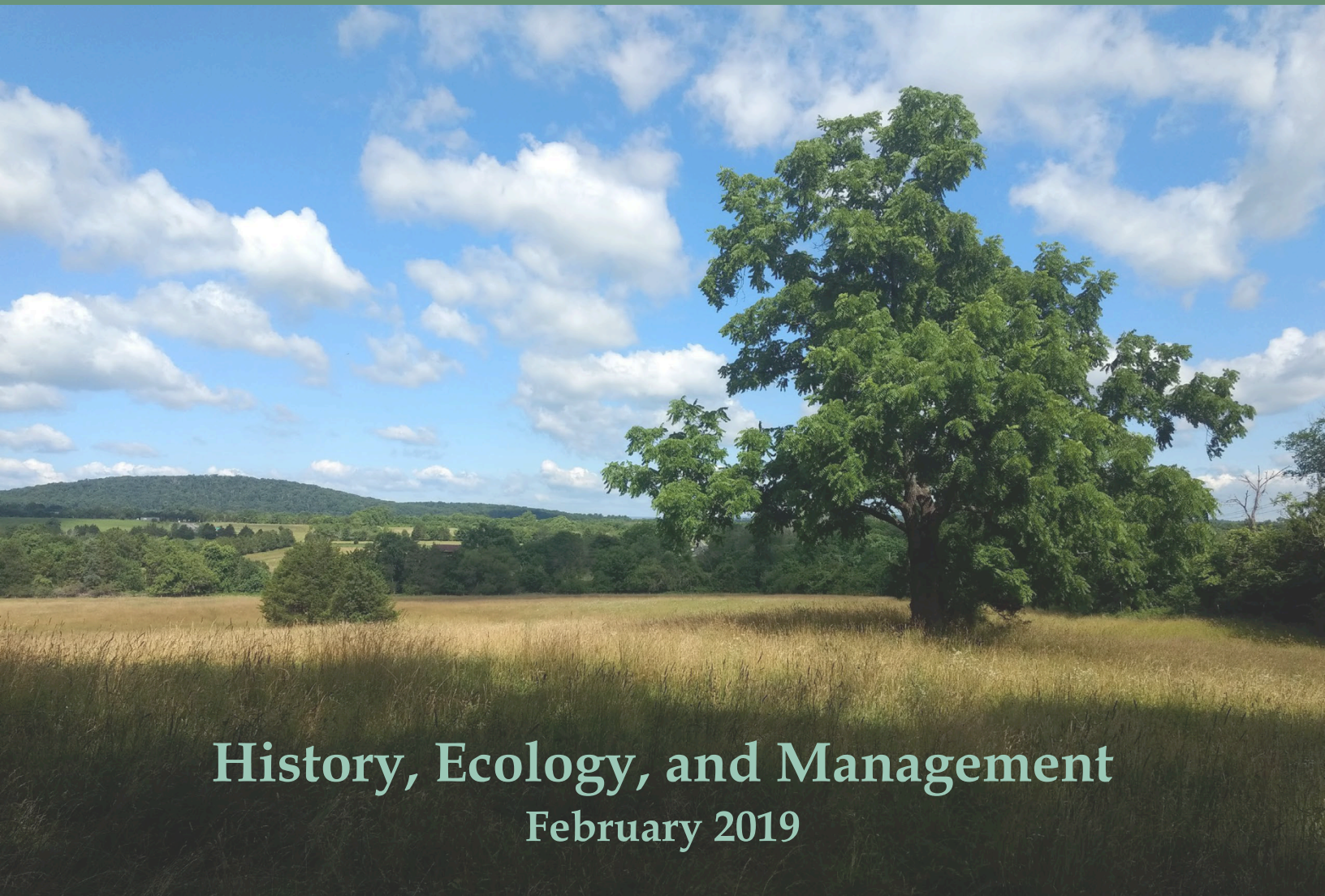
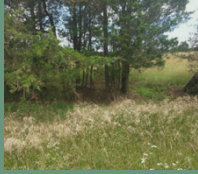


ROUNDAABOUT MEADOWS



History, Ecology, and Management
February 2019

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OAK SPRING
—GARDEN FOUNDATION—



Piedmont
Environmental
Council



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OVERVIEW

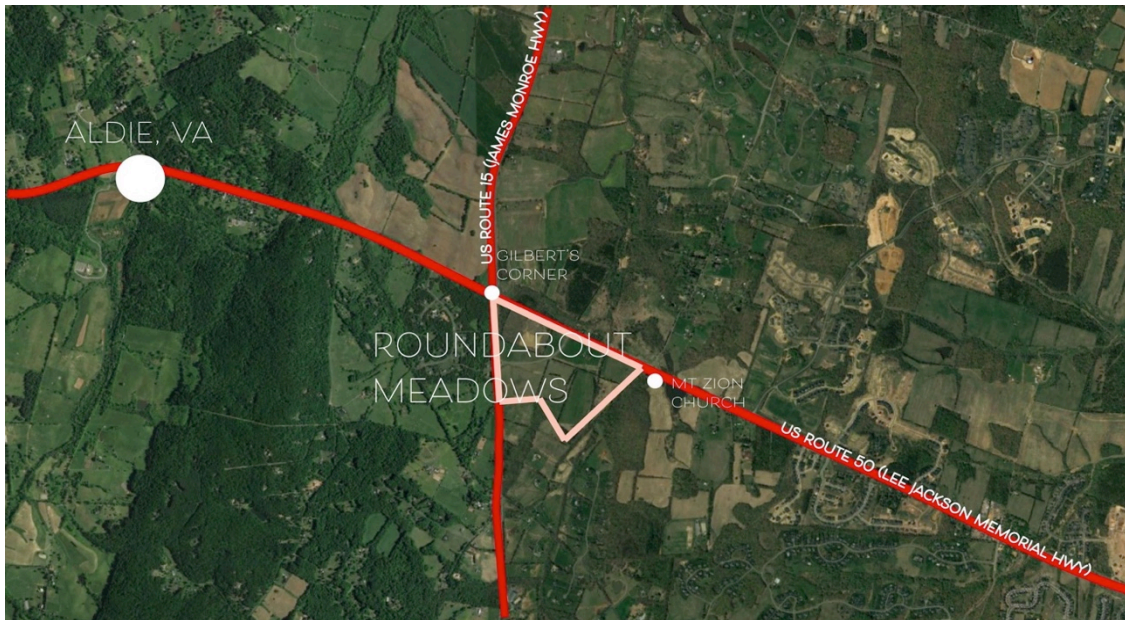
“The corridor signals the stoppage of urbanizing Northern Virginia; it is a cutting edge of country before the Catocin and Bull Run Mountains.” – Eugene Scheel



Urbanization of Loudoun County

Roundabout Meadows forms an abrupt transition into a more rural community along Route 50, just west of Mt. Zion. The rich history of the Old Carolina Road, the beauty of the meadows, Bull Run views, and Howsers Branch are etched into the land. This document outlines the site's context and special places, a proposed trail system, and management concerns. Done correctly, the site has the potential to provide historical perspective and understanding of the relationships between the nature and culture of the Piedmont in an increasingly urbanized community. Visitors can experience and appreciate tradition, growth, and change of the Piedmont among these new trails that address progression of place.

SITE AND CONTEXT



Roundabout Meadows, Aldie, and Loudoun County



PEC's property, Roundabout Meadows

PURPOSE AND SCOPE

Rarely does such a combination of high-quality farmland, regionally significant historical sites, ancient trees, a stream, and mountain views come together on the edge of a top-ten metro region. At Roundabout Meadows, on the eastern edge of Virginia's Piedmont, these features and more coalesce on 141 acres that showcase the past, present, and the potential of the Piedmont. When traveling west from the Washington DC metropolitan region, Roundabout Meadows – and Gilberts Corner more broadly – forms an invitation to the Piedmont.

This document is an effort to uncover, synthesize, and summarize the unique attributes of Roundabout Meadows, and place them in context for planning the site for visitors to enjoy. There are three parts to this. First, the background context documents how the property came to be, from the ancient history of the rocks to the acquisition by PEC. The specific geology, for example, including the rock types and the story of geological process, provides context for the rock outcrops found onsite. Historical context is summarized, with particular attention given to the Civil War and the Carolina Road. This history comes alive when a visitor walks the Old Carolina Road.

The second effort is an inventory of landscape features. We've included in this inventory everything from the locations of the geological features (rock outcrops) to significant trees, plants, historical features, views, and pleasant spots. This foundation of special places allows for a thoughtful approach to trail design and interpretation of the landscape. When the special places are pieced together, a holistic understanding of the property is generated particularly with ways the features interact (rocks, plants, history, etc.).

The third section includes recommendations. For this we've primarily focused on the visitor experience with regards to interpretation and a circulation plan. The interpretation includes those features from the inventory, while the circulation plan is an effort to link the special places with a network of trails. Also included in this section are a handful of special management concerns such as exotic plants, the challenge of vehicular and pedestrian access, tree planting, and more.

Roundabout Meadows is 141 acres divided into several areas based on PEC's management goals. Roughly 38 acres occurs as a disjunct triangle among three traffic circles at Routes 15 and 50. This area is proposed to include community gardens. We walked this area briefly, but considered it outside the scope of this project. That portion of the property could, nevertheless, offer a one-mile perimeter trail as part of the community garden plan.

The core of Roundabout Meadows includes approximately 80 acres of open pasture, drainages, and fencerows. PEC uses this area for rotational cattle grazing and has invested a number of resources to demonstrate best practices for cattle management. We surveyed this area and found several interesting features, however, because the acreage already has a management plan that generally excludes recreating humans, (on account of cattle), we included only cursory observations and suggestions for this area.

On the property's east side, a triangular section of about 22 acres forms the core study area for this project. The property is divided into two 11-acre sections: a northern portion that will have cattle and a southern portion that will be exclusively managed for biodiversity and recreation. Taken together, the area abuts the Mount Zion Church property (NOVA Parks) and church cemetery on the east. The combined properties share a section of Old Carolina Road. The north extent is bounded by the John Mosby Highway (US Route 50). PEC determined that this 22-acre section – because of its history, proximity to Mount Zion Church, and landscape attributes – would make an excellent space for recreation and a trail.

PRELIMINARY PROJECT GOALS

Goals of the Piedmont Environmental Council and its affiliates were generated prior to summer of 2018 (PEC meeting notes 6-11-18). These reflect the current status of their work on Roundabout Meadows and what they wished to be researched and collected as of the present year.

- Compile inventory of significant plants and their locations with particular attention to old growth trees, native trees, and any rare or threatened plant species
- Compile a list of invasive species and their locations for future removal
- Compile inventory of animals, birds, and their nesting sites
- Assemble historical analysis of the property from prehistory through the modern era including its current agricultural usage. Particular attention to the Old Carolina Road, Mt. Zion Church and Cemetery, and Civil War battle history
- Compile geological history and survey of the area, noting significant outcroppings, rocks, deposits, and soils which could be highlighted along the trail
- Analyze significance of Howsers Branch, its origin and termination point, and any historical significance. What is its current state of health?
- Develop and recommend interpretive signage for the trail
- Create a trail system through the designated site which highlights the geological, historic, and scenic highlights of the property as well as the significant plant and wildlife communities

We addressed many of these goals and specifications (some more than others). We generated a list of future goals from what we couldn't accomplish during the summer. Some of these initial goals were beyond the scope and skill set of a small team with a single season of time.

BACKGROUND INFORMATION

ROUNABOUT MEADOWS AND PEC

Roundabout Meadows lies in the crossroads that has long been referred to as Gilberts Corner (USGS naming tradition does not include apostrophes). This junction of Route 50 and Route 15 has historically been, and continues to be, a busy crossroad. The Gilberts Corner area was named a top regional conservation priority by the Washington Smart Growth Alliance (source: 2017. PEC); it becomes more surrounded by suburban and urban growth each year.

Three parcels to the north of Roundabout Meadows were the initial focus of conservation work. The 88-acre, eastern parcel was purchased by the Mt. Zion Preservation Society in May 2004. The NOVA Regional Park Authority later acquired it, in December 2009. This was the start of Gilberts Corner Regional Park. In May 2009, PEC purchased the 68 acres to the west, then known as Belhaven Estates. In November 2013, PEC sold this parcel to the NOVA Regional Park Authority to expand Gilberts Corner. The western parcel, a 30-acre plot, is owned by Green Project LLC.

In 2011 PEC had the option to purchase 141 acres to the south – Roundabout Meadows. At the time, PEC was unable to purchase the property and protect it from a mixed-use development. Roundabout Partners LLC was formed to raise the capital to purchase Roundabout Meadows, which they did in August 2013. Three months later, the LLC donated the property to PEC. The PEC board of directors accepted the property and directed their staff to study the property and evaluate options. A projection of revenue and expenses from 2015-2019 was made, resulting in an estimated loss of \$30,545 over five years.

PEC's findings from an initial assessment of Roundabout Meadows includes:

- Significant soil erosion along stream banks
- Poor or marginal habitat for wildlife
- Poor water quality: Cattle have 83 crossings and unlimited access to water which results in high levels of E-coli. At the three test sites established at Roundabout Meadows, e-coli was measured, from the sites north to south, at 1,950, 5,000, 0 CFU/100ml, respectively. A site is considered impaired when e-coli exceeds 235 CFU/100ml
- Degraded pastures from overgrazing
- Farm infrastructure was considered obsolete and the residence dilapidated and not rentable. PEC's initial management goals include:
 - Restoring natural resources by protecting riparian corridors and other sensitive areas
 - Reinvigorating the agricultural productivity of the property
 - Ensuring that future uses respect the scenic, historical, and cultural resources that define the property and surrounding landscape
 - Ensuring that future uses are designed and scaled in a manner that does not degrade the functionality of the existing "traffic calming" improvements along Route 50
 - Engaging the broader community in the stewardship, interpretation, and enjoyment of the property



Initial conceptual management map: Shows new cow fencing and pastures, well and water stations, proposed farm, community garden, meadow conversions, stream crossings, and wildlife habitat.

In 2016, PEC, in partnership with Loudoun SWCD, took steps to address water quality and erosion by managing the cattle's access to Howsers Branch. They installed 2,000 linear feet of fencing to exclude cattle from the stream and establish distinct paddocks for rotational grazing. Further, an existing well was tapped to supply five livestock waterers. This project had a total cost of \$127,000 with net landowner cost approximately \$12,000.

In April 2017 PEC signed a lease with Virginia Land and Livestock LLC. The lease allows for "conservation and education activities and incorporates Rotational Grazing Plan." The lease is for a three-year period developed as a "model for other land owners/land managers to consider." Though it is clear cattle were on the site before 2017, we are unclear on the specifics of prior arrangements.

PEC has hosted several citizen science collaborations at Roundabout Meadows. Virginia Working Landscapes conducted a grassland bird survey in the spring of 2016. They identified 38 species; 11 of critical regional or continental concern. The Goose Creek Association conducted water quality testing, and the Loudoun Wildlife Conservancy has led wildlife walks and conducted bird monitoring. PEC fellows have helped with research as well, conducting a pollinator assessment in 2016. The results of these efforts supply valuable baseline information and these efforts should continue to show trends and patterns over time.

In 2018 PEC took initial steps towards a community garden and farm. Dana Melby was hired as the Farm Manager in the fall of 2018 to cultivate an initial 1.66 acres. The Community Farm will continue to expand as the barn, greenhouse, and high tunnels are constructed.

The activity over the past five years at Gilberts Corner and Roundabout Meadows (and the past couple decades in the broader region), has been a dramatic change in land use. What was once an agricultural landscape has transformed dramatically into a residential and retail suburban landscape. The ongoing efforts to transform Gilberts Corner into a conservation gateway have so far been successful and if urbanization continues to spread west, the site will prove to be a priceless investment for future generations.

Onto this newly protected landscape we consider the deeper history of the land. Here we highlight three key features and processes in the development of this region: the geologic history, the Old Carolina Road, and the Civil War.

GEOLOGIC HISTORY

The geology and rock formations of a site reveal the story behind the formation of the place and the long-term processes. Roundabout Meadows lies in a unique geological setting that was subject to some of Earth's most intense rifting during the formation of North America and the Atlantic Ocean. Two primary rock types occur at Roundabout Meadows – a volcanic basalt, and a sedimentary mudstone. Both reflect the process of intense continental rifting that occurred 200 million years ago.

To begin the story, however, we start at about 300 million years ago and beyond when a number of smaller continents coalesced into the supercontinent, Pangea. As the African continent and North American continent converged, the intense momentum of the two land masses slowly slamming into each other forced the uplift of a massive mountain range. This was the original Appalachian chain, thrust up as the two continents collided. Because of its placement in the center of the supercontinent Pangea, the ancient range is known as the Central Pangean Mountains. This mountain range was one of the highest to have ever occurred on Earth, equal to or rivaling today's Himalaya (which formed through similar processes as India has driven north into Asia).

Due to processes that are not well understood, Pangea soon began to tear apart. The rift occurred close to the suture zone where it coalesced – coastal North America and Africa. As the continents began to spread apart, two features developed which directly relate to the two rock types found at Roundabout Meadows. First, the continental crust thinned. Earth's crust is a relatively thin layer of solid rock that 'floats' above the molten mantle below it. As the continents stretched, the crust thinned much as stretching dough thins when pulled. When crust thins, the molten rock beneath periodically emerges through the surface as a volcanic eruption.

With this, we find the basalt rock that is found over much of Roundabout Meadows, including the aptly named, Mt. Zion Church Basalt, found primarily on the property's eastern side where it crops out in several locations near the cemetery. The surface eruptions that made the basalt occurred in early Jurassic times, roughly 200 million years ago.

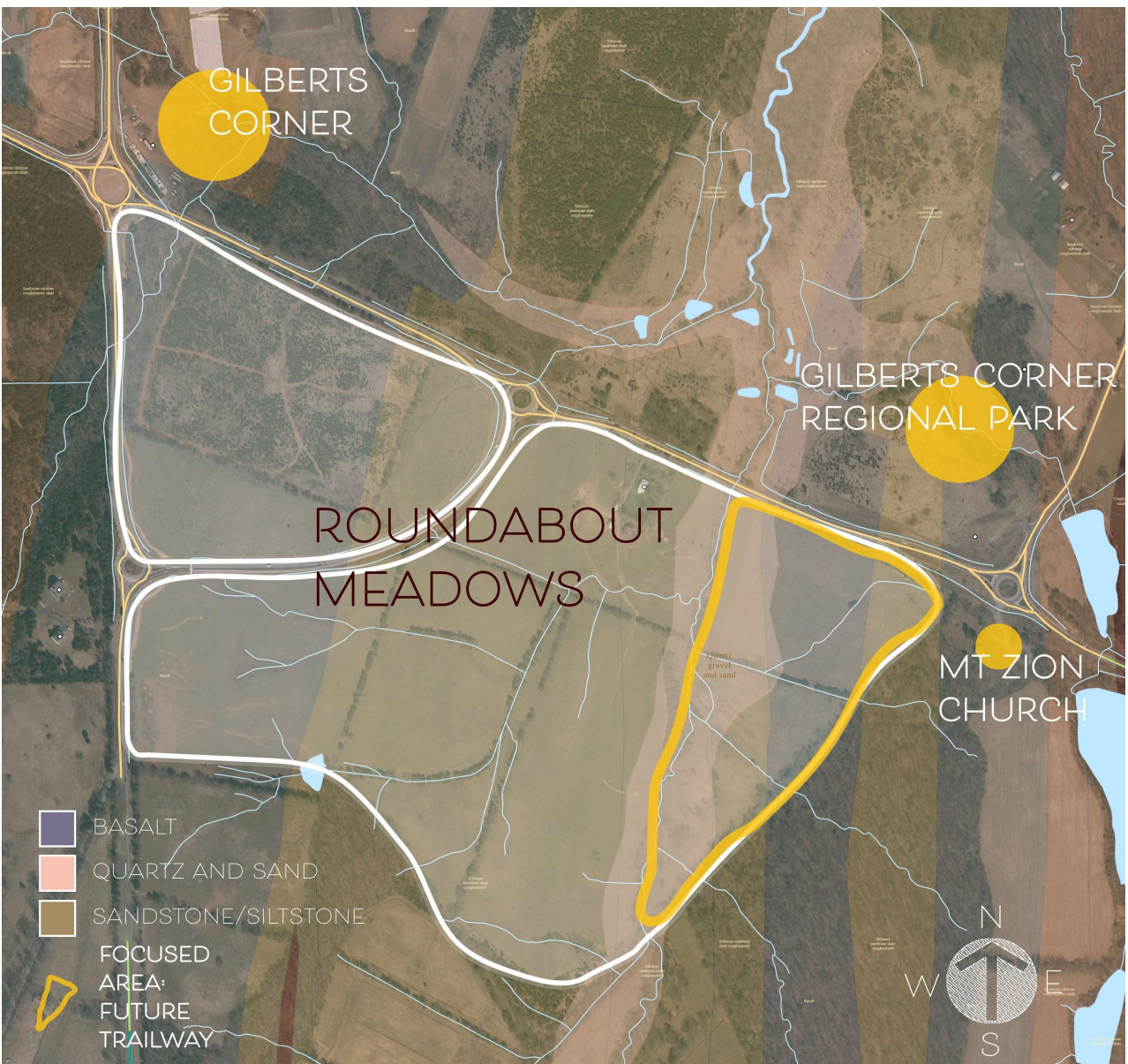
Basalt is typically an oceanic rock and most of Earth's seafloor bedrock is composed of it. It occurs on the continents as well; the majority of Earth's volcanic rock is basalt. The episodic eruptions that occurred along North America's eastern seaboard at this time are known as flood basalts. The basalt eruptions in northern Virginia would have all occurred in a relatively short window of time – perhaps just a few million years – as Pangea pulled apart.

At Roundabout Meadows, basalt outcrops occur in a cluster in the northeast corner at the Blue Ridge Lookout / Walnut Hill area, and several other locations in the west of the property. Those outcrops in the west are a different formation, or type, of basalt, but are nonetheless similar in composition and age, and identical in process. The chemical composition of Mount Zion Church Basalt makes it distinct. These rocks are sub alkaline and contain less sodium than other basalts, while the other categorization, Calc-alkaline, are oxidized and have higher levels of sodium. This mineral composition affects the plant communities that grow there.

The second landscape feature to occur during the ripping and rifting of Pangea was the formation of low-lying basins. As the continents tore apart, depressions formed in the rift valley. As volcanic eruption occurred within the basin, sediments washed down the mountains from the west and began filling in the basins.

In Virginia those areas are commonly referred to as Triassic or Mesozoic Basins, named for the time periods of their formation (some occurred in Jurassic times as well). Roundabout Meadows is located in the Culpeper Basin – a geological depression that runs from Maryland down to near Charlottesville, Va. The basin has remnants of the basalt flows that spilled out as a result of crustal thinning, and it also has rocks composed of the sediments that washed off the adjacent mountains and settled in the basins. The basins were low swampy lands at the time, and so the sediment was composed of silty mud, sand, and some gravels.

At Roundabout Meadows, we find not only outcrops of the basalt flows, but also at least one outcrop of the reddish siltstone that settled into the basin. The outcrop occurs along Howsers Branch (see special places) and is best seen when green vegetation is not present. Another patch occurs in the north meadow near the church on a trail cattle use to reach the watering station in that meadow. We understand that a dinosaur track fossil was found at Oak Hill, a nearby farm, which would have formed when the animal stepped into the turbulent silty mud of the Culpeper Basin.



Simplified geologic map of Gilberts Corners. Note the linear bands of rock types. See the Loudoun County geological map available online for further details.

To complete the story, the continents continued to move farther and farther apart to eventually form the Atlantic Ocean. Because the Culpeper Basin is a failed rift zone – meaning it opened but did not fully open as the Atlantic Basin. Nonetheless, had the Culpeper Basin continued to rift as the Atlantic Basin, the edge of what is today the Bull Run Mountains could have been the edge of the continent with the Atlantic Ocean lapping against the small pass at Aldie. And Roundabout Meadows may have been a beach.

REGIONAL HISTORY AND THE OLD CAROLINA ROAD

The history below is summarized information from Eugene Scheel's The Carolina Road Corridor of Loudoun County: Once the Main North - to - South Trail, and Cradle of Farming in America that was prepared for B. Powell Harrison in December of 1996 and revised in January of 1997.

The Old Carolina Road "began as a trail traversed by Native Americans" who trekked from north to south before winter and from south to north in the spring. The Susquehanna people of Pennsylvania and Maryland were the first known travelers of the road. Natives who settled into the Catoctin and Bull Run Mountains used the road and the Potomac River for trade - "Potomac" translates to "place where people trade." The fierce and judicious Iroquois migrated south along the eastern slope of the mountain range through modern day Loudoun County. Over time, use by these groups along this natural travel corridor developed what would become the Carolina Road.

The Carolina Road was favored by European settlers because of the numerous springs rising from the Bull Run Mountains, the easy access across Goose Creek, and milder temperatures. The land of the Piedmont was popular because of its fertile soil, which displayed itself on sites with growing locust, walnut, and tulip poplar trees. In 1722, the Iroquois signed The Treaty of Albany, which limited their travel east of the Blue Ridge Mountains where the Europeans began to establish permanent settlements in exchange for limitations on European travel west of the ridge.

In time, "Potomac marble" became well known in Washington as the Capital and other government buildings were constructed with the material (not a true marble but a limestone with quartz and other fragments). It's found only along the Old Carolina Road corridor to the vicinity of Goose Creek and Oatlands in Loudoun County. The quality of the stone was so brilliant that it was often mistaken for imported Italian marble.

Thomas Fairfax, 6th Lord Fairfax owned all the land in the region as part of his Northern Neck Proprietary beginning in 1719. He began issuing land grants in 1727. The first major land grant went to Robert "King" Carter; he obtained "Goose Creek Tract", a property of 11,375 acres. In 1798, his great grandson George Carter drew divisions and created the 2,700 acres that became "Oatlands." Those lands would be used for cash crops with the "Old Field-New Field" cropping tactic until the Civil War.

Thomas Scharf stated that the Old Carolina Road truly began in 1740. It was then nicknamed "Rogues Road" because of the free, sometimes shifty, trade that occurred; a lair named "Rogues Hollow" housed thieves in the Catoctin Mountains. The name "Old Carolina Road" stuck because of its southern terminus at the Carolina border at a spot known as Occaneechi Island. The Island, a former Occaneechi Native American village, was an important trade location.

After Carter, other properties emerged along the Old Carolina Road, including Noland's Ferry and West's Ordinary found "at the junction of Colchester Road, now Route 50, the area's first main east-west way." West's Ordinary was an inn owned by William West that often hosted government officials and celebrities. It remained in business until the mid-19th century. "Little London" was another stop along Old Carolina Road that only appeared on a 1779 map and was described as an "eight day stop for prisoners, at the site of old Evergreen Mills on Goose Creek."

The year 1827 would be the last that Old Carolina Road could be found on statewide maps of Loudoun County, but locally it remained a prominent trade and travel path with large plantations lining its sides. George Carter's Oatlands mansion was still standing in 1815 and Goose Creek Mill continued running until then as well. Route 15, also known as "Aldie Grade" or "The Grade," was the first known graded road in

Loudoun County; it intersected Route 50 and ran parallel to Old Carolina Road. Still valued for its soils and location, Old Carolina Road also had no part of its path more than 5 miles from the 2 major local east-west routes (Route 50 and Route 7) – and then Route 15 added to the north south traffic of the area.

The “last great day” of Old Carolina Road according to Fairfax Harrison was August 24, 1825 when General Lafayette organized a goodbye journey through the area to Oak Hill. The history of the road continued after that day, though; during the Civil War Confederate and Union soldiers fought to overtake the property along the Potomac until the Union finally seized the area in March of 1862. The troops “traversed Carolina Road from Gilberts Corner to Noland’s Ferry.” After the war, there were a few African American settlements created along Old Carolina Road, and the historic properties of the late 18th and early 19th centuries continued to prosper. Gilberts Corner, the site across from today’s Roundabout Meadows, was named after William Augustus Gilberts 1927 gas station, a popular pit stop along Route 50 and Old Carolina Road.

CIVIL WAR IN THE VICINITY OF GILBERTS CORNER

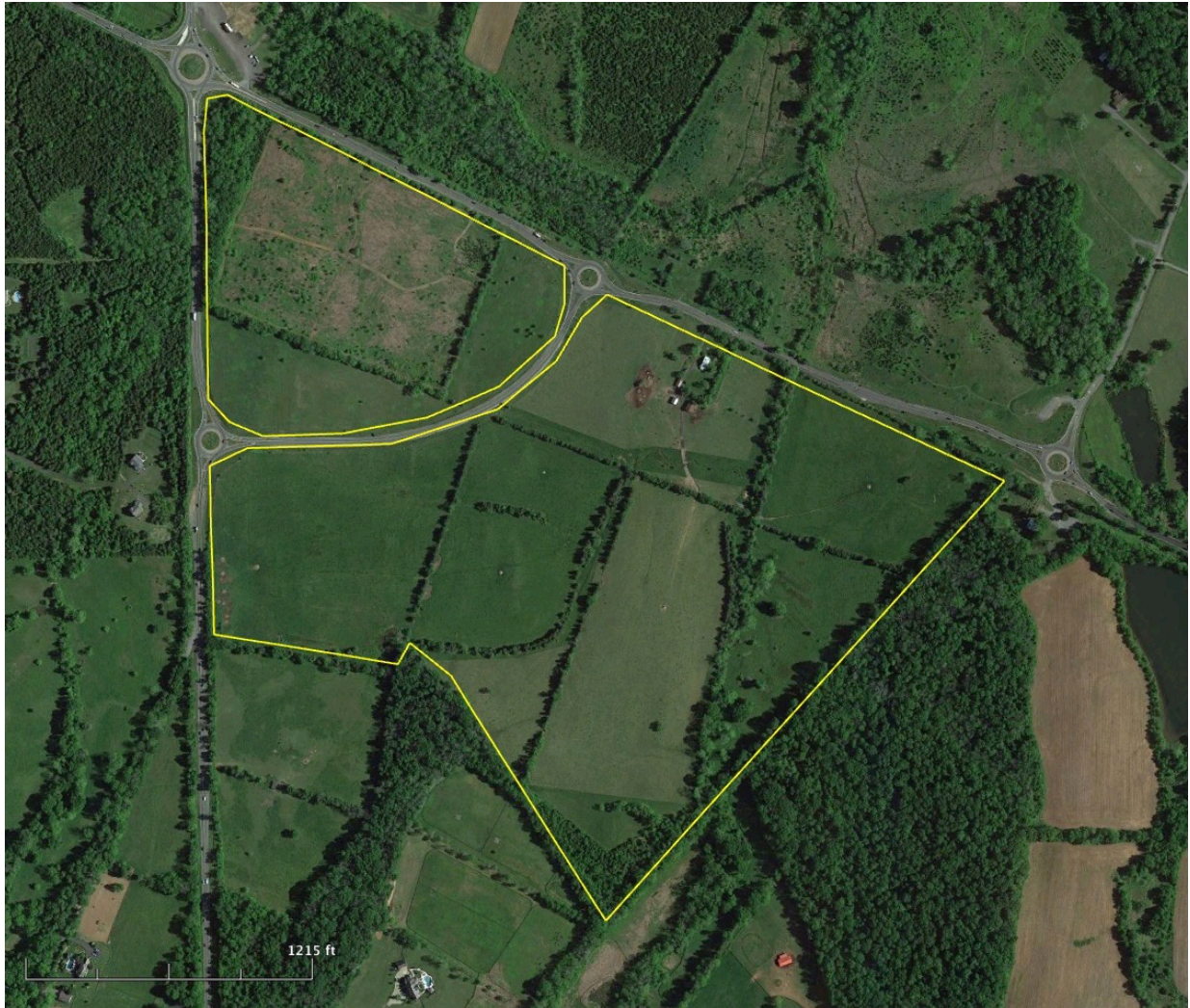
Beginning July 4th, 1864, the Union Army searched for John Mosby and his troop of Confederates from south of present-day Leesburg at Ball’s Mill, to the north and into Leesburg. They camped on the 5th of July in Ball’s Mill and returned to Leesburg on the 6th still in search of Confederate soldiers. Forbes and his soldiers finally decided to rest just east of Mt. Zion Church, near Skinner Farm. Mosby was informed of the Union’s whereabouts, and it was at this location east of Mt. Zion that Mosby rushed the opposing soldiers and won a decisive victory.

Each side had about 150 men, and the Confederates killed and wounded about 80 and took 57 as prisoners, all while suffering only one killed soldier and six wounded. In addition to being near and among the battleground of the Civil War, Mt. Zion Church was used as a Union hospital in the summer of 1863. It housed 60 men in June of 1863 - 56 Union and 4 Confederate. The church service itself was that of “Old School” Baptist, with elders (Old School Baptist preachers or ministers) leading the community. The first elder was Robert Leachman, and he served until 1869. During the war, services were impossible to hold at the church because the troops traveling and battling throughout the area. Nevertheless, Mt. Zion has always been a peaceful contribution to the community. (More information about the Civil War history of Mt Zion Church and Cemetery can be found at NOVA Parks website, <https://www.novaparks.com/parks/mt-zion-historic-park/history>).

HISTORICAL AERIAL PHOTO INTERPRETATION



Gilberts Corner / Roundabout Meadows ca. 1952. The yellow boundary is contemporary. Note the nearly complete lack of trees on the property except for just a few cedars emerging in the fencerows, and successional trees in the wet meadows of the southeast edge (the “triangle”). The mature pin oaks, sycamore, and red maple that stand in the area today would have initiated in this cohort. Also note the forest to the east – this is original woodland and has likely been forested since pre-settlement times. It probably has a history of cutting and grazing also. This 1952 image is the earliest image publicly available, however, a series from the 1930s may also occur as hard copy in local government offices.

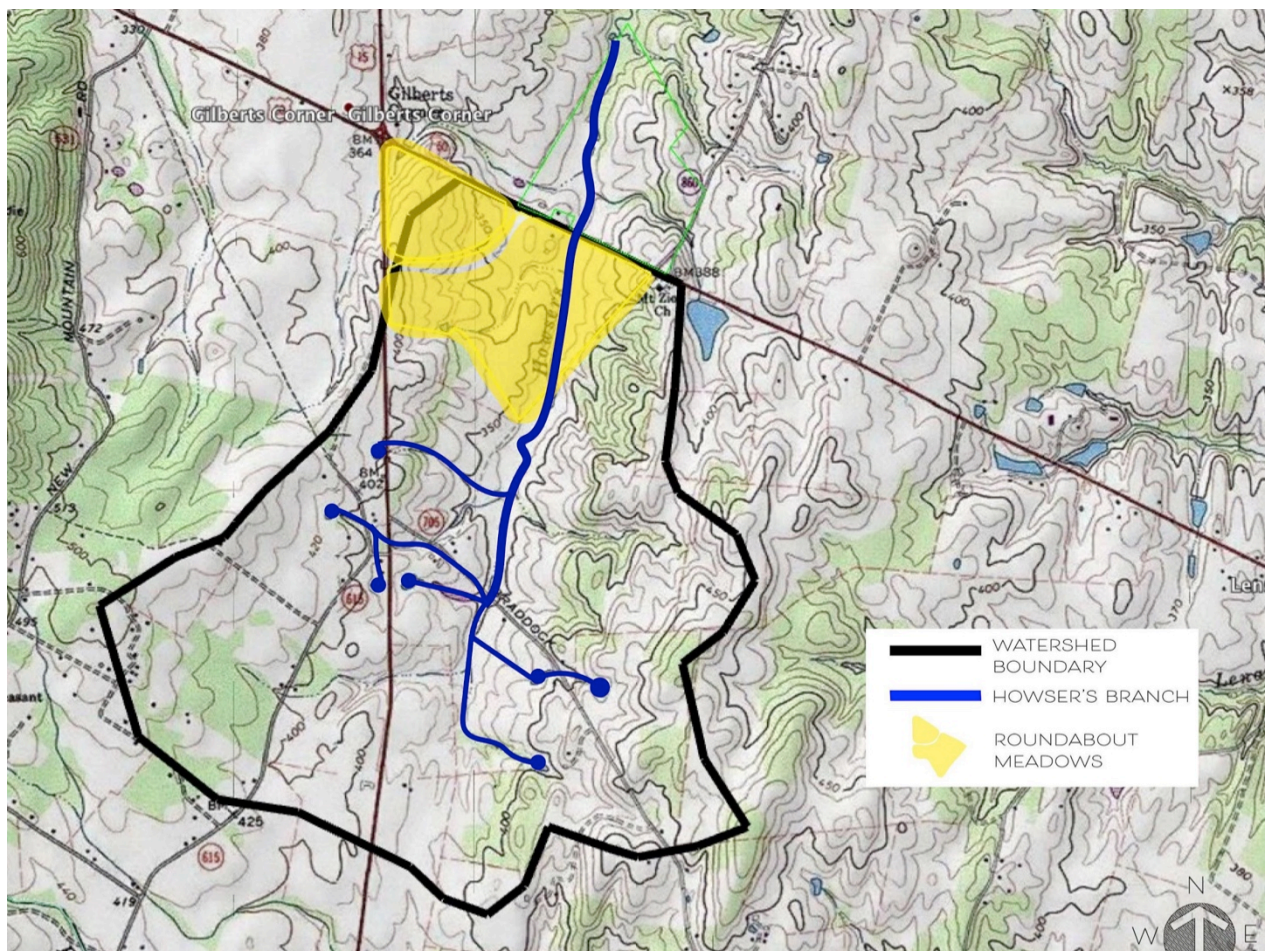


Contemporary imagery (2018) of Roundabout Meadows. Note the surrounding widespread increase in tree cover since 1952 (however woodland and forest still make up a small percentage of the landscape). Also note how the fencerows have grown up since 1952 and how they are in the exact locations. The farm across Rt. 50 is a stand of trees.

HOWSERS BRANCH

Howzers Branch is a north-flowing tributary of the Little River, itself a tributary of Goose Creek. (As is customary with all official USGS names “Howzers Branch” does not have an apostrophe.) The headwaters of Howzers Branch begin roughly 1.6 miles south of Roundabout Meadows (from Route 50). The watershed south of Rt. 50 includes approximately 1,100 acres (including Roundabout Meadows – see map below). From Route 50, Howzers Branch flows north 3.5 miles to the confluence with the Little River. The Little River, then flows an additional mile to Goose Creek, which courses 12 miles to the Potomac River. All told, Roundabout Meadows is approximately 16.5 river miles to the Potomac.

Within the roughly 1,100-acre watershed of Howzers Branch upstream of Roundabout Meadows, forest blocks comprise 268 acres or 24% of the catchment area. Forest blocks within the watershed range the following acreages: 120, 30, 55, 45, and 18 acres. Though Roundabout Meadows does not contain any forest, it abuts two forest blocks. The catchment area contains approximately 60 homes that range from a small area of dense suburban homes, to mainly exurban estates, and small equine farms.



Watershed map that includes Roundabout Meadows. Blue line follows Howzers Branch.

LANDSCAPE INVENTORY

A great circulation plan takes a visitor through a variety of sites, landscapes, views, features, etc. Most of these will be natural, but some might be built (like a bench, or interpretive sign). Taken collectively, the special places will define the site in the mind of the user. The sites may be interpreted (through signs, a brochure, or other digital means) to provide meaning beyond what one can observe on their own. But the bottom line is the special places must be identified first and the landscape plan (trails) build around them.

We identified features including rocky outcrops of two rock types, significant trees and scenic spots. A complete botanical inventory was beyond the scope of the project. Nonetheless, a few notes on the vegetation are made below.

GEOLOGY AND ROCK OUTCROPS

As noted in the geological background, Roundabout Meadows shows two rock types that are embedded into a dynamic story of continental collision hundreds of millions of years ago. The appropriately named Mt. Zion Church Basalt occurs in a cluster of outcrops at the summit of the property near the Carolina Road. This remarkable setting on the property's highpoint offers not only the cluster of Mt. Zion Church Basalt, but also western views to the Bull Run Mountains, and, on a clear day, a small piece of the Blue Ridge. Thus, from this point, a grand geological story can be shared that includes the rocks, and the mountains, and the valley in between. It's the geological story of the Piedmont.

The reddish-brown Midland Formation siltstone occurs in two places. The best location occurs along Howsers Branch where a small vertical outcrop occurs on a high bank of the stream. During the growing season this outcrop is largely obscured by vegetation. During leaf-off, it appears reddish. The second site occurs in the western edge of the field where the cows walk uphill from Howsers Branch to the watering hole. They have eroded the slope enough that the shale bedrock is exposed and broken up.



Areas of geologic interest marked with letters, numbers, and labels.

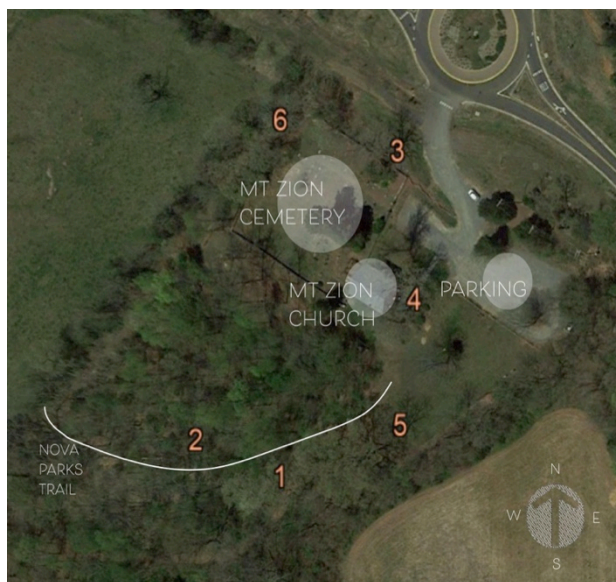
VEGETATION

We only noted specific locations of significant trees (see below), however, a few general comments about vegetation can be made. The 22-acre triangle is open, former and current pasture lands. It abuts a successional forest on the east side. Woody vegetation occurs mainly in narrow strips, for example, along Howsers Branch, the Old Carolina Road, and a ditch and fencerow. Vegetation in these areas is primarily successional – little occurred on the site when it was cleared pasture in the 1950s. As such, the vegetation is dominated by eastern red cedar, black walnut, hackberry, ash, and some sycamore, oak, and others. Limited pin oak and sycamore regeneration is occurring in the bottomland (however, this may have been mowed in 2018). Shrub and vine vegetation include species of *Rubus* (raspberries), poison ivy, grape vines, and a number of exotic shrubs (see exotics section). Herbaceous plants are composed of several native and exotic grasses, sedges, and forbs. Highlights included cardinal flower along Howsers Branch, and little bluestem in the fields, among others.

TREES

The combined area of Roundabout Meadows and the Mt. Zion Church contain a number of significant trees – particularly old or large specimen trees. Most of these are white oaks; however, a few trees in the bottomland of Howsers Branch are other species. In general, the local white oaks are old, and the others, while large, are not particularly old. They are, nonetheless, scenic and important aesthetically and for wildlife.

The large old white oaks occur mainly in the Mt. Zion Church area. One occurs in the gateway, one at the southeast corner of the church, another (the oldest) is on the west edge of the cemetery, the largest occurs in the grassy area south of the parking lot, and four more occur in the woods. These old white oaks are common to this area of the Piedmont, with similarly statured trees occurring at Oak Spring, the Upperville Horse Show Grounds, and scattered along many roadsides between the Blue Ridge and Bull Run Mountains. Though the old trees are common, regeneration of white oak locally is in a crisis.



Large white oaks.

We cored two of the old white oaks in the woodland south of the church parking lot (trees 1 and 2 located in the map to the left). Each tree was approximately 35 inches in diameter. The oaks gave ring counts of 203 and 190 years, however, neither contained the full core to the pith (the exact center of the tree). Based on the diameter of the tree, the growth rate at the earliest rings observed, and the amount of missing core, our interpolation of the trees' ages is 225 to 240 years. This suggests germination years to around the 1780s or 1790s. The church was built in 1851 so those trees were approximately a foot in diameter when the church was built.

The trees nearest the church and by the entrance (3 and 4) are probably similarly aged, however, the tree in the grassy area by the parking lot (5) is likely a bit older (maybe 250–275). The oldest tree occurs on the west end of the cemetery wall (6) and based on

canopy shape and bark characteristics is estimated at between 275 and 300 years. Most of the older white oaks I've (MG) cored regionally are between 225 and 300 years; only a few are older than 300 years. (Black gums often surpass 300 years and can be 500 years or more; Black gum occurs along the Carolina Road on Roundabout Meadows but is only 150 years.)

Other significant trees on Roundabout Meadows property include larger pin oaks and sycamores in the 22-acre triangle. These trees are fast growing species in prime locations so are not as old as their size may suggest. Each is probably close to 100 years. Along PEC's portion of the Carolina Road is a white oak that may be 200 years, and a small black gum that may be 150 years. On the western edge of the property (in the 80 acres of pasture) in the small triangular grazing pasture, is a white oak on the woodland edge that is also likely 200 years old, more or less. Other than these, most of the trees at Roundabout are younger and smaller, and dominated by cedar fencerows.



Significant trees at Roundabout Meadows.

- 1: Large black walnut pasture tree at the Blue Ridge overlook.
- 2: Large pin oak hidden among dense red cedar of the ditch-row.
- 3: White oak pasture tree ~200 years old.
- 4: Large pin oak and red maple, great shade trees for visitors but also valuable wildlife tree; had coyote pups sleeping at the base and also nesting hawk in the mid-layer branches.
- 5: Large sycamore tree.
- 6: Large red oak along Howsers Branch forming a scenic and inviting spot.
- A: Large white oak, 2-3 feet in diameter. Great place for a bench and plantings to create a seating space near the entry to the trails.
- C: Large white oak 3-4 feet in diameter; likely the oldest tree on the property, 275-300 years old.
- D: Young sycamore tree with exfoliating bark. Interesting specimen tree, could be cleared around.
- E: Large swamp white oak. Should be cleared around to support continued growth. Also, small honey locust – a tree with a curious evolutionary history.
- F: Large red oak with encroachment. Could be cleared. Black gum is nearby.

Stewardship

To thrive, Roundabout's large old trees need competition reduced. A new generation of long-lived tree species should be planted. White oak and black gum are common old trees in the Piedmont. White oak is *the tree* of the Piedmont and if any are to exist locally in 150 years people ought to get planting them.

WATER

Roundabout Meadows has a number of water features including a pond, Howsers Branch, and a number of springs and seeps. While some of the water features will remain inaccessible to the public, several highlights occur in the 22-acre triangle that is a part of this project. Nonetheless, cows have been excluded from most of the drainages.

Howsers Branch

Howsers Branch has been described in context earlier in this document. As a special place on the landscape, a few specific sites are worth noting. First, the rock outcrop of the Midland Formation is scenic as much as it is a feature of the land's story. Second, slightly down stream, at the cattle crossing is a scenic spot with a large red oak. Otherwise, the entire course is special, however, these two locations are accessible and offer glimpses into the storied past of the waterway.

Swamp

Along the Old Carolina Road is a small, forest swamp. It is easy to miss since it is mostly composed of exotic and successional shrubs under and overstory of tall trees. However, a large swamp white oak showcases the hydric nature of the site. The site is on NOVA parks property.

Wetland

The southern portion of the 22-acre triangle contains a few acres of wetland. During wet periods it contains standing water, however, during most of the growing season it contains saturated soils inhabited by ferns, hydric herbs and sedges, and shrubs. Much of the bottomland is periodically inundated and seasonally wet, with periods of dry.

Cedar Ditch

What appears as a fencerow dividing the north and south fields of the 22-acre triangle is a narrow ditch lined by eastern red cedars (and a single large pin oak). The ditch drains the wooded swamp (see above). Flows going into Howsers Branch could be attenuated slightly if this ditch was filled and restored; the ditch is essentially draining a wetland. However, this would be challenging and costly, as most corrections of earlier abuses to land are.

SCENIC SPOTS

Several locations on Roundabout Meadows offer scenic, peaceful, and pleasant settings. These destinations rank at the top of the special places list and while they also offer interpretive value, they can be enjoyed by anyone without additional explanation.

Walnut Hill/Blue Ridge Lookout

This is the nicest view and perhaps the nicest spot on the entire Roundabout Meadows property (MG). Under the shade of an old walnut tree, distant westerly and southwesterly views offer vistas of the Bull Run Mountains, and on clear days, a snippet of the Blue Ridge. Combined with the cluster of Mt. Zion Church Basalt outcrops nearby, this is a great place for interpreting the geological story. It's also a nice place to sit. It could be improved with the addition of vegetation to the north to block distractions from Rt. 50, as well as planting a few shade trees nearby to provide cover from above. We suggest white oak (long-lived) and tulip poplar (fast-growing).

Howyers Oak

A stout red oak grows on the high bank of Howyers Branch. For a time, this oak stood in the open, however, today it is crowded. The cattle crossing occurs immediately downstream. With vegetation management the site could offer a shaded sitting spot along the creek. A flood proof bench (e.g. a large stone block) could be installed. The entrance of the small tributary from the cedar line that drains the upland swamp creates a small sandbar.

Wetland Vista

This spot occurs lower into the meadows near the end of the Carolina Road (end of maintenance). It offers fine views of the Bull Runs and is under the shade of a large white oak. This is an inviting place. It can be enhanced with seating and perhaps additional shade to block late afternoon sun.

The meadow is particularly nice here and it is a great site for watching birds.

Pin Oak

At the south end of the Howyers Branch bottomland is a small grove with a pin oak and a red maple. The large pin oak is, however, a fast-growing tree estimated at 100 years or less. In 2018 hawks nested in the tree (red tail we think) and we observed coyote pups bedded down at its base. Large old open grown trees are important for wildlife. The site is inviting for people; it is shaded, cool, and pleasant. Increased human use will reduce wildlife use. It depends on the level of expected use; if people were present every day or multiple times a week, it is unlikely hawks will nest in the tree. Nonetheless, this particular pair of hawks may only nest in the tree for a few more years at which time PEC could add a trail.

PARKING AND TRAILS

Currently, the only vehicular entrance and parking location for the Roundabout Meadows trail system is the Mt. Zion Church parking lot. The lot is used by Roundabout Meadows, Mt. Zion Church, and the Mt. Zion Church Cemetery visitors. It has a capacity of about 20 vehicles.

Cooperation between PEC, Jay and Claude Bradshaw (representatives of Mt. Zion Cemetery Association), and NOVA Parks is important for access, parking, and management responsibility.

The primary challenge is directing and moving people from the parking area to the Roundabout Meadows trail(s). To get there, people need to go around the cemetery to the north, to the south, or through the cemetery. The challenges and opportunities for each, as well as a number of other considerations with access are listed below:

CONCERNS AND RECOMMENDATIONS

The Mt. Zion Church parking lot may reach capacity for vehicles entering on busy days. There are ways to expand parking toward Route 50, or to the south into the grassy area. Parking could be made at the farm house and could be connected to Roundabout Meadows' trail system.

If brush and trees are removed along the northern border of the parking lot to expand its capacity, the parking lot will be more exposed from Route 50.

- Increased exposure may inspire people driving by to visit the park
- Increased exposure to Route 50 may deter car break-ins
- Removing trees from around the parking lot decreases the shaded area for cars to park under



Possibilities for new parking lots on the site.

The Civil War interpretive signs behind the split rail fence at the parking lot are difficult to read from the parking lot; the separation is too far.

- One fence post and rail set could be removed
- Move the signs closer to the fence
- Move the signs to a location along the NOVA Park trail.

Vehicles that park in the small parking area directly in front of the Church and Cemetery gate detract from the aesthetic value of the church.

- Consider modifying the small parking area with a walkway lined with vegetation and a kiosk

The only paths that take visitors from the parking lot to Old Carolina Road runs through the cemetery or around the parking lot fence toward the NOVA Park trail.

- We believe the best trail alignment to take people from the parking area to the Carolina Road is around the northern wall of the cemetery, along old Route 50. Clear wayfinding from the parking area will be needed. Along the way, people can be introduced to the importance of the area for transportation (Route 50, Old Carolina Road, Loudoun Branch Railroad, etc.). Visitors will also pass by two of the oldest trees on site, as well as start their journey at the top of the Carolina Road. In doing so, they are afforded the views from the highest point in Roundabout Meadows.
- An alternative alignment takes people along the southern edge of the African American cemetery to the Carolina Road. This route is complicated by topography, the future columbarium, and the African American cemetery, which is insufficiently identified and may encourage people to unknowingly walk through the middle of it. People also miss the positive features of the preferred route, namely the old trees, the top of the Old Carolina Road, and the best views and most scenic spot on Roundabout Meadows property.
- The third alternative is to use the woods trail on NOVA parks that runs south to join the Carolina Road. By using this alternative people miss all the features of the first alignment, as well as the cemetery, and they begin the Carolina Road almost half way down its length. Once people learn the layout of the site they will abandon this route and make a social trail around the cemetery.
- The fourth alternative is to go through the cemeteries with a new gate cut through the wall. We felt this option fails to respect funerals or cemetery visitors as families and others go traipsing through the cemetery.



View looking from east to west, down old Route 50 remnant

MT. ZION CHURCH AND CEMETERY

INFORMATION AND CHALLENGES

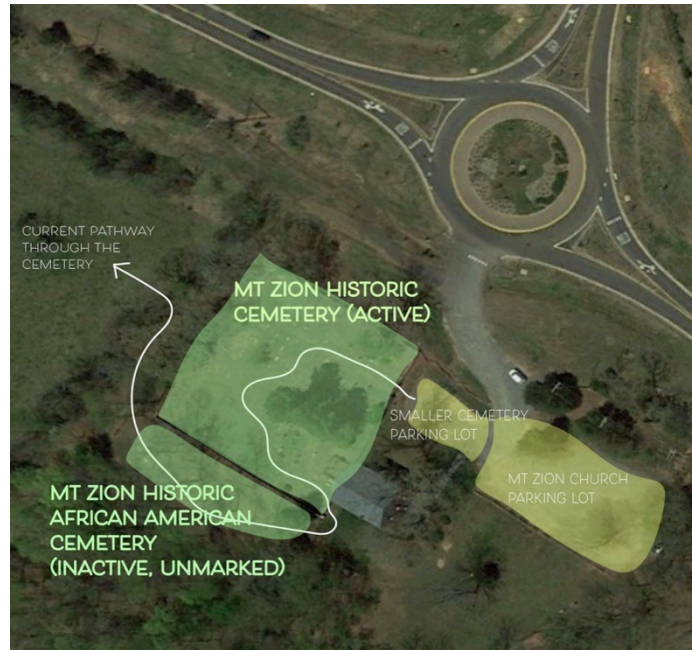
The Mt. Zion Church Cemetery property is roughly 1-acre and is managed by Jay and Claude Bradshaw on behalf of the Cemetery Association. The property boundary begins at the cemetery wall aligned with the Church parking lot, extends 25-feet north of the cemetery wall to Old Route 50, borders roughly 250-feet of Old Carolina Road, and ends along the mowed forest edge beyond the historic African-American cemetery. (This portion of the cemetery is marked by the smaller green polygon on the map.) The southwestern property boundary abuts a larger forested tract currently managed by NOVA Parks. Jay and Claude Bradshaw installed a wood chip trail in 2018 that takes visitors along the southern edge of the African-American cemetery, ultimately connecting the two cemeteries to Old Carolina Road.

Challenges posed by the interface of the cemetery and the PEC trail include: (1) the parking lot size, as noted previously; (2) the boundary between the Historic African American Cemetery and NOVA Parks property does not have a strong separation; visitors may be unaware they are walking among graves when they are outside of the active cemetery walls; (3) the walk to access the existing NOVA Parks trail is unclear and lacks wayfinding signage, kiosk, etc.

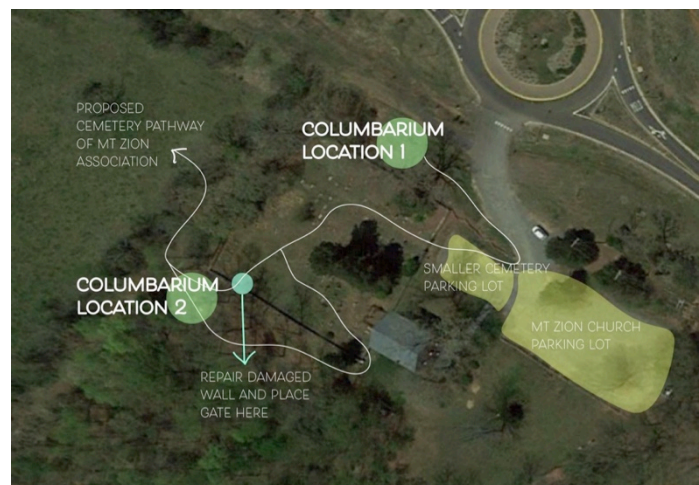
Currently, visitors enter the parking lot, and they may read the Civil War signage (as noted, the fence prevents getting close enough), and they may walk through the cemetery, or through the NOVA Parks trail to the Old Carolina Road. Distinguishing the different properties and experiences is an attempt to be conscientious of the cemetery while providing clear pathways for hikers that to Roundabout Meadows' new trail system.

COLUMBARIUM INSTALLATIONS

Mt Zion Cemetery Association has a plan for the cemetery that includes placing at least one columbarium on the property. This will take up space, and the placement and shape of the columbarium can provide a more sensitive location for people to visit. The location of the columbarium has the potential to affect access from the parking area to Roundabout Meadows.



Mt. Zion church and cemetery parking, cemetery holdings, and current pathways



Potential columbarium locations with proposed pathways and repairs

Jay Bradshaw, from the Mt. Zion Cemetery Association, indicated two potential sites for a columbarium. Location 1 is proposed in an open space that is easily accessible from the parking lot, approximately 100 feet from the roundabout on Route 50. Location 2 is on flat ground at the west end of the African American cemetery. Each location has benefits and drawbacks, but for the purposes of planning access from the parking area to Roundabout Meadows, potential complications of each should be kept in mind.



Segment of the cemetery wall that is damaged.

Roundabout Meadows' property boundaries do not enclose the Mt. Zion Church, the cemeteries, or parking lots (marked by orange circles below). However, as the best entrance into the proposed trails at Roundabout Meadows, as noted previously, the access from parking to trails is an issue that needs to be worked out. The opportunities and constraints at the entrance will ultimately determine how well-used the trails are.

One opportunity at the cemetery is repair of a collapsed section of wall in the southwest corner (columbarium location 2). Rather than repair the wall, a gate could be installed. A gate at this location provides a clear path through and out of the cemetery that leads to the Old Carolina Road and possible Roundabout Meadows trails.

An additional option for the cemetery association to consider is to eliminate the existing stone wall that separates the two cemeteries and build a new wall incorporating the African American cemetery into a single combined cemetery. Such an action could be easily funded.



Proposed layout for one united cemetery

EXISTING MT. ZION CHURCH ENTRANCE



Rendering of existing conditions surrounding the Mt. Zion Church

The Mt Zion Church and Cemetery entrance, as it is presently, is accessible and distinguishes between those parking in the main lot and those parking in the smaller cemetery lot. A panel shares the history of the site and its significance during the Civil War. Overall, the site works for the amount of people that visit the church and cemetery today; however, with the addition of Roundabout Meadows trails and the anticipation of more visitors, it's possible additional capacity will be needed. Nonetheless, wayfinding will be needed to get people from the parking to the trails. The goal is to help begin to brainstorm ways to adapt the entry in response to a new trail system at Roundabout Meadows.

POTENTIAL MT. ZION CHURCH ENTRANCE



Rendering of proposed plan for grounds surrounding Mt. Zion Church, the cemetery, and the entrance to Roundabout Meadows

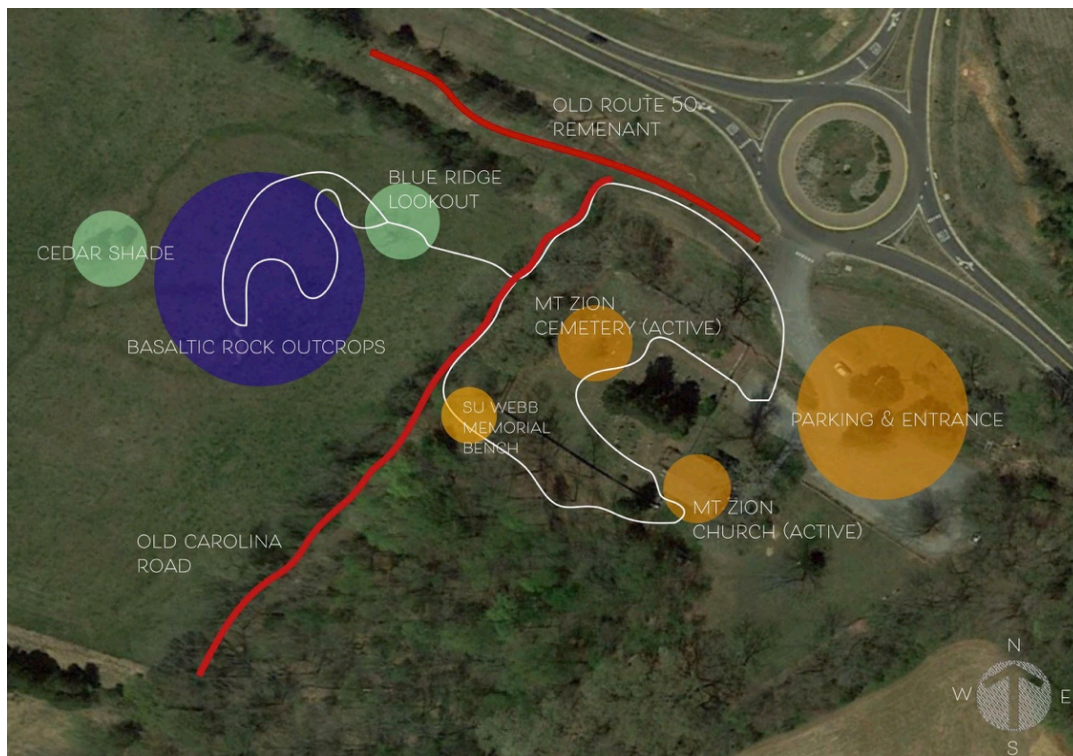
The major differences between the existing and proposed site are as follows: First, the gravel parking lot could be expanded to create more organized parking for visitors. By opening the area around the Civil War signage, it is clearer to visitors where they can begin their hike through the NOVA Parks trail. That trail can be indicated by fine gravel or something low cost.

Second, the entrance into the cemetery could be rearranged to be a more formal, landscaped area that welcomes visitors into the space rather than just those parked directly outside of the gate. This transformation is a bit dramatic as the gravel lot would have to be changed, but by working with local garden clubs, the cemetery entrance could be rehabilitated and made healthier with vegetation. The trail that leads to old Route 50 could be created with gravel and a wooden fence that lines the driveway into the parking lot. This trail will clearly lead visitors and the fence will allow them to safely make way to the beginning of the Roundabout Meadows trails.

The third and most complicated change is the reestablishment of the cemetery wall. As mentioned in an earlier section, a damaged portion of the wall that could either be repaired or removed and replaced by a

gate. From the perspective of the visitor, it is less confusing and more conscientious to walk inside or around a physical barrier that follows the entirety of both cemetery edges. If Roundabout Meadows brings more visitors to the site, it is better to be cautious about the state of the historical aspects of this property rather than allow for visitors to create their own trails.

Many options are possible when considering the entrance to the trails, and our proposed suggestions are from regular visitation to the space. Community input could also garner additional ideas, just as PEC focused on that strategy for the planning of Roundabout Meadows. Inevitably, as more people visit the site, the needs of the site will change and visitors could directly let PEC, NOVA Parks, and Mt Zion Cemetery Association know about anything of concern.



Red line highlights the best entrance into proposed trails

TRAIL PLAN IDENTIFICATION

FOCUSED PORTION OF ROUNDABOUT MEADOWS

The Roundabout Meadows trail is an opportunity to connect PEC's property to the surrounding landscapes. Because of the interpretive value of the site – the special places and scenic spots, two connected trails are suggested for Roundabout Meadows – placed in the eastern 22-acre triangle. While additional mileage (1.5 to 2.0 miles) could be added on the 80 acres of pasture – linking up a number of special places in that section, we omitted the area from a detailed plan since cattle will preclude general public access. Additionally, a mile of trail could be added as a perimeter trail around the community garden section.



Proposed trail plan with orange circles highlighting special places at Roundabout Meadows

TRAIL DESCRIPTIONS

TRAIL A

This trail includes a number of interesting points, including rock outcrops in the upper meadow near Mt. Zion Church. The trail leads to “Mt. Zion Church Basalt” outcrops that surround a large black walnut tree. This area provides the only (albeit small) views of the Blue Ridge at Roundabout Meadows. When moving from rock to rock in the outcrops, visitors should be able to see the next rock on the trail; therefore, the rocks will need to be cleared of invasive species and the grass around them mowed (See Special Management Concerns).

This could prove to be an interesting work of art – bluish purple rocks surrounded by a shorter, darker grass layer that extends into light-colored, taller meadow grass. A trail map could include a section about the trail and the rocks. As they hop to and from pieces of Mt. Zion Church Basalt, visitors can know what history they are stepping on and understand how the rocks formed.



Trail A is highlighted in red

Looking southwest towards the Bull Run Mountains, visitors experience the geologic history of Roundabout Meadows beginning at the worn mountain ranges, leading to the fencerows and red sandstone streambank, and back to the rock outcrops. If the trail system is extended in the future to incorporate portions of Roundabout's pastures, visitors will be exposed to the short-term evolution of the fields, ponds, and wetlands with regard to erosion processes, ecological succession, and seasonal vegetation growth, while also becoming exposed to long-term evolutionary processes and geologic cycles.



View looking southwest towards the Bull Run Mountains from the entrance into Roundabout Meadows

There is concern about having the trail in the floodplain due to wetness. A subtle natural levee exists along the stream that stays mostly dry, however, during wet spells the trail may be muddy. If so, the trail could be hardened in places, but it does not appear wet enough (during our visits in 2018) to need a boardwalk.

Walking from the rock outcrops through the upper meadow, along the Old Carolina Road fence line, and through the small gate is a good path to guide people into the lower wetland. From there, visitors can take a left and walk the trail back to Mt. Zion Church or they can continue south to the red sandstone and the wetland trail that is open seasonally. The more general trail that extends throughout the property connects to this trail at a sand bar. So as plans to create trails throughout the property are devised, that area serves as another special geologic place.



Basaltic rock outcrops in the Walnut Hill/ Blue Ridge Lookout area.

- 1: Large black walnut tree here surrounded by aster. Two small cedars are emerging. The coral berry could be thinned and the tree mowed around. Additional shade trees could be planted. This area offers the nicest views on the property. People will want to hang out here.
- 2: Rock outcrop 1, one larger rock with two smaller rocks around it. The meadow grass could be cleared to put it on display. This goes for all the larger outcrops.
- 3: Rock outcrop 2, there are two larger rocks a few feet from each other.
- 4: This is the second largest rock outcrop with two large rocks but it's surrounded by coral berry that needs to be cleared for people to walk on and over the rocks.
- 5: This is a smaller rock.
- 6: Mostly clear rock outcrop, has one larger rock and two smaller that face the group of cedars in the middle of the meadow.
- 7: Two smaller rocks.
- 8: Two large rocks, could be the end of the path and serve as a vantage point to the rest of the property.



Rock outcrop.



Rock outcrop covered by coral berry.

TRAIL B

Mt. Zion Church and Cemeteries, the Old Carolina Road, and Roundabout Meadows, are rich with history. Interpretive signs at the church provide a sense of place for visitors while the Old Carolina Road and Civil War spark curiosity.

An additional interpretive sign about the Old Carolina Road can lead visitors to the next part of the trail. In the cemetery they'd read headstones of Civil War soldiers and locals. Alternatively, they'd walk around the cemetery wall along old Route 50 past an old white oak, and onto the Old Carolina Road.

Shrubs and native plants could guide visitors and provide a welcoming aesthetic on the walk to the Carolina Road. Larger shrubs and scattered trees near the park entrance could buffer the roundabout traffic.

Once at the Old Carolina Road edge, the experience of walking down a gentle slope and into the forested, worn roadbed is the perfect way to transition from the present to the past. When enclosed by the road's edge, people can't help but look ahead and along the full stretch of the Old Carolina Road. Having the grass and weeds mowed to the lower wetland entrance of Roundabout is a great way to allow visitors to see the extent of the road. Giving a destination at the end of the quiet green tunnel that used to be a major highway provides people with a sense of context and awe when they reach the end and are rewarded with the beautiful views out into the meadow.

Specimen trees line the trail and showcase the property's history. Labeling those trees by their species can educate people as they walk.

Vines, ivy, and any invasive species on the west side of the Old Carolina Road should be removed and managed to maintain views into the meadow. During times when the cattle are in the upper meadow – when perhaps people are not allowed – there is still a way to see them through the tree line of the Old Carolina Road. (We strongly suggest keeping the highest portion of the upper meadow for people exclusively. This is the most scenic spot in Roundabout Meadows.

Another point of interest found along the trail is red sedimentary rock (sandstone, siltstone, or shale) forming the bank of Howsers Branch. Seen best when green vegetation is lacking, this special place is a notable component of Roundabout's geological



Trail B is highlighted in red



View looking south from the entrance into the Old Carolina Road.

history and should be represented on the trail map. People can know, for example, that they live, walk, and drive on the buildup of millions of years of grit tumbling into the cracks between colliding mountains mixed with a mantle of volcanic rock.

The trail that follows Howsers Branch arriving at the red sandstone location, should be rotated and potentially closed for parts of the year in order to encourage natural growth cycles of the floodplain vegetation. If annual mowing of the floodplain and wetland continues, the herbaceous vegetation growing in this area will remain low in the spring when the red sandstone is visible, providing access to visitors. Once green-up happens the sandstone is somewhat obscured. Much of this vegetation is exotic, and it is possible the red rocks can be kept visible through management.

In the summer of 2018, the farthest mowed point of the Old Carolina Road on Roundabout property connects with NOVA Parks trail turning to the east (back to parking area). By winter 2018, PEC made progress on clearing brush and mowing the OCR beyond the NOVA Parks Trail turnoff. The OCR is now cleared for easy walking down to the barbwire fence where the woodland swamp flows out into the field (and subsequently into the cedar ditch fencerow). With a stacked loop providing a variety of trail lengths, people can have different experiences while on their hikes.

After keeping many of the saplings and removing weeds and unwanted plants, visitors will find that the farther they travel down the Old Carolina Road the more enclosed it becomes, almost as if the forest is overtaking the trail. This can help amplify the experience of one stepping out and seeing the entire lower wetland after being crowded by trees up until that point. It's a very freeing moment and each layer of the meadow is present from that final vantage point. A small seating area could be placed at the high point of that lookout just under a grouping of shade trees (See "Wetland Vista" location in Trail Plan Identification and Scenic Spots sections). From that point, visitors can go the way that they came and experience a trail that moves from the pre- settlement past – enclosed by trees – to the present-day open Piedmont.

OLD CAROLINA ROAD

By demarcating the specific areas of concern and interest along the Old Carolina Road, the map below can guide land management towards the entry to Roundabout Meadows. The letters correspond to the locations of the notes listed below the map.



Specific areas of concern and interest

A: This is the parking lot of Mt. Zion Church and Cemetery that currently is enclosed with a few wooden fences and marked with Civil War signage for passersby.

B: Specimen tree, large white oak, 2-3 feet in diameter, likely 225-250 years old.

C: Old Route 50: It's the best entry to the beginning of the historical trail.

D: This beginning to the Old Carolina Road slopes down and creates a natural transition from the present to the past as visitors step into history.

E: Dead ash tree (remove).

F: Two white oaks.

G: This natural break that leads into the upper meadow can serve as the entry into Roundabout, specifically along the A trail.

H: Specimen tree, possibly the oldest white oak on the (combined) property, 3-4 feet in diameter and near 300 years. Delicately clear saplings from around the base of the tree.

I: White oak, 2 feet in diameter.

J: The right side of the road here has pawpaw and cedar trees; the left has a few small white oaks. Poison ivy could be removed (along trails).

K: Cedar saplings and grapevines can be thinned to open views into meadows.



Entrance from Old Carolina Road into Roundabout Meadows

L: Great lookout to the meadows from Su Webb memorial bench. Thin fencerow as needed. (Consider also removing the old wire fence separating the Old Carolina Road from the meadows.)

M: Mature sycamore with excellent exfoliating bark.

N: White oak that could be cleared around.

O: At least two dead trees here, should be assessed and possibly removed. A balance should be sought between keeping these important wildlife trees, against safety concerns along the trail. Some trees lean toward the trail, others lean away.

P: Three larger red oaks with cedars surrounding them. Consider thinning cedars.

Q: Some dead cedars that could be cleared to create a seating space. Seating could be placed in this area.

R: Small honey locust.

S: Assess dead tree; coralberry and vines in this area.

T: Large red oak surrounded by saplings that could be thinned to allow visitors access to the tree.

U: Small wet clearing to the left of the trail where water is piped.

V: This is the NOVA trail connection.

W: Brush pile that could be cleared.

X: Thick coralberry and vines, thicker tree understory is a nice way to create a sense of enclosure before the trail opens up to the lower meadow.

Y: First break to the right of the road that could be thinned for visitors to enter the meadow.

Z: Small stream. This is the best entrance into the lower meadow and can be cleared just past the barbed wire. Exact property boundary in the area is unclear. Because of the great natural opening just south of the stream here, it would be ideal to place a small bridge across the stream to guide visitors to the lower meadow trails. Barbed wire fence could be removed for safety and aesthetics.

ENTIRE ROUNDABOUT MEADOWS PROPERTY

As the Roundabout Meadows site develops and recreational program is created, there is an opportunity to develop a trails system that takes visitors through the entire property, pausing at each landscape place of interest. The ultimate goal of this trail system is to connect Gilberts Corner Regional Park, Mt. Zion Church and Cemetery, Gilberts Farm, and the special landscape of Roundabout Meadows in a way that displays the value of the Northern Virginia Piedmont regional history, geology, and natural habitat.



Potential future trails and corresponding site highlights

INTERPRETIVE PLANNING

With several special places documented and located on the ground, and the context of those places behind us, this section briefly outlines those features that can best be used for interpretation, and how the interpretation might be done.

INTERPRETIVE INVENTORY

The following features of Roundabout Meadows could be included in PEC's interpretation efforts. Most of these have been described elsewhere in this document, however, some are new ideas that can be combined with identified landscape features. Some have been only mentioned in this document but are known to be goals for PEC (education about pasture management, for example).

NATURE

Geology: Mt. Zion Church basalt, the Midland Formation, and the story of geological process

Bull Run Mountains: Geologic formation; core forest blocks; Blue Ridge Mountains

Old oaks: the pre-settlement landscape, trees as habitat, trees as witnesses to history

Eastern red cedar: the process of succession; cedar is typically the first tree to reclaim old pastures and cattle and deer don't eat them

Grassland plants: common native plants of Piedmont grasslands

Landscape mosaic: fencerows, scattered trees, forests, and open areas create a diverse mosaic of landscape features as habitat for wildlife

HISTORY

Old Carolina Road: Gilberts Corner area as historical transportation hub (also Rt 50); begins with Native Americans and moves up through the construction of Roundabouts

Mt Zion Church and cemetery: history of the sites; African American cemetery, etc.

Civil War: Mosby, the Union, the church, etc.

The Gilbert family: Who were they? When did they settle? Where?

ENVIRONMENTAL STEWARDSHIP

Howyers Branch: the importance of water, runoff, and water quality; watersheds, etc.

Pasture Management: Soil, erosion, plant management, water quality, etc.

History of Agriculture at Gilberts Corner: How has agriculture – in the local area and Piedmont more broadly – changed, improved, etc., over time? What improvements are still needed?

Native warm season grassland restoration: Why people are installing these in the Piedmont

Tree planting: Why trees are important in riparian areas and uplands for wildlife, people, and climate. Also, the importance of oaks in the Piedmont. Plant an oak!

INTERPRETIVE METHODS

The abovementioned themes can be shared with visitors in a variety of ways. Information can be placed at a central kiosk at the parking area. Additional signs (vandal-proof) can be placed elsewhere on sight. Some groups use a brochure with numbered stations along the trail. However, these brochures need to be constantly replaced (they are often empty at places where they are used). Some information can pre-shared through PEC's website, or some other digital interpretive trail through QR codes, etc.

Strategically placing signs in the southern meadow of the Roundabout property is a great way to educate visitors and stress the importance of proper wetland treatment and protection. As a core value of PEC, water quality improvement can also be explained through signage in the same wetland areas. Place them at destinations that mark special places of the site to have visitors pause and take in the site. The blue circles in the map above demarcate the special places and locations for signage resting spots along the trails.

Signs can also inform people what is happening seasonally on the site. While it can be limiting to share loads of natural history information of a flower, for example, that is in bloom for only a week of the year. Instead, a suite of easily transitioned seasonally appropriate signs can display the best of what is happening at Roundabout Meadows year-round.



Map of places to add informative signage (marked with blue circles).

Below are two examples of possible sign templates made by co-author of this report, Amanda Hayton:

Native Plant Sign Examples

ASTER PUNICEUS

SWAMP ASTER

PERENNIAL WILDFLOWER

ZONES 2-9

FULL SUN TO PART SUN

GROWS 4-8 FEET IN HEIGHT, 2-3 FEET IN WIDTH

BLUE, PURPLE, OR WHITE FLOWERS

AUGUST - NOVEMBER BLOOMS

WETLAND PLANT



SCIRPUS VALIDUS

SOFTSTEM BULRUSH

PERENNIAL

ZONES 4-9

FULL SUN

GROWS 6-10 FEET IN HEIGHT, 3-6 FEET IN WIDTH

REDDISH BROWN FLOWERS

JUNE - SEPTEMBER BLOOMS

WETLAND PLANT



SPRING:

NO SEEDS OR BERRIES PRODUCED
GROWS CONTINUOUSLY FROM SPRING TO FALL

SUMMER:

FLOWERS ATTRACT BUTTERFLIES AND BEES

FALL / WINTER:

SEEDS TO BE GATHERED BY OCTOBER
FALL LEAF COLOR
DECIDUOUS, LOSES LEAVES AT START OF COLD TEMPERATURES

SPRING:

STEMS PROVIDE COVER FROM WATER AND WIND FOR OTHER
PLANTS
NESTING COVER FOR WATER BIRDS

SUMMER:

BIRDS EAT THE SEEDHEADS AND SPREAD THE SEEDS

FALL / WINTER:

NO FALL COLOR

SPECIAL MANAGEMENT CONCERNS

EROSION AND WATER QUALITY

Erosion is predominantly caused by urbanization and poor agricultural practices. Transforming natural ecosystems into developed urban areas brings houses, schools, malls, and roads which increases impervious surfaces and adds water to natural drainage networks. Some of the water is directed to treatment plants, while the remainder flows into non-developed areas, major water sources, and vegetated areas, such as Roundabout Meadows. The Roundabout Meadows project seeks to mitigate erosion, improve water quality, and recharge groundwater. Though cattle have been excluded from most areas they once had access to within Roundabout Meadows, there are still areas of active erosion both on the 22-acre triangle and the 80 acres of pasture more broadly.

On the 22-acre triangle (the main scope of this document) erosion occurs in the cedar lined ‘fencerow’ that conceals a drainage ditch. This ditch drains a wooded wetland on NOVA parks property. It would require considerable investment and disturbance to mitigate this ditch and slow the water.

On the 80 acres of pasture, cattle are concentrating during warm weather under insufficient amounts of shade afforded only by short stature cedar fencerows. The soil under these fencerows is eroding in a broad area into the fenced enclosure areas. To mitigate this issue PEC should consider planting at least one fast growing shade tree per 3 to 5 acres to afford cattle shade in the future. This is a long-term process, but the Piedmont region is losing open grown pasture trees as few are replaced. These scattered tree environments are being widely recognized as endangered ecosystems globally. They can add significant biodiversity attributes to a pasture, while simultaneously providing positive benefits for cattle and the land as erosion is reduced.

At Roundabout elevated levels of *E. coli* were found in water tested along Howsers Branch by PEC fellows in 2016. A site is considered impaired when *E. coli* exceeds 235 CFU/100ml. At the three test sites established on Howsers Branch, *E. coli* was measured, from the sites north to south, at 1,950, 5,000, 0 CFU/100ml, respectively. PEC’s efforts towards water cleansing, soil and water conservation, and quality should be showcased along the trails to show the interactions between hydrologic cycles and soil health in the Piedmont. These efforts could also be included in a trail map that visitors can read while walking.



Overlay of sites of concern with opportunities for programmatic elements and restoration

- 1: Planned community garden space
- 2: Gilbert Farmhouse
- 3: Shade tree opportunity if cattle are to stay in that portion of the property
- 4: Blue Ridge, "Walnut Hill" lookout
- 5: Wetland tree reforestation opportunity along creek bank
- 6: Small rock outcrop area with nice tree and lookout
- 7: Aster meadow
- 8: Red winged blackbird pond
- 9: Moderate erosion concern
- 10: Erosion concern beneath cedar row
- 11: Fence to protect wet area could be extended farther south to protect more from cattle
- 12: Protect pond life and health
- 13: Cattle crossing is eroded and cattle have direct access to stream
- 14: Lower wetland reforestation
- 15,16: Reforestation opportunities

FAUNA

Grazing

PEC's 2017 Roundabout Meadows Management Plan found that agriculture practices, including cattle overgrazing and stream access, were "negatively affecting the property's water resources." The resource assessment concluded with "the water quality is degraded" and "pastures are tired and worn." With assistance from Loudoun SWCD, PEC erected 2,000 linear feet of fencing to exclude cattle from Howsers Branch (and tributaries) and install livestock waterers.

Positioned on the edge of rural and urban areas, Roundabout Meadows seemed best suited to demonstrate innovative and emerging forms of agriculture that acknowledge and respond to contemporary challenges and situations. Roundabout Meadows is best considered a peri-urban area, a term that acknowledges new hybrid forms of settlements that have both rural and urban characteristics. Roundabout Meadows has the exciting opportunity to introduce models of agriculture particularly suited for these hybrid environments.

Instead of emulating rural agriculture on a smaller scale, Roundabout Meadows could consider innovative agricultural regimes better suited to their site's peri-urban identity. This will help visitors consider how natural areas and agriculture fit into their urban environs.

Alternative Grazing Strategies

Solar Shepherding

This refers to the growing practice of co-locating sheep herds and solar panel arrays. The arrangement is synergistic; landowners gain revenue from the solar company, the sheep get healthy forage, and the solar panel array receives needed vegetation management. PEC could consider leasing part of their land to a solar company (with lease payment potential of \$1,000/acre). The land could double as pasture sheep and support clean energy initiatives and provide a fascinating new model of agriculture. See: Sun Raised Farms.

Multi-Species Rotational Grazing

PEC could consider altering their grazing regime to include a variety of species. Using a grazing regime of cows, sheep, goats and chickens could help improve pasture biodiversity and achieve restoration goals. Adding poultry into the mix mimics relationships found in nature where birds follow ruminants and act as their sanitation crew. Introducing pastured poultry could tie in with community farm efforts and create a bridge between ecological restoration and farming. Goats and sheep may also be used to manage overgrown areas and invasive species. We realize this may be beyond PEC's scope and interest, and nonetheless, a more detailed forage assessment could help balance herd size with available forage to meet pasture restoration goals.

White-Tailed Deer

The deer population of Roundabout Meadows and neighboring properties is abundant, as it is throughout northern Virginia. Browsing lines are prevalent and antler damage is evident on saplings. Permitted deer hunting would benefit the plant community at Roundabout, and also serve the local human community with wild food. A hunting management plan will be needed to determine the goals and implementation. Two deer stands are currently located near the proposed trails: one near the southern portion of Howsers Branch within the riparian zone and one along Old Carolina Road. It may in PEC's best interest to move these deer stands to areas visitors will not access and cannot be seen from the trail system.

Pollinator and Bird Habitat

The only known pollinator assessment and recommendations were conducted in 2016 by PEC fellows Mary Collins and Victor Lau under the mentorship of Celia Vuocolo. The pollinator assessments included setting bee traps, taking butterfly field observations, and a plant survey. The conclusion of this assessment reads “overall, the plant and pollinator diversity are that of a distressed system (west field higher distress than east field). Therefore, restoration efforts could benefit the Gilberts Corner property greatly.”

In 2016, Virginia Working Landscapes (VWL) conducted a survey of breeding birds on the Gilbert’s Corner site. They sampled breeding birds during the nesting season from May to July. The survey was not exhaustive and likely excludes some species that occur on the site. The survey found 38 species of birds, 11 of which are species of regional or continental concern, and 11 of which are VWL grassland or shrubland target species. An interpretive sign on the edge of the meadow could introduce people to seasonal grassland birds.

Enriching Pollinator and Bird Species Populations

Grassland Restoration

PEC fellows, Mary Collins and Victor Lau, suggest the restoration of the eastern two grasslands of Roundabout Meadows in their Assessment and Recommendations of Pollinators at Gilberts Corner. After surveying these two fields from the spring to winter of 2018, it appeared the cattle grazing is impacting the health and diversity of the northeastern-most field. In comparison, the upland portion of the southeastern, triangle shaped field has abundant diverse vegetation, dominant warm-season grass cover, and shrub/woody material structure. Prescribed burning of these fields would aid in natural growth of native forbs within the fire-adapted grasses. After a spring burn forb plugs can be sewn in the grasslands to increase angiosperm diversity, while giving young plants a chance to compete with the other vegetation. A complete restoration, or removal of current vegetation and sowing of desired species from seed, of either of the grasslands would be unnecessary because of the lack of invasive weed competition and the abundance of warm and cool season grasses. However, both of the proposed restoration fields could benefit from additional diversity of pollinator plants.

Bird Boxes

A system of bird boxes can be installed around the property to provide shelter for cavity nesting birds. Amy Johnson, Director of VWL, is a great resource for recommendations on types of bird boxes and the locations they should be installed.

FLORA

Bottomland planting

One of the most perplexing issues restricting PEC from achieving its management objectives, is FEMA’s prohibition of planting trees or shrubs within the floodway or floodplain in Loudoun County. Over time, natural regeneration will occur within these areas if left undisturbed. However, the lack of woody vegetation along the riparian zones of Howsers Branch and its tributaries leave them vulnerable to erosion and allow stream water to be unnecessarily warmed. The intensity of erosion can be seen along the banks of Howsers Branch. Hydric shrubs and trees can slow water flow during heavy precipitation events.

A potential solution to FEMA and Loudoun County’s planting restriction is to place tree tubes around naturally regenerating trees and shrubs. The tubes will protect from deer and rodents and encourage rapid growth. Relying solely on natural regeneration to repopulate the bottomland, however, will sacrifice the

diversity that is needed. Sycamore and pin oak are abundant in most regional bottomlands, whereas swamp white oak and buttonbush (good candidates for planting) are increasingly rare.

Exotic and Invasive Species Management

Based on summer and winter 2018 observations, exotic invasive species are a minor component of Roundabout Meadows' woodland and grasslands. However, they are abundant in some fencerows. Contractors will be the most efficient method to decreasing invasive species presence. In most places, a 95% reduction can be achieved in three years. Annual treatments after year three will be required to prevent re-colonization. Invasive species present at Roundabout include multi-flora rose, Japanese honeysuckle, garlic mustard, sweet cherry, thistle spp., autumn olive, wineberry, among others.

Native Tree And Shrub Planting/Removal

Cemetery to Route 50

Roundabout Meadows provides an opportunity for visitors to escape the urban landscape and enjoy a walk in the natural environment. As such, limiting exposure to vehicular noise and sightlines to Route 50 near the walking trails and quiet areas is a commendable goal. At the same time, it is necessary to maintain Route 50 travelers' visibility into the park, as noted by the PEC in the 2017 presentation "LTA Rally Roundabout Meadows Management." Strategic planting of trees and shrubs between the church entrance, northern cemetery wall, and old Route 50 would help separate the visitor use areas from Route 50. Whereas sightlines into the pasture (cattle-dominated) areas of Roundabout Meadows can be maintained.

Shade Trees

As noted above, clusters of rapidly growing and wide-spreading trees should be planted within the pastures. Adding areas for the cattle to cool off in the summer can decrease erosion potential around the other shaded areas that are currently overused. Not only do these trees help stabilize the soil and reduce soil erosion, they also provide habitat for other mammals and birds. A few rapid growing trees to consider are white pine (*Pinus strobus*), sweetgum (*Liquidambar styraciflua*), hackberry (*Celtis occidentalis*), tulip tree/yellow poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), and sugar maple (*Acer saccharum*).

Shrub Islands

Dense clusters of native, low-growing, and flowering/fruiting shrubs should be planted within grassland areas to provide nesting, feeding, and cover habitat for birds and pollinators. Small mammals also use these islands as protection against predators while moving across the grassland landscape. Species to consider for shrub islands include: *Amelanchier laevis*; *Amorpha fruticosa*; *Ilex* spp.; *Sambucus* spp.; *Vaccinium corymbosum*; and *Viburnum* spp.

Removal of Snags and Intruding Trees Along OCR

Realizing the high value of snags to wildlife, each tree should be assessed individually for its wildlife value, and threat potential along the trail. A number of dead or dying ash trees should be felled in the near term due to high mortality caused by the Emerald Ash Borer. See recommendations in the Carolina Road section for locations, and for guidelines on thinning and opening views. Work could be done by PEC staff, contractors, or volunteers.

FINAL THOUGHTS

Roundabout Meadows has the potential to bring people to the Piedmont. It also has potential to bring the Piedmont to the people. Lying on the suburban frontier, squarely between 4 million people of the Washington DC area to the east, and the Piedmont's bucolic rolling meadows and woodlands to the west, the property establishes an abrupt transition between the two landscapes. With additional efforts, that abrupt edge may persist into the future to counter the rapidly spreading urbanization of Loudoun County.

To share this transitional landscape, the primary efforts for this project were to identify the foundational features of the 22-acre Roundabout 'triangle', place these in a narrative context, and link them together with a thoughtful circulation plan. Secondary efforts were to note the potential challenges and opportunities in carrying out the goal of sharing the best of the Piedmont through the available features at Roundabout Meadows.

The primary challenge in the application of these plans will be guiding the visitor to the Carolina Road, and thus the Roundabout Meadows property. The current situation (parking lot, church, and cemetery) lacks wayfinding and has a number of complicating factors as outlined in this document. Nonetheless, once this small issue is resolved, the wonders and beauty of the property's meadows, ephemeral insects, birds, basalt, water features, and so much more can be successfully showcased as iconic landscape features for the community.

REFERENCES AND RESOURCES

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Mt. Zion Church and Cemetery History summaries provided by Tracy Gillespie Roundabout Meadows Maps, Research, etc. ("For Intern" shared folder) provided by PEC