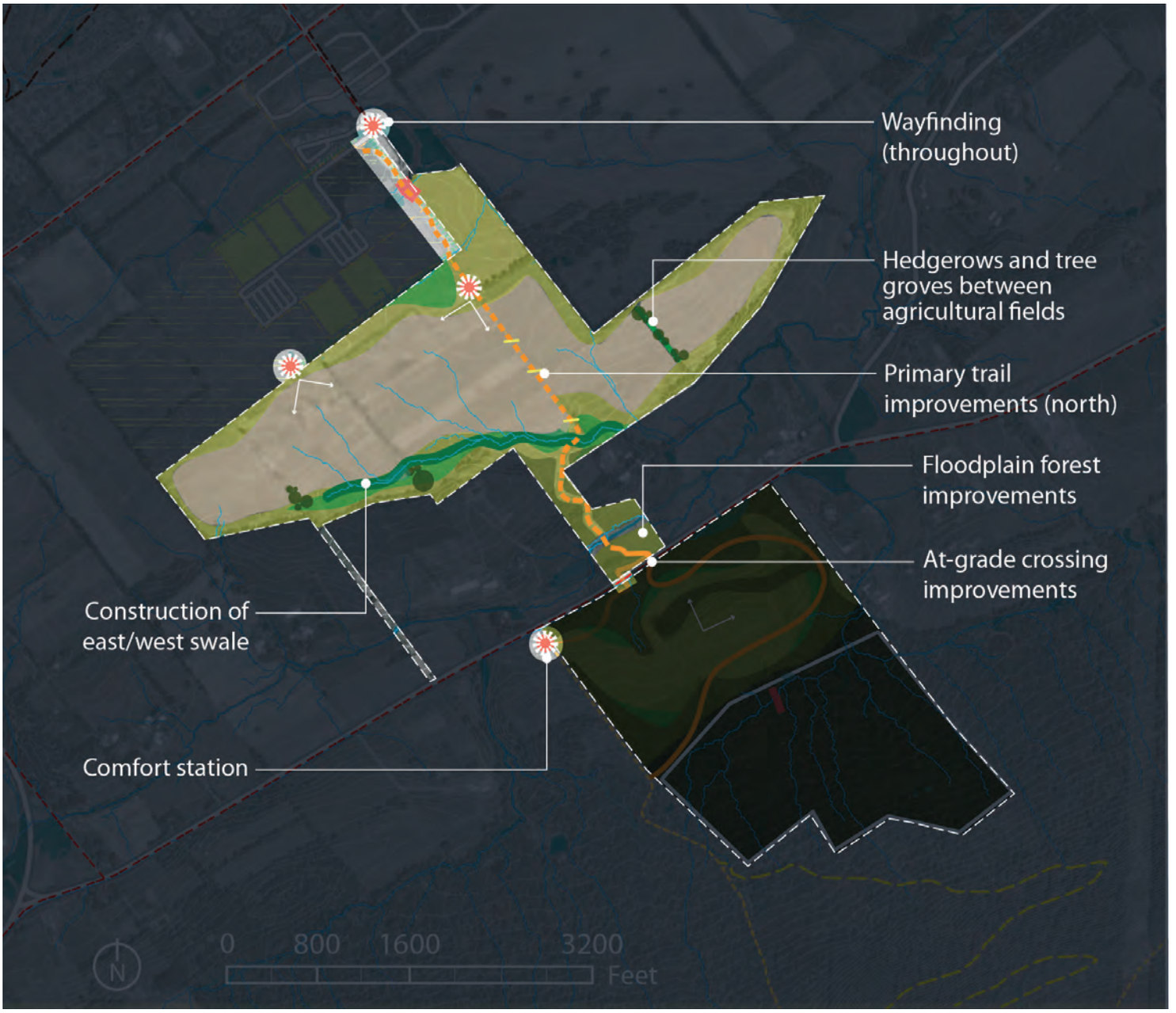
	PROGRAM / EXPERIENCE					
DESIGN, PROGRAM, PLANNING ELEMENTS	**ACCESS**	**SAFETY**	**HEIGHTENED EXPERIENCE**	**WATER QUALITY**	**HABITAT/ ECOLOGICAL FUNCTION**	**RESEARCH/ CURRICULUM**
Complete Site Topography Survey	√		√	√	√	
Wetland Delineation				√	√	√
Farmer Coordination			√	√	√	√
Coordination with Whitehall Regional Park	√		√			
Coordination with DCNR	√		√			
Messaging, Signage and Navigation	√	√	√			√
Research and Curricular Integration			√			√
PRIMARY TRAILS						
North of Route 45	√		√			
South of Route 45	√		√			
Stormwater Management (Required)	√		√	√		
Stormwater Management permitting (Required)	√		√	√		
Signage	√		√			
Boardwalk	√		√	√	√	√
2 Comfort Stations (composting toilet, benches, trash and picnic tab	√		√			
SECONDARY TRAILS						
North of Route 45 (around agriculture)	√		√			
South of Route 45	√		√			
Stormwater Management (Required)	√		√	√		
Stormwater management permitting (Required)	√		√	√		
ECOLOGICAL RESTORATION & Natural Resource Management						
Reforestation north of Route 45			√	√	√	√
Reforestation south of Route 45			√	√	√	√
Prairie Restoration South of Rt 45			√	√	√	√
Vegetation Survey, Reforestation Plan, Prairie Mgmt Plan, Nonnative invasive (NNI) Species Mgmt					√	√
Initial Sitewide NNI Management - north & south of rt 45 (Years 1-4)					√	√
Deer Exclosure installation					√	√
Stormwater Permitting (Required)				√		
BIOSWALE and SLAB CABIN RUN						
East - West Bioswale Farm Edge *(follows farmer coordination)*			√	√	√	√
Slab Cabin Run Floodplain Forest Planting			√	√	√	√
Stormwater Management Permitting (Required)				√		
IMPROVED RT 45 CROSSING						
Survey of Trail Usage (basis for PennDOT discussions)	√	√	√			
PENN DOT Coordination	√	√	√			
Route 45 (at-grade) safety upgrades	√	√	√			
Route 45 Crossing (FUTURE) Pedestrian Bridge	√	√	√			
ONGOING MAINTENANCE (ANNUAL)						
Nonnative Invasive Species management						
Prairie						
Deer management / exclosure						
Trails						

Phasing

The team worked with the PSU steering committee to outline a phasing approach required to support implementation. While many elements could be phased in a variety of ways, there are some steps that must take place first to establish informed baseline conditions and foundations for detailed design. The plan graphics on the following pages reflect the Steering Committee's input on the phasing of plan elements once the foundations have been set, with a focus on the improvement of the Route 45 crossing and initial ecological restoration actions.



Phase 1



In Phase 1 the first priority is to improve the safety of the at-grade crossing of Route 45 and complete the primary trail alignment upgrades north of the crossing. Wayfinding and messaging around MG2V would begin at this time, to enhance user understanding of access and farming activities. Edge plantings along Whitehall Regional Park may also want to be phased in early.

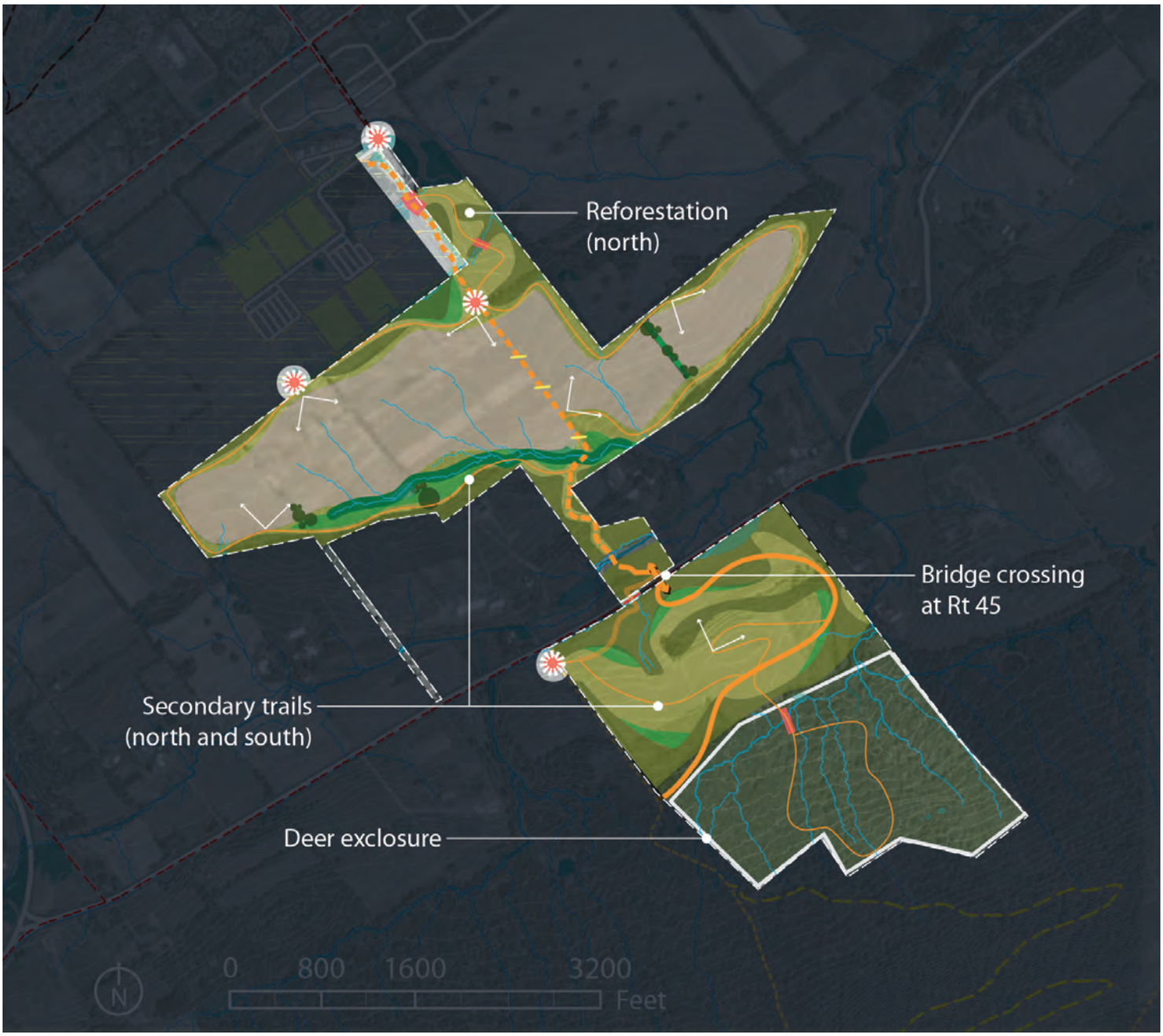
From an ecological perspective, the first steps are recommended to be the development of the east/west bioswale along the southern edge of the western agricultural fields, reforestation of the floodplain along Slab Cabin Run, and hedgerow enhancements as appropriate. An optional comfort station is proposed at the Musser Gap trailhead.

Phase 2

In Phase 2, attention shifts to the development of the new alignment of the primary trail south of Route 45, looping to the east through the concurrent restoration of a prairie/scrub shrub landscape mosaic. Once a comprehensive vegetative assessment and natural resource management plan have been developed for the entire property, management can begin. The suggested comfort station is optional, given the facilities available at Whitehall Regional Park.

Prior to reforestation south of Route 45, the focus will be on removal and management of nonnative invasive species, followed by plantings of a robust and diverse native canopy and understory plant palette. Much of this work can be conducted with students and faculty taking the lead – reinforcing the opportunities MG2V provides as a living laboratory.

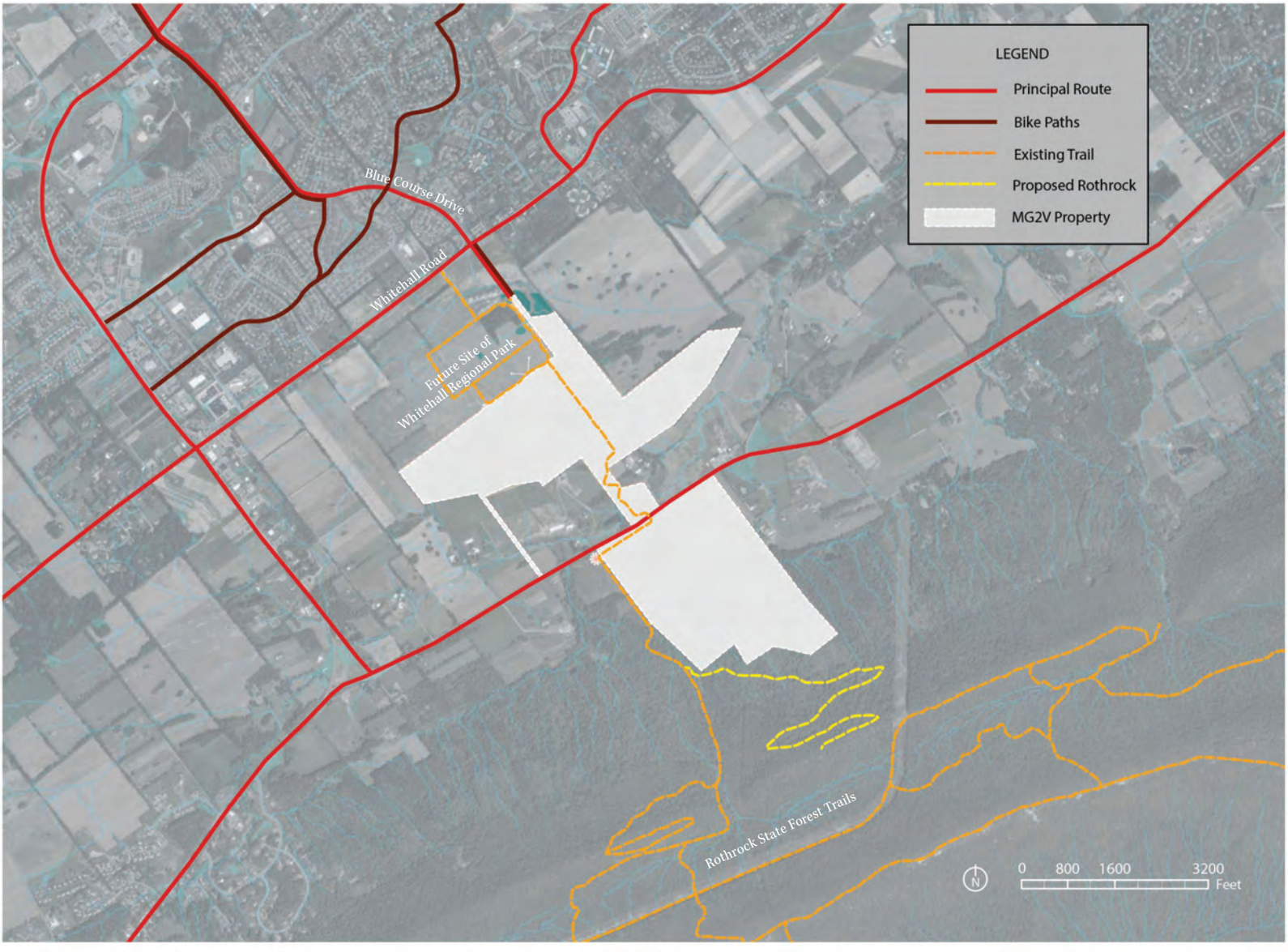
Subsequent Phases



In the final phase(s) of implementation, secondary trails are added both north and south of Route 45. Northern trails will be designed to provide a variety of experiences on the edges of the agricultural lands in collaboration with the Wasson family. Secondary trails south of Route 45 will focus on introducing new experiences through the prairie restoration and the existing forest.

Reforestation along the northern edge of the property will also commence during later phases, as well as the implementation of research plots for deer exclosure fencing around the forest adjacent to Rothrock State Forest.

MG2V's Regional Connections



An important part of MG2V's long-term success hinges on accessibility to and from campus and into Rothrock State Forest. Fortunately the MG2V trail is already recognized on the regional Purple Lizard trail mapping. In this figure, Purple Lizard access designations show existing primary access mainly by vehicle; these roads may also be routes for long distance cyclists in the region.

The existing local bike trails could connect to MG2V with additional access added along Blue Course Drive to connect to Whitehall Regional Park at the Yards Development. Along with the connections from the north, east, and west, the existing and proposed Rothrock State Forest trail system offers a variety of routes into the forest. An existing parking lot provides access to the Musser Gap Trailhead from Route 45.

Regional bike connection references: Friends of Rothrock State Forest (https://www.friendsofrothrock.org/), Purple Lizard Maps: Rothrock 7th Ed., Bike Rides from Beaver Stadium: an atlas of Centre County's Greatest Bicycle Rides by Scott Adams (c) 1992.

Biohabitats

Andropogon

Newell Tereska & Mackay
Engineering