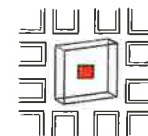


UTILIZATION STUDY FOR VETERAN'S MOUNTAIN

DADE COUNTY, GEORGIA

A PLANNING REPORT | 09.24.2019



FARMER | MORGAN

PLANNING • DESIGN • CONSTRUCTION

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[ACKNOWLEDGMENTS]

Utilization Study for Veteran's Mountain

The Utilization Study for Veteran's Mountain has been prepared by Farmer | Morgan, L.L.C. This Utilization Study is intended to serve as a guide for future development of Veteran's Mountain. The property is located at the intersection of three states: Alabama, Georgia, and Tennessee. Geologically it is situated at a point where the Cumberland Plateau transitions into the Ridge and Valley system, enriching the property geologically and ecologically. After understanding the mountain holistically, development scenarios were created to examine site use and function. Being mindful of the limits of the property's conservation easement, the study explores uses that uphold the principles of the easement and furthers the desires of the conservation easement grantee, a veteran.

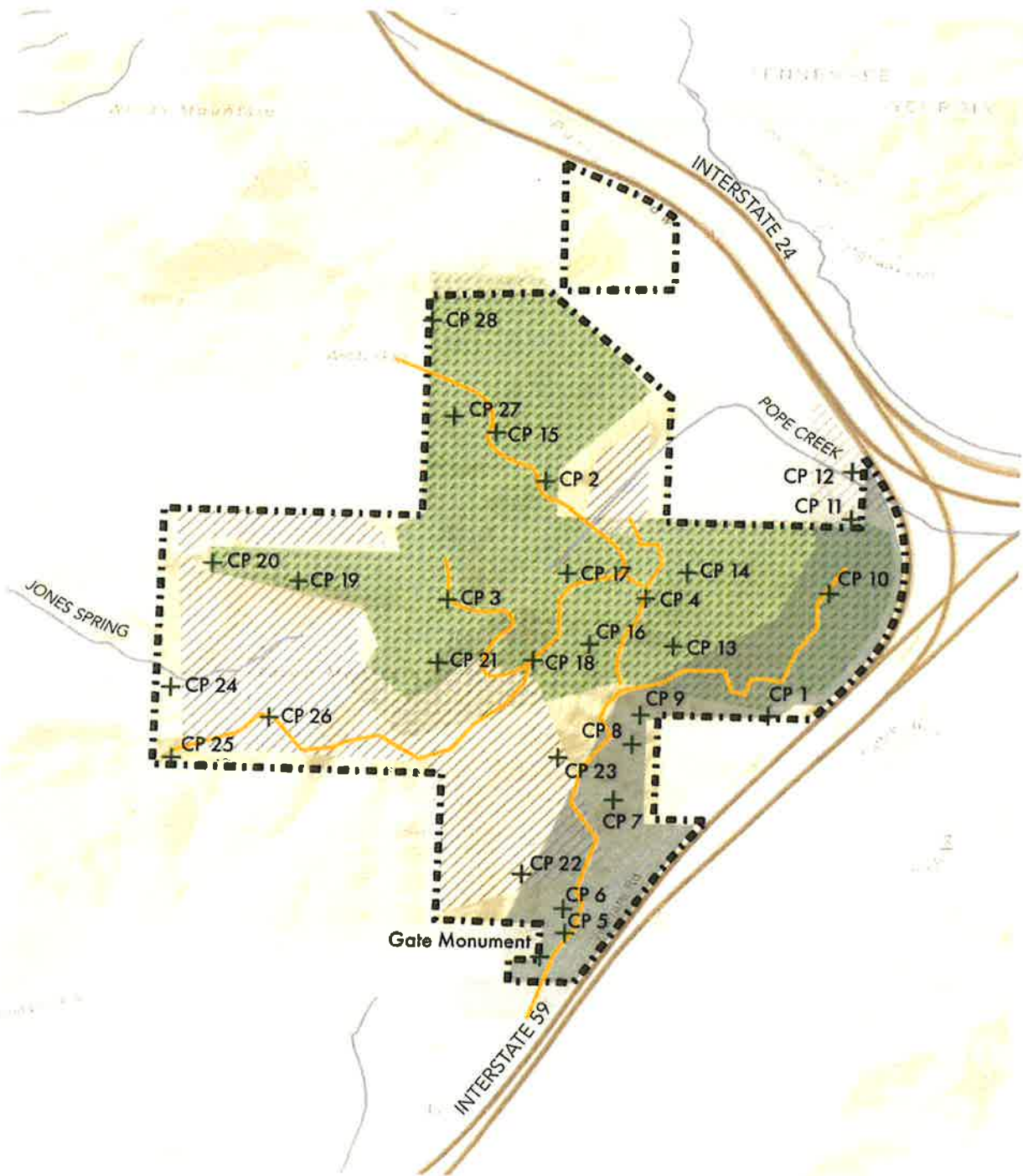
Farmer | Morgan, L.L.C. Planning, Design & Construction

Ben Farmer - Principal, Managing Partner
Will Hargrove - Landscape Architect
Jaspuneet Kaaur - Planner

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[INTRODUCTION]

Utilization Study for Veteran's Mountain

INTRODUCTION

Utilization Study for Veteran's Mountain

INTRODUCTION

Veteran's Mountain (Tatum Mountain) is located in the northeast corner of Dade County, Georgia where large parts of the mountain are preserved under a conservation easement. Farmer | Morgan was contracted to evaluate and analyze suitable uses for the property. The utilization study and accompanying analysis evaluates the existing conditions, as well as future economic development opportunities within the existing easement, and as if the easement requirements were lifted or adjusted. The utilization study is intended to show areas with potential for future development and evaluate the potential for economic return and losses against the current land use plan for the property. Farmer | Morgan integrated the findings of the Baseline Documentation Report (BDR) completed by Georgia Land Trust in 2005, into the Utilization Study such that it embraces the unique qualities of the site while providing opportunities for responsible future development.

The planning team explored the natural, scenic, aesthetic and developable features of the property within and outside the easement limits. Georgia Property Viewer's Online Maps suggest that there are two lots under the grantee's name. According to the property viewer, there is a small lot that does not fall under the conservation easement that is located to north of the main property being discussed in this report. We suggest further investigation of the smaller lot to figure out the most responsible integration of the two types of properties. Meanwhile for this study our focus has been to establish best possible development scenario for these properties while still being sensitive to the principles of the conservation easement.

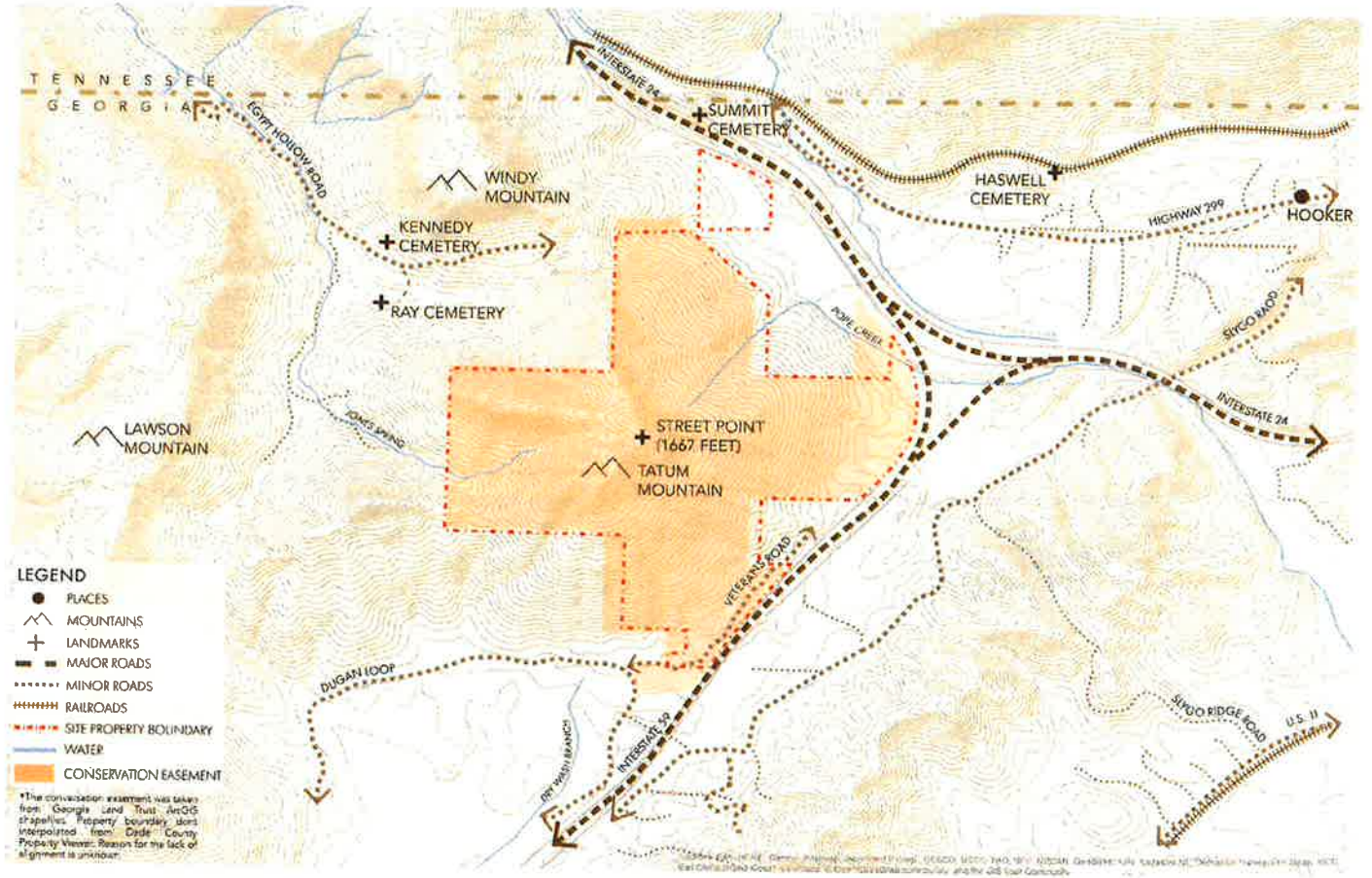


Photo bottom:
Property Map
(Jaspuneet Kaaur, 2019)



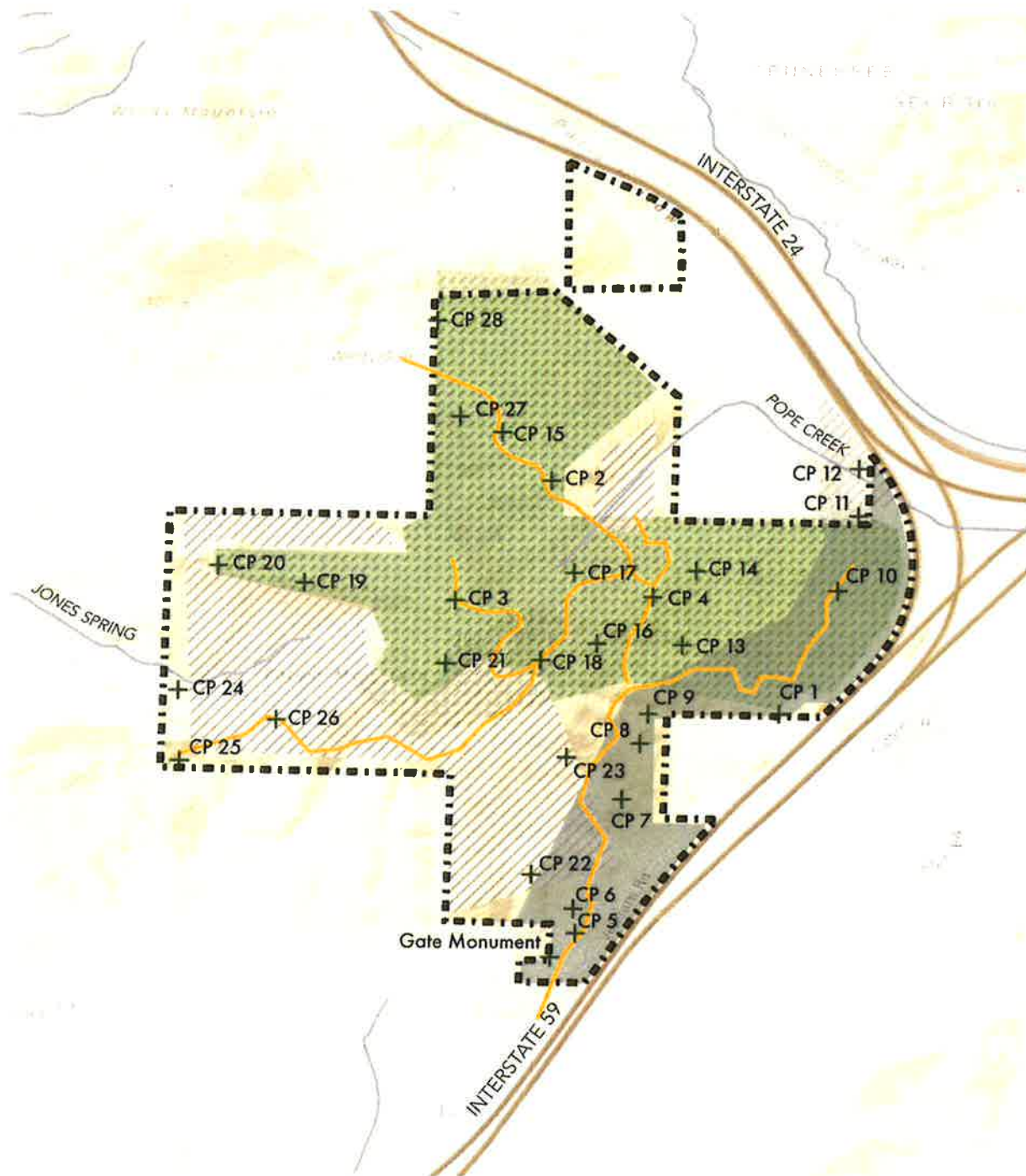
THE TEAM

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Photo:
Site Photo
(Jaspuneet Kaaur, 2019)



[EXISTING CONDITIONS]
Utilization Study for Veteran's Mountain

[B]

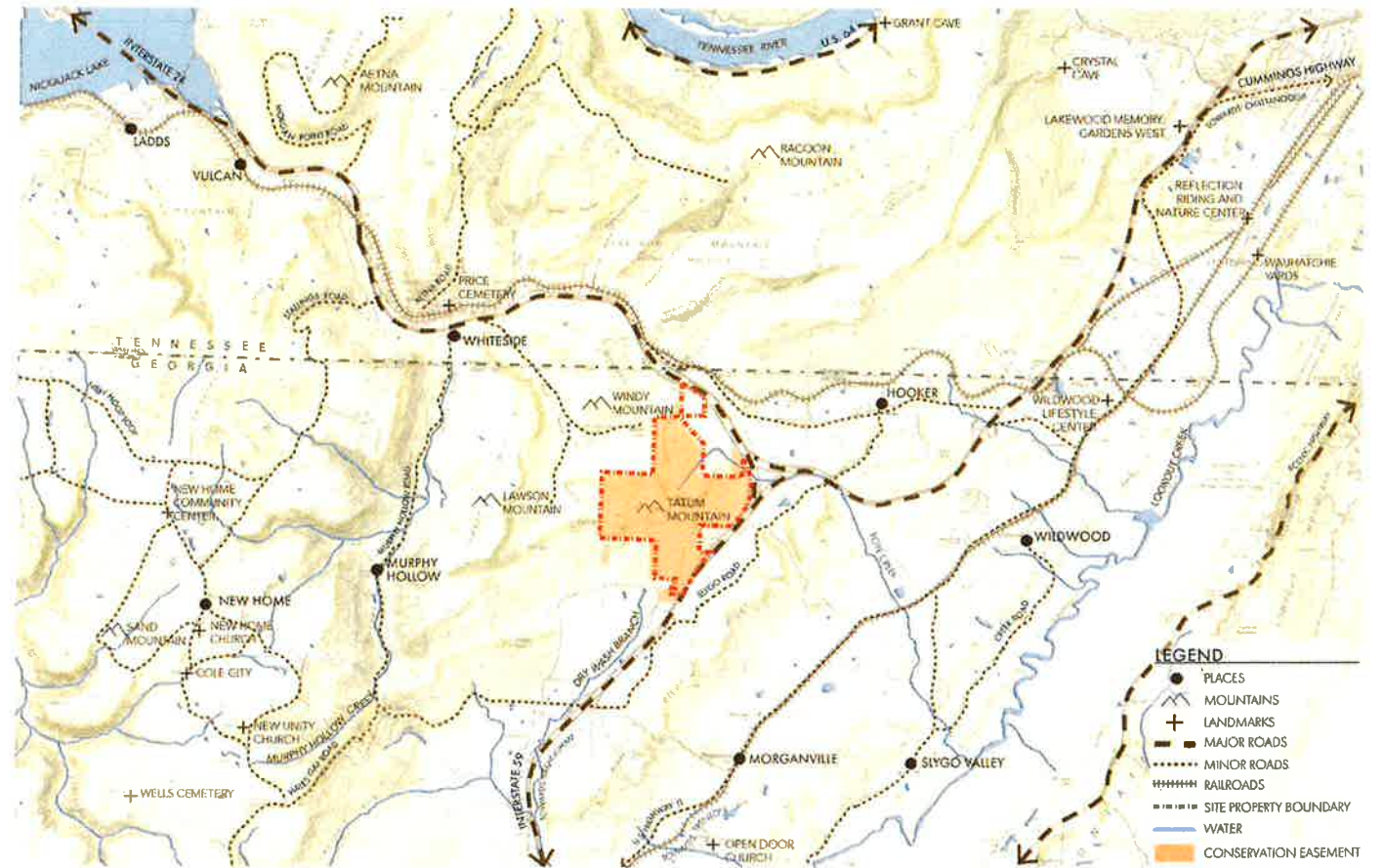
EXISTING CONDITIONS

Background Information

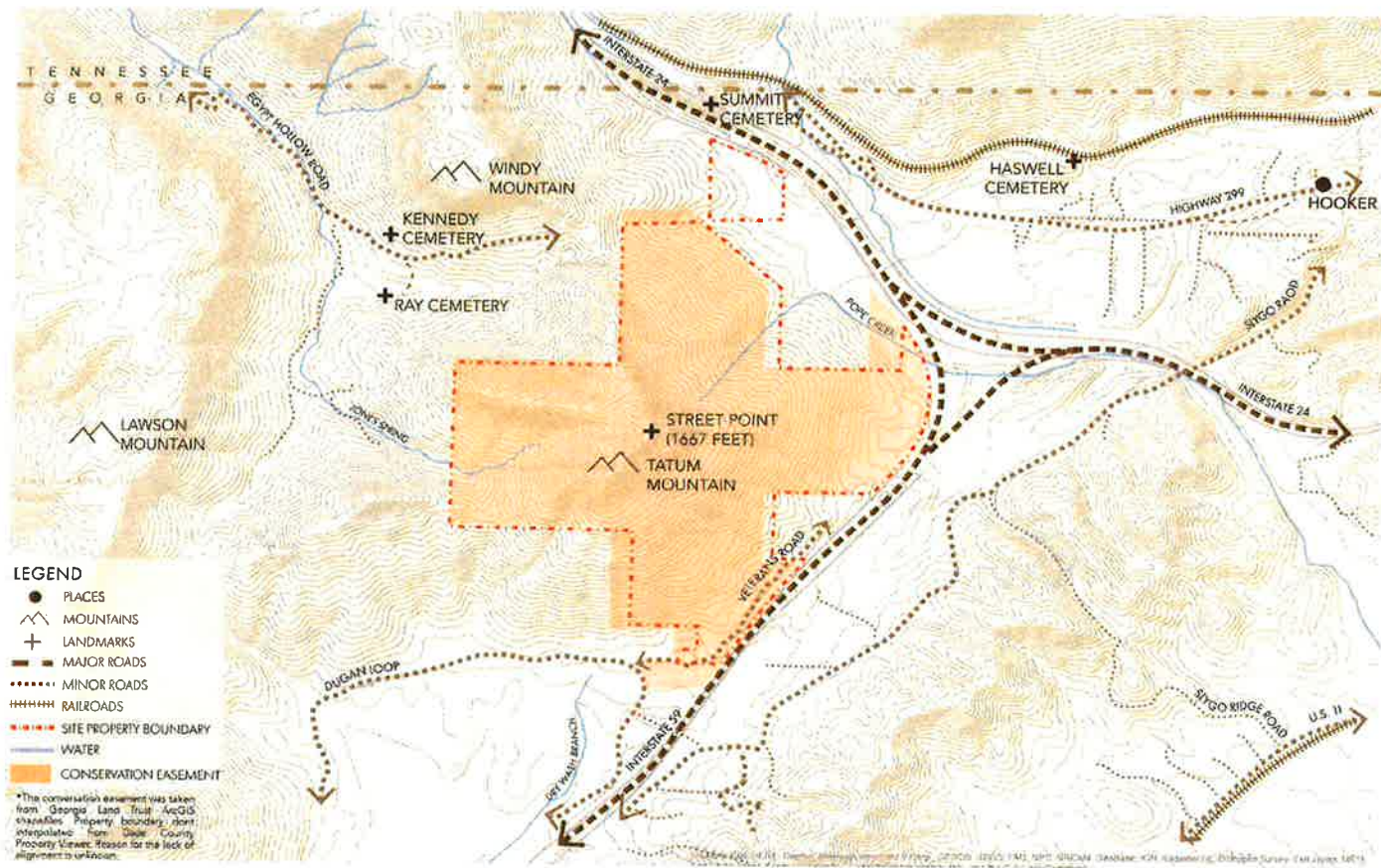
LOCATION

The site is located northeast of the City of Trenton in Dade County, Georgia at the intersection created by Interstate 24 and Interstate 59 / Highway 299. The road network connects the site to the neighboring counties of Walker in Georgia, Marion and Hamilton in Tennessee, and Dekalb in Alabama.

Dade County is mountainous and lies within and at the edge of the Cumberland Plateau, but much of the terrain resembles that of the valley and ridge ecoregion. The central part of the county is covered by Lookout Valley and creates a natural division between Sand Mountain to the west and Lookout Mountain to the east.



Map:
Location Map
(Jaspuneet Kaaur, 2019)



TRANSPORTATION ACCESS

The project site sits at the intersection of Interstate 24 and Interstate 59 and is very well connected to the neighboring states of Tennessee and Alabama. Major areas of interest near the site include City of Trenton with a 10 minute driving distance to downtown Trenton. Raccoon Mountain Caverns and Lookout Mountain trail system in Georgia are within a 15 minute driving distance from the site. Cloudland Canyon State Park in Georgia, Downtown Chattanooga, and Reflection Riding Arboretum and Nature Center in Tennessee are within a 20 minutes driving distance from Veteran’s Mountain. Rules and regulations for development of the property are either controlled by the City of Trenton or Georgia state law - further clarification on this is provided in the Utilities section (see page 16-17).

Within the property boundary, a network of dirt roads makes the majority of the site accessible by automobile. According to the easement report most of these roads were well engineered with water bars, culverts, and ditches in place. The entrances are gated with heavy locked gates, and the property boundary is marked with iron pipe/pin, wooden fenceposts or stacked rocks.

Map:
Transportation Map
(Jaspuneet Kaaur, 2019)

EXISTING CONDITIONS

Ecoregions

Legend

-  Plateau Escarpment
-  Southern Limestone/ Dolomite Valleys and Low Rolling Hills

ECOREGIONS

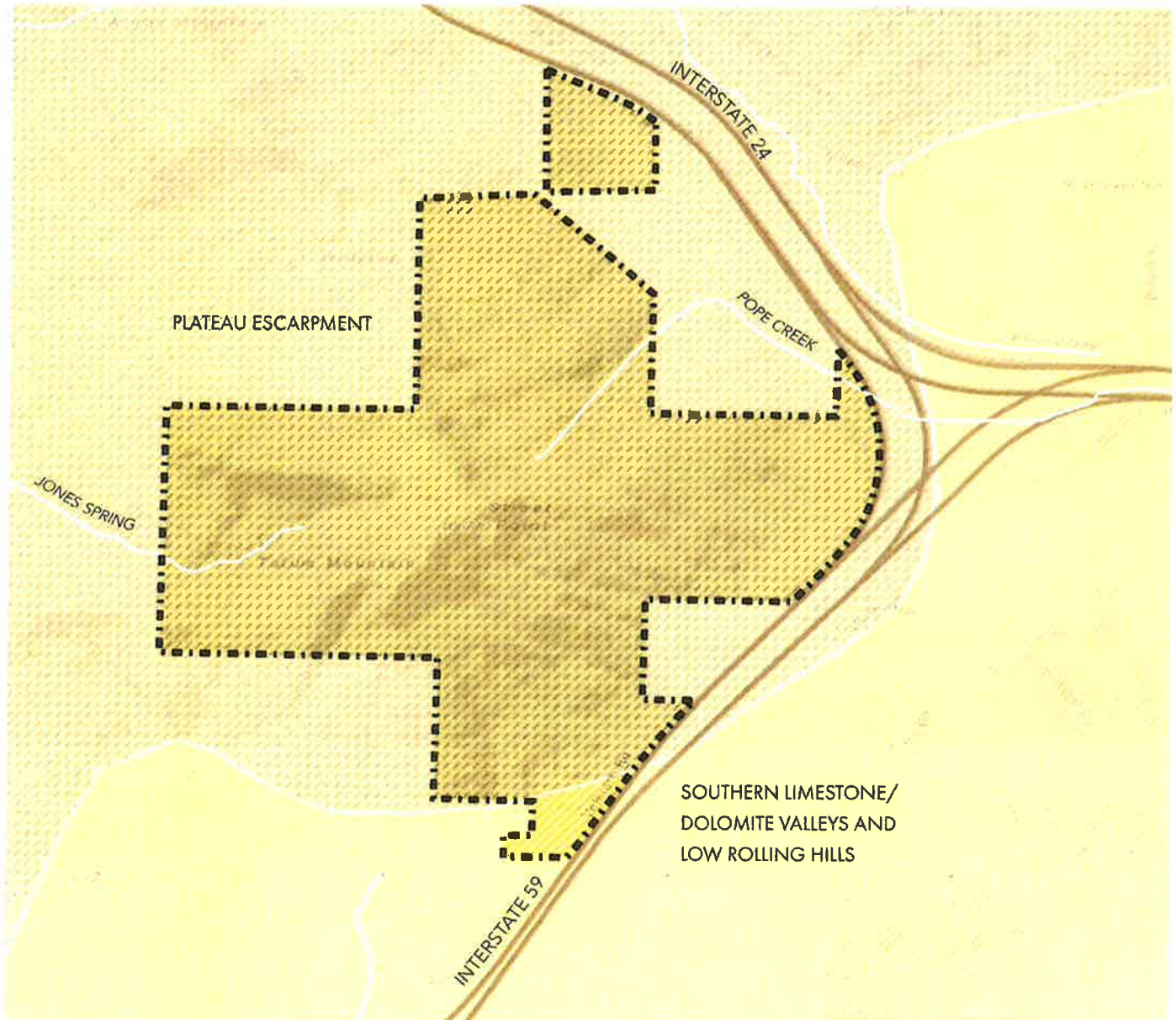
Areas where composition of biotic and abiotic phenomena is similar can be denoted as one ecoregion. In other words, similar ecosystems where quality and quantity of environmental factors are alike can form one type of ecoregion. Within the property boundary, two types of ecoregions can be found: the Plateau Escarpment and the Southern Limestone/Dolomite Valleys and Low Rolling Hills, with Plateau Escarpment being the most prevalent covering more than 90% of site.

Plateau Escarpment

The Plateau Escarpment ecoregion is characterized by steep, forested slopes and high velocity, high gradient streams. It is an abrupt transition area between the plateau and the valley areas. Local relief is often 1000 feet or more. The geologic strata include Mississippian-age limestone, sandstone, shale, and siltstone, and Pennsylvanian-age shale, siltstone, sandstone, and conglomerate. Streams have cut-down into the limestone, but the gorge talus slopes are composed of colluvium with huge angular, slabby blocks of sandstone. Vegetation community types in the ravines and gorges include mixed oak and chestnut oak on the upper slopes, more mesic forests on the middle and lower slopes (beech-yellow poplar, sugar maple-basswood-ash-buckeye), with some rare hemlock along rocky stream sides and river birch along floodplain terraces.

Southern Limestone/ Dolomite Valleys And Low Rolling Hills

This ecoregion forms a heterogeneous region composed predominantly of limestone and cherty dolomite. Landforms are mostly undulating valleys and rounded ridges and hills, with many caves and springs. Soils vary in their productivity, and land cover includes oak-hickory and oak-pine forests, pasture, intensive agriculture, and urban and industrial.



Map:
Ecogeographic Map
(Jaspuneet Kaaur, 2019)

[EXISTING CONDITIONS]
Geology



GEOLOGY

The abiotic and biotic phenomena that form an ecoregion includes geology, landforms, soils, vegetations, climate, land use, wildlife, and hydrology. Geology is the characteristics of bedrock and surface geologic terrains and structural features at various level of detail. Differential erosion has formed the physiographic features of Dade County, with more erosion towards north of the county.






Gizzard Formation

The Gizzard members of the Lookout Mountains are composed of yellowish to gray fissile shale intercalated with thin- bedded siltstone, coal, and fine-grained sandstone. The formation is composed of argillaceous shale or fine clay, sandy shale, and sandstone with 10 to 70 ft of conglomerate at top with thickness 50 to 600 ft. The thicker portions contains at least two coal seams with Bangor limestone containing interbeds of dusky-red and olive-green mudstone in the upper part and Walden sandstone with olive-green and gray, argillaceous, micaceous shale with coarse feldspathic sandstone and quartz- pebble conglomerate in the lower part. However, both these formations dont yield clays that have can used for clay products (Second Report on the clay deposits of Georgia).

Mississippian Undifferentiated

The crest of the ridges that flank Lookout Valley contain Chattanooga Shale. It is about 15-25 feet thick and consists of black, fissile, carbonaceous shale, overlain by several feet of greenish- gray shale. According to Butts and Gildersleeve, the greenish gray shale corresponds to the Maury green shale of Middle Tennessee. Chattanooga Shale separates the underlying Red Mountain formation and the overlying Fort Payne Chert. The clay from this formation has been used as a filler for commercial fertilizer on a very small scale (Second Report on the clay deposits of Georgia).

Legend

-  Plg: Gizzard Formation
-  Mu: Mississippiian undifferentiated
-  DMu: Devonian -Mississippian Undivided
-  Pls: Sewanee Sandstone
-  Srm: Red Mountain Formation

Map:
Geology Map
(Jaspuneet Kaaur, 2019)

EXISTING CONDITIONS

Soils

Legend

-  AeE: Allen fine sandy loam, 2-6% slopes
-  BaF: Barfield-Rock Outcrop-Talbott Complex, 10-60% slopes
-  BoF: Bouldin Nella Complex, 20-60% slopes, very flaggy
-  HcE: Hartsells-Hector Complex, 15-35% slopes, rocky
-  LrD: Lyerly-Barfield-Braxton Rock Outcrop complex, 2-25% slopes
-  RhF: Rock Outcrop-Hector Complex, 5-60% slopes

The estimated percentage of soils on site is as follows:

- AeE: 38%
- BaF: 20%
- BoF: 19%
- HcE: 07%
- LrD: 07%
- RhF: 10%

Map:
Soils Map
(Jaspuneet Kaar, 2019)

SOILS

The Southwestern Appalachian Ecoregion is characterized by the Great Groups (Orders) of soils that occur in this dynamic region. These include Ultisols (Paleudults and Hapludults), and Inceptisols (Dystrudepts). Typical soil series that occur in these areas include Nella, Gorgas, Hartsells, Bouldin, Hector, Townley, Nauvoo, and Enders. Within the site boundary Allen, Barfield, Hector, Nella, and Talbott, complexes can be found.

Allen Complex (AeE)

Profile: 0 to 7 inches of fine sandy loam, 7 to 30 inches of loam, and 30 to 83 inches of clay loam

Slope: 15 to 25 percent

Depth to restrictive feature: More than 80 inches

Natural Drainage Class: Well drained

Runoff Class: High

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: High (about 9.5 inches)

Vegetation: oaks, hickories, yellow poplar, beech, shortleaf pines, and Virginia pines.

Land Capability Class 6e: These soils generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover. Susceptibility to erosion and past erosion damage are the two major soil factors that affect soils.

Barfield Braxton Rock Outcrop Talbott Complex (BaF)

Profile: 0 to 4 inches of silty clay loam, 4 to 12 inches of silty clay, 12 to 15 inches of channery silty clay, and 15 to 19 inches of bedrock

Slope: 10 to 40 percent

Depth to restrictive feature: 15-19 inches of lithic bedrock

Natural Drainage Class: Well drained

Runoff Class: Medium

Depth to water table: More than 80 inches

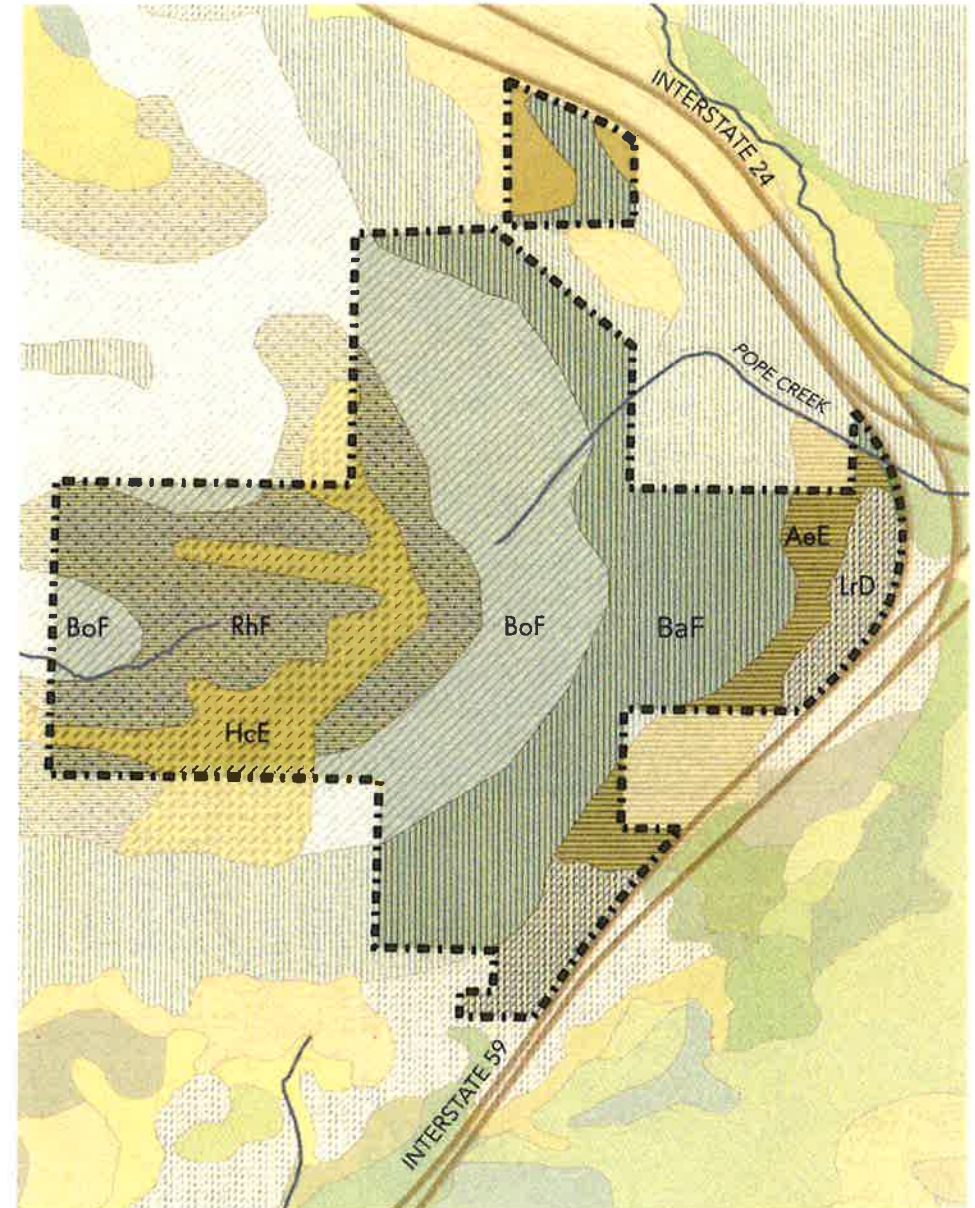
Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very Low (about 3.0 inches)

Vegetation: Hard wood mixed forest is the native vegetation for these soils, but they are commonly cleared and used to grow hay and pasture.

Land Capability Class 8s: These soils generally unsuited to cultivation and restrict their use mainly to grazing, forestland, or wildlife. This soil belongs to a subclass of soils that have soil limitations within the rooting zone, such as shallowness of the rooting zone, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content.



Bouldin Nella Complex (BoF)

Profile: 0 to 16 inches of very flaggy loam, and 16 to 83 inches of very flaggy clay loam

Slope: 20 to 60 percent

Depth to restrictive feature: More than 80 inches

Natural Drainage Class: Well drained

Runoff Class: Very High

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.8 inches)

Vegetation: oaks, hickories, yellow poplar, maples, dogwood, shortleaf pines and Virginia pines

Land Capability Class 7s: These soils generally unsuited to cultivation and restrict their use mainly to grazing, forestland, or wildlife. This soil belongs to a subclass of soils that have soil limitations within the rooting zone, such as shallowness of the rooting zone, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content.

Hartsells Hector Complex (HcE)

Profile: 0 to 8 inches of loam, 8 to 24 inches of clay loam, 24 to 29 inches of sandy clay loam, and 29 -80 inches of bedrock

Slope: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock; 20 to 30 inches to paralithic bedrock

Natural Drainage Class: Well drained

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.4 inches)

Vegetation: cedar, oaks, elms, hickory and pine

Land Capability 6e: These soils generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover. Susceptibility to erosion and past erosion damage are the two major soil factors that affect soils.

Lyerly Barfield Braxton Rock Outcrop Complex (LrD)

Profile: 0 to 6 inches of silty clay loam, 6 to 32 inches of clay, and 32 - 36 inches of bedrock

Slope: 2 to 25 percent

Depth to restrictive feature: About 32 inches to lithic bedrock

Natural Drainage Class: Moderately Well drained

Runoff Class: Medium

Depth to water table: About 20 -30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.5 inches)

Vegetation: Most of the soil is in woodland. The native vegetation is oak, hickory, maple, and eastern red cedar. About 40 percent of the soil is cleared and used as pasture. Some small areas are cropped and corn, grain sorghum, and small grain are the principal crops.

Land Capability 6s: These soils generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover. This soil belongs to a subclass of soils that have soil limitations within the rooting zone, such as shallowness of the rooting zone, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content.

Rock Outcrop Hector Complex (RhF)

Profile: 0 to 15 inches of channery loam, and 15 to 19 inches of bedrock

Slope: 5 to 60 percent

Depth to restrictive feature: About 15 inches to lithic bedrock

Natural Drainage Class: Well drained

Runoff Class: Very High

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very Low (about 2.4 inches)




Vegetation: Most areas are in low-grade, mixed cedar-hardwood forest. Common trees include cedar, oaks, elms, hickory and pine. Minor areas have been cleared and are in native pasture, or planted to improved pasture grasses, but susceptibility to drought is a severe limitation

Land Capability Class 7s: Class 7 soils have very severe limitation that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife. This soil belongs to a subclass of soils that have soil limitations within the rooting zone, such as shallowness of the rooting zone, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content.

EXISTING CONDITIONS

Land Cover

Legend

-  Forest Land
-  Agriculture
-  Urban/Built-Up Land

LAND COVER

Land cover is the observed (bio)physical cover on the earth's surface. When considering land cover in a very pure and strict sense, it should be confined to describe vegetation and man-made features. Consequently, areas where the surface consists of bare rock or bare soil are describing land itself rather than land cover. Also, it is disputable whether water surfaces are true land cover. However, in practice, the scientific community usually describes those aspects under the term land cover. Broadly, the site has forest, and urban/built up land as its two main land covers.

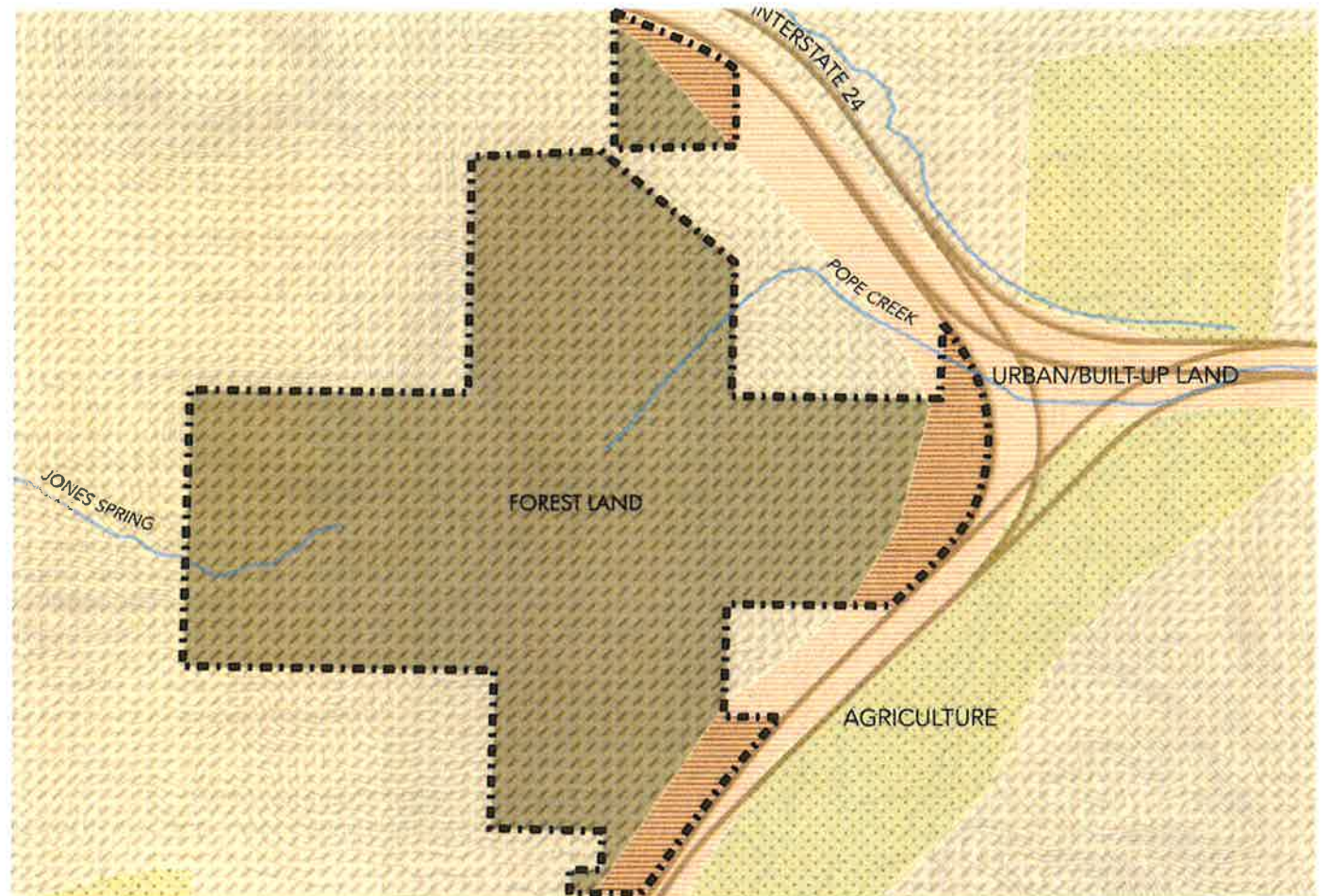
Forest Land: characterized by tree cover (natural or semi-natural woody vegetation, generally taller than 19 feet and 6 inches); tree canopy accounts for 25% to 100% of the cover. The trees should be able to reach a height of 16 feet and 4 inches at maturity.

Urban/Built-up Land: Areas characterized by a high percentage (30% or more) of constructed materials (e.g., asphalt, concrete, buildings).

Agriculture: Just outside of the site property boundary on the east, land cover agriculture is the prevalent in areas along the interstate. Agriculture land cover is described as areas characterized by herbaceous vegetation that has been planted or is intensively managed to produce food, feed, or fiber, or is maintained in developed settings for specific purposes. Herbaceous vegetation accounts for 75% to 100% of the cover.

UTILITIES

Sewer: The Dade County government mentions that for any property outside of the city limits of Trenton will have to manage wastewater treatment through a septic tank attained through the local Board of Health. The Public Health Department is located inside the Dade County Administrative Building at 71 Case Avenue, Suite 101, Trenton, GA 30752 and can be reached at 706-657-6181. Additionally, Georgia



State law requires a septic permit before an electric permit can be issued. For septic tank installation, soils that have large quantities of interconnected pores and spaces are preferred. So, grounds with sandy soils, low clay content, loamy soils, non-retentive, and non-absorbing soils are preferred. According to the above conditions, soils under building envelope zone are best suited for a septic tank.

Connection will be made if a wastewater treatment system is available within two hundred feet (200') of the property line, or available in a public right-of-way abutting the property. If a public or community wastewater treatment system is to be constructed, or an existing public or community sewer is to be extended to serve a lot, then the building sewer needs to be installed so that it will insure gravity flow at a

Map:
Land Cover Map
(Jaspuneet Kaaur, 2019)

self-cleaning velocity throughout.

Power: The property has a power transmission line running to the west of the property and one above ground power/phone line crosses the property on the southern corner. However, the Dade County website suggests that properties north of Burkhalter Gap Road have to contact Electric Power Board (EPB) of Chattanooga, Tennessee for electricity. Veteran's Mountain is situated to the north of Burkhalter Gap Road so power on Veteran's Mountain can be obtained by establishing a power account with EPB of Chattanooga after which a power permit will be authorized by Dade County.

Water Supply: Potable Water is supplied by the Dade County Water and Sewer Authority. A new account can be established by contacting the Water Authority at 706-657-4341 and their office is located at 250 Bond Avenue, Trenton, GA 30752.

Garbage: Garbage can be disposed daily at the Dade County Transfer Station located at 888 Sunset Drive, Trenton. There is a eight bag limit on daily disposal.

Communications: Cable/Internet/Phone are privately owned and can be obtained through calling any of the service providers in the area.

All information about utilities can be found at www.dadecounty-ga.gov.

EXISTING EASEMENT ANALYSIS

According to the Georgia Land Trust, widely spread forestlands are disappearing from the landscape owing to urbanization in Chattanooga and along Interstate 59. Therefore, preservation of a land area of historic importance is of high importance. The site is part of the larger Cumberland Mountain preservation effort. The primary

purpose, as stated in the easement, is to preserve open space for the scenic enjoyment of the general public from the surrounding roadways and the protection of a relatively natural habitat of upland mixed pine and hardwood forest and bottomland and riparian forest for migratory birds and other wildlife.

The easement doesn't allow the following activities to take place on the site:

- + Dumping of trash, garbage, or other refuse of any nature
- + Use or Activities that cause or present a risk of causing soil erosion or significant water pollution including without limitation excavation, land filling, dredging, and mining. Excavation required for the construction of the improvements expressly allowed in the easement will be permitted.
- + Outdoor advertising structures such as signs and billboards shall not be displayed on the property except as desirable for agricultural, forestry, conservation, and outdoor recreational uses.
- + Construction and extension of utility systems is allowed only in locations demarcated for them and only for uses allowable under the easement.
- + The construction of permanent roads and widening of existing roads is not allowed under the easement. However, repair and maintenance of existing roads, construction of firebreaks for silvicultural purposes, or construction of residential driveways such that they are built only to serve the development allowed in the easement and are compliant to other conditions of the easement are allowed.
- + Commercial antennas, radio towers, and similar structures are not allowed on the site.
- + Extraction or removal of minerals by any strip or surface mining methods.
- + Cell Tower can't be installed on the property.

The easement allows for certain provisions under which topography changes, fill, excavate, dredge, mine, drill, and removal of topsoil, sand, gravel, rock, peat, minerals, or other minerals is permissible. These provisions are as follow:

- + For the purpose of combating erosion or flooding
- + For construction and maintenance of roads, bridges, and culverts that are permitted under the easement.
- + The right to explore, extract, and remove oil, and gas such that it has limited, localized, and reversible impact on the site and the conservation values of the site remain intact. These activities will be consistent with the applicable federal, state or local laws and regulations. The easement further states that any oil, gas and other hydrocarbon exploration, extraction and removal facilities shall be concealed and made compatible with existing topography and landscaping. When the said activity is finished the area of impact will be restored to its condition preceding the commencement of such activity.
- + Only a few commercial windmills will be allowed on the site subjected to the condition that the ecology and beauty of the mountain is not compromised, the determination of which will be made by Georgia Land Trust.
- + Environmental and educational purposes are allowable as long all other conservational conditions are fulfilled.
- + Fishing, and hunting with or without dogs, shooting, trapping, hiking, biking, horseback riding, and conducting field trials are allowed as long as they are in accordance with the applicable laws and regulations. The owner can also lease portions of the site for the aforementioned purposes.

The Georgia Land Conservation Partnership envisions a state-wide network of natural, historic, and recreational

Source:
www.dadecounty-ga.gov.
Conservation Easement Report

EXISTING CONDITIONS

Existing Easement Analysis

- Legend**
-  Forestry Area
 -  No Harvest Zone
 -  Building Envelope
 -  Check Points
 -  Surveyor's Path

areas and land and water corridors; such that it enhances the health of ecosystems and fosters natural resources. (Georgia Land Trust Partnership Plan). Additionally, the Land Trust also recognizes that there is tremendous variation in the motivation and economic needs of property owners and in the restrictions and management needed to achieve different conservation outcomes. The land trust suggests that the State must provide a wide range of conservation tools. In addition to land acquisition, tools include the use of conservation easements, zoning and other land use regulations, and public education and outreach (further elucidated under development scenarios)

The conservation easement has three distinct demarcations: Forestry Areas, No Harvest Zone, Building Envelope

Forestry Areas:

Forestry Areas are characterized by tree cover (natural or semi-natural woody vegetation, generally taller than 19 feet and 6 inches); tree canopy accounts for 25% to 100% of the cover. The trees should be able to reach a height of 16 feet and 4 inches at maturity in situ. This category doesn't include land used that is used for agricultural practices. The land that is covered under this category within the site boundary can only be used for forestry activities in such a way that the activities are compliant to the following:

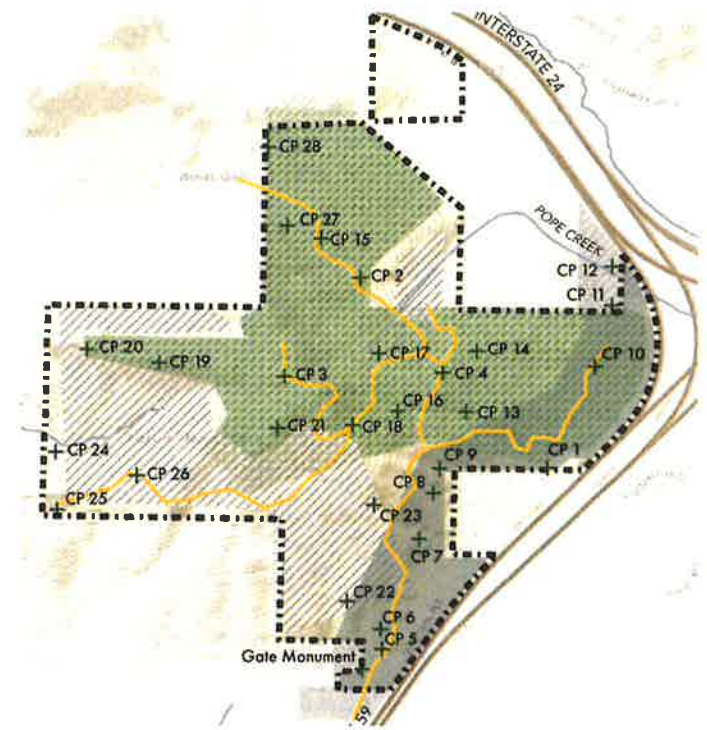
- Applicable local, state and federal laws and regulations and in accordance with the current best management practices for the site, soil and terrain.
- Forestry, agricultural operations and wildlife management will be performed in accordance with a written Land Management Plan that is consistent with the purposes of the conservation easement. The plan shall be prepared by a registered forester, wildlife biologist or natural resource professional and the plan will be updated every 5 years.
- Maintain soil productivity
- Doesn't impact water quality, riparian zones, on

wetlands

- Maintenance and improvement of the existing forest products such that it enhances the functioning of the pine hardwood ecosystem that is present on site.
- The conservation of scenic quality
- Protection of unique and fragile natural areas
- Conservation of native animals and plants species
- Small clear cuts and timber thinning will be permitted.
- All activities shall minimize erosion and avoid heavy grading while harvesting timber of any kind.

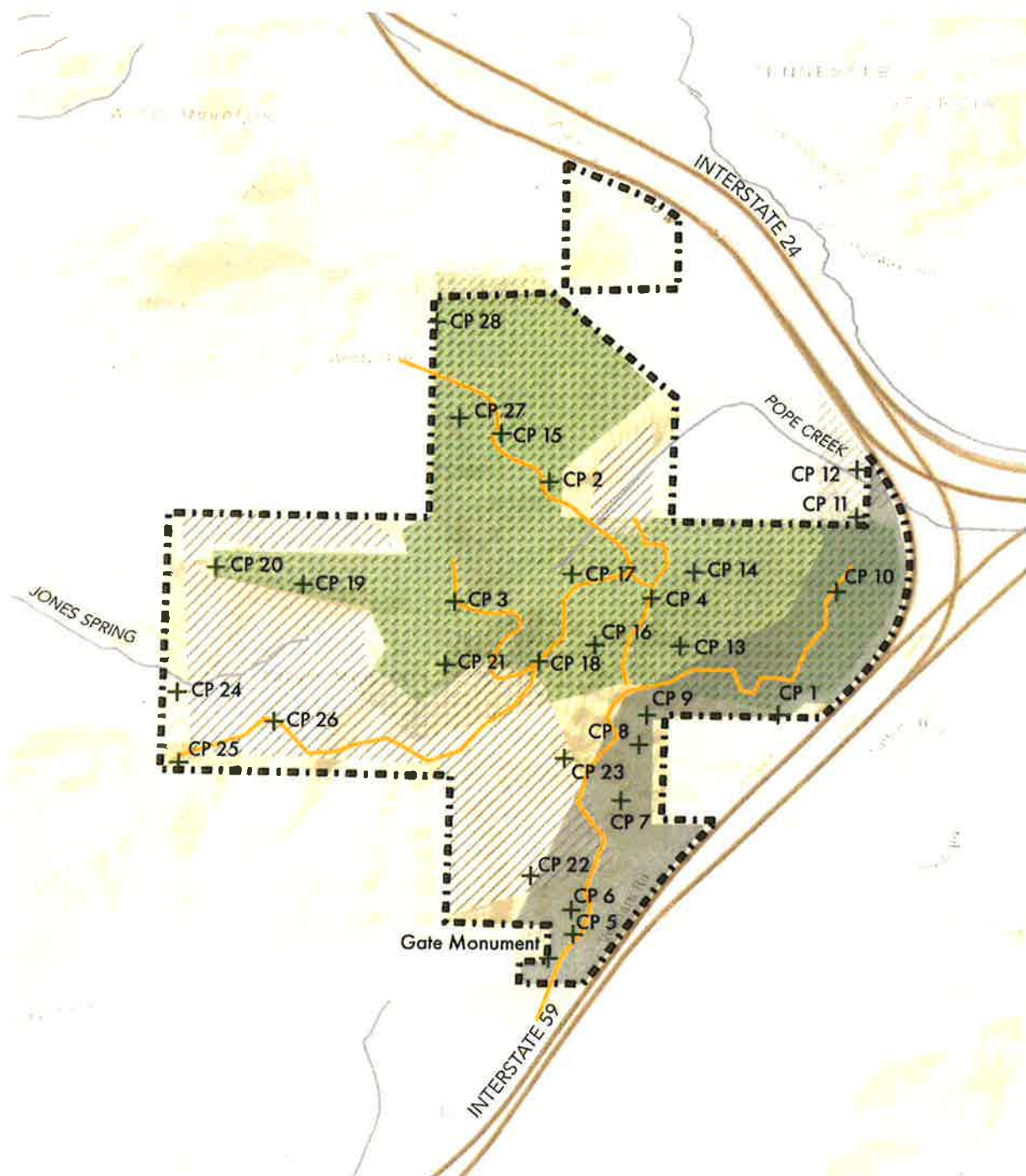
No Harvest Zones: The areas marked as no harvest zones have steep slopes, caves, rock boulder fields, thin soils, or water source or course protection. Mostly, mature upland hardwood forest is situated in these slopes. To prevent erosion, all commercial harvesting is prohibited in these zones. Additionally, any activity that damages the environment is not allowed in zones demarcated as "no harvest zones."

Building Envelope: The Building Envelope zone contains areas characterized by a high percentage (30% or more) of constructed materials (e.g., asphalt, concrete, buildings). Harvest Areas are not included under this and, as per the easement, the portion of the site that falls under this category can be developed for residential uses. Under this zone, the easement allows either: the development of two single family residences in building lots occupying an area of two acres each, or one veteran's retirement home with a foot print of 10 acres. Roads, driveways, and utilities that serve these allowed developments can be constructed on site. The location of the aforementioned developments will be such that they do not interfere with the environmental and ecological values of the site. The buildings shall be compliant with zoning, governmental, and permitting standards. Silt fences and other erosion and sediment control best management practices shall be placed such



that they minimize run-off, and the property will be restored to pre-construction appearance within a reasonable time period after construction is complete.

Map:
Conservation Map
(Jaspuneet Kaaur, 2019)



[INTRINSIC VALUE ANALYSIS]

Utilization Study for Veteran's Mountain

[C]

INTRINSIC VALUES ANALYSIS

Watersheds

Legend

-  Site
-  HUC 2: Tennessee Region
-  HUC 8: Middle Tennessee Chickamauga Lake
-  HUC 8: Upper Sevier
-  HUC 10,12: Lower Nickajack Lake Tennessee River
-  HUC 10: Lookout Creek
-  HUC 12: Sitton Gulch Creek
-  HUC 12: Lookout Creek

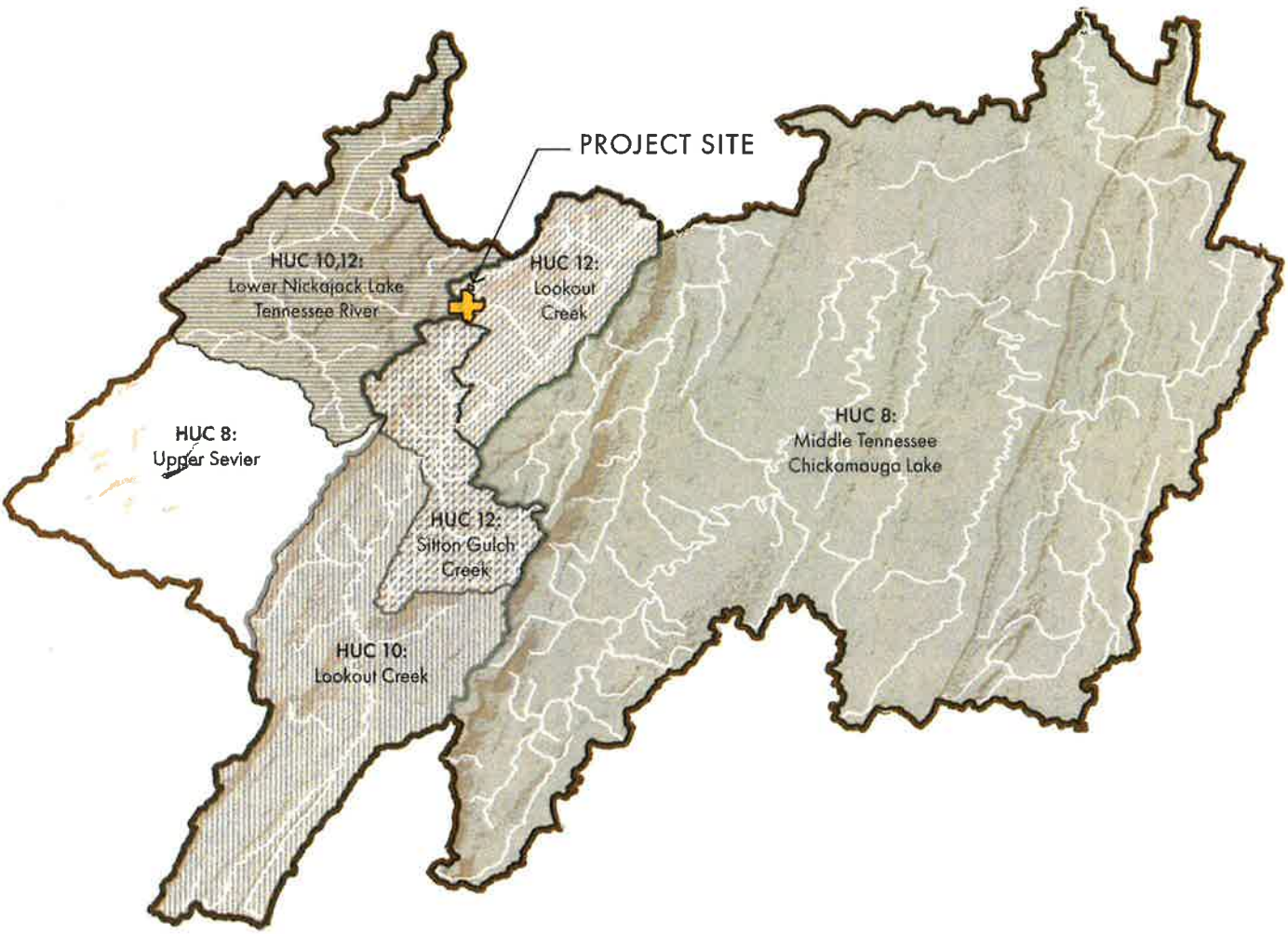
WATERSHEDS

The site lies in HUC 2- Tennessee region with its sub basin in Middle Tennessee-Chickamauga Lake. The site drains into 2 watersheds- with Lookout Creek receiving most of the water and Nickajack Lake receiving water from the western part of the site. The site drains in three sub watersheds (HUC 12): Lower Nickajack Lake Tennessee River, Lookout Creek, Sitton Gulch Creek.

Precipitation is the primary source of ground water in Dade County, and it receives about 53 inches of precipitation annually. Precipitation events occur mainly during spring and winter. The rocks contain openings along joints, sinkholes, and other fractures that allow water to penetrate into the ground water. During percolation, the water gets charged with carbon dioxide and organic acids which dissolve the limestone, enlarging the vertical and lateral openings on the surface.

The mountainous region of Dade County has not yet been explored for domestic water supply. Local activity includes drilling for a short supply of water. The geologic influences become apparent in the water systems prevalent around the site boundary. The site is located in the region classified as sandstone and shale aquifers. The Gizzard formations yield small quantity of water which is sufficient for farming and domestic uses. Water is found to be generally high in iron. On the other hand, the Chattanooga Shale is a poor aquifer because the shale is generally impermeable and transmits little water. Water found here has a high iron content.

Two springs occur on the property and both have a corresponding water course, but the stream beds are presently dry and may have water only during heavy rain events. The site has many drains that run through it and a few contain sinkholes and/or caves and a few show signs of severe run-off. Adjacent to Interstate 59, the stream bed shows three to five feet deep undercut banks.



Map:
Watersheds Map
(Jaspuneet Kaaur, 2019)

[INTRINSIC VALUE ANALYSIS] Ecosystems

ECOSYSTEMS

The site is largely a mixed pine hardwood ecosystem but within that larger ecosystem are the smaller ecosystems which are in a different phase of succession throughout the site. Succession is a non-seasonal structure of a biological community that evolves over time. Since the site has been used for harvesting timber it is likely that new species have emerged in those areas as nutrient content and environmental factors are conducive to growth.

The checkpoints (CP) as shown in the conservation map and site visits by Farmer | Morgan further elucidate how regions on site differ from each other. These checkpoints have been covered in the conservation easement by the surveyor from Georgia Land Trust as well and have been discussed below:

CP 2

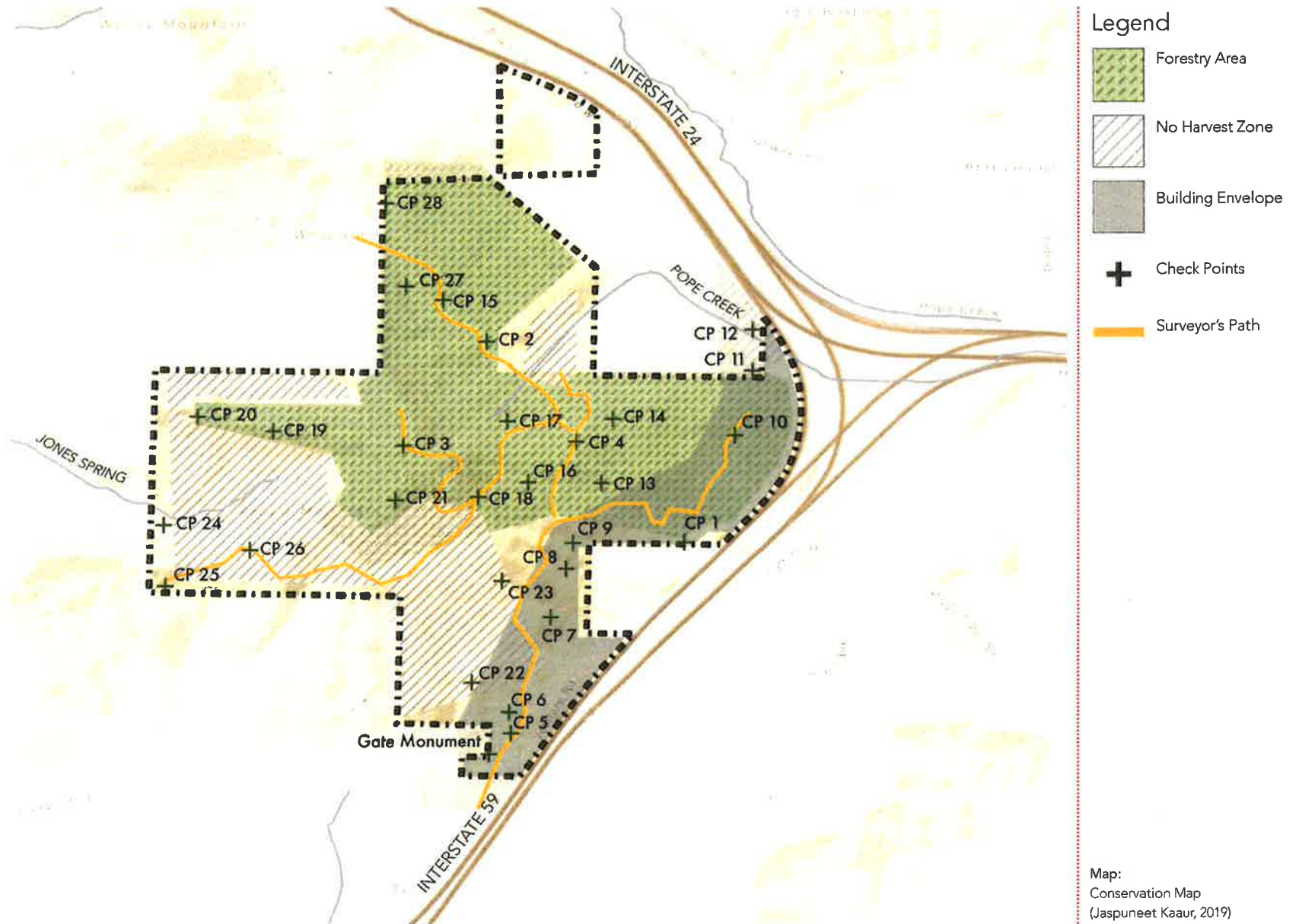
A young forest with mature trees possibly 10-15 years into succession where oaks have started to emerge and will eventually replace pines. Tree species at this CP include chestnut oak, dogwood, shortleaf pine, birch, cedar, red maple, and tulip poplar.

CP 3

A wildlife plot is located at this CP and one of the shooting houses on site is located here. The wildlife plot is used for growing plants that help in wildlife management.

CP 4

It is located in a fork on one of the roads on the property. The dense understory with species like chestnut oak, dogwood, shortleaf pine, birch, cedar, red maple, and tulip poplar suggest that land around this CP is in late succession where hardwoods have begin to emerge in the understory.



INTRINSIC VALUES ANALYSIS

Site Specific

Legend

-  Forestry Area
-  No Harvest Zone
-  Building Envelope
-  Check Points
-  Surveyor's Path

Key Map



Map:
Conceptual Section
(Jaspuneet Kaar, 2019)

CP 5

This CP is located at the southern entrance is comparatively at a lower elevation of the site. The forest seems to be young dogwood, shortleaf pine, birch, and cedar as a few dominant species.

CP 6

It is located along the main road on the edge of the building envelope zone/ or utility easement.

CP 7

This part of the site can probably be considered a climax oak hickory forest as it has an understory of young oak and hickory and other shade tolerant trees. Red maple seedlings and saplings, cedar, birch, red oak and hickory are some of the species that are present around this CP.

CP 8

The area is in the small cove that is currently dry.

CP 9

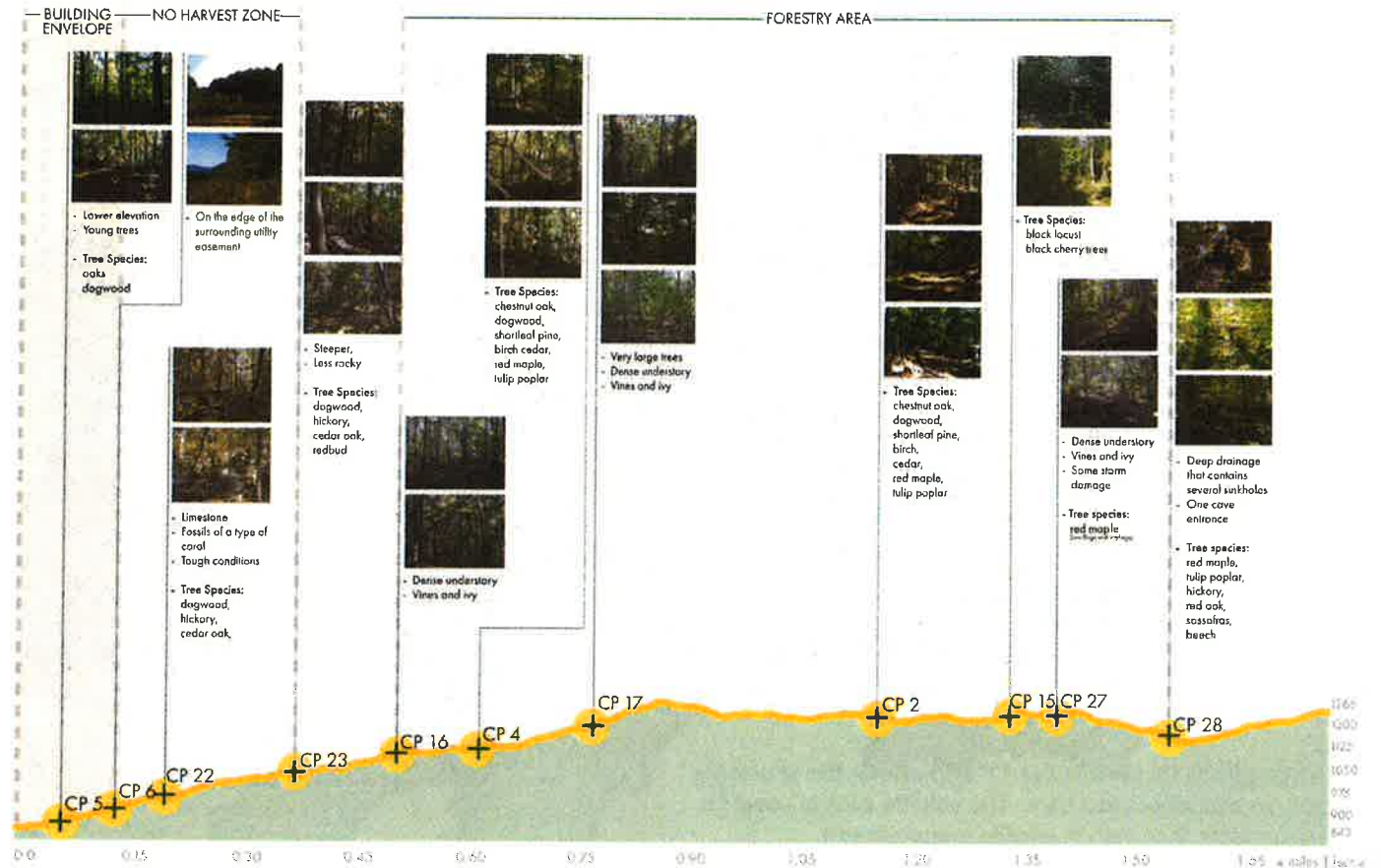
The site is in a small cove that is currently dry. There is some storm damage at this CP

CP 10

The second wildlife food plot is located at this CP. There is a remnant limestone chimney stack and a shooting house located in the food plot. Tree species in and immediately surrounding the food plot includes cedar, walnut, white oak, tulip poplar, chestnut oak, and hickory. There have been some recent forestry activities performed in the forest surrounding this CP. Those areas are in good condition, and do not show signs of severe erosion. This seems to be a mature forest in the final successional phase called the climax oak hickory forest usually seen at 70-100 years of succession.

CP 11

This area is in a transition between the recently harvested



area in CP 10 and the bottomland of CP 12. Tree species found here include white oak, chestnut oak, hickory, dogwood, and red maple. There is a remnant roadbed that passes by CP11 and CP 12. These two CPs seem to be a part of a mature oak hickory forest, parts of which have been deforested because of urbanization.

CP 12

This CP is very close to I-59 in the bottomlands and appears to have been very wet at one point. The site is dominated by

maples and privet. There is some trash scattered throughout the area, presumably from the highway. A dry streambed in this part is a sign that a stream runs through this CP and it has steep banks which are 3-5 feet deep. Large trees and stone outcroppings are also found west of this CP.

CP 13

This slope contains the highest number of different tree species. Tree species present include fire cherry, hickory, beech, red oak, white oak, blackgum, shortleaf pine,

dogwood, elm, black cherry, cedar, service-berry and black locust. There is also a very large number of red maple seedlings and saplings. Presence of Oak and hickory suggest that it is a mature forest hinting at late succession.

CP 14

This CP is like CP 13 with dominant tree species including fire cherry, hickory, beech, red oak, white oak, blackgum, dogwood, shortleaf pine, elm, black cherry, cedar, serviceberry, black locust, and red maple seedlings and saplings.

CP 15

Mature black cherry and black locust trees seem to be dominant species in parts around this CP. The black locust is primarily an early seral stage species, found particularly in large clearings such as clear-felled areas and abandoned pastures. Black cherry is a shade-intolerant species as well that primarily occurs in successional vegetation or in forest openings as well as in old fields. It usually occurs as scattered individuals in various types of mesic woods and second-growth hardwood forests. The dominance of two species that grow in large clearings suggest that the area around this CP was cleared and probably used for agriculture at one point.

CP 16

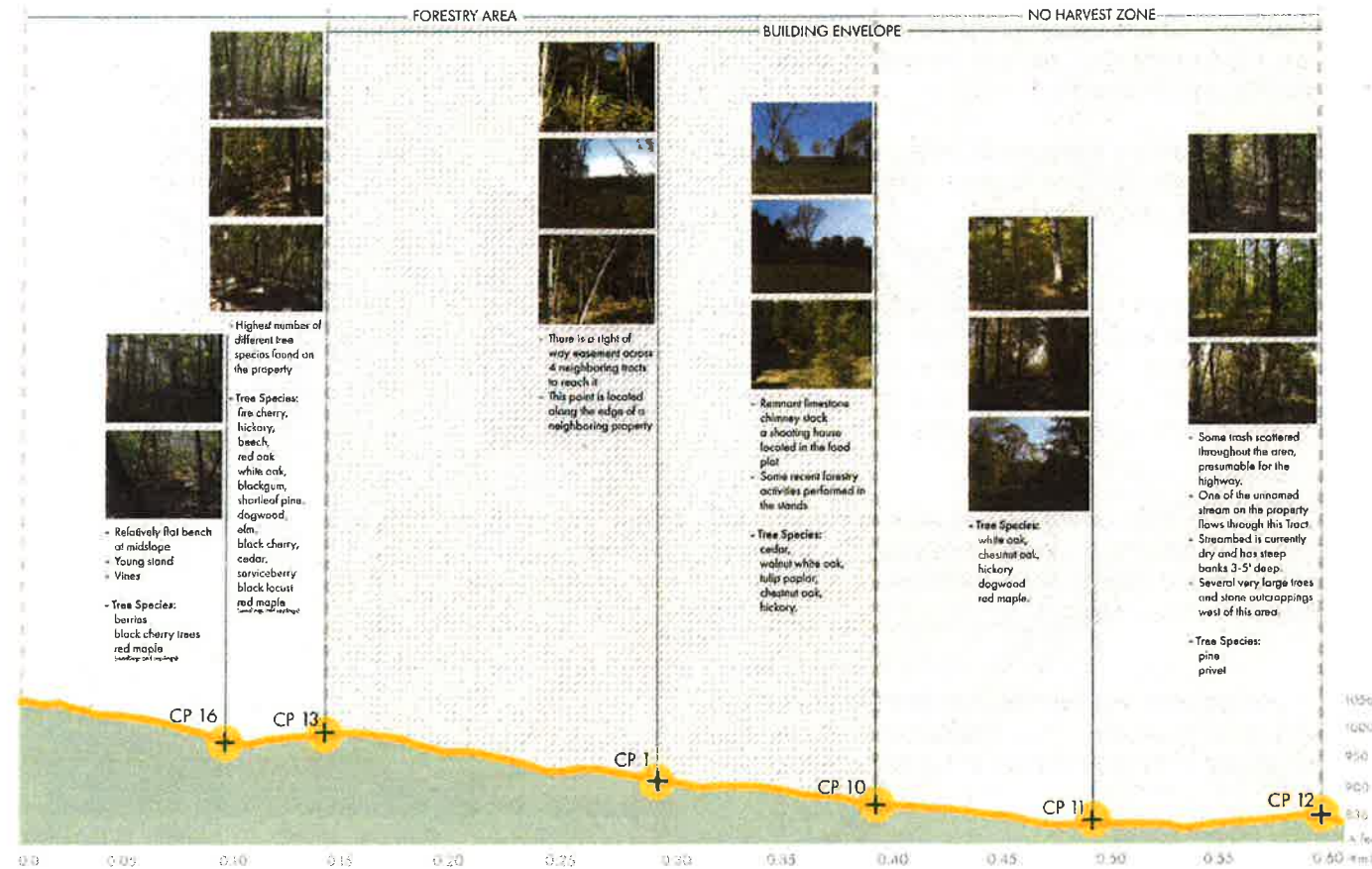
This CP is a relatively flat bench at mid-slope with many vines, briars, and small red maple seedlings and saplings. Mature black cherry trees suggest a bottomland forest or is representative of earlier clearings in the forest.

CP 17

There are several very large trees present in this area and has a very dense understory with many vines and ivy.

CP 18

This area contains a dense understory, with many vines and ivy.



CP 19

The trees at this elevation are short and contain a dense understory, typical of an upland ridge top forest. Tree species present at this CP include chestnut oak, red oak, white oak, hickory, table mountain pine, shortleaf pine, and sassafras suggesting late succession.

CP 20

This CP is located on the western tip of the ridge described in CP 19. Tree species present at this CP include chestnut

oak, red oak, white oak, hickory, table mountain pine, shortleaf pine, and sassafras that suggest late succession.

CP 21

This CP is located at the opposite end of the ridge top described in the previous CP 19 and CP 20. This area is relatively flat, and has dense blueberry bushes and pine

CP 22

This area is covered in limestone and a few fossils of a type

Legend

- Forestry Area
- No Harvest Zone
- Building Envelope
- Check Points
- Surveyor's Path



Map:
Conceptual Section
(Jaspuneet Kaaur, 2019)

INTRINSIC VALUES ANALYSIS

Site Specific

Legend

-  Forestry Area
-  No Harvest Zone
-  Building Envelope
-  Check Points
-  Surveyor's Path

Key Map



Map:
Conceptual Section
(Jaspuneet Kaaur, 2019)

of coral were found near this CP. It is very tough traveling through this portion of the property. Tree species present near this CP include, but are not limited to dogwood, hickory, cedar oak, and redbud.

CP 23

This CP is located on a steep south facing slope although less rocky than CP 22. Tree species include dogwood, hickory, cedar oak, and redbud.

CP 24

This CP is located near a stream and is within a cove at the base of the slope and contains species common to the bottomland hardwood forest type. Tree species presently include red maple, elm, beech, tulip poplar, and birch. There is also a shallow cave entrance at this CP.

CP 25

This CP represents the south western part of the site and is also marked by an old locust fence post. Tree species present include red maple, chestnut oak, white oak, hickory, dogwood and a few pines.

CP 26

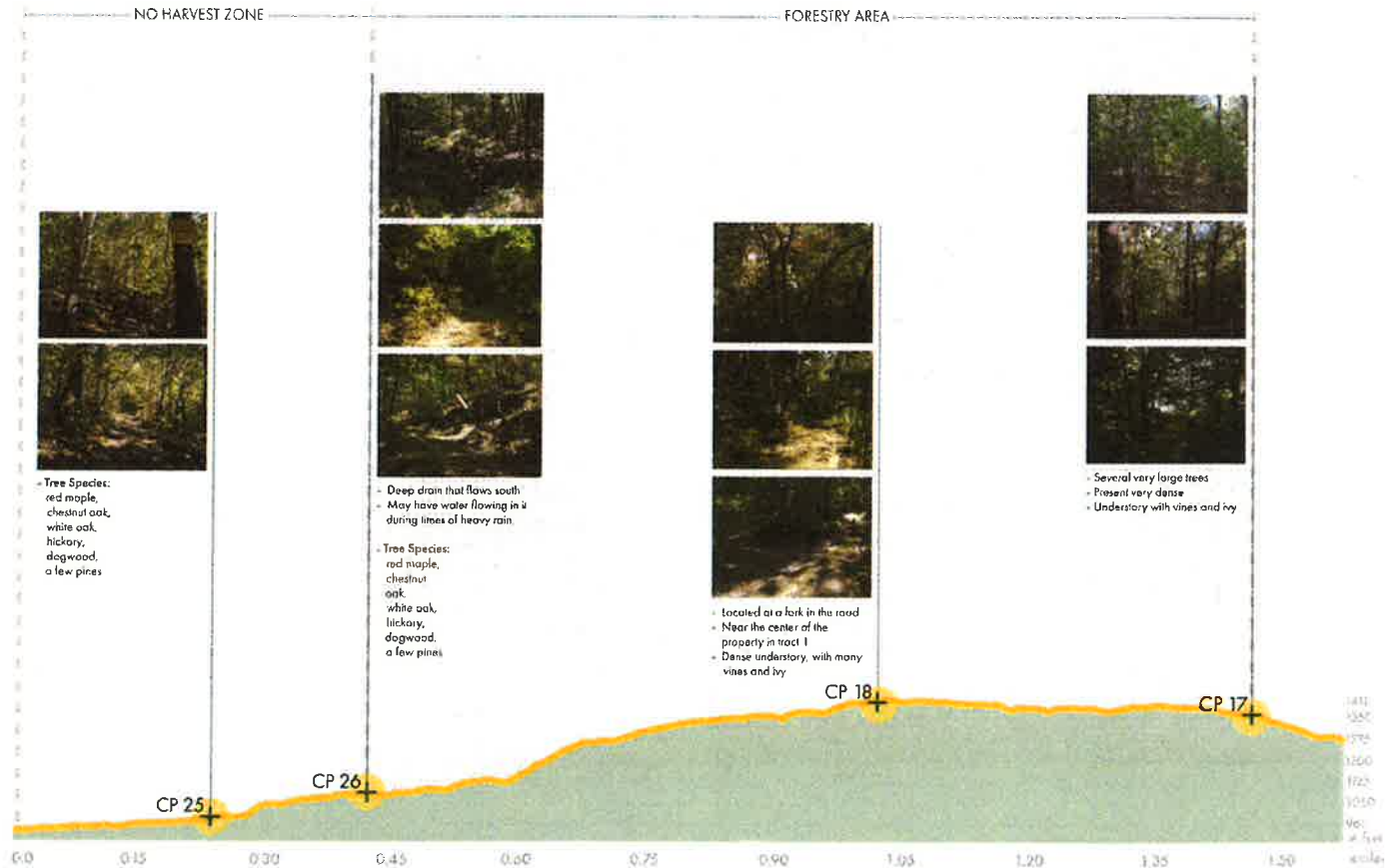
There is a deep drainage that flows south from this CP and may have water flowing in it during times of heavy rain. Tree species present include red maple, elm, beech, tulip poplar, and birch.

CP 27

This CP is on a north facing slope and contains a large number of red maple seedlings and saplings. This area has dense understory with many vines and ivy. Some storm damage can be witnessed around this CP as well.

CP 28

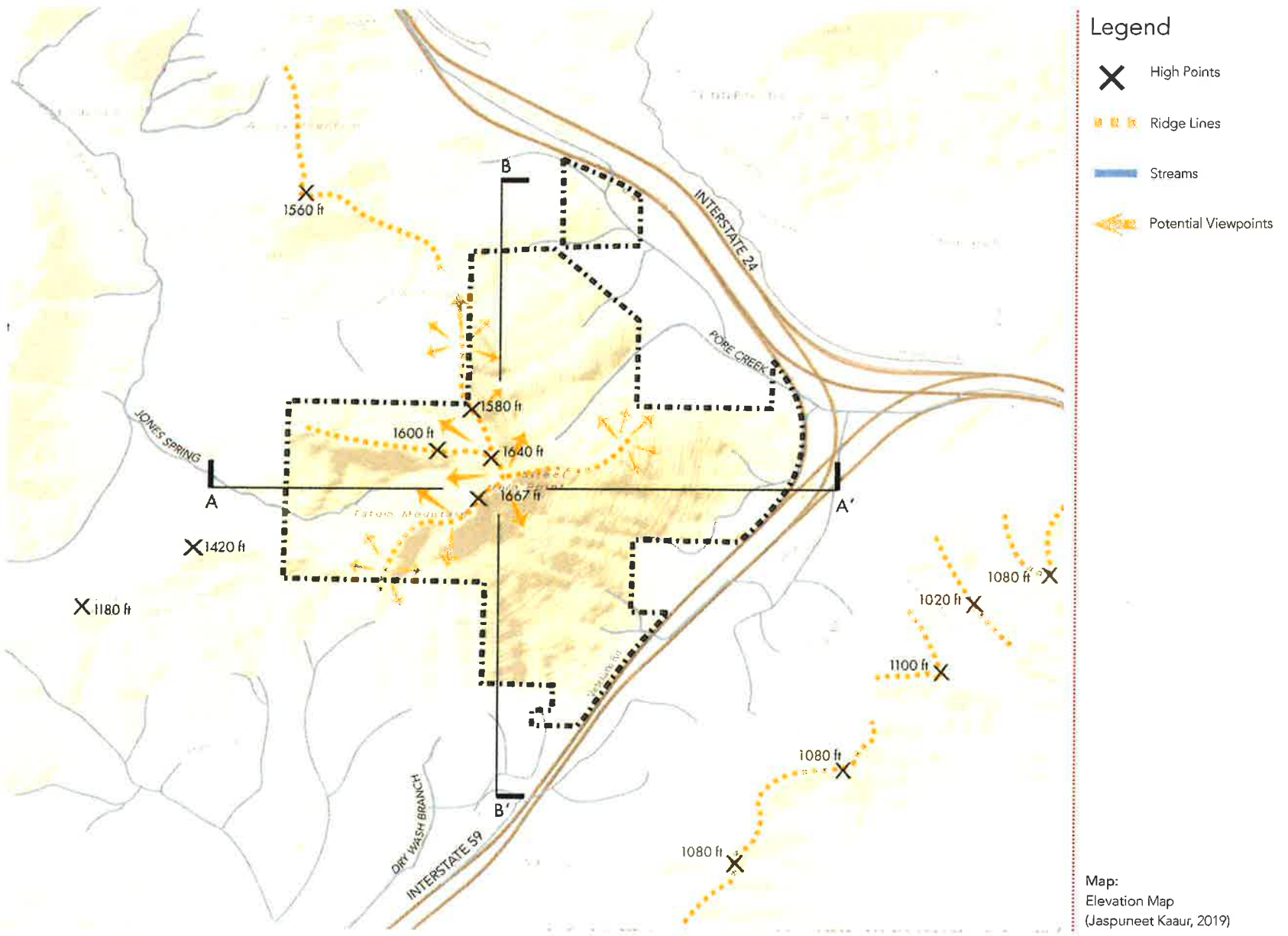
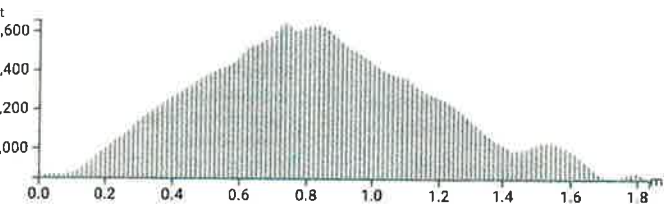
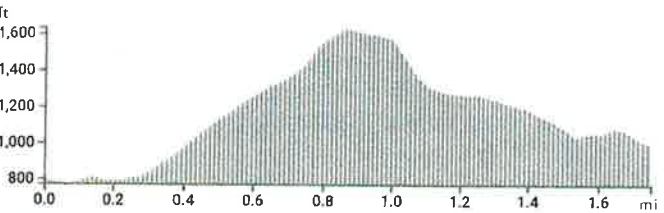
This CP is in a deep drainage that contains several sinkholes and one cave entrance. Tree species includes red maple, tulip poplar, hickory, red oak, sassafras and beech. There is also a cave entrance adjacent to this CP.



NOTE: Based on the information provided in the deed of conservation easement the out-parcel towards the north of the site is not included in the conservation easement. We recommend further exploring and analyzing this parcel to ensure that the conservation easement does not apply to this portion of the property.

SIGNIFICANT NATURAL RESOURCES

The site is nestled between Lookout-Pigeon Mountain and Sand Mountains which fall under the Lookout Mountain District of the Cumberland Plateau Section of the Appalachian Plateau Province of the Appalachian Highlands Major Division. The upland slopes in the southwestern direction form a maximum elevation of 2200 feet near Durham to an elevation of 2000 feet near the Alabama-Georgia border. The property falls under the Plateau Escarpment of the Southwestern Appalachian Ecoregion. This area is characterized by steep, forested slopes and high velocity, high gradient streams. Local relief is often 1000 feet or more. The geologic strata include Mississippian-age limestone, sandstone, shale, and siltstone, and Pennsylvanian-age shale, siltstone, sandstone, and conglomerate. Streams have cut down into the limestone, but the gorge talus slopes are composed of colluvium with huge angular, slabby blocks of sandstone. Vegetation community types in the ravines and gorges include mixed oak and chestnut oak on the upper slopes, more mesic forests on the middle and lower slopes (beech-tulip poplar, sugar maple-basswood-ash-buckeye).



- Legend**
- X High Points
 - Ridge Lines
 - Streams
 - Potential Viewpoints

Map:
Elevation Map
(Jaspuneet Kaaur, 2019)

INTRINSIC VALUES ANALYSIS

Regional Analysis

Legend

-  Roads
-  State Roads
-  Interstates
-  Streams
-  State Boundary
-  County Boundary
-  Radius in Miles
-  Site Boundary
-  Cities
-  Drive Time Area, 15 minutes
-  Scenic Places
-  Natural Areas
-  Recreational Places
-  Historic Places
-  Educational Places
-  Cultural Places
-  Wellness Promoting Places

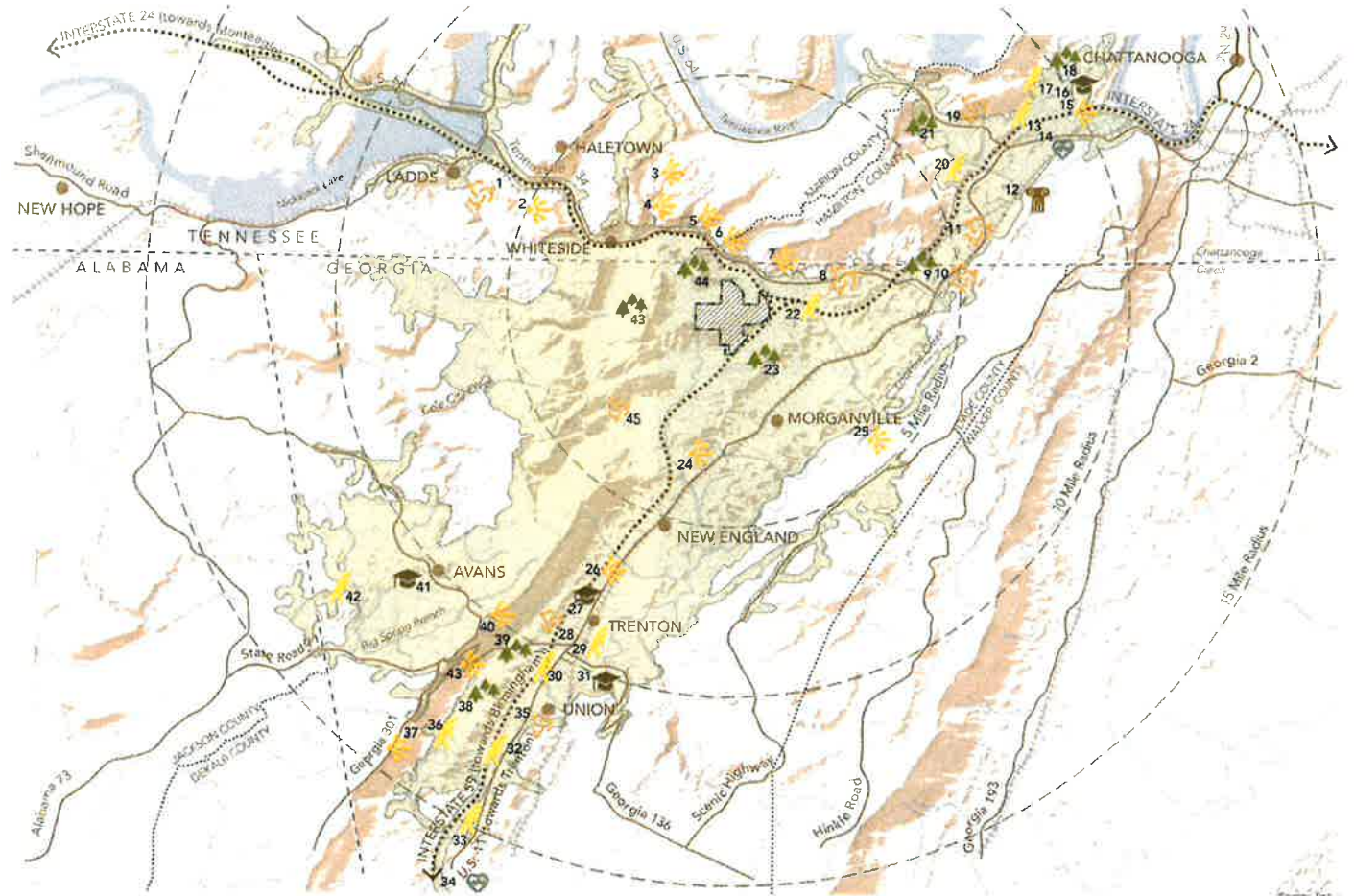
Map:
Places of Interest within 15 minutes
of Drive Time
(Jaspuneet Kaaur, 2019)

PROXIMITY ANALYSIS

In order to leverage the existing qualities, we must understand the context and the surrounding region: the need, the shortcomings, the predilection and the trends of the region and the people residing there. We prepared an extensive inventory of existing facilities: recreational, scenic, cultural, natural, wellness, educational and historic. The following pages begin to analyze these facilities by using driving times of 15 minutes, 30 minutes and 60 minutes as a parameter to assess the locational benefits of the site. These significant resources will aid in the development and marketing of Veteran's Mountain.

15-Minute Drive Time:

The most significant quality of Veteran's Mountain is its location, it is only 15 minutes away from Chattanooga, TN and Trenton, GA. Veteran's Mountain is within reasonable distance from the hustle and bustle of two developed urban centers. At the same time it is situated in the Ridge and Valley system of the Cumberland Plateau far enough away from these urban centers such that it enjoys the peace, beauty and serenity its situation bestows. This unique setting allows development on Veteran's Mountain to attract city dwellers as well as tourists and travelers to Lookout Mountain. Golf clubs, horse riding, campground and fitness-oriented activities seem to be prevalent in the area immediately around the property. The presence of recreational areas, gyms, a yoga house, and elderly retreat stress on the presence of fitness and wellness-oriented people in the region. There are about three elementary and two middle and high schools in the vicinity as well, suggesting the potential for educational use of the site. This map also indicates that the area to the south of the site is devoid of any major activity or recreational hub. For these reasons, the development of the site should focus on drawing users from the Chattanooga and Trenton areas, respectively.



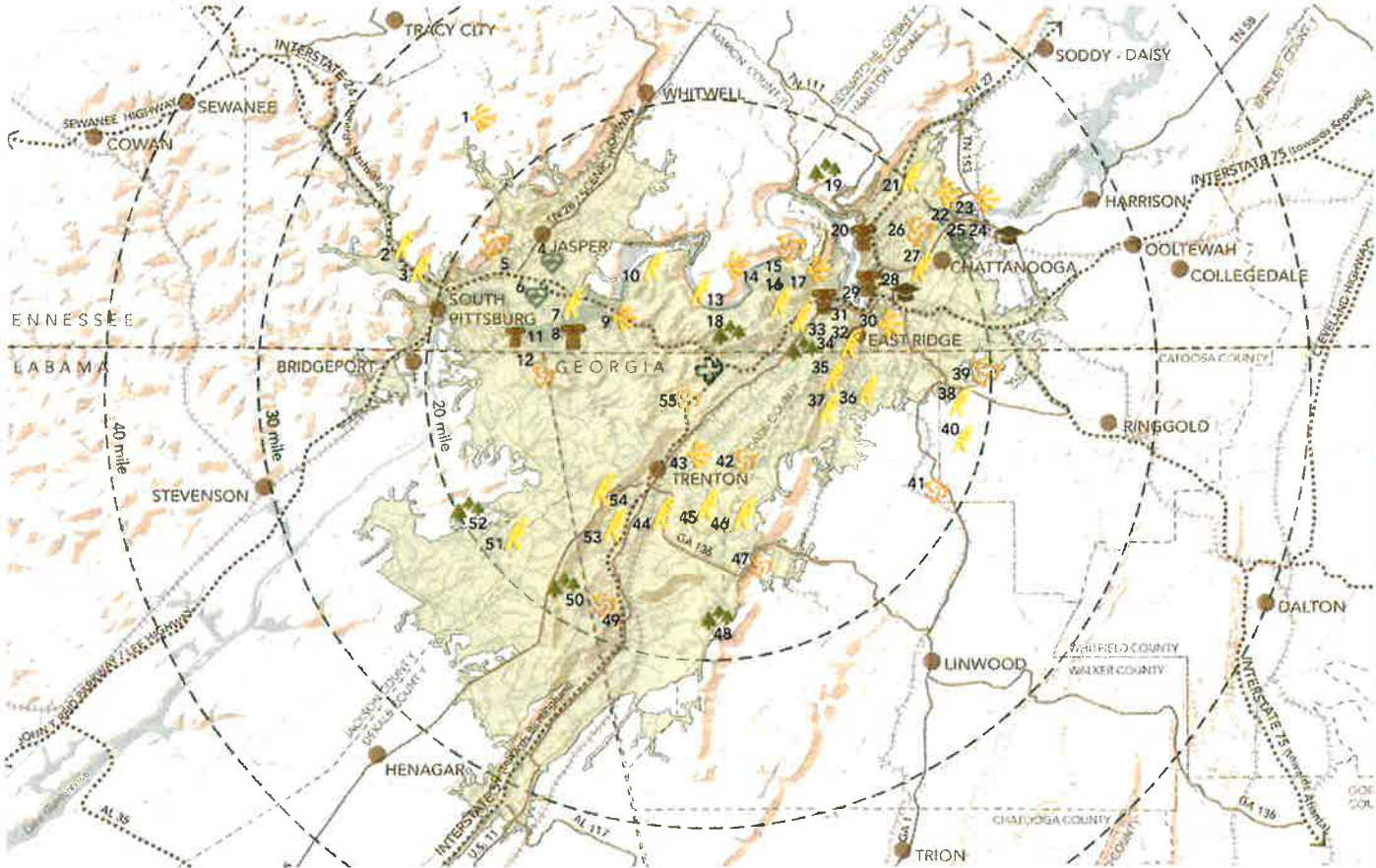
15 MINUTES DRIVE TIME

- | | | | | |
|-------------------------------|--|--|------------------------------------|------------------------------|
| 1. Lee Cemetery | 11. Tennessee Welcome Center | 18. Lake Lookout | 27. Dade County Elementary School | 35. Newman Cemetery |
| 2. Vulcan Gulf | 12. Battle of Wauhatchie Monument Marker | 19. The Venue | 28. Veterans Memorial Park | 36. Trenton Golf Club |
| 3. Devils Pocket | 13. John A Patten Recreation Center | 20. Black Creek Club | 29. Jenkins Park | 37. Brown Gap |
| 4. Aetna Hollow | 14. Thrive Wellness | 21. Raccoon Mountain Caverns and Campgrounds | 30. Genesis Gym | 38. Young Lake |
| 5. Water Tank Hollow | 15. Dread Hollow Haunted House | 22. Heatherfield Horse Park | 31. Dade County High School | 39. Howard's Waterfall Cave |
| 6. Hoosier Gulf | 16. Lookout Valley Middle High School | 23. Slygo Ridge | 32. Dade County Ball Fields | 40. Whiteoak Gap |
| 7. Pulltight Hollow | 17. Lookout Valley Ball Fields | 24. Slygo Valley | 33. R. Haven Overnight Family Park | 41. Davis Elementary School |
| 8. Hooker Cemetery | | 25. Lookout Valley | 34. Rising Fawn Garden Yoga House | 42. Home Harvest Retreat |
| 9. Lake Edna | | 26. Lake Hills Memorial Garden | | 43. Lawson Mountain |
| 10. Wildwood Lifestyle Center | | | | 44. Windy Mountain |
| | | | | 45. Wilderness Movie Theatre |

30-Minute Drive Time:

The 30-minute drive map to the right represents the various resources that are within 30 minutes and between 20-30 miles of the property. These resources include states parks, national parks, waterfalls, and a few off-road adventure parks. Together the aforementioned provide opportunities for hiking, biking, hunting, camping, horseback riding, and off-highway vehicle riding through these facilities. There seems to be abundant golf amenities within this short drive time. Health and wellness facilities like hospitals, medical care, and yoga studios are also common towards north of the property in Tennessee. Other experiential and unique recreational spots are riverfront parks, archaeological park, mountain overlook spots, wilderness outdoor movie theatre, an amusement park, water parks, marinas, and wildlife refuges, these places indicate a predilection towards outdoor recreation. A flight park and training center, a popular place for hand gliding and paragliding, is also within a 30 minute drive of the site.

Users are the most important aspect of recreation and any new proposed development at the property should be mindful of the people that reside near the site and those who frequently visit the area. The recreational facilities that can be found near the site are a good indicator of potential users. Ideally, the site should capitalize on activities in sync with existing recreational developments within a 30-minute drive time.



Legend

- Roads
- State Roads
- Interstates
- Streams
- State Boundary
- County Boundary
- Radius in Miles
- Site Boundary
- Cities
- Drive Time Area, 15 minutes
- Scenic Places
- Natural Areas
- Recreational Places
- Historic Places
- Educational Places
- Cultural Places
- Wellness Promoting Places

30-MINUTE DRIVE TIME	10. Hales Bar Marina and Resort	19. Signal Mountain	29. Moccasin Bend Archaeological VHCV Park	37. Lula Lake Land Trust	46. Five Points Mountain Biking
1. Foster Falls Park	11. Nickajack Cave Wildlife Refuge	20. Williams Island State Archaeological Park	30. Ruby Falls	38. Lake Winnepesaukah Amusement Park	47. Canyon Ridge Club
2. Adventure Off Road Park	12. Grand Summit Cabins	21. Quarry Golf Club	31. Point Park	39. Chickamauga Battlefield Visitor Center	48. Zahnd Wildlife Management Area
3. Sweetens Cove Golf Club	13. Harper Valley Yatch Basin	22. Riverfront Park	32. Sunset Rock	40. Chickamauga National Mountain Park	49. Alabama Welcome Center
4. Jasper Medical Center	14. Tennessee River Garden	23. Dupont Park	33. Reflection Riding Arboretum and Nature Center	41. Gordon Lee Museum	50. Fox Mountain
5. Sequatchie Valley Memorial Gardens	15. Racocon Mountain Visitor Center	24. Chattanooga State Community College	34. Glen Falls	42. Lookout Mountain Flight Park	51. Dog Hill Golf Club
6. Parkridge West Hospital	16. Racocon Mountain Mtb Trail	25. Erlanger Hospital	35. The Lookout Mountain Club Golf Course	43. Back Valley	52. Sand Mountain
7. Shellmound Campground	17. Racocon Mountain Chattanooga Overlook	26. Chattanooga Memorial Park	36. Rossville Recreation Area	44. Lookout Valley	53. Big Sandy Golf Club
8. Nickajack Cave	18. Aetna Mountain	27. Chattanooga Golf and Country Club		45. Cloudland Canyon State Park	54. Trenton Golf Club
9. Tennessee River Blueway		28. University of Tennessee			55. Wilderness Outdoor Movie Theatre

Map:
Places of Interest within 30 minutes of Drive Time
(Jaspuneet Kaaur, 2019)

INTRINSIC VALUES ANALYSIS

Regional Analysis

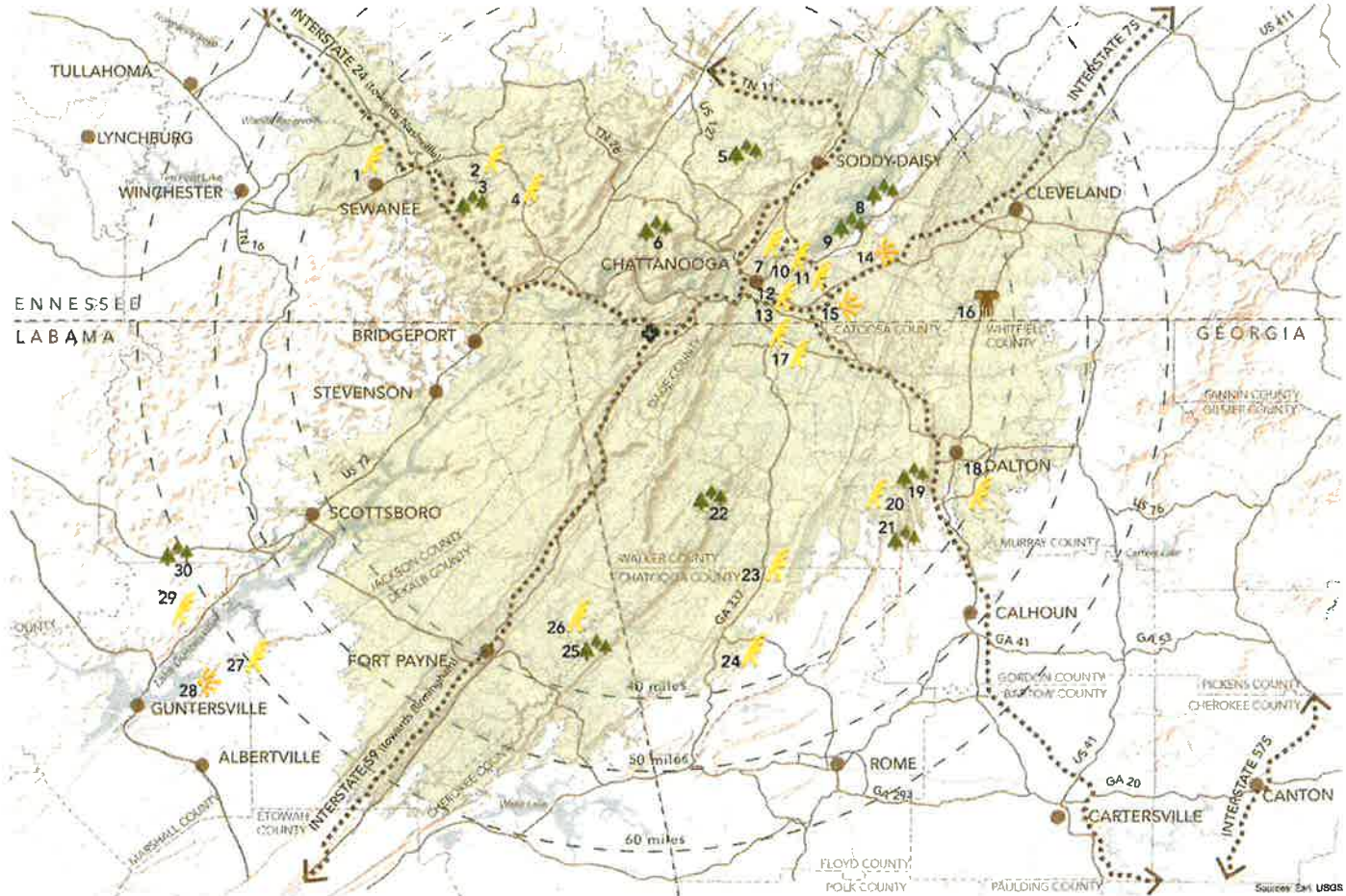
Legend

-  Roads
-  State Roads
-  Interstates
-  Streams
-  State Boundary
-  County Boundary
-  Radius in Miles
-  Site Boundary
-  Cities
-  Drive Time Area, 15 minutes
-  Scenic Places
-  Natural Areas
-  Recreational Places
-  Historic Places
-  Educational Places
-  Cultural Places
-  Wellness Promoting Places

60-Minute Drive Time:

The 60-minute drive time map to the right illustrates the recreational opportunities within a 45 to 60 minute drive from the property. Interestingly the 60 minute driving distance also reflects abundance of outdoor parks – state parks, national parks, water parks, and mountain parks, this is another indication of the draw and drive for outdoor recreation in the region. Since national parks and state parks are dependent on user influx, this also indicates that the numbers of users are big enough to make these facilities sustainable. So, the potential site uses can be marketed towards the users that are frequenting the parks and forest areas within this one hour driving distance. Apart from golfing, one more noticeable interest in the region seems to be horseback riding. There is an equestrian event venue near the site and an equestrian trail within 40 miles from the site.

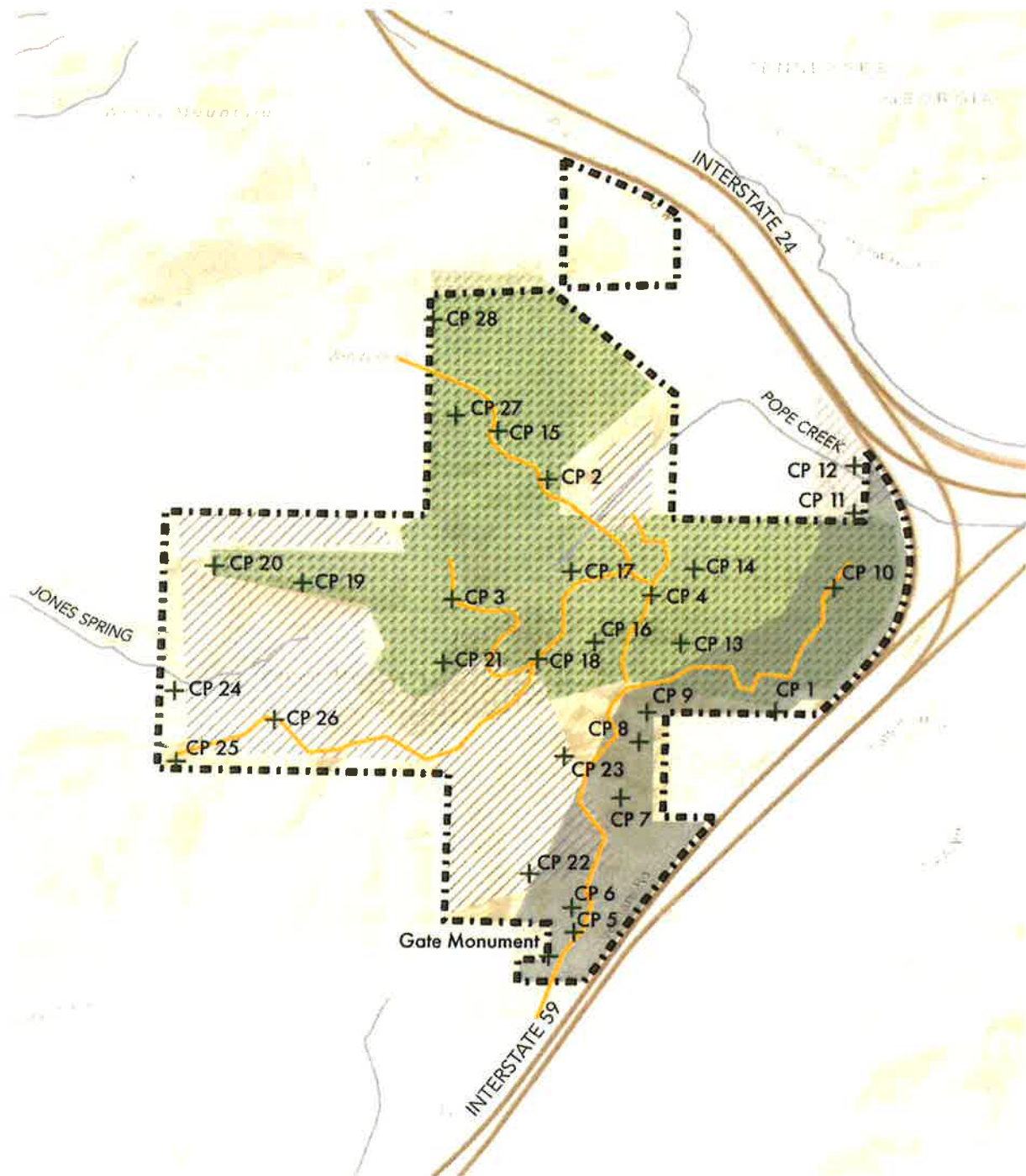
This map also highlights that bigger recreational hubs are at one hour distance so we can assume that there are potential users that drive 50-60 miles for recreation. Adventure activities can be planned in such way that people are drawn to the site and make it a part of their travel itinerary. The development scenarios in the following section capitalize on the site proximity to all of these existing attractions.



60-MINUTE DRIVE TIME

- | | | | |
|---|------------------------------------|--|---|
| 1. Harris Stadium | 8. Harrison Bay State Park | 17. Cloudland Canyon State Park | 24. James H. Floyd State Park |
| 2. South Cumberland State Park | 9. Booker T. Washington State Park | 18. Dalton Falls Fun Center | 25. Little River Canyon National Preserve |
| 3. Grundy Lakes at South Cumberland State Park | 10. Chattanooga Lookouts | 19. Rock Face Mountain Top Park | 26. De Soto State Park |
| 4. Foster Falls Recreation Area | 11. Engel Stadium | 20. Dry Creek Equestrian Trailhead | 27. Buck Pocket State Park |
| 5. North Chickamauga Creek Gorge State Natural Area | 12. Finley Stadium | 21. John Creeks Stream Improvement Project | 28. Lake Guntersville State Park |
| 6. Prentice Cooper State Forest | 13. SOAKya Water Park | 22. Crockford Pigeon Mountain Wildlife Management Area | 29. DAR football Field House |
| 7. Coolidge Water Park | 14. Enterprise South Nature Park | 23. Trion Splash Pad | 30. Cathedral Caverns State Park |
| | 15. Audubon Acres | | |
| | 16. Red Clay State Historic Park | | |

Map: Places of Interest within 60 minutes of Drive Time (Jaspuneet Kaaur, 2019)



[DEVELOPMENT SCENARIOS]

Utilization Study for Veteran's Mountain

[D]

DEVELOPMENT SCENARIOS

Residential Development

Legend

-  Forestry Area
-  No Harvest Zone
-  Building Envelope
-  Lot Area
-  Built Area
-  Parking

Veteran's Mountain possesses many intrinsic qualities which make the mountain a valuable local asset. Many cultural, scenic and natural places of interest in the vicinity enhance the cultural value of the mountain as well. The analysis above and the values listed in the conservation easement allow for only certain activities and qualities to be developed for the site which are discussed below.

SCENARIO 1: RESIDENTIAL DEVELOPMENT

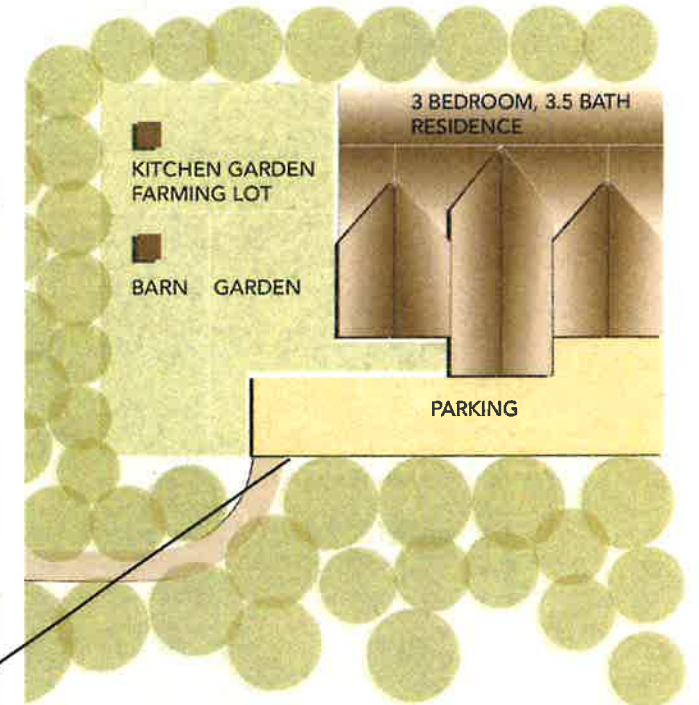
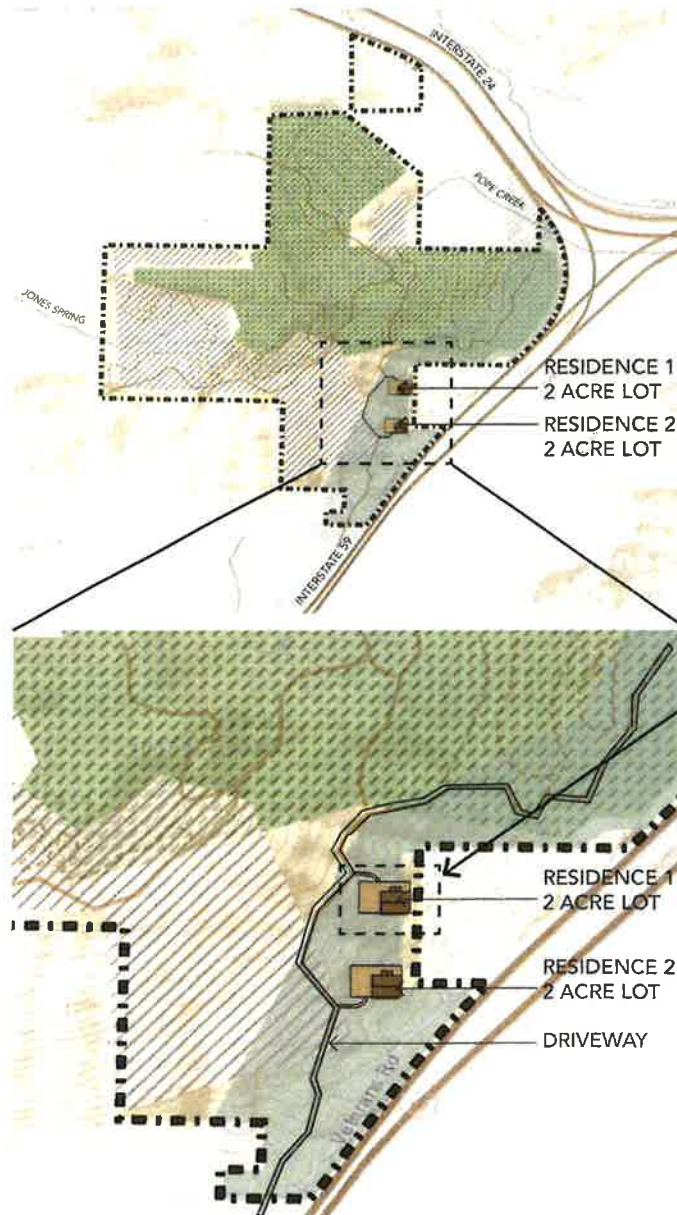
Under the conservation easement two residences with a footprint of two acres each can be built in the area classified as urban land use. The conservation easement allows for residences to include a barn, lawn, garden, and appurtenances. The residential development scenario will involve future work of finding an interested market and potential buyers / developers.

From the above analysis, it is evident that Veteran's Mountain is a desirable site for a mountain home, and baseline research indicates an existing market for homes such as the ones proposed in this scenario. After analyzing the demographics nearby, Chattanooga residents are found to have a penchant for sports and nature activities. Since the site is close to several recreational activities, as seen in the proximity analysis, it could be fruitful to market residential development ideas in this area. Additionally, the property's location and topography are two of its best intrinsic qualities. The topographical advantage provides opportunities for an active lifestyle that can be practiced by engaging in hiking, nature walks, hunting and horseback riding, just to name a few. Additionally, the location provides enough seclusion and isolation that quiet meditative exercises can be performed as well. So, people who want to be close to a city yet stay away from the chaos of a city lifestyle can be potentially interested in buying a secluded home on a mountain.

Top Left:
Site Plan showing residential development
(Jaspuneet Kaaur, 2019)

Bottom Left:
Map showing driveway and residential lots
(Jaspuneet Kaaur, 2019)

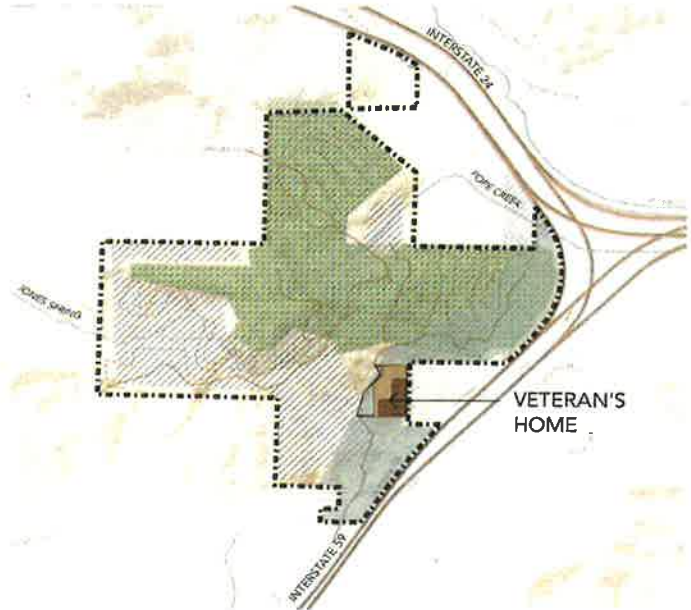
Right:
Conceptual plan for residential lot
(Jaspuneet Kaaur, 2019)



The conservation easement allows for the development of a veteran's retirement home on the property as per grantor's intent. The grantor was a World War II Veteran and he intended to help and support veterans. Inferring from his intent of helping veterans, we recommend that if the site is used for a veterans' home it should be inclusive of veterans of all age groups and backgrounds. It should be a place for veterans' retirement as well as a place for young veterans who are in transition from service to civilian lifestyle.

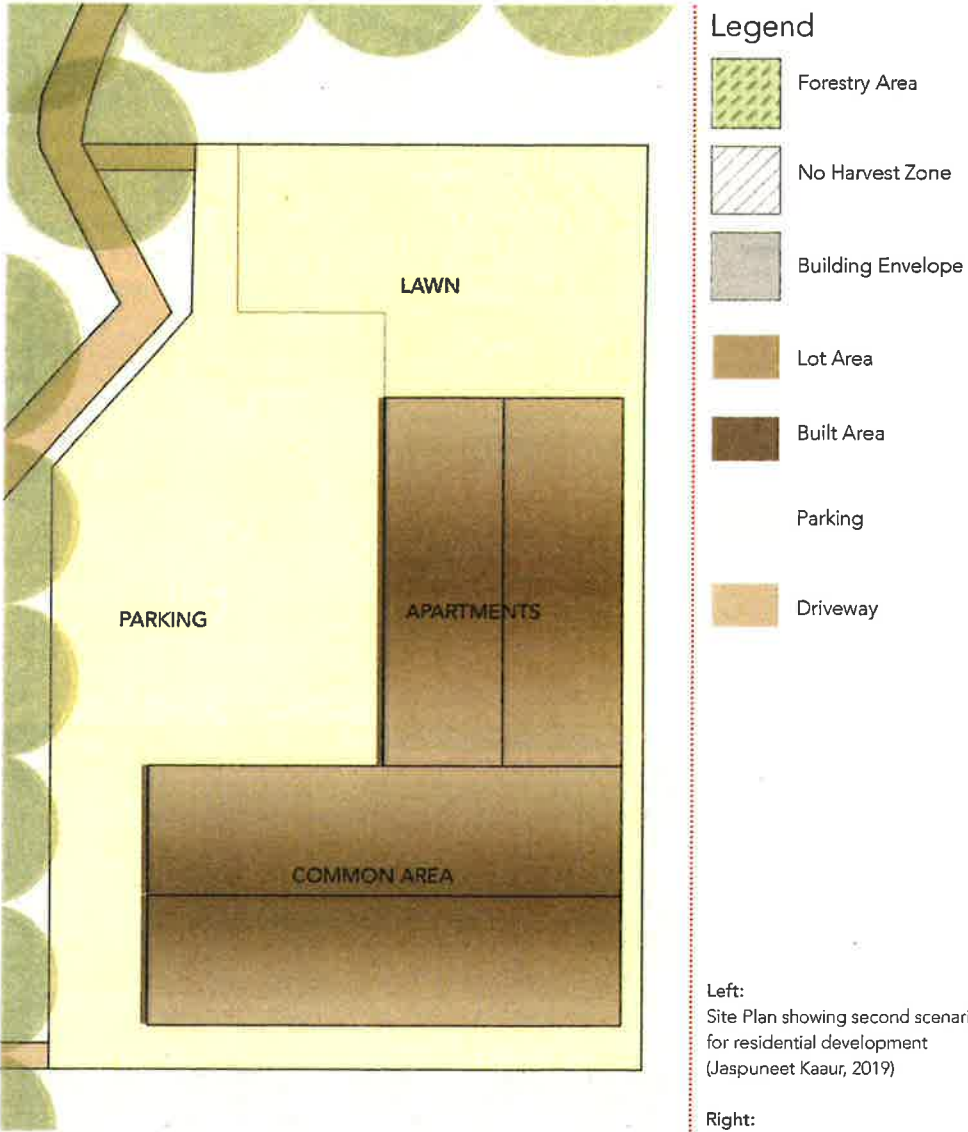
The two federal veteran's retirement homes and most state retirement homes only serve retirees with 20 years or more of active-duty service who are at least 60 years old. However, a few non-profits run retirement homes are for all former servicemen and servicewomen; yet research indicates that there are more than 40,000 veterans who sleep unsheltered. Supportive Services for Veterans Families, run by a grant from Veterans Affairs and private organizations like Mercy Housing, help all former servicemen and servicewomen. However, the services available are different for non-profits contingent to funding and support and there is a gap in services available to veterans. There is need to expand the definition of retirement for veterans and build facilities that includes all former servicemen and servicewomen from any branch of the armed forces.

Keeping up with the intentions of the grantor, we have explored two options under which the property can be developed either as a Shared-Use Medium Density Building or a Veterans' Village with shared communal spaces. Veterans' housing can be funded through federal and state sources of funding like the Veterans Support Foundation and U.S. Department of Veterans' Affairs for the construction and maintenance of a nursing home or apartments for veterans.



**SCENARIO 2A:
SHARED-USE VETERANS' HOME**

Under this scenario the area covered under the land use category "urban" can be developed as a medium density building which houses veterans and provides assisted living services through nurses and health care services. This development will prove beneficial for veterans who are living alone or are in need of care beyond which their families can provide. This scenario also caters to veterans who have a health condition that requires care and attention from a healthcare worker. The medium density building will house common facilities such as dining, social spaces and recreational areas. From a residential perspective there can be two type of facilities, one with rooms for veterans who need individualized assistance and one with apartments for veterans who need minimal help who are only in need of transitional housing.



Left:
Site Plan showing second scenario for residential development (Jaspuneet Kaaur, 2019)

Right:
Conceptual plan for building components of Veterans' Home (Jaspuneet Kaaur, 2019)

DEVELOPMENT SCENARIOS

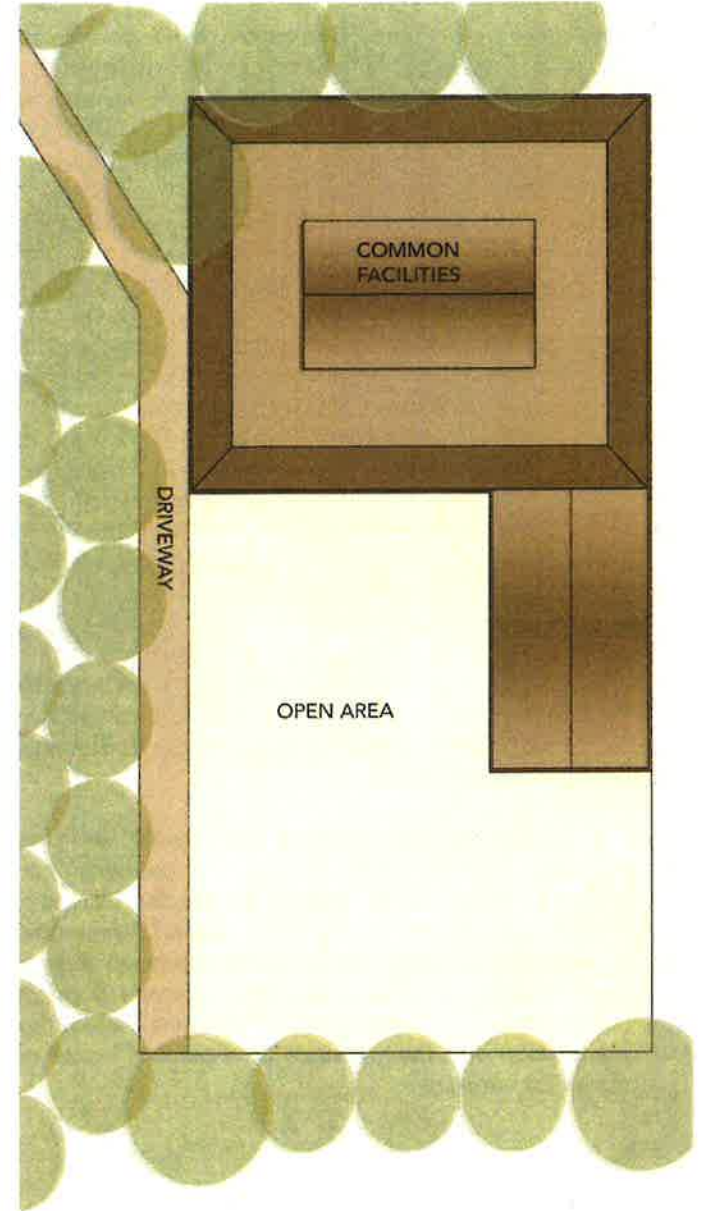
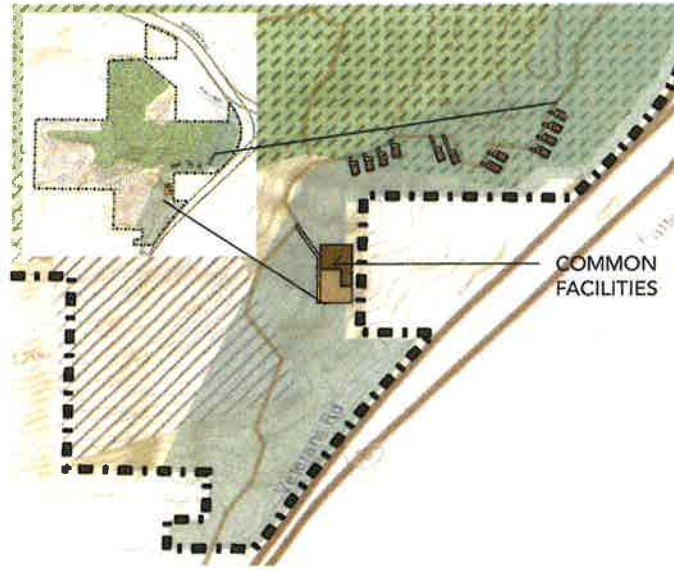
Veterans' Village

Legend

-  Forestry Area
-  No Harvest Zone
-  Building Envelope
-  Lot Area
-  Built Area
-  Parking
-  Driveway

SCENARIO 2B: VETERANS' VILLAGE

This scenario explores the possibility of building a common use facility that can house a communal kitchen, dining area, medical clinic, social spaces, and recreational activities. Residential facilities will be geared towards veterans and their families and can house about 12 houses with 3 bedrooms, living, dining, and kitchen/office space. This development can support a business model for self-sustenance by taking advantage and investing in the intrinsic qualities of the site and the valuable skill sets of the veterans living on site. The site has potential to be developed as a major recreational hub for archery, ropes course, hunting, and obstacle training. These services and training can be provided by veterans living on the property that are skilled in these activities. The income thus generated can be used to fund and maintain the common facilities.



Top Left:
Site Plan showing veterans'
development
(Jaspuneet Kaaur, 2019)

Bottom Left:
Map showing driveway and
residential lot
(Jaspuneet Kaaur, 2019)

Right:
Conceptual plan for communal lot
(Jaspuneet Kaaur, 2019)

SCENARIO 3:

Recreational Uses

The drive time maps indicate that the region thrives on outdoor recreation uses, so we have analyzed which activities would be feasible such that they provide economic value for the owner and do not contradict the conservation easement. Trails provide access to remote areas, accommodate a diverse array of recreational activities, and protect resources by concentrating visitor trampling on narrow and resistant tread surfaces. Trails have impacts on vegetation, soil, water, and wildlife so, we recommend making use of existing trails and roadways for the purpose of recreation. Additionally, we highly recommend that a surveyor, or a trails manager be consulted for implementing trails. The property can be divided into zones and dedicated trails of about 25 miles per acre can be carved into the existing topography under the existing canopy cover. Most of these trails will follow the existing roads / paths on site and new trails will only supplement the existing pathways such that recreational use of that particular activity can be maximized.

Alternatively, the existing roads can be developed with minimal intervention and better inter connections, and these trails can be used seasonally for the activities mentioned below. For example, since there is a horse park near the property on the other side of Interstate 59, the subject property can be exclusively used as an equestrian trail when the horse park is active. Another strategy would be scheduling the services according to the seasonality of the activities such as using trails for bird watching during migratory bird seasons. Mountain biking activities could be conducted in the summer, and Off Highway Vehicle and hunting activities can take place in the fall and winter when the canopy cover opens a bit after deciduous trees have shed leaves.

OFF HIGHWAY VEHICLES (OHV)

Motorized trail riding is defined as the exploration of trails and natural areas by use of all terrain and off highway

vehicles. Activities associated with motorized trail riding include rock crawl, Jeep exploration, the use of side-by-side utility vehicles, closed course motocross, and the use of trail motorcycles for recreational trail riding. A large part of the site falls under no harvest zone and does not overlap with the forestry area, so this portion of the site can be explored for OHV trails. The incline and height variation on the mountain can be further explored to create a challenging and interesting trail network for beginners as well as experienced OHV riders. However, appropriate precautionary signs must be placed along the trails that inform riders to stay away from wildlife and their water sources.

OHV riding is popular among outdoor adventure sports enthusiasts, our potential market. In the proximity analysis we discovered that in the region only Lookout Mountain has OHV trails and they offer limited access at a nominal price. So, the business model of Lookout Mountain can be studied for further insight. Although the conservation easement does not explicitly allow OHV activities, it is not specifically prohibited and ample precedents are available for sustainable implementation of OHV activities.

MOUNTAIN BIKING

Mountain biking is the sport of riding specially designed mountain bikes off-road, often over rough terrain. The topography of the site is such that it will provide ample challenge both uphill and downhill. The option of a skills clinic with a professional mountain bike instructor can also be explored to ensure bikers remain in a controlled environment with activities monitored to reduce potential negative ecological impacts.

EQUESTRIAN TRAIL RIDING

Equestrian riding refers to the skill of riding, driving, steeple chasing, and/or vaulting of horses. Horseback trail riders can view the scenery, experience nature, explore and discover new things, relax physically and be physically active. The



Map:
Development Scenario showing
Recreational Zones
(Jaspuneet Kaaur, 2019)

Photo:
Off Highway Vehicles
(Minnesota OHV Trails)

DEVELOPMENT SCENARIOS

Recreational Development

site is nearby to a horse park as mentioned earlier, and that proximity can be beneficial in attracting users to the site for additional equestrian activity. Partnerships with neighborhood schools can be explored where school children who are adept in horseback riding, or want to learn equestrian activities, can use the site for training and education. Fall is a wonderful time to explore trails and enjoy fall colors and cooler temperatures, and since our site is ecologically diverse it can offer users immersive experiences of the native ecosystems of northern Georgia.

HUNTING / ARCHERY / SHOOTING SPORTS

Shooting sports include the recreational sport of firing handguns, rifles, and/or shotguns at moving or fixed targets. Hunting, defined as the practice of killing or trapping any living organism, or pursuing it with the intent of doing so, also falls under the umbrella of "Shooting sports." Archery is a competitive sport, recreational activity, and a skill that uses a bow to shoot arrows.

One of the existing uses of the site is hunting and shooting, which should be continued. However, the planning team recommends adding additional supporting activities that can occur parallel for added economic benefit. Additionally, there is also a lack of shooting sports in the region as seen in the proximity analysis, so the site can become a hub for shooting related recreational activities. As mentioned earlier taking advantage of the seasonality of recreational activities and using the site for multiple activities will prove beneficial for the owner.

Archery has a branch called "field archery," which is not shot over flat land, but includes up and down and cross-slopes, unmarked distance targets and challenges of light, dark and shadow. These additional aspects require secluded and isolated practice areas with limited human access. Since the site sits on a mountain with mostly covered tree canopy, it can be beneficial for field archery.

ROPES COURSE / ZIP LINING

Ziplining involves the exploration of natural areas by use of above ground cable systems. Participants don a harness with a caribiner that is attached to a wheel that rests on a cable strung between two trees. Ropes Courses are an outdoor activity for personal development and team-building which usually consist of high and/or low elements. Low elements take place on the ground or just above the ground. High elements are usually constructed in trees or made of utility poles and require safety equipment.

Ropes course and zip lining both involve construction of high platforms and users will get a chance to take in the remarkable surroundings as well as the canopy from these platforms. Additionally, the site offers many forms of wildlife that maybe viewed from the platforms prepared for a rope course and zip lining. To enhance this experience an audio guide while en route or a video presentation before the tour can inform users about the wildlife and flora. However, it requires appropriate safety equipment and trained individuals to carry out these recreational activities on site. These activities could be particularly well-suited for the younger, more-active veterans residing at the veteran's home/village.

HIKING / BIRD WATCHING

Hiking is an outdoor activity, which consists of a walk in natural environments, often in mountainous or other scenic terrain. Bird Watching is the observation of live birds in their natural habitat. These activities are similar to the many recreational opportunities supported by the state and national parks near the site. The site offers a challenging hike and can be developed and promoted for experienced and/or adventurous hikers. Since the site is home to multiple ecosystems and is largely undisturbed it provides a great habitat for a variety of wildlife and birds. Bird watching can be augmented by providing field guides, books and documentaries that enhance the experience and help develop interest. Georgia birders lists high-elevation peaks of the southern Appalachian Mountains in the north as a spectacular destination for bird watching, making Veteran's Mountain an ideal location for such activities.



Photos:

Top Left: Field Archery
(Lancaster Archery Supply)

Top Right: Equestrian Trail Riding
(National Park Service)

Center: Ropes Course
(www.kletterpark-hamm.de)

Bottom: Bird Watching
(Sarawak Tourism)

SCENARIO 4:

Education

The Georgia Department of Natural Resources (GDNR) recognizes that Georgia stands among the bottom ten states when it comes to state-owned parks and recreational facilities, and they want to expand and invest in their inventory of open spaces. A report from GDNR also suggests that Georgia Soil and Water Conservancies should partner with private sector such that properties with significant environmental value can be looked into as potential parks/recreational facilities. These partnerships should be encouraged and further explored in future development phases of the property.

Analyzing the property from the Georgia Land Trust's idea of open space preservation provides a unique opportunity where in the site can be developed as an educational interpretation park. Georgia, because of its location, is quite ecologically diverse and has a rich geologic history with varied layers of soil and rocks beneath the surface. Each layer of rocks in Georgia relates to the formation of the state through time. The Land Trust's efforts of exercising conservational rights over properties has granted conservation of several properties, but most people don't know the **significance** of such conservation efforts. One way to educate the **general** public about the significance of native ecosystems and conservation is through interactive kiosks that engage visitors and encourage them to understand the importance of ecological conservation.

An open museum where sections of earth's crust are featured along a provocative walk can help develop an understanding about geology and water beneath the earth's top layers of soil. The soils across Georgia's landscape are varied in terms of its texture, color, density, and porosity, and a living museum of these will help in interpreting our geologic past. It will be beneficial for school students, visitors, and residents as well. Wildlife, forestry, and the plant communities associated with onsite ecoregions allow for



expanding the understanding of these through exhibits and educational signage. Such a practice will enable capitalizing on the site's properties as a natural arboretum. Additionally, presence of fossils on the site also suggests that the site can be of archaeological interest, too. Together, these elements can make for a revelatory design that can educate visitors about the ecological diversity and significance of the site. Partnerships with public, private and non profit stakeholders should be explored. The Chattahoochee Nature Center provides a very good example of how public-private partnership has created a refuge for nature enthusiasts just outside of bustling Atlanta.

Another example is the interpretative program of California Department of Parks and Recreation. The Board explores the interaction between people and their environment through interpretive programs. There is a K-12 School

Group Program where students learn about cultures and lifestyles, and use this knowledge to recreate elements of the culture or era being studied. An environmental studies program involves an overnight stay at the park and incorporates demonstrations, hands-on activities, and follow-up student assignments. GDNR, local governments, boy scouts, and girls scouts groups would all potentially be interested in education, training, and mentoring programs that encourage and inspire younger generations to become users, volunteers, and professionals that protect the state and country's natural resource heritage.

Partner with State to Protect Land

Engaging in open conversation with city officials about values listed in the Georgia Land Conservation Partnership Plan (GLCPP) is a good start to partner with local governments and seek grants for maintenance and upkeep of the conservation

Photo:
Soil Exhibit, International Garden
Festival, Metis

DEVELOPMENT SCENARIOS

Educational and Interpretative Development

conservation easement-protected property. GLCPP recognizes that Georgia's private owners are the best stewards of land. However, GLCPP also acknowledges that the private owner suffers economically under the current conservation laws as the Ad Valorem taxes of Georgia tax land based on the land's potential use, rather than the existing use of the land. Further, the GLCPP wants the state and local governments to provide incentives that helps create partnerships. Incentives identified in the plan include income tax credits for land conservation, revaluation of conservation easement lands for ad valorem taxation, promotion of Georgia-grown forestry and agricultural products, and flexible partnering approaches. One approach listed in the plan is to stimulate markets for Georgia agriculture and forestry products is for the relevant state agencies, and landowners to partner in marketing and certification of Georgia-grown products. This could be done by expanding the "Georgia Grown" program of the Georgia Department of Agriculture.

One example of this is the Brunswick-Topsham Land Trust in Maine that emphasizes the conservation of regionally significant farmland. The state purchased a centrally located working farm to preserve the character of the community. The land trust and community have preserved the working farm through an innovative, longterm lease to a farm family. The land trust is now the site of their farmer's market and a community garden that includes a section that provides food to a local food pantry.

A similar program can be explored for the site by seeking a partnership with the Georgia Forestry Commission and GDNR to develop the previously mentioned Land Management Plan for sustainable forestry practices. The site can also be maintained as a forest as GDNR believes that funding should be made available to the Georgia Forestry Commission to enable the implementation of the Georgia Carbon Sequestration Registry Act. So, a partnership with the Georgia Forestry Commission can be explored or an



independent grant can be applied for the maintenance and upkeep of the site as a forest and earn carbon sequestration credits.

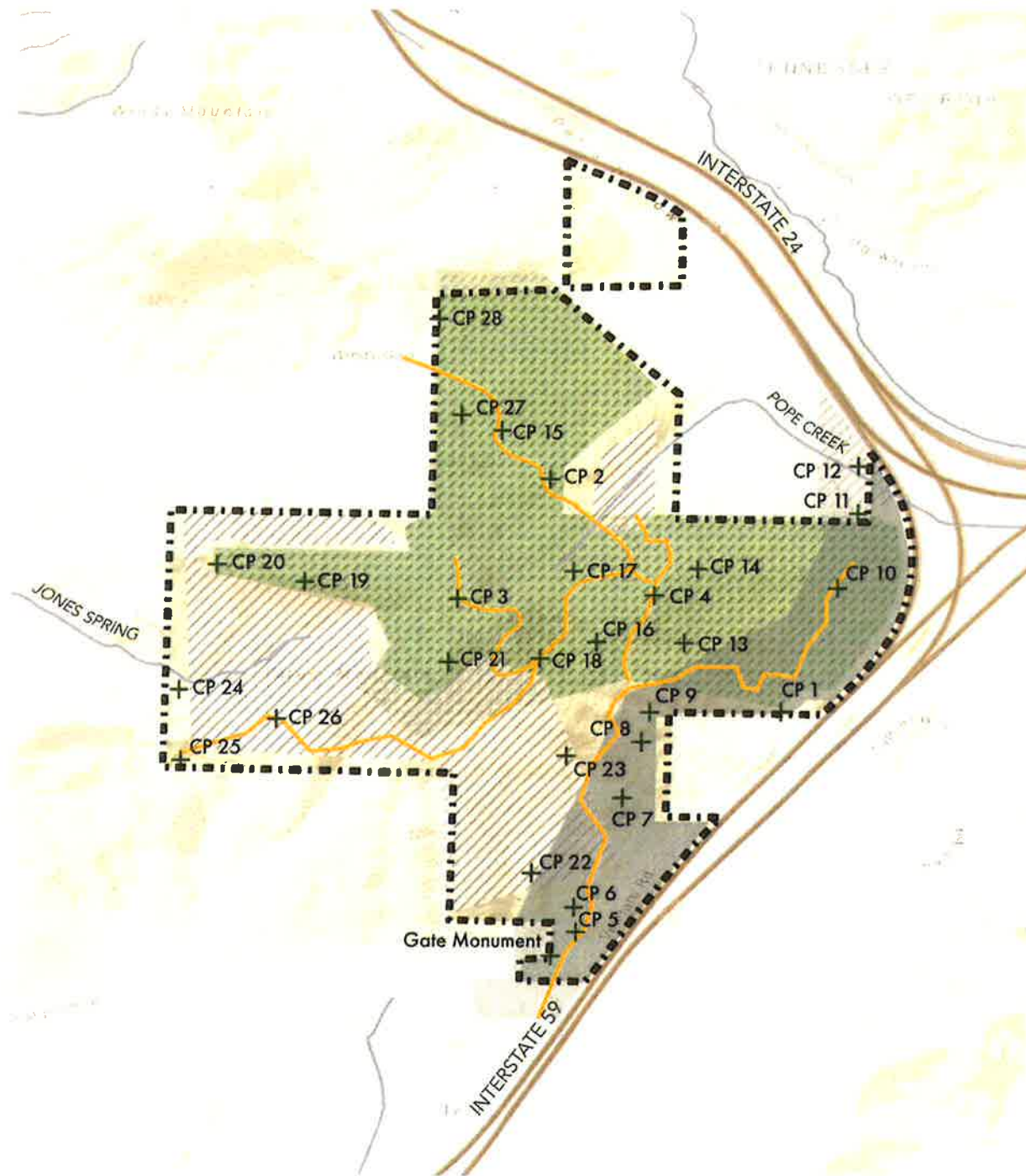
Partner with State for Promotion of Land Conservation
Conservation partnerships can best meet their goals if the public continues to support the conservation of environmentally significant lands. GDNR, Georgia Forestry Commission, the Georgia Soil and Water Conservation Commission, the Cooperative Extension Service, and other institutions and organizations want to develop outreach programs for landowners to provide technical support on land conservation. They want to develop a training facility where resources can be made available to land owners, educational sessions can impart knowledge on various laws, resources and tools available for land conservation. Since the site is protected under the easement, it could be an ideal place to house such a facility so a partnership can be explored with the state government to develop such a land conservation center. An example of this is Smithgall Woods-Dukes Creek Conservation Area. This 5,600 acre tract of land was sold to the State by the owner who wanted to see it protected forever.



Photos:

Top: Interpretive Signage
(Dean Edgington Portfolio)

Bottom: Smithgall Woods-Duke
Creek Conservation Area
(Georgia Department of Natural
Resources)



[CONCLUSIONS]

Utilization Study for Veteran's Mountain

[CONCLUSIONS]

Legend

-  Forestry Area
-  No Harvest Zone
-  Building Envelope
-  Check Points
-  Surveyor's Path

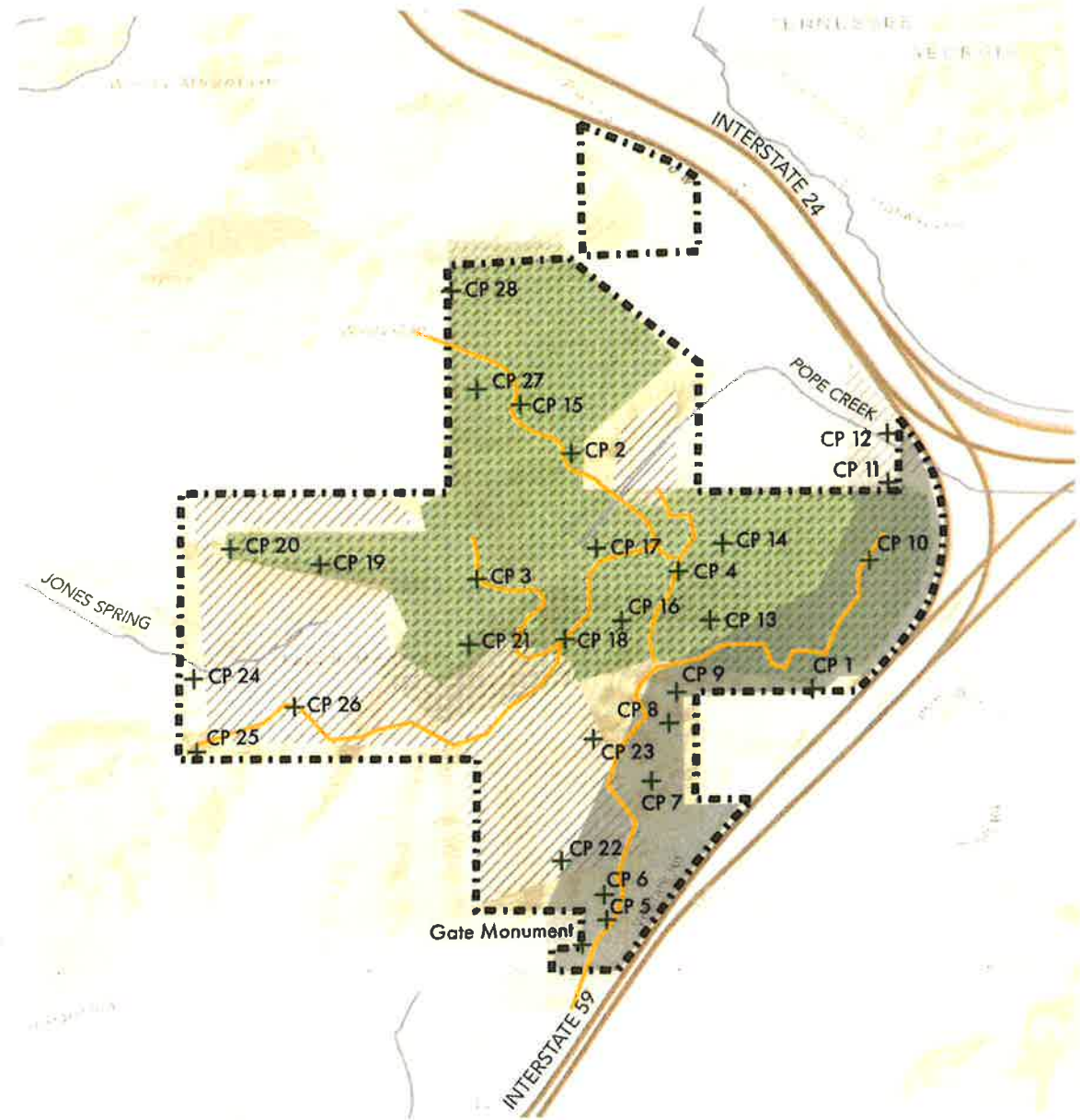
CONCLUSIONS

In conclusion, while some monetary value has been diminished with the granting of the conservation easement, the subject property still retains substantial value for development as an adventure tourism destination for locals and tourists that could also act as an educational outdoor classroom for students in the region, as well as resale value for the development of the residential properties, veterans' home, or veteran's village. In addition, the property retains value as a mature woodland forest that can be selectively harvested for timber and as a potential location for unobtrusive windmills to generate power to sell back to the grid.

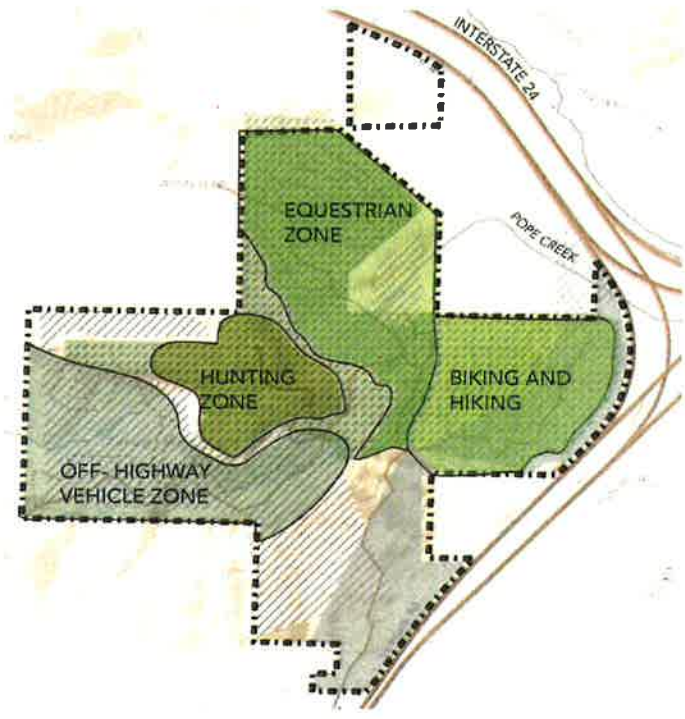
The planning team recommends further exploration of the potential for these types of development through seeking partnerships with state, regional, and local agencies to include licensed professional foresters, adventure tourism management companies, real estate developers, local educators, and veteran's support agencies and non-profits. In order to maximize the productivity and potential value for the property, more than one of the proposed development scenarios should be implemented in tandem.

The residential and veteran's development scenarios would both greatly benefit from the presence of the proposed adventure tourism activities and educational opportunities, and would fetch a higher sale price if sold after implementation of these concepts. It will be up to the property owner to determine the desired development pattern of choice between the 2-acre residential developments, veteran's home, or veteran's village. The planning team recommends discussion of these concepts with local real estate agents and veteran's agencies prior to making that decision. While the residential developments might be the easier, low-hanging fruit for profit - the veteran's home or veteran's village may be more in line with the grantor's wishes and could have a positive impact on more individuals. In addition, the veteran's home or village could help support the proposed adventure tourism activities through utilizing resident veteran's as employees to manage the property. This partnership could provide mutual benefit to the property owners, veterans, site users, and adventure tourism managers by providing a live/work situation for veterans that allows them to utilize their specific skill sets while providing a quiet and peaceful setting for rehabilitation into the civilian lifestyle.

Map:
Conservation Map
(Jaspuneet Kaaur, 2019)



CONCLUSIONS



The planning team recommends future planning and design efforts prior to construction of the proposed development scenarios to include:

- Land Management Plan completed by qualified forestry professional to include projected revenues and sustainable forestry practices to ensure the intent of the conservation easement is being met during forestry activities.
- Adventure Tourism Master Plan to further understand the seasonality and scheduling of the various adventure tourism activities mentioned in the Development Scenario section of this document.
- Residential Market Study to further understand the market for mountain homes in the region to include Pro Formas to understand return on investment.
- Conversation with veterans' groups regarding the market for veterans' homes / rehabilitation centers to include veterans of all ages and backgrounds. To the planning team's knowledge, no facilities such as this exist for case study.
- Conversations with local educators from primary to college-age to understand their needs regarding outdoor education opportunities in the region, and how the intrinsic qualities of the site can be leveraged to develop these activities.

If amendments to the easement are possible, the planning team recommends the following:

- Open the "Veteran's Home" concept to a "Veteran's Village." This type of development would have a more positive impact on both veterans and the land.
- Remove the full restriction of construction of access roads and replace with a more nuanced restriction allowing certain lengths of roadway to access the site.

In addition to these efforts, the planning team strongly recommends looking further into the quadrilateral shaped parcel at the north end of the property to confirm that it is not included in the conservation easement, and therefore is open to any development allowed by the county, state, and federal governments.

Map:
Development Scenario showing
Recreational Zones
(Jaspuneet Kaaur, 2019)

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(Lancaster Archery Supply)

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Center: Ropes Course
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