

# United States National Arboretum Master Plan Update

Presentation to the Commission of Fine Arts

July 2, 2020

REED HILDERBRAND





# PROJECT STATEMENT: INTRODUCTION





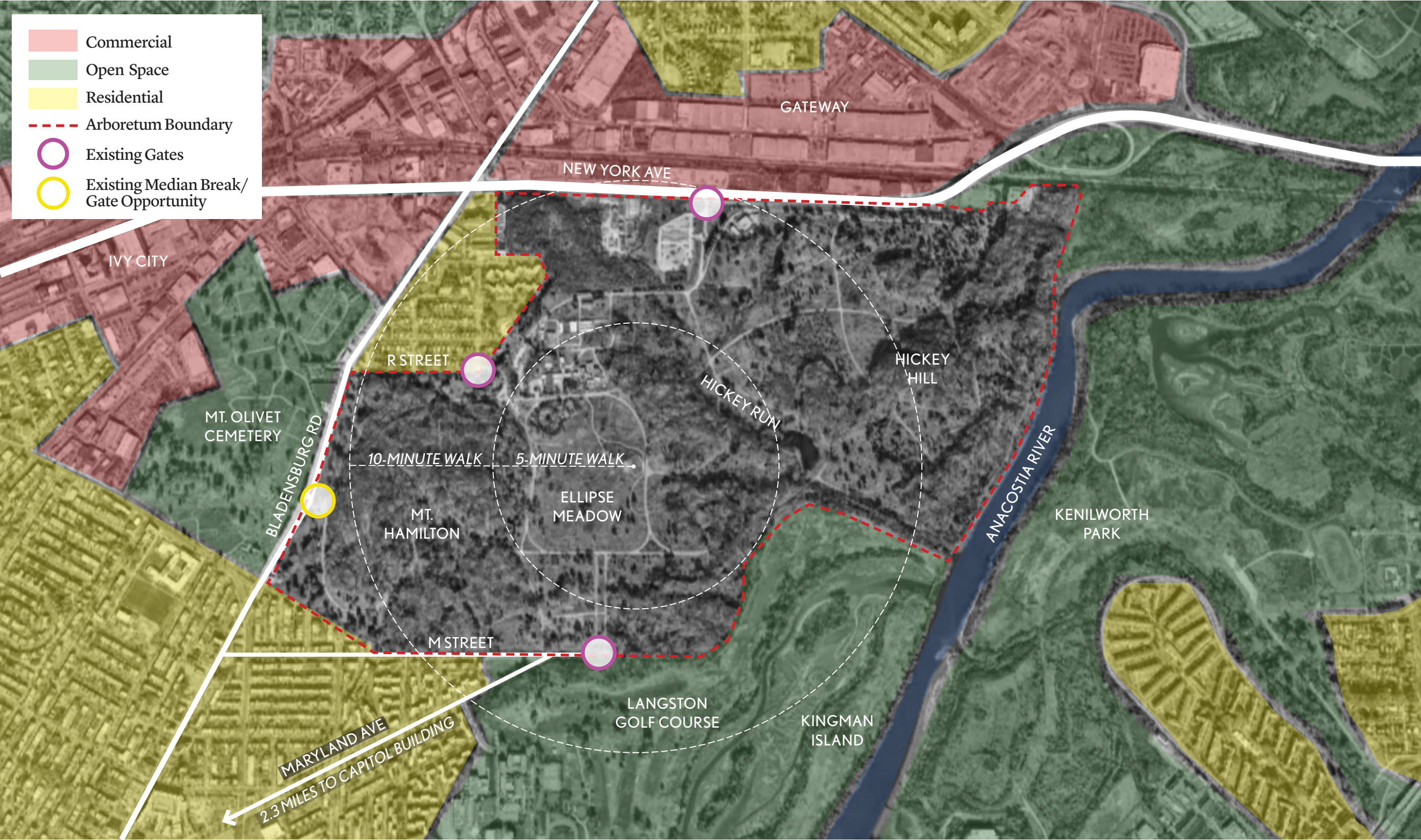
# PROJECT STATEMENT: LOCATION WITHIN THE CAPITAL



LOCATION OF UNITED STATES NATIONAL ARBORETUM IN WASHINGTON, D.C.  
(IMAGE FROM GOOGLE EARTH)



# PROJECT STATEMENT: CONTEXT





## PROJECT STATEMENT: MANDATE

1. Reexamine the 2007 Master Plan and the analyses that informed it, and reimagine within a more sustainable context (fiscally & environmentally).
2. Preserve and elevate the cultural resources reflecting the Arboretum's history, the agricultural context of the institute and the land, and the diverse landscapes of the Mt. Hamilton site.
3. Bring cohesion to the visitor experience by clarifying circulation and way-finding.
4. Acknowledge and embrace community connections, by increasing accessibility and supporting District alternative transportation plans.
5. Develop a Master Plan Update that will be implemented mostly through small, incremental changes, while allowing for strategic but often stochastic major investments.



# PROJECT STATEMENT

Introduction  
Location /Context  
Mandate

## PREVIOUSLY APPROVED MASTER PLAN 2007

Illustrative Plan  
Recommendations  
Proposed Modifications

## MASTER PLAN UPDATE 2020

Illustrative Plan  
Recommendations  
Identity  
Arrival, Circulation & Parking  
Arboretum Core  
Existing Site  
Proposed Plan

## APPENDIX

Summary of Site Development  
Existing Conditions Analysis  
Built Resources Survey  
Precedents

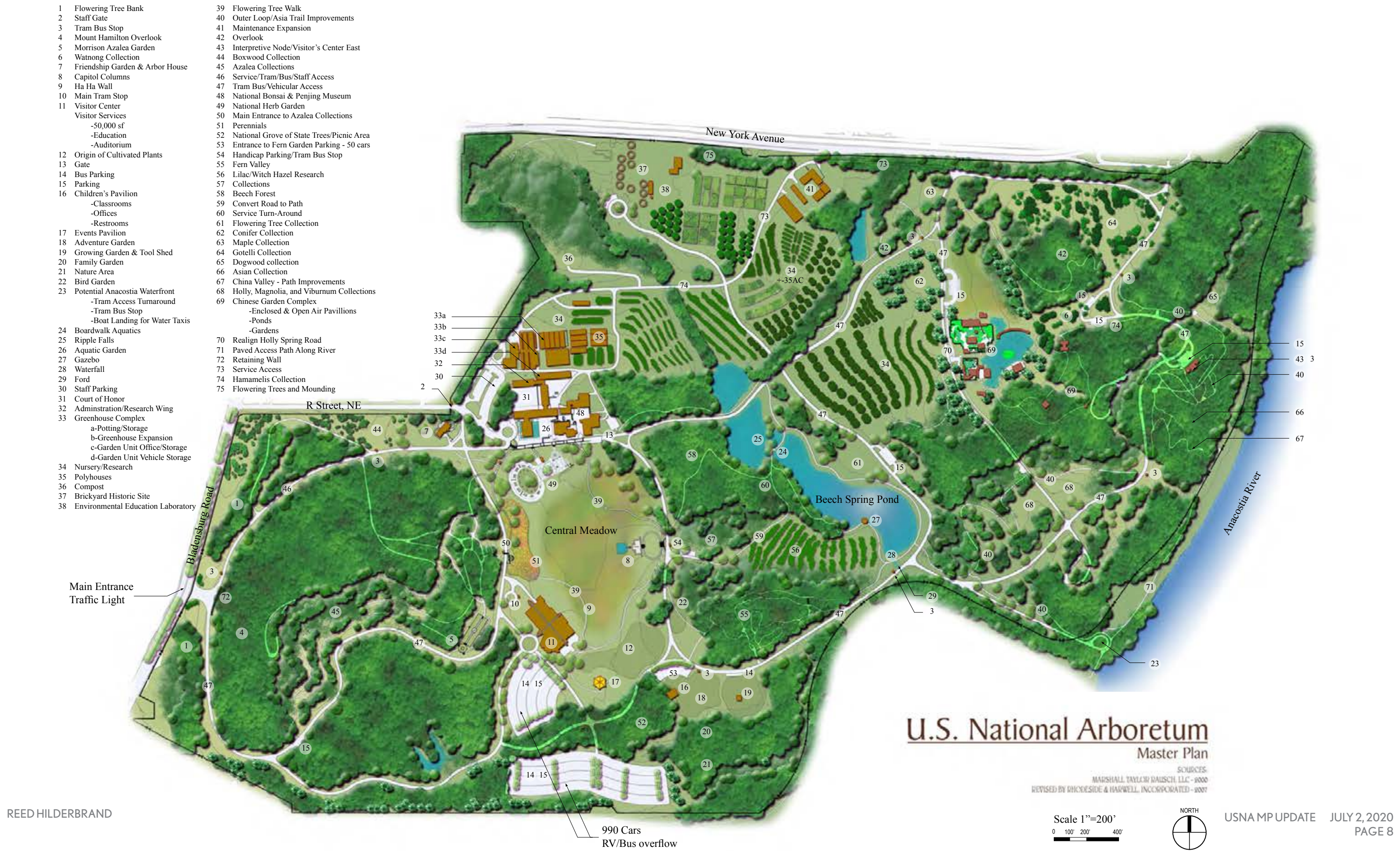


# PREVIOUSLY APPROVED MASTER PLAN 2007





# PREVIOUSLY APPROVED MASTER PLAN 2007 : ILLUSTRATIVE PLAN





# PREVIOUSLY APPROVED MASTER PLAN 2007: RECOMMENDATIONS

Determined to be consistent with, and appropriate to, the Strategic Plan 3 (2013-2017)

## RECOMMENDATIONS AS A SCIENTIFIC INSTITUTION

1. Renovate the greenhouse complex to provide state of the art facilities to serve the research and horticultural needs of the Arboretum
2. Modernize the Administration Building to support research reference collections (i.e., library, herbarium, and plant documentation) and construct a new wing to house laboratories
3. Build a new maintenance building to provide for the increased maintenance requirements that will come from additional Arboretum Development
4. Enlarge the area devoted to research plots to 35 acres and increase the area devoted to collections of plants for the preservation of genetic diversity
5. Develop an efficient composting and staging facility

## RECOMMENDATIONS SERVING THE COMMUNITY

1. Build a new main entrance to Bladensburg Road that is worthy of a major public institution. The corollary to this is to close all the other entrances to the public. This entrance should be as attractive as the rest of the Arboretum experience.
2. Create a core pedestrian precinct around the ellipse linking the Visitor's Center, Azalea Collections, herb Garden, Bonsai and Penjing Museum, Fern Valley, and the Capitol Columns supplemented by new displays
3. Create a perennial display within the core to further enhance the core and provide popular appeal.
4. Create an area which engages families and educates and enchants the next generation of Arboretum supporters
5. Simplify the circulation to create a series of loops for visitors to tour the grounds.
6. Renovate and modernize the existing infrastructure
7. Create a comprehensive introduction of the USNA on the www which includes virtual tour



# PREVIOUSLY APPROVED MASTER PLAN 2007: PROPOSED MODIFICATIONS

Recommendations re-examined and determined to be inappropriate

## RECOMMENDATIONS SERVING THE COMMUNITY

1. Construct parking areas to handle approximately 1,000 vehicles with easy access to the new visitor center.
2. Build a visitor center to serve as the gateway to the site and provide facilities to educate the public about the world of plants
3. Build a garden about the Origin of Cultivated Plants to introduce the public to the origin and evolution of economically important plants.
4. Provide a network of educational and visitor facilities across the site including interpretive centers, restrooms, limited satellite parking and places to get on and off the tram.



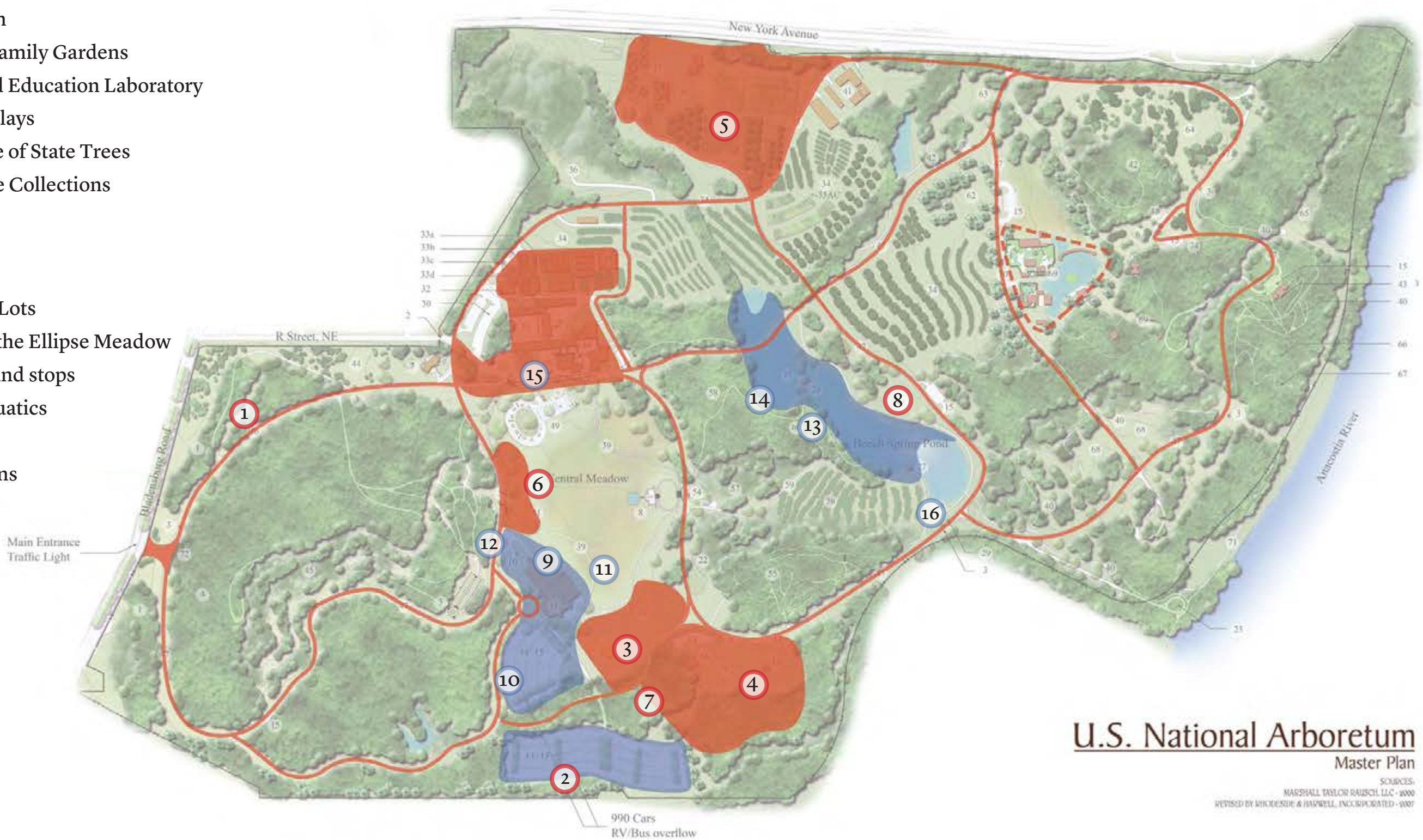
# PREVIOUSLY APPROVED MASTERPLAN 2007: PROPOSED MODIFICATIONS

## ITEMS RE-EXAMINED AND RE-IMAGINED

- ① Vehicular Circulation System
- ② Parking & Bus Parking
- ③ Events Pavilion
- ④ Adventure & Family Gardens
- ⑤ Environmental Education Laboratory
- ⑥ Perennial Displays
- ⑦ National Grove of State Trees
- ⑧ Flowering Tree Collections

## ITEMS REMOVED

- ⑨ Visitor Center
- ⑩ Large Parking Lots
- ⑪ Ha-Ha wall in the Ellipse Meadow
- ⑫ Tram System and stops
- ⑬ Boardwalk Aquatics
- ⑭ Ripple Falls
- ⑮ Aquatic Gardens
- ⑯ Waterfall



U.S. National Arboretum  
Master Plan

SOURCES:  
MARSHALL TAYLOR RAUSCH, LLC - 2000  
REVISED BY RHODES & HARWELL, INCORPORATED - 2007

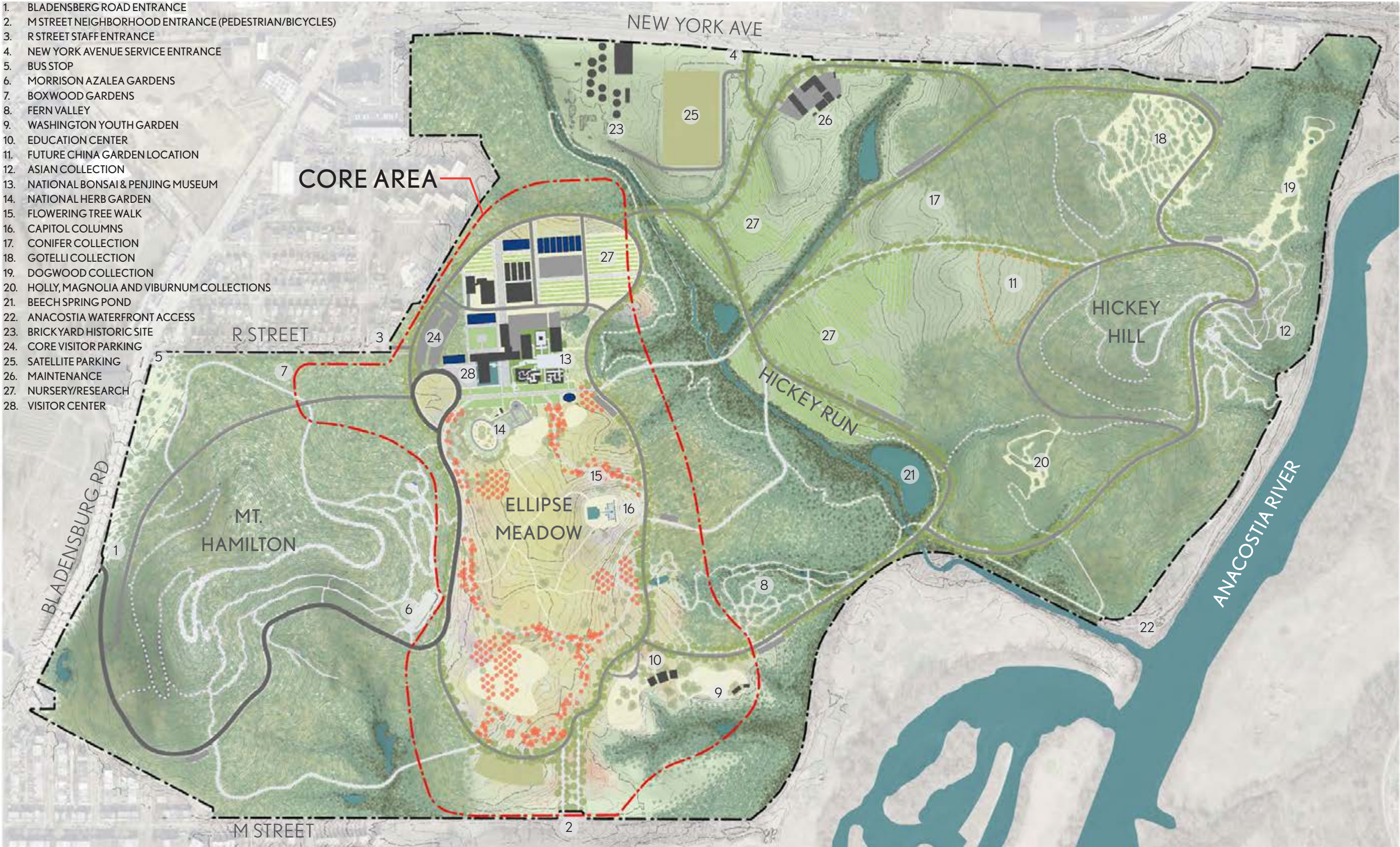


# MASTER PLAN UPDATE 2020





# MASTER PLAN UPDATE 2020: ILLUSTRATIVE PLAN





# MASTER PLAN UPDATE 2020: RECOMMENDATIONS

## IDENTITY

1. Express USNA's identity as a renowned science laboratory and unique ecological and cultural resource for the city and the nation by amplifying its four primary zones of character.

## ARRIVAL, CIRCULATION & PARKING

2. Construct a distinct new main entrance at Bladensburg Road, and close to the public vehicular access at the other entrances. The new entrance drive shall provide an overview of the varied natural systems of the site, show clear views of destinations within the arboretum, and terminate with a sense of arrival at the Administration Building and USNA Campus.
3. Clarify the site-wide vehicular circulation to create a series of hierarchical one-way loops for visitors to tour the grounds related to the site's four primary zones of character. Repurpose excess drives into pedestrian paths with limited service access.
4. Extend a network of pedestrian circulation across the site to connect the Core and the eastern collections and to provide access to the riparian areas. Establish a clear hierarchy within the pedestrian circulation across the site.
5. Reduce the Arboretum's impervious footprint by renovating the New York Ave and M Street Gate lots into stabilized meadow parking.
6. Construct small satellite parking areas and parallel parking along the loop drives to handle the varying demands of Arboretum attendance and at the appropriate locations within the site.

## VEGETATION PATTERNS

7. Augment the sense of expansiveness within the Arboretum; new plantings should reflect this vastness and keep in scale with the larger natural systems of the site, express circulation systems, and define zones of character.

## ARBORETUM CORE

8. Renovate the greenhouse complex to extend public education opportunities.
9. Reinforce the campus at the Core using the modernist language of the existing administration building and extending it to the adjacent greenhouses. The campus shall serve as the gateway to the larger site and the interface between the visitor and the Arboretum's scientific research.
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# MASTER PLAN UPDATE 2020: IDENTITY

Four primary zones of character

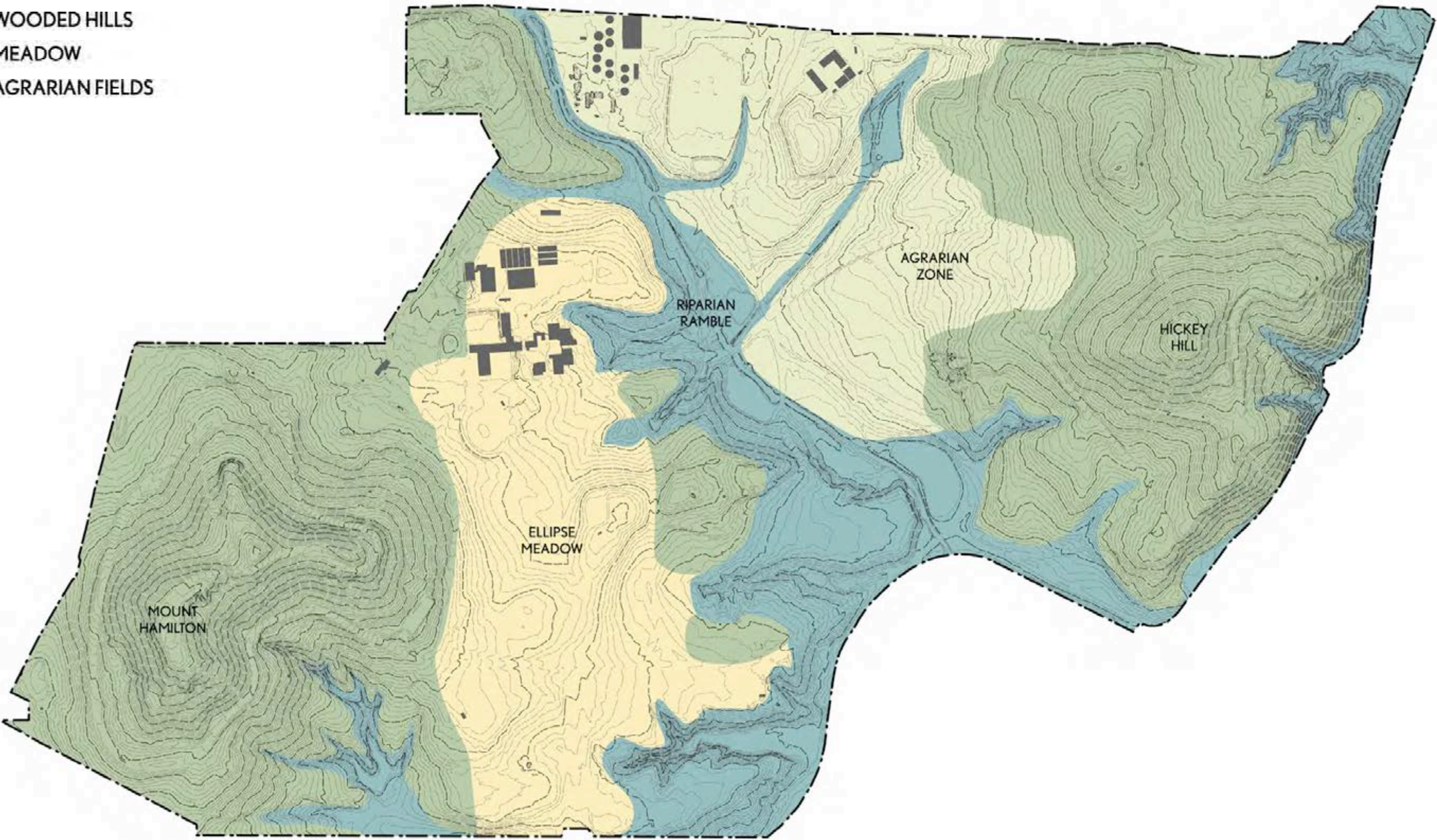




# MASTER PLAN UPDATE 2020: IDENTITY

Four primary zones of character

- DENDRITIC RAVINES
- WOODED HILLS
- MEADOW
- AGRARIAN FIELDS





# MASTER PLAN UPDATE 2020: RECOMMENDATIONS

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## HORTICULTURAL OPERATIONS

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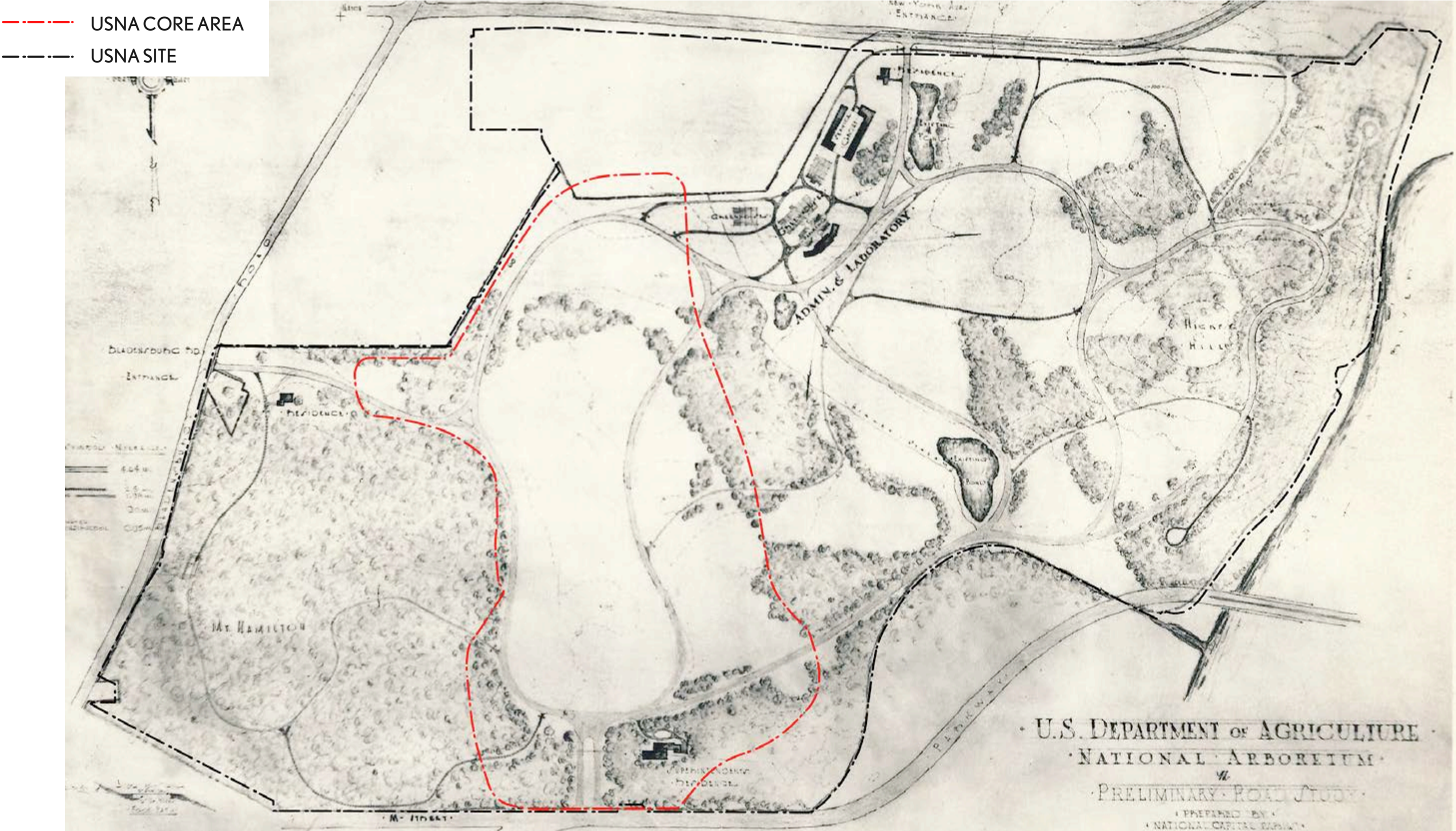
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# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

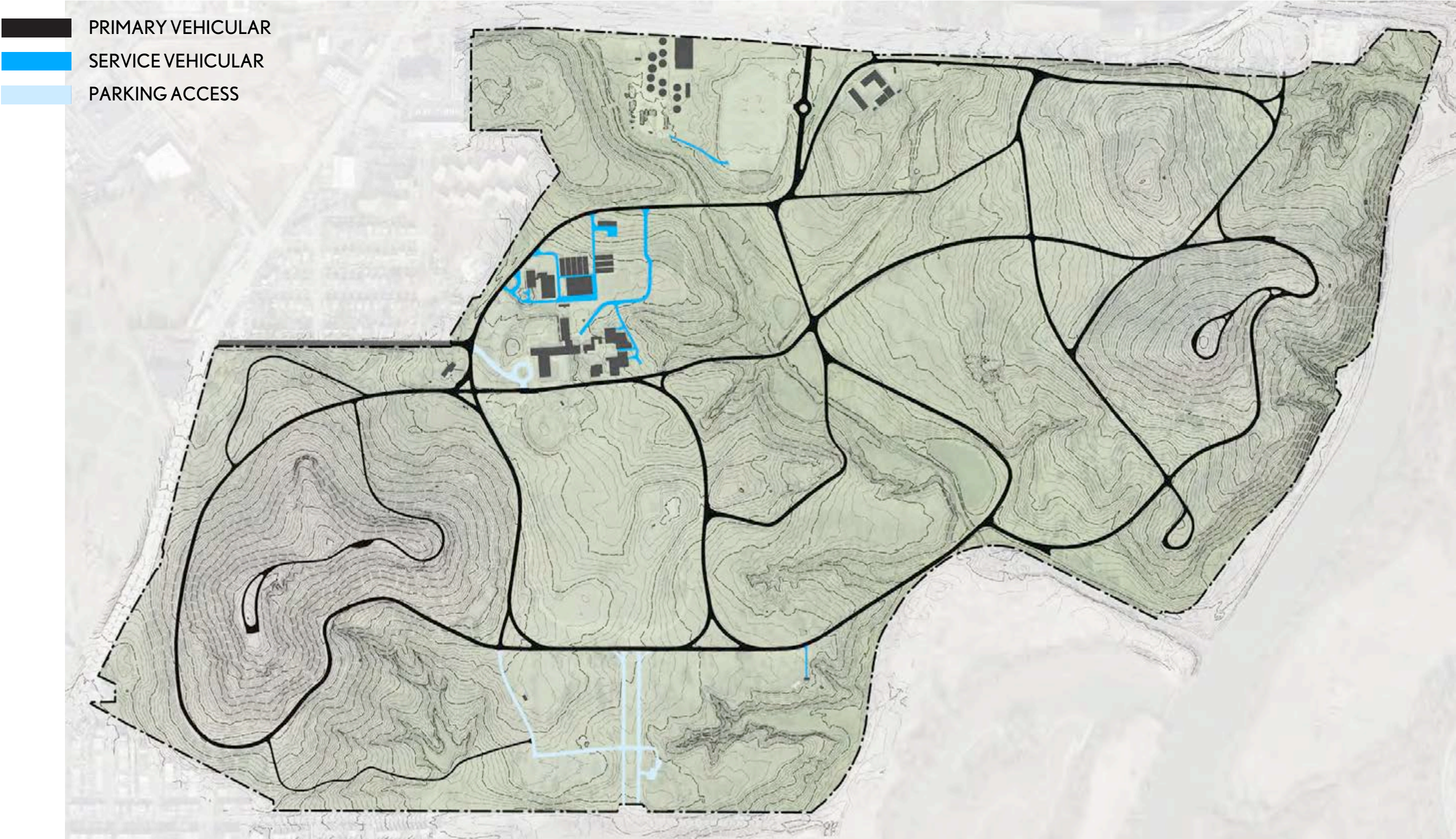
Precedent of Preliminary Road Study by National Capital Parks, 1937: Loops related to topography and ecology





# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

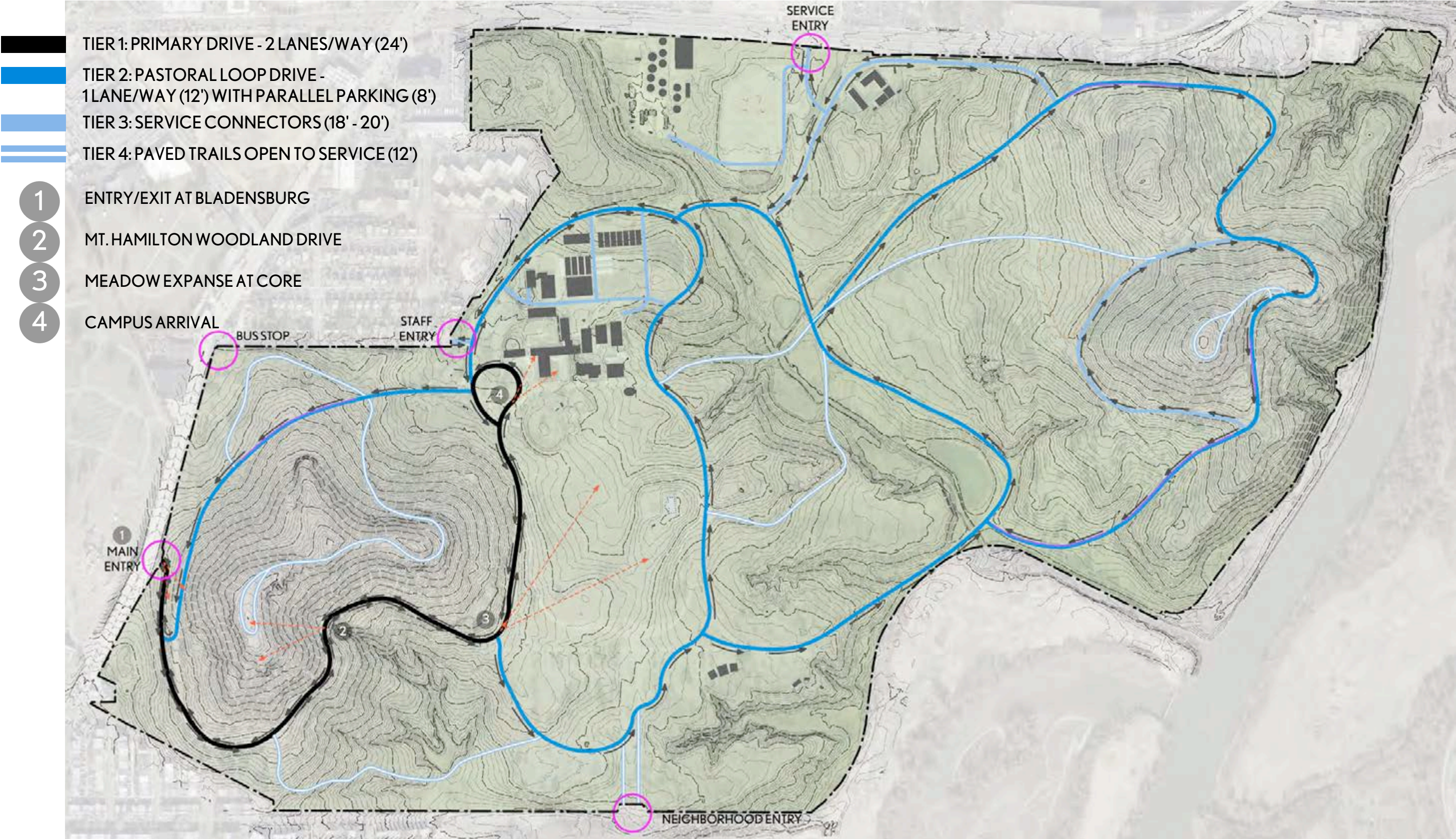
2017: Vehicular Circulation





# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

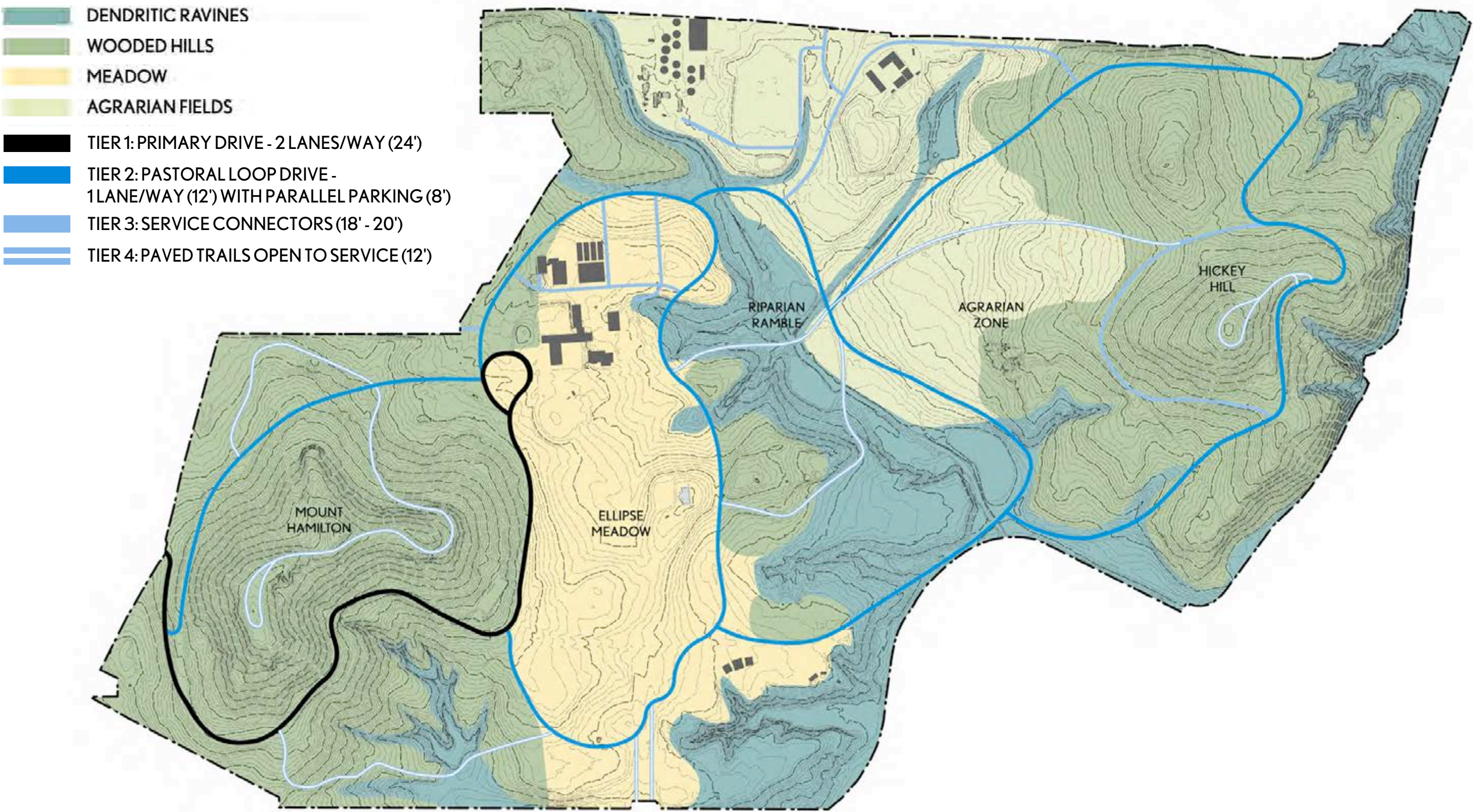
## Proposed Vehicular Loops: Entry at Bladensburg Road





# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

Proposed Vehicular Loops associated with Four Zones of Landscape Character

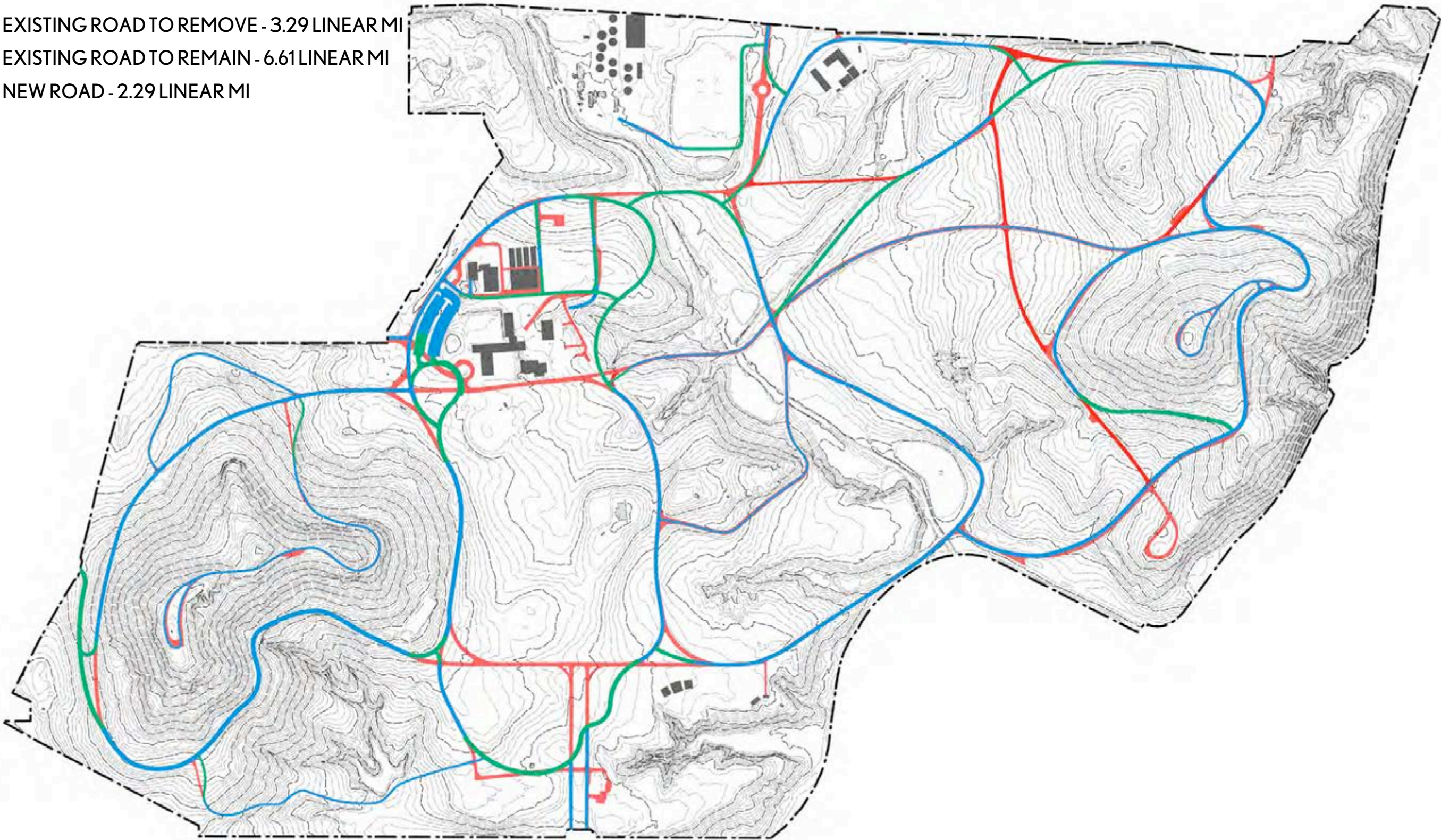




# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

Road Reconfiguration - improving hierarchy & experience, reducing impervious surface and providing for dispersed site parking

- EXISTING ROAD TO REMOVE - 3.29 LINEAR MI
- EXISTING ROAD TO REMAIN - 6.61 LINEAR MI
- NEW ROAD - 2.29 LINEAR MI





# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

Proposed Entry Sequence



AZALEA ROAD ENTRY

REED HILDERBRAND



WOODLAND DRIVE



MEADOW EXPANSE



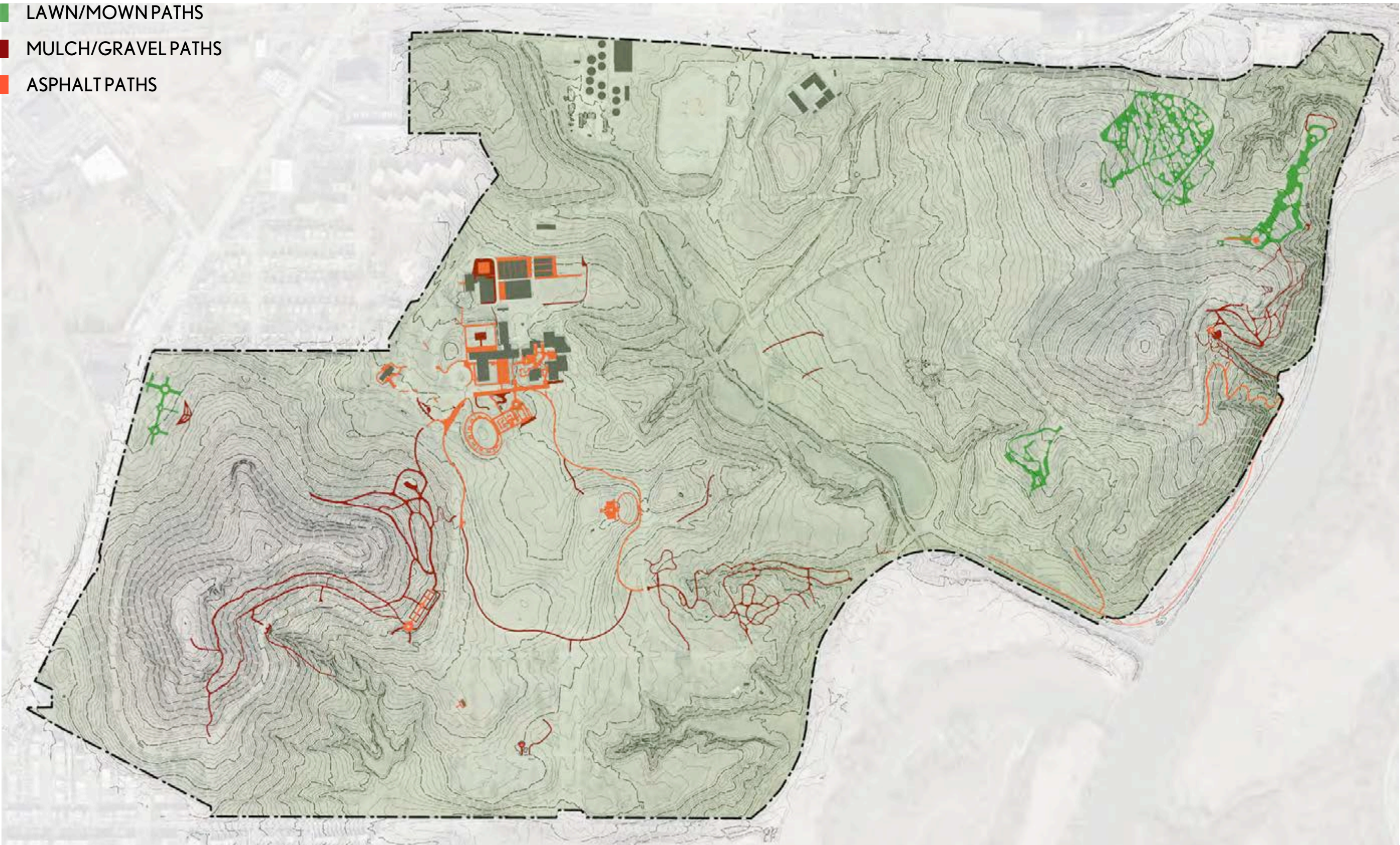
CAMPUS ARRIVAL



# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

2017: Pedestrian Circulation

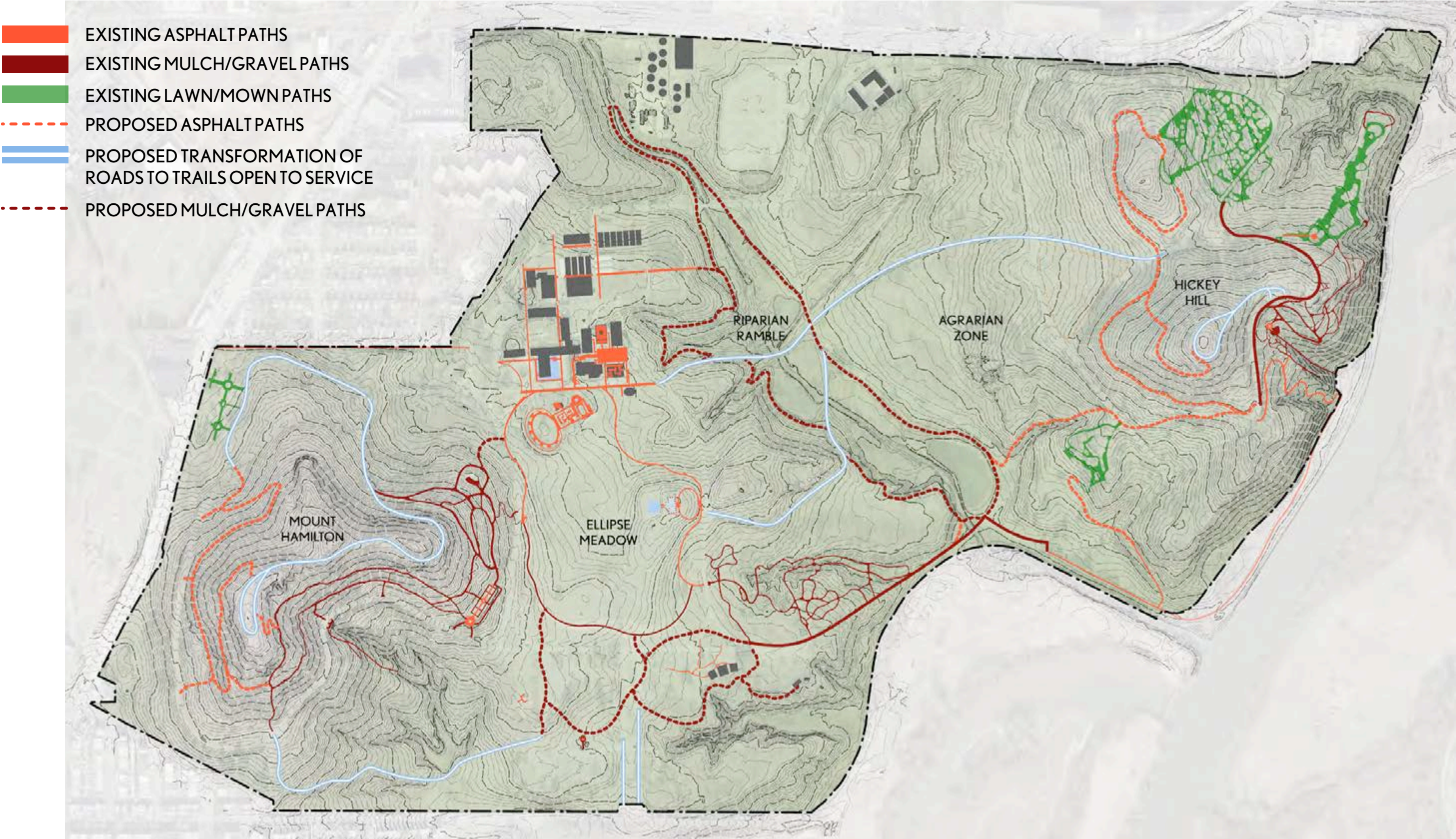
- LAWN/MOWN PATHS
- MULCH/GRAVEL PATHS
- ASPHALT PATHS





# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

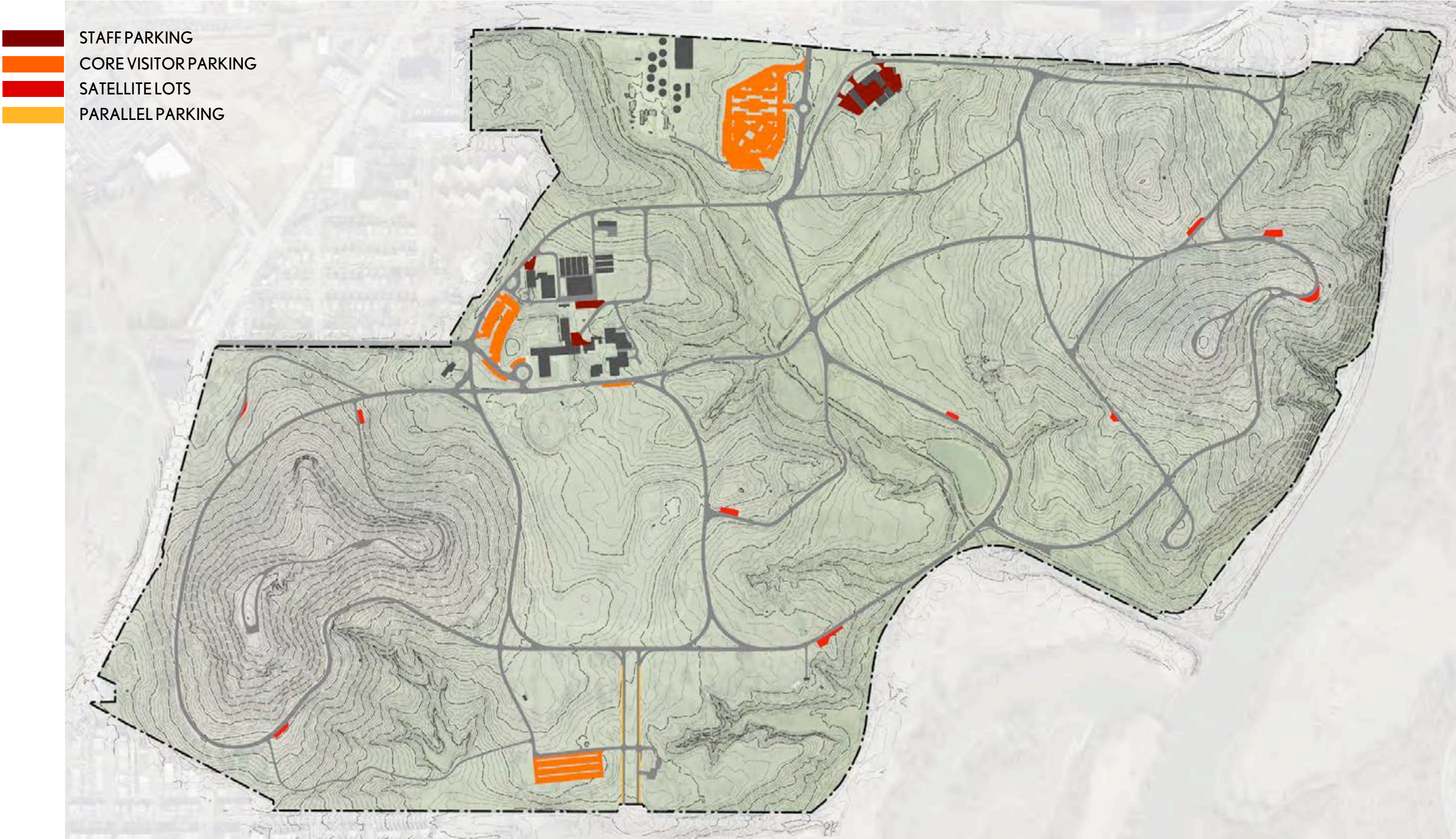
Proposed Pedestrian Circulation connects the existing networks while offering new paths through the ravine





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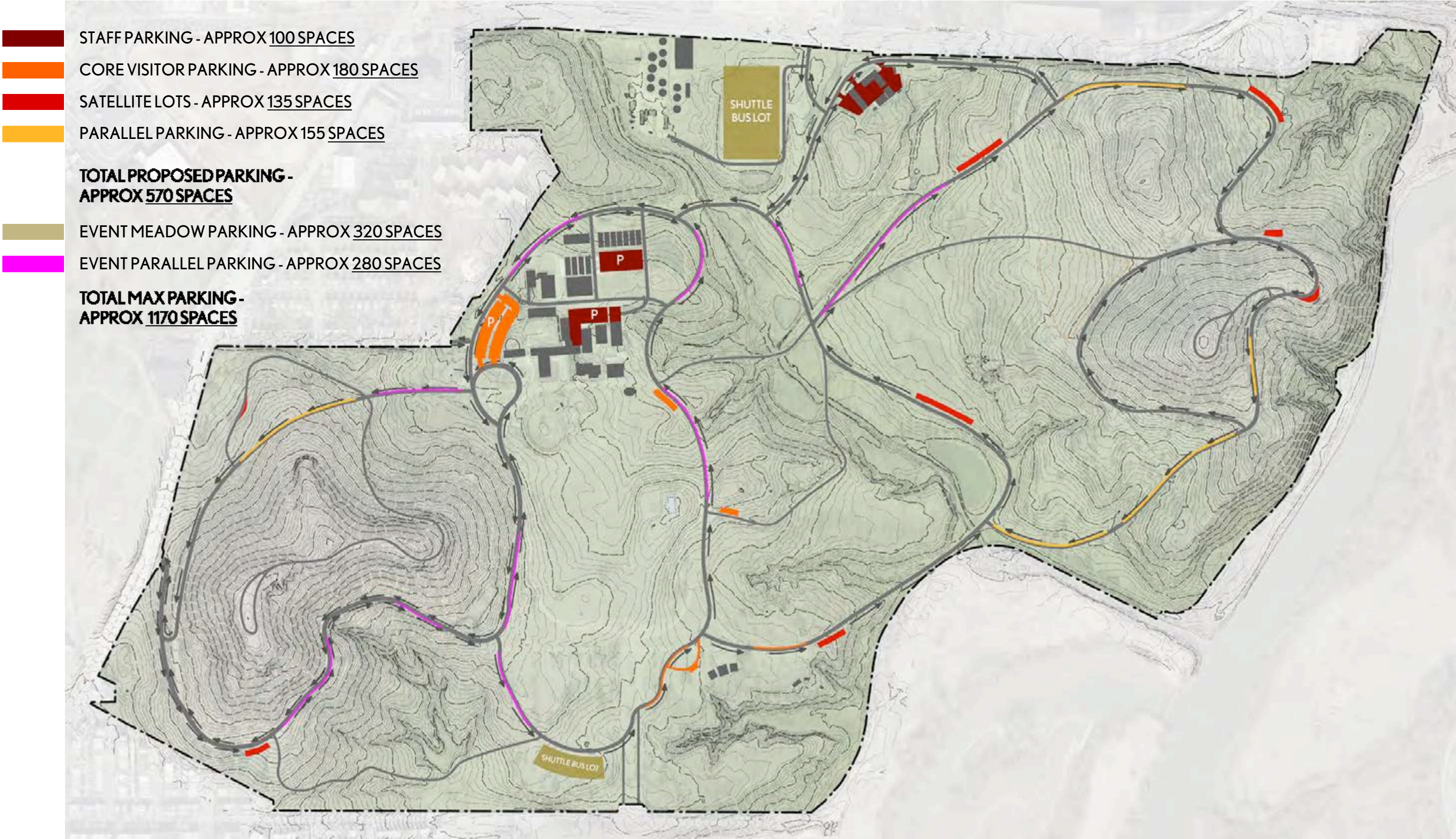
2017: Parking





# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

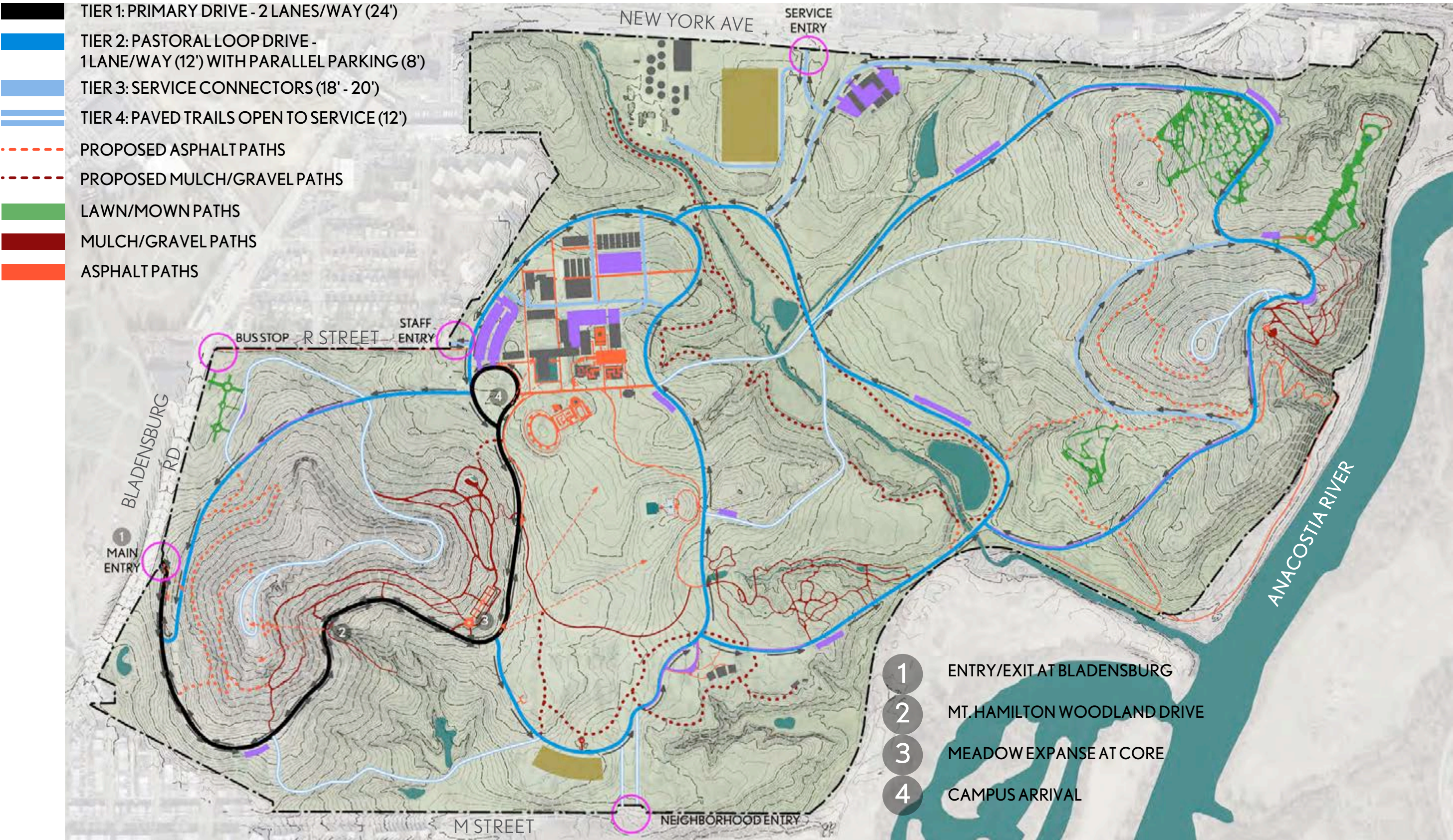
Proposed Parking maximizes the existing impervious footprint and disperses spaces throughout the Arboretum





# MASTER PLAN UPDATE 2020: ARRIVAL, CIRCULATION & PARKING

## Proposed Pedestrian and Vehicular Circulation System





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# MASTER PLAN UPDATE 2020: VEGETATION PATTERNS

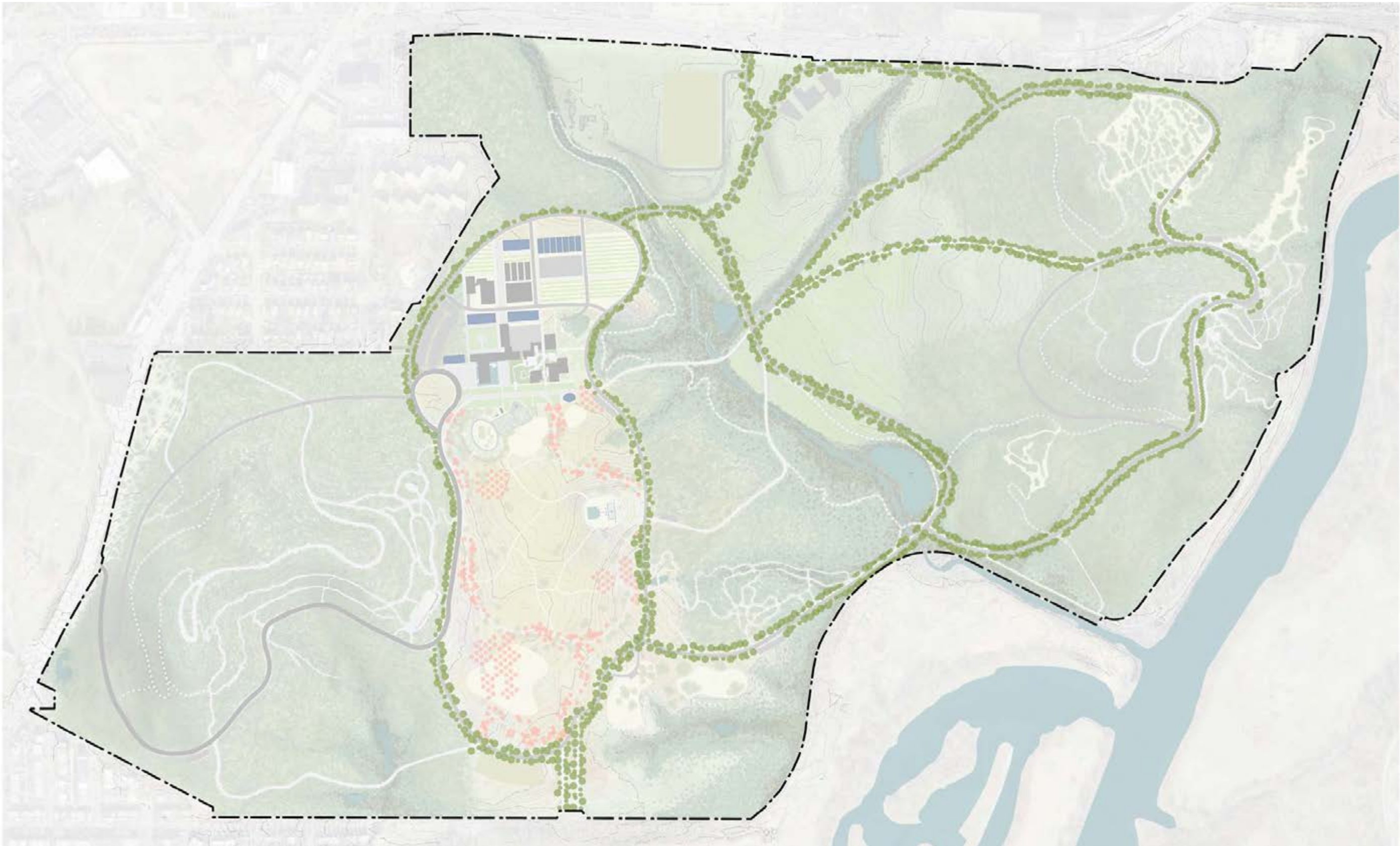
Proposed Canopy Diagram





# MASTER PLAN UPDATE 2020: VEGETATION PATTERNS

Use canopy trees to shade the drives and parking and frame views of adjacent landscapes





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# MASTER PLAN UPDATE 2020: ARBORETUM CORE





# MASTER PLAN UPDATE 2020: ARBORETUM CORE

Existing Administrative Area Character



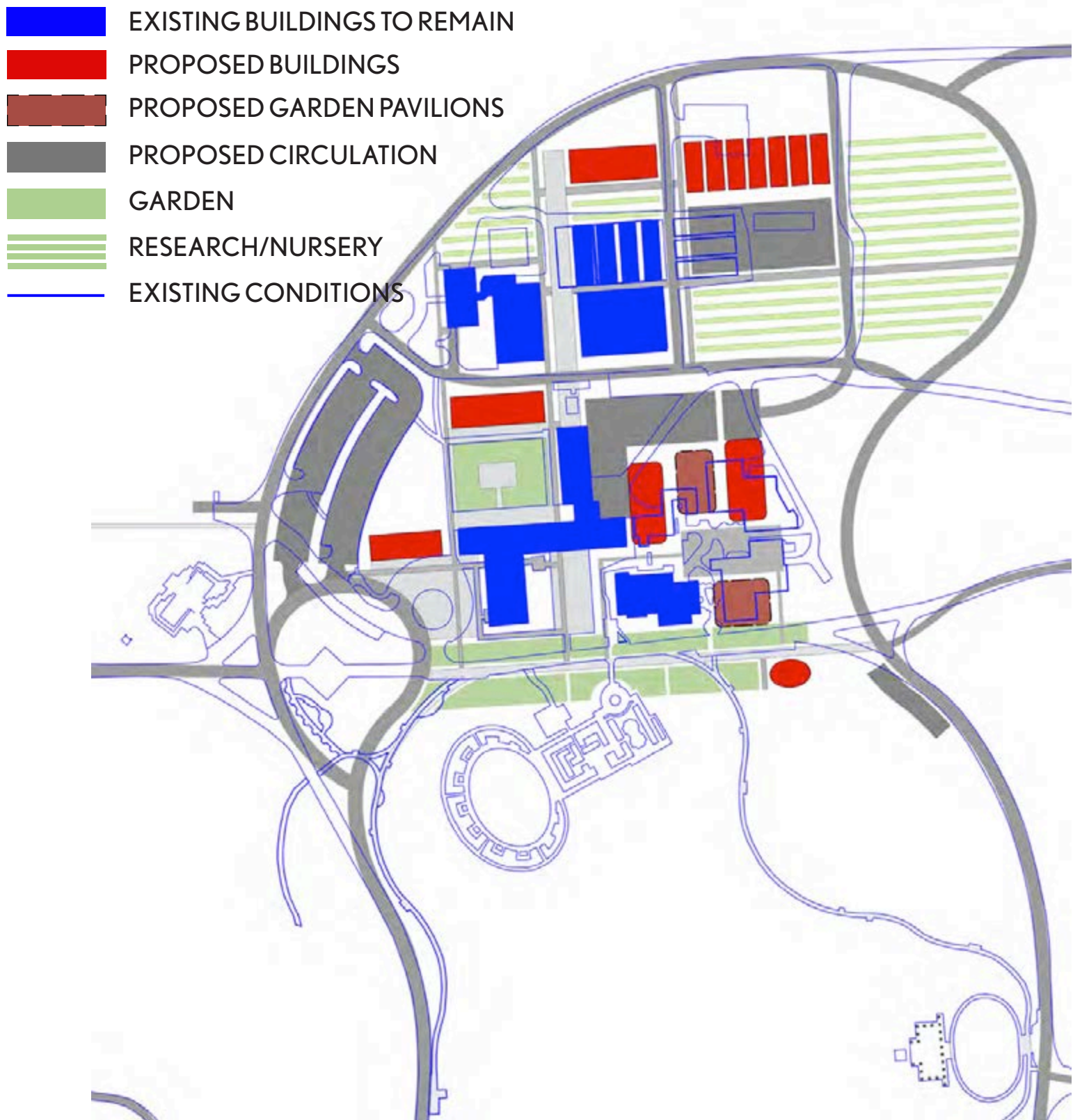
ADMINISTRATION BUILDING, 1963, BY ALFRED G. MUMMA, JR.





# MASTER PLAN UPDATE 2020: ADMINISTRATIVE & VISITOR CORE

Existing and Proposed





# MASTER PLAN UPDATE 2020: ARBORETUM CORE

Existing





# MASTER PLAN UPDATE 2020: ARBORETUM CORE

Proposed



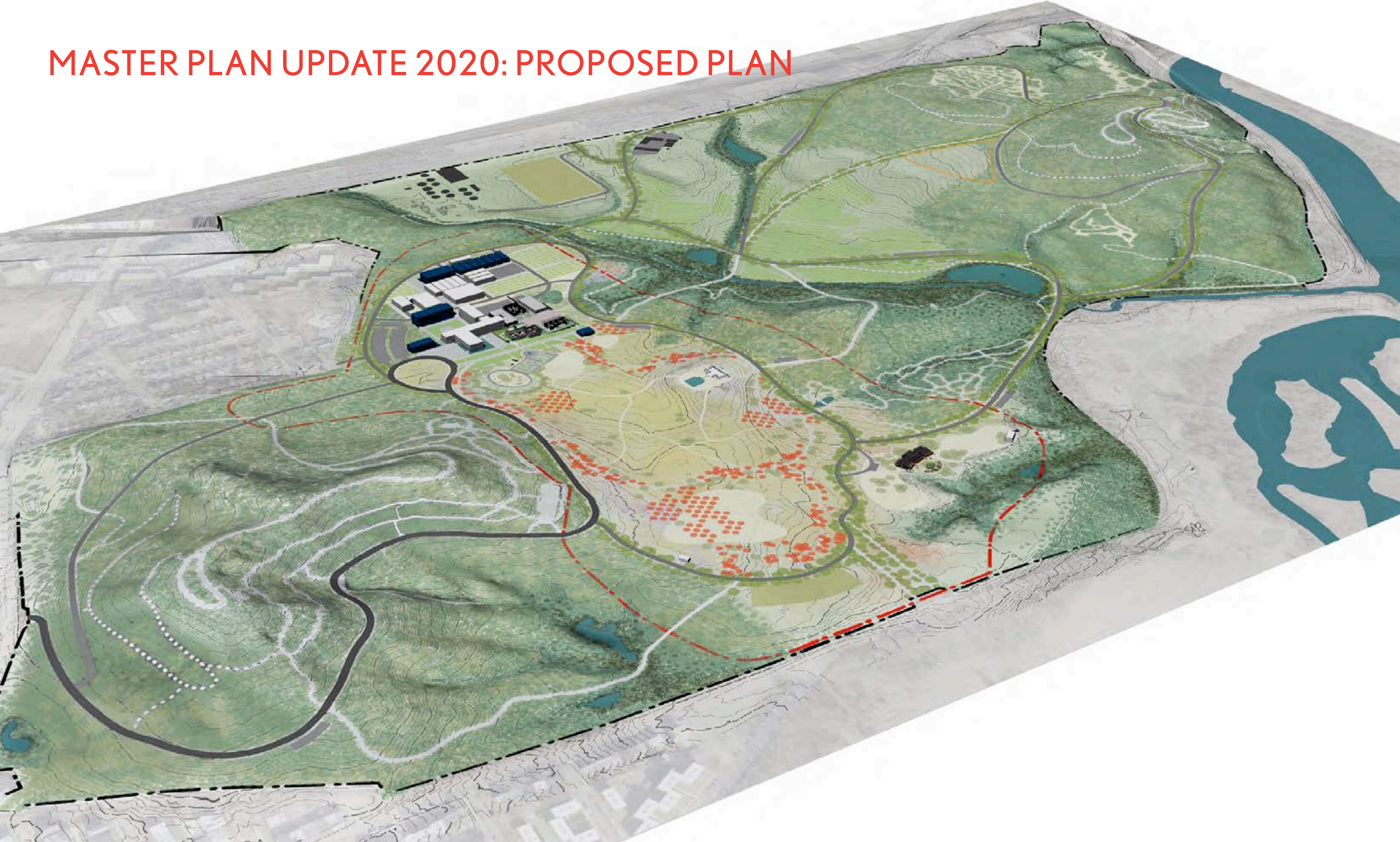


MASTER PLAN UPDATE 2020: EXISTING SITE





# MASTER PLAN UPDATE 2020: PROPOSED PLAN





# APPENDIX





# APPENDIX: SUMMARY OF SITE DEVELOPMENT

## Summary

### DEVELOPMENT PATTERNS

Long before the establishment of this site as the US National Arboretum, it reflected an agricultural heritage that began in the mid-1800's. The farmsteads of Abercrombie, Colonel Hickey, Dr. Palmer and Corcoran subdivided this landscape into a patchwork of fields, orchards and woodlands. Historical maps suggest that some site features, such as the Ellipse Meadow, have existed in place for nearly 150 years.

The 1933 aerial photograph still reflects this patchwork even as new developments such as the New York Avenue Brickworks and the neighborhood north of R street begin to grow around at the periphery of the Arboretum.

The 1937 Preliminary Road study by the National Capital Parks in collaboration with the National Capital Park and Planning Commission suggested a system of loop roads that circumnavigate the topography and ecology of the landscape.

Portions of this proposed road system have been in place since 1951, such as the loops at Mt. Hamilton and Hickey Hill, while the loop at the Ellipse meadow had been truncated. Entrances exist on R Street and M Street. Research nurseries occupied the open space of former agricultural fields prior to opening to the public in 1959.

By 1988, the public offerings of the Administration Building (1962-63), the National Herb Garden (1980), and the Japanese Pavilion (1972) within the Bonsai Museum had been constructed within the core, and the site of the Capitol Columns appears to have been under construction. The majority of the vehicular circulation that exists today had been implemented by then, including the boulevard and parking area at the M street gate and the New York Avenue entrance.

By 2017 the majority of public offerings existed within the Core of the Arboretum. Today their spatial relationship is fragmented, with public offerings disconnected from each other, and devoid of the larger spatial expansiveness of the Arboretum.



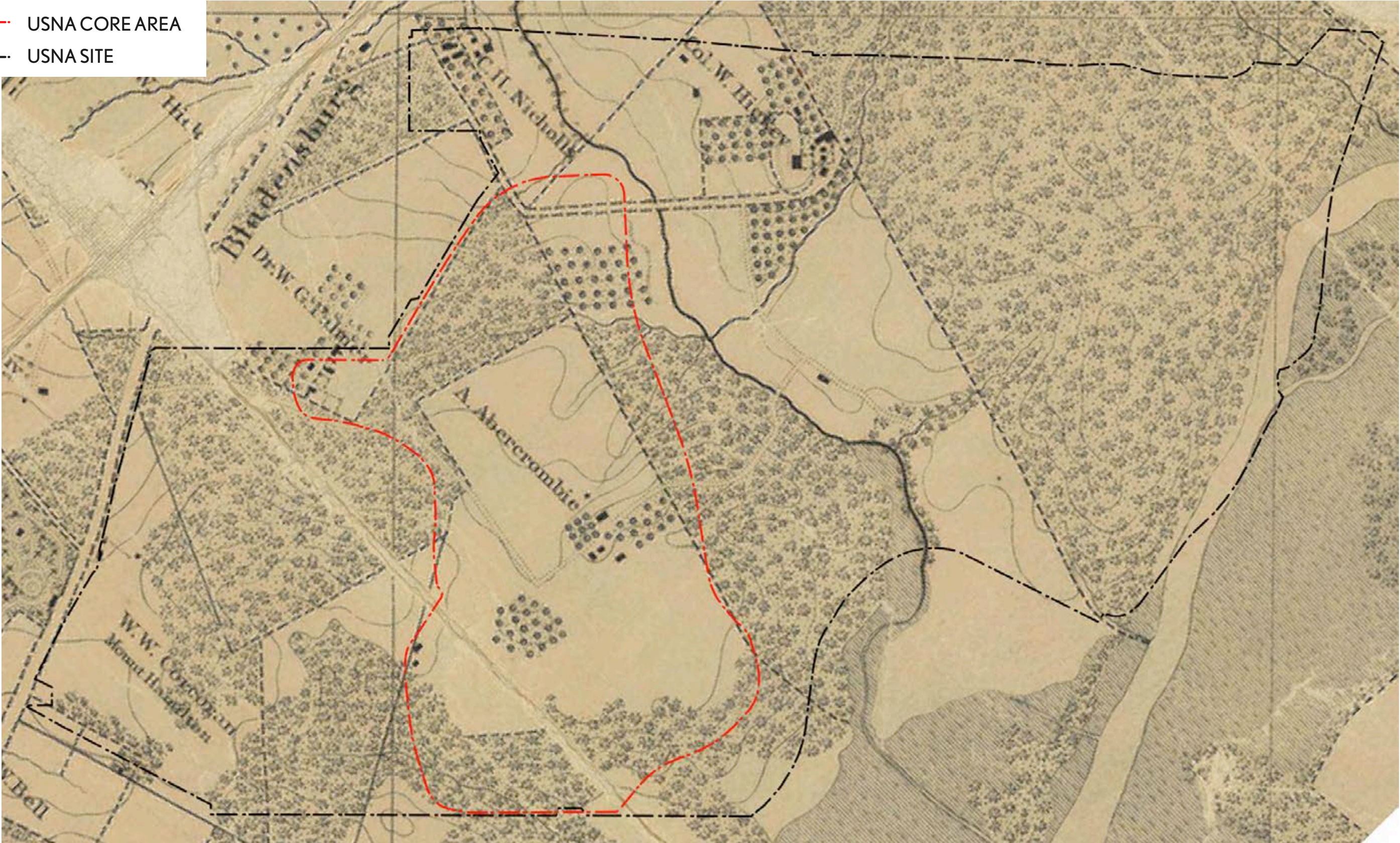
1933 AERIAL PHOTOGRAPH OF THE US NATIONAL ARBORETUM SITE



# APPENDIX: SUMMARY OF SITE DEVELOPMENT

Aerial Map - 1863

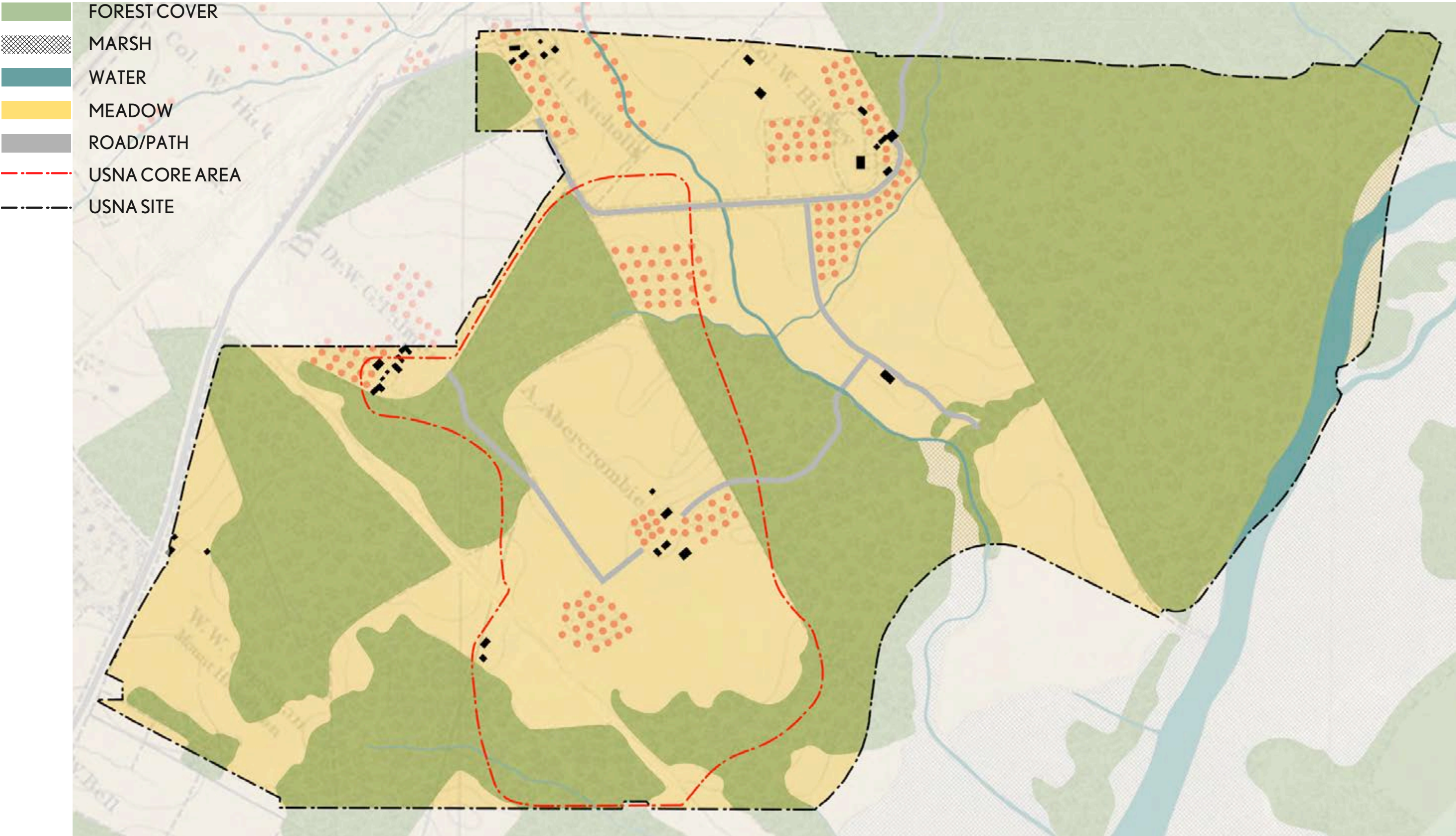
- USNA CORE AREA
- USNA SITE





# APPENDIX: SUMMARY OF SITE DEVELOPMENT

## Landscape Character - 1863





# APPENDIX: SUMMARY OF SITE DEVELOPMENT

Aerial - 1933

- USNA CORE AREA
- USNA SITE





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## Landscape Character - 1933

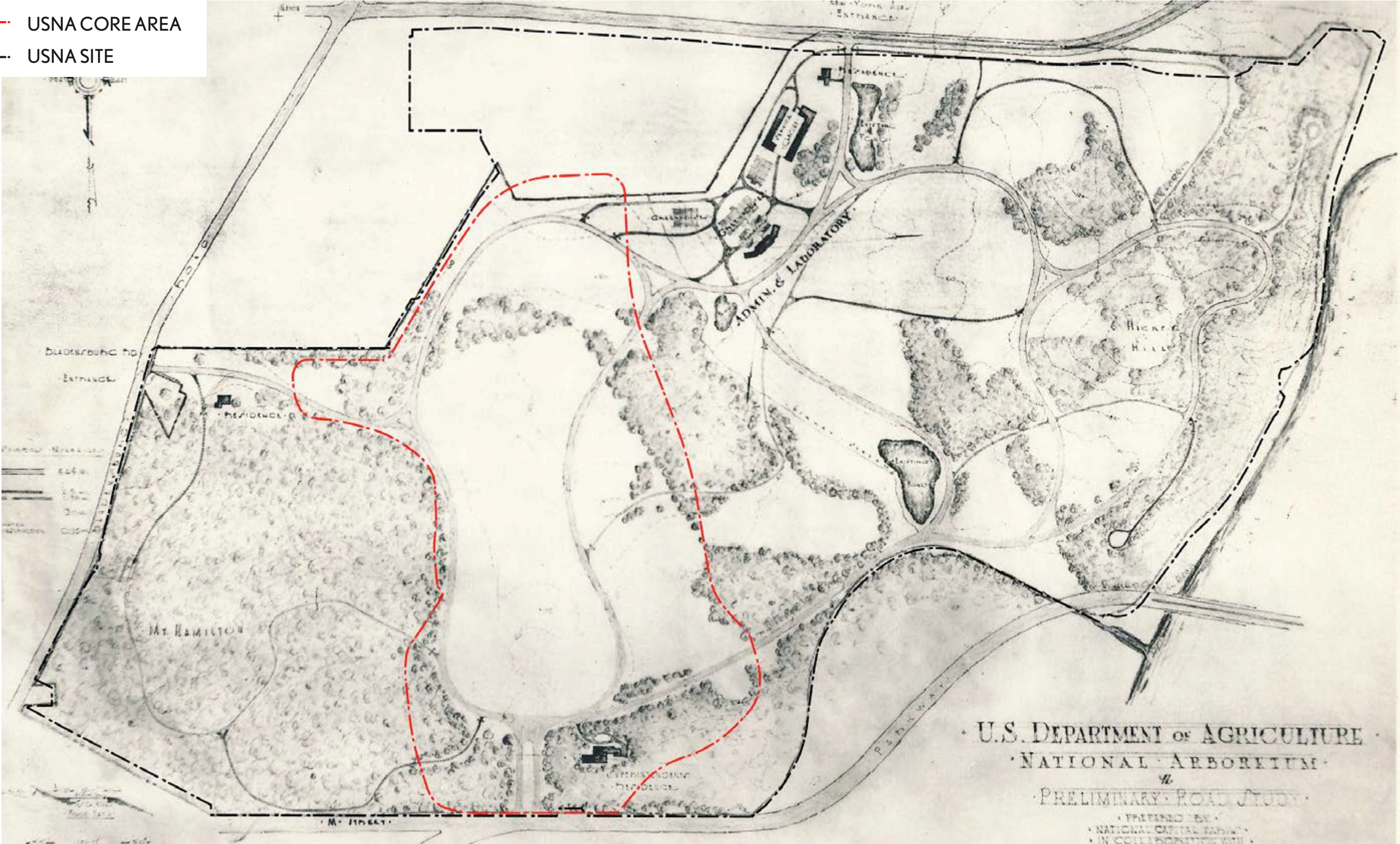




# APPENDIX: SUMMARY OF SITE DEVELOPMENT

## Preliminary Road Study - 1937

- USNA CORE AREA
- USNA SITE





# APPENDIX: SUMMARY OF SITE DEVELOPMENT

Aerial - 1951

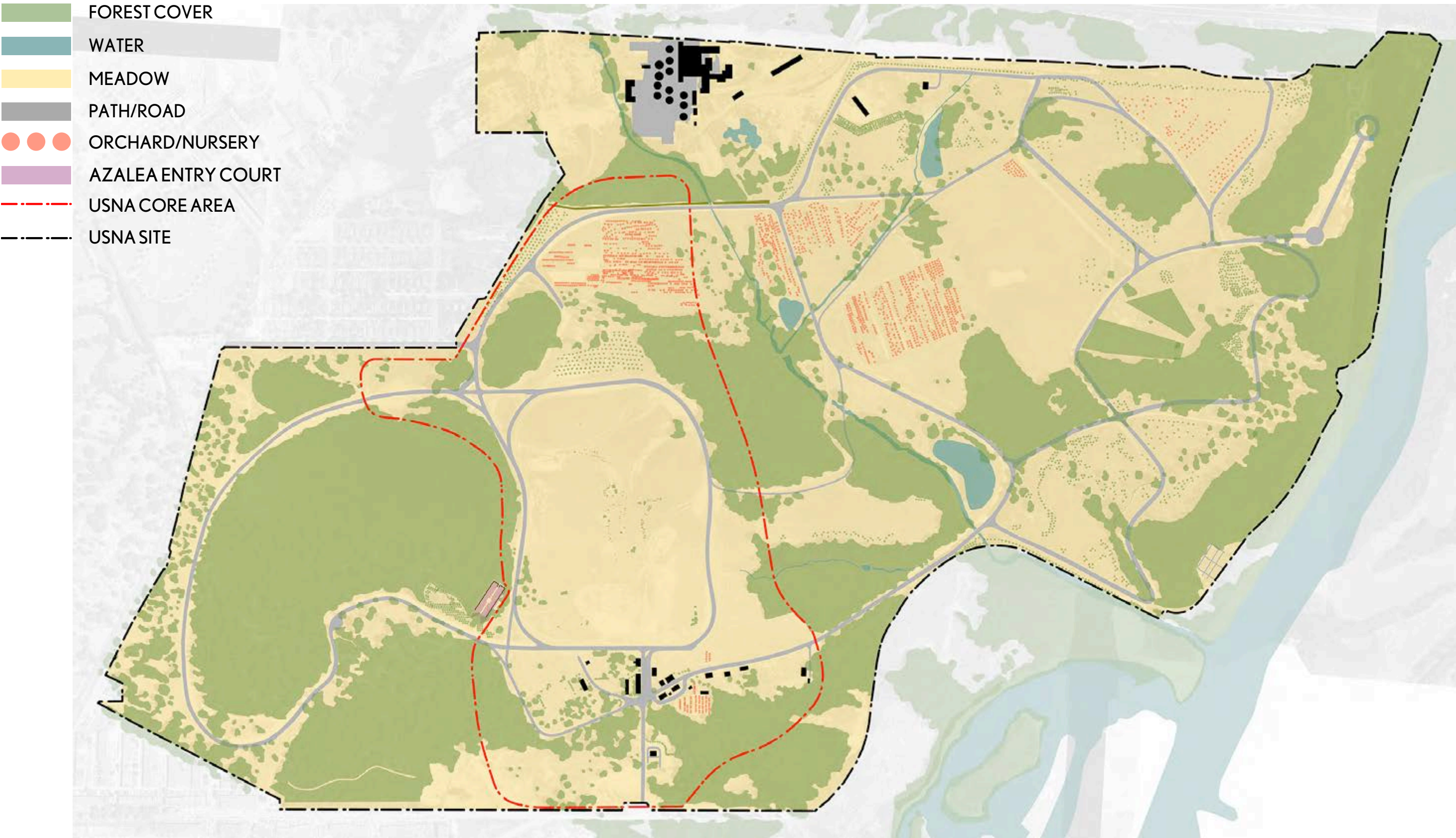
- USNA CORE AREA
- USNA SITE





# APPENDIX: SUMMARY OF SITE DEVELOPMENT

## Landscape Character - 1951





# APPENDIX: SUMMARY OF SITE DEVELOPMENT

Aerial - 1988

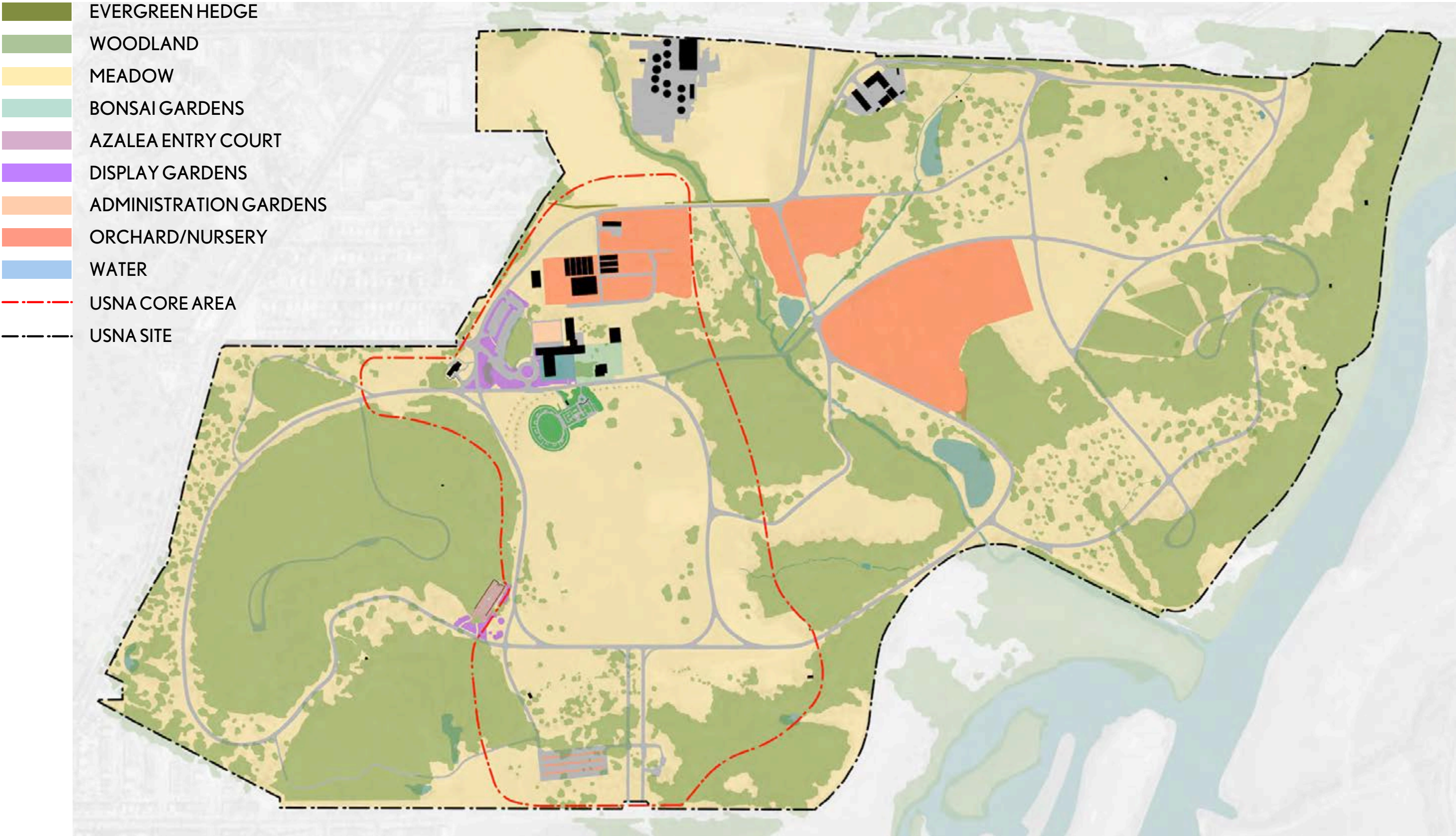
- - - - - USNA CORE AREA
- - - - - USNA SITE





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## Landscape Character - 1988

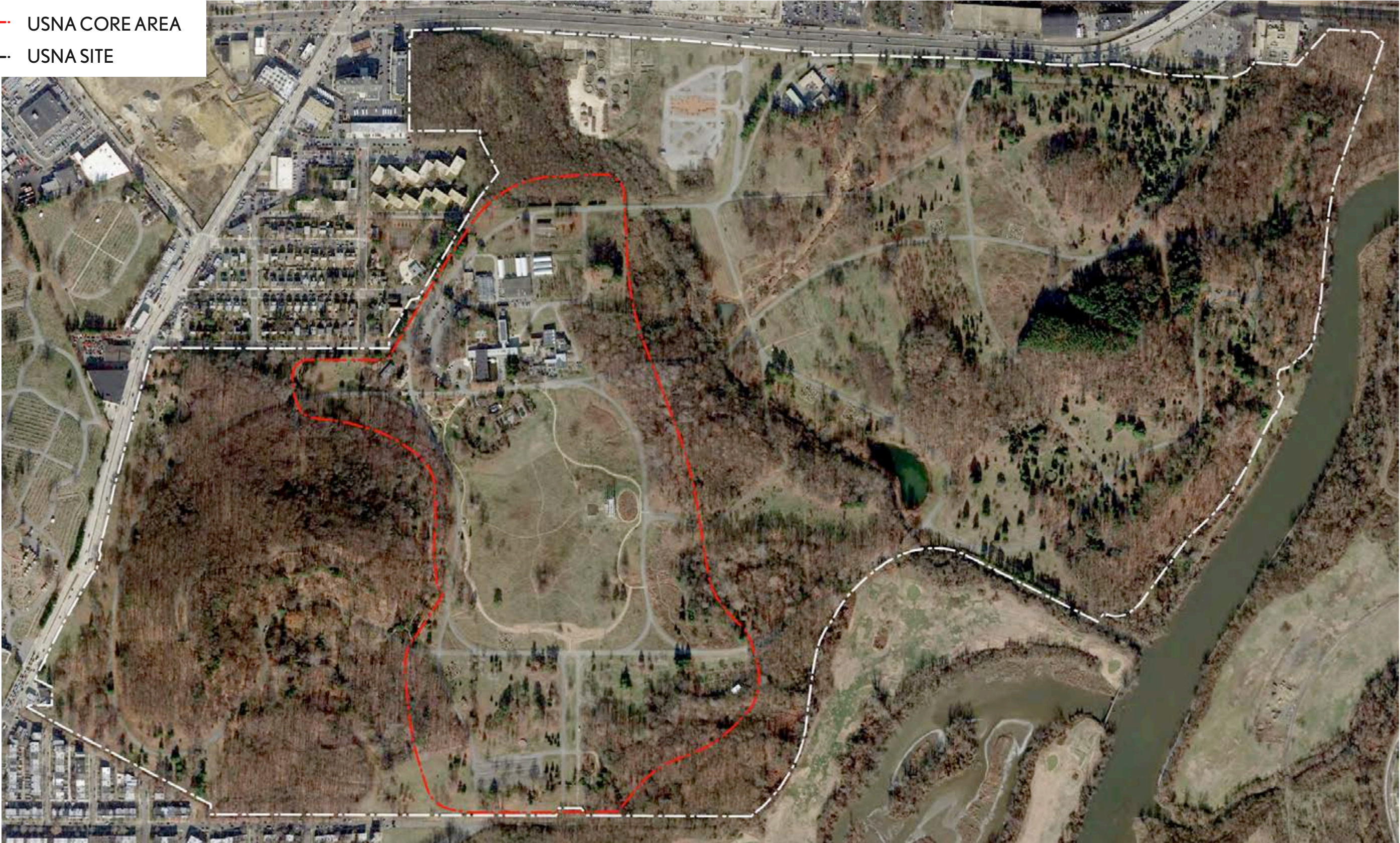




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Aerial - 2017

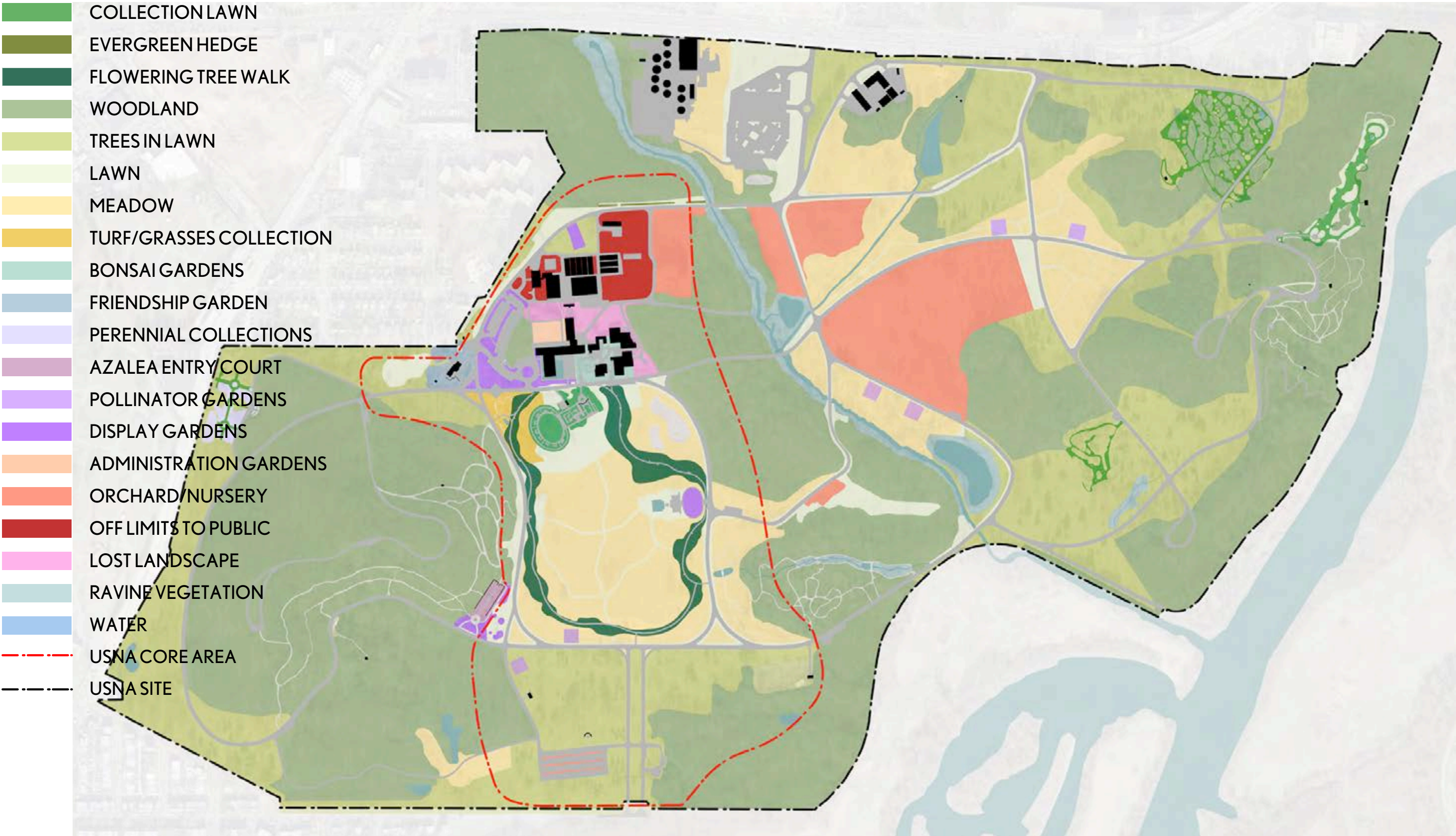
- USNA CORE AREA
- USNA SITE





# APPENDIX: SUMMARY OF SITE DEVELOPMENT

## Landscape Character - 2017





# APPENDIX: EXISTING CONDITIONS ANALYSIS

## Summary

### IDENTITY

The Arboretum is defined by two primary hills, Mt. Hamilton to the west, and Hickey Hill to the east, that are divided by a strong ravine of Hickey Creek that drains to the Anacostia. There is over two hundred feet of elevation change within the Arboretum, offering different ecosystems and plant communities.

Relating directly to topography, the Arboretum could be distilled into four primary zones of character: dendritic ravines, wooded hills, rolling meadows and agrarian fields. These four zones represent the heritage of this landscape for the past 200 years and establish a pastoral identity for the Arboretum.

### ARRIVAL, CIRCULATION AND PARKING

The current system of circulation lacks hierarchy and clarity, a form that appears to be a result of accretion and varied incomplete master plan efforts that shifted priorities. The current entrance on R Street at the Arboretum disrupts a pedestrian neighborhood and would be more appropriate if off a major road as indicated in the previous master plan. Former entrance ideas at New York Avenue and M Street remain with vast remnant parking lots that no longer serve the current needs. The two-way drive system represents nearly 10-miles of roadway, and lacks hierarchy and clarity, complicating wayfinding for the visitor.

Pedestrian dedicated circulation is limited to areas in the core and collections on the east edge of the Arboretum, forcing pedestrians to walk amongst vehicles to connect between the two sides of the arboretum. The large void of dedicated pedestrian circulation in the Arboretum correlates to a large void in the collections.

Existing parking is insufficient and inappropriately located for Arboretum demands, while reflects an unnecessary amount of impervious surface.



### ARBORETUM CORE

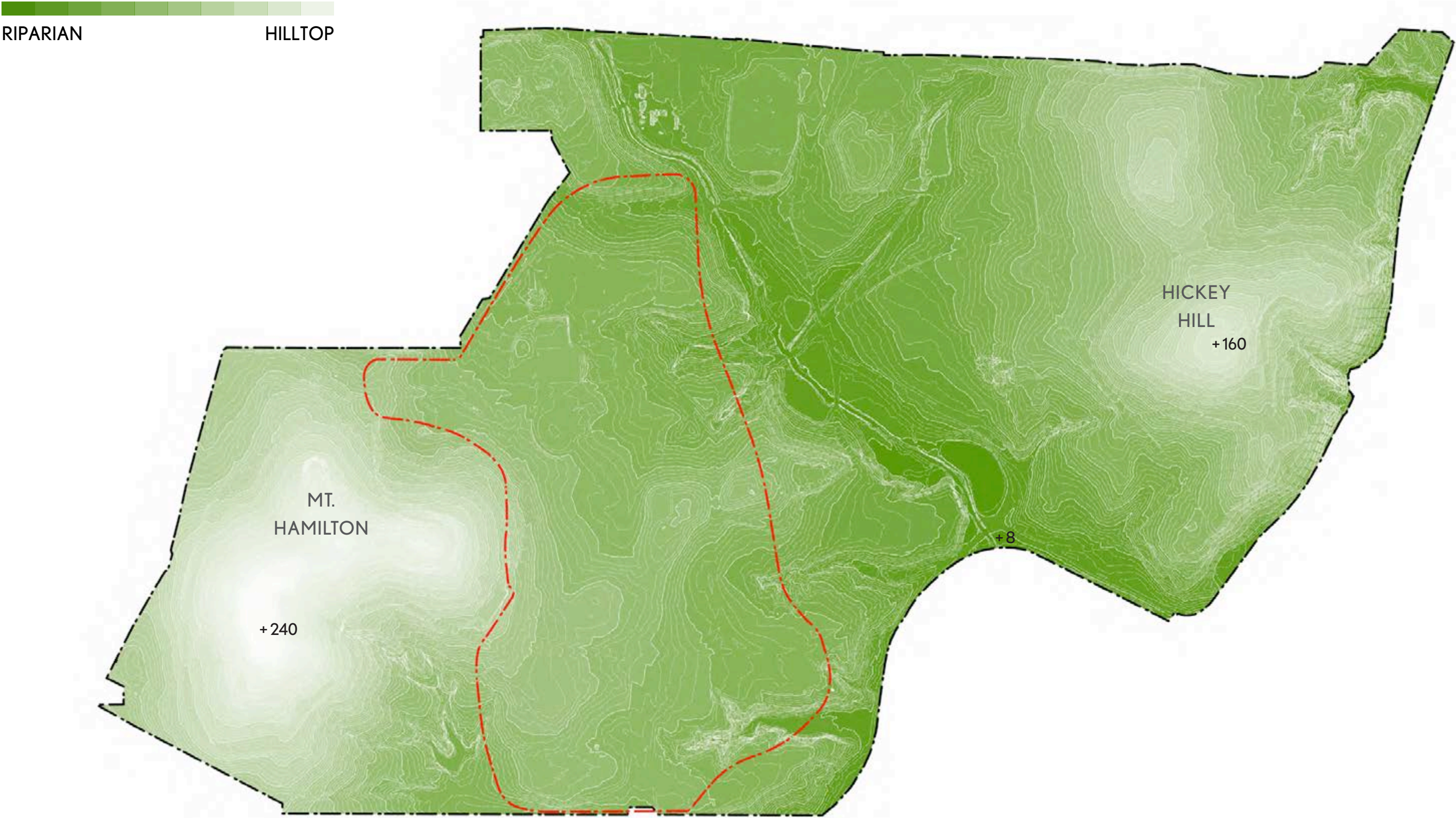
The Arboretum Core offers the majority of concentrated visitor offerings. These offerings are adjacent but not systemically organized, resulting in a series of fragmented internal rooms. In an effort to connect them, and as a response to visitor interest, large plantings of resource-intensive perennial gardens have been established that do not contribute to the larger Arboretum landscape.

The Core also exhibits a concentration of the scientific research facilities including the greenhouses, poly-houses, and nursery/research fields north of the Administration Building. Never intended to be open to the public, these areas represent an opportunity to be reconceived to help display and interpret the science that occurs at the US National Arboretum.



# APPENDIX: EXISTING CONDITIONS ANALYSIS

2017: Landform

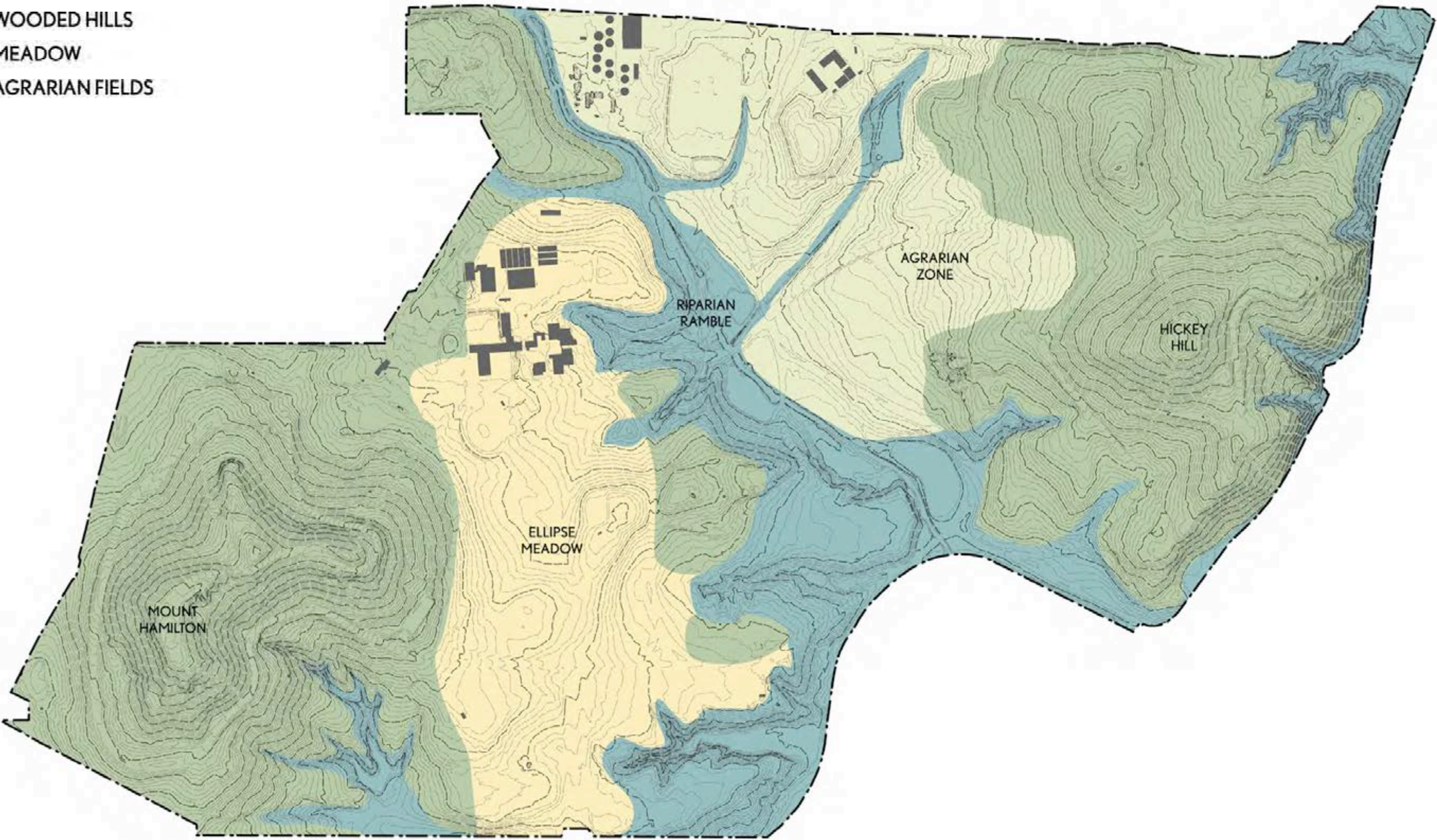




# APPENDIX: EXISTING CONDITIONS ANALYSIS

2017: Landform and Character

- DENDRITIC RAVINES
- WOODED HILLS
- MEADOW
- AGRARIAN FIELDS

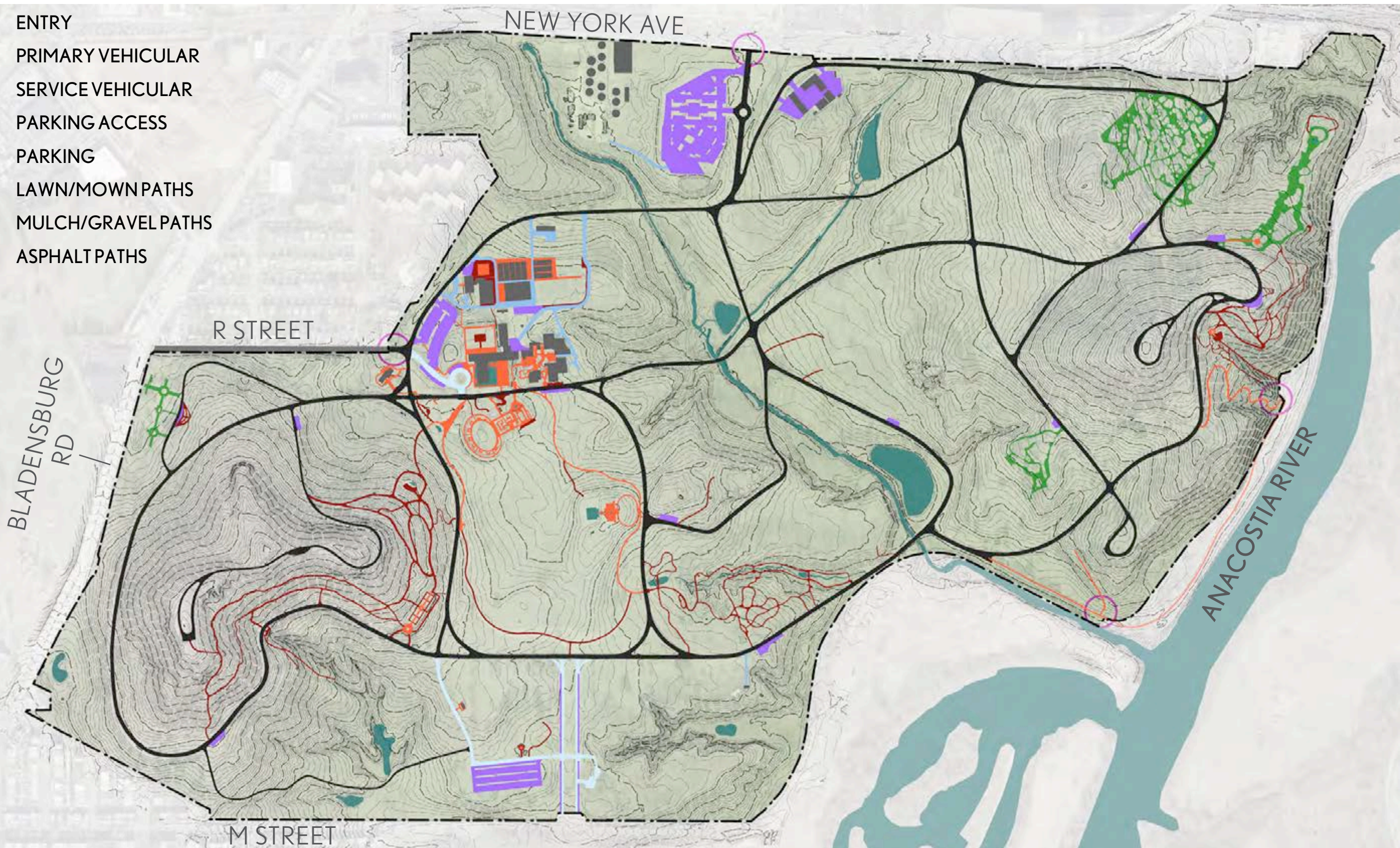




# APPENDIX: EXISTING CONDITIONS ANALYSIS

2017: Pedestrian and Vehicular Circulation

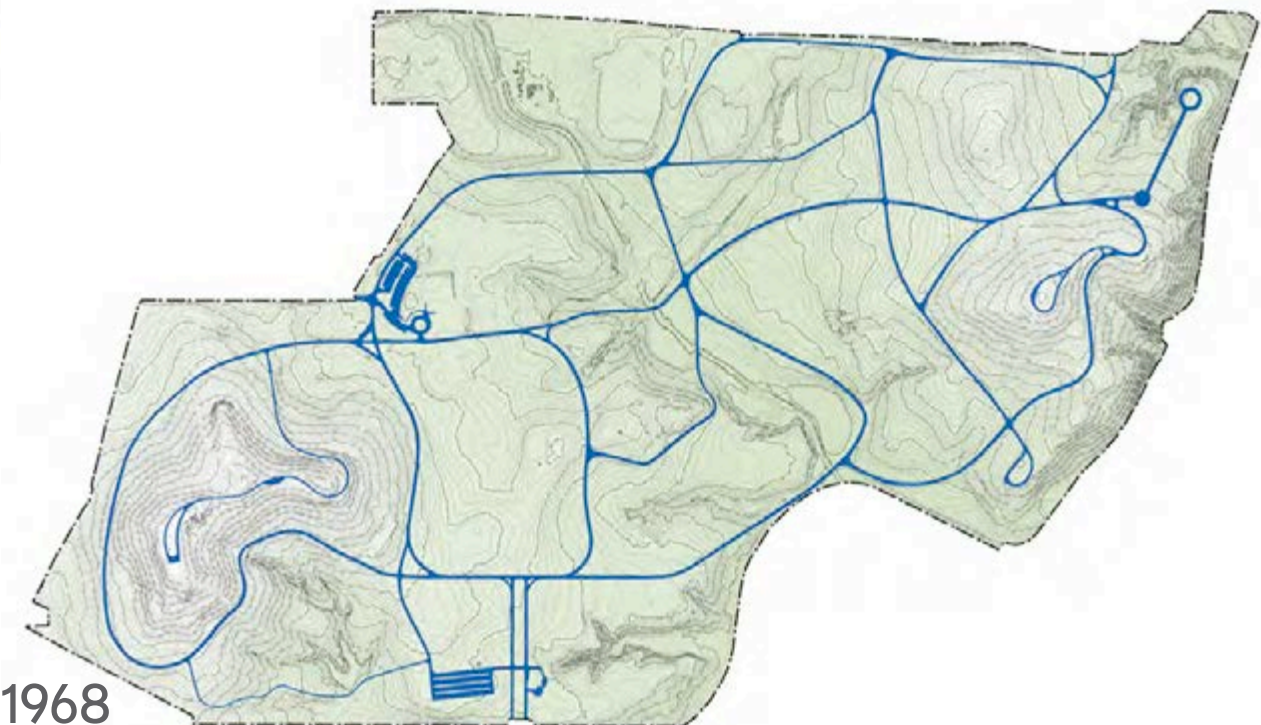
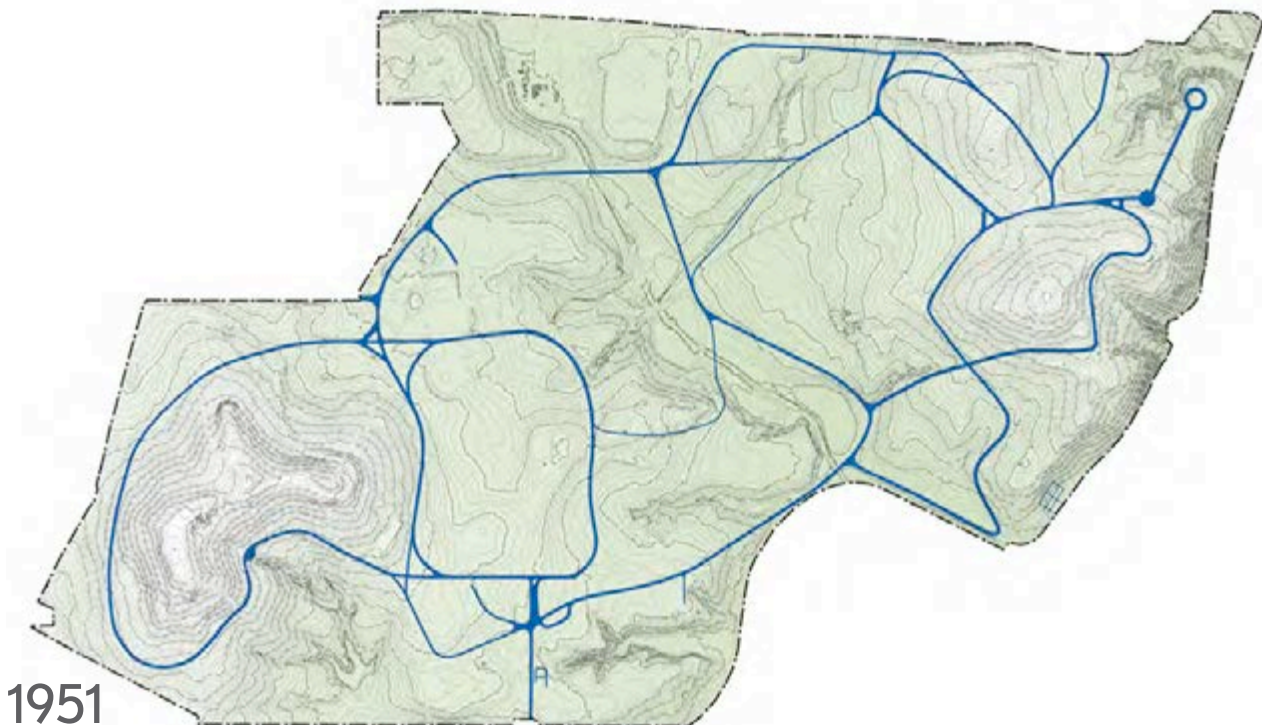
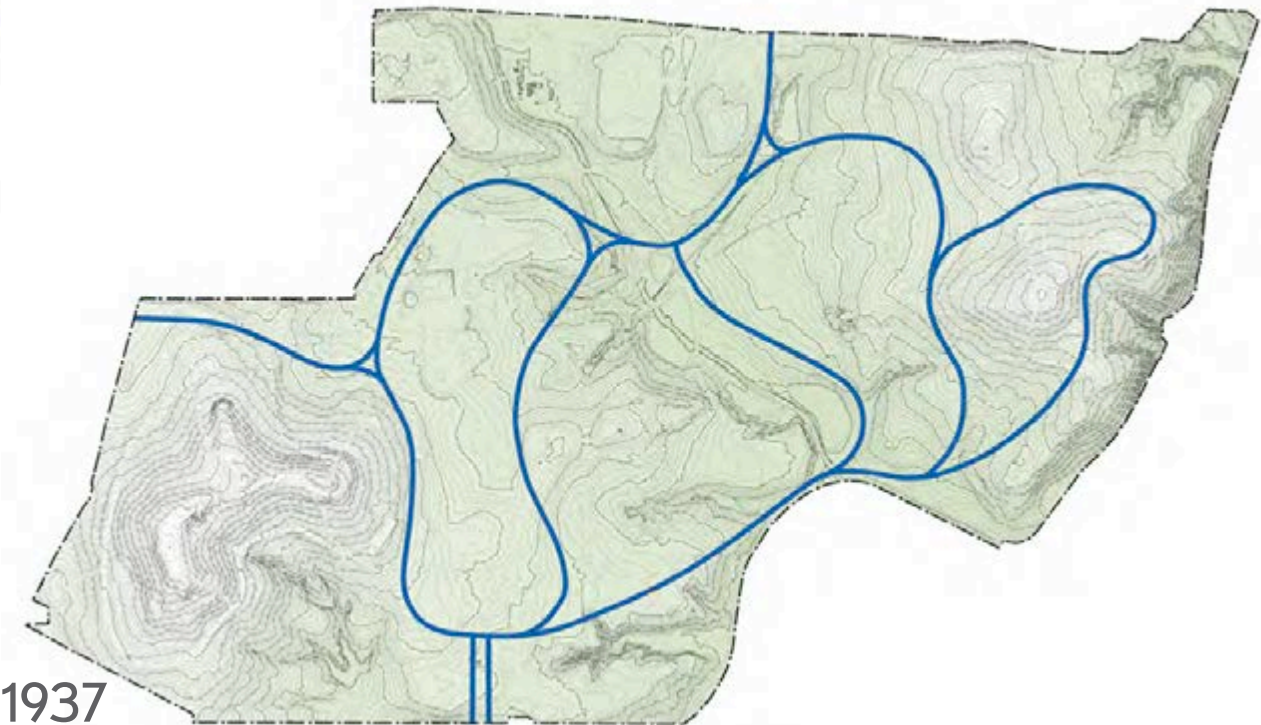
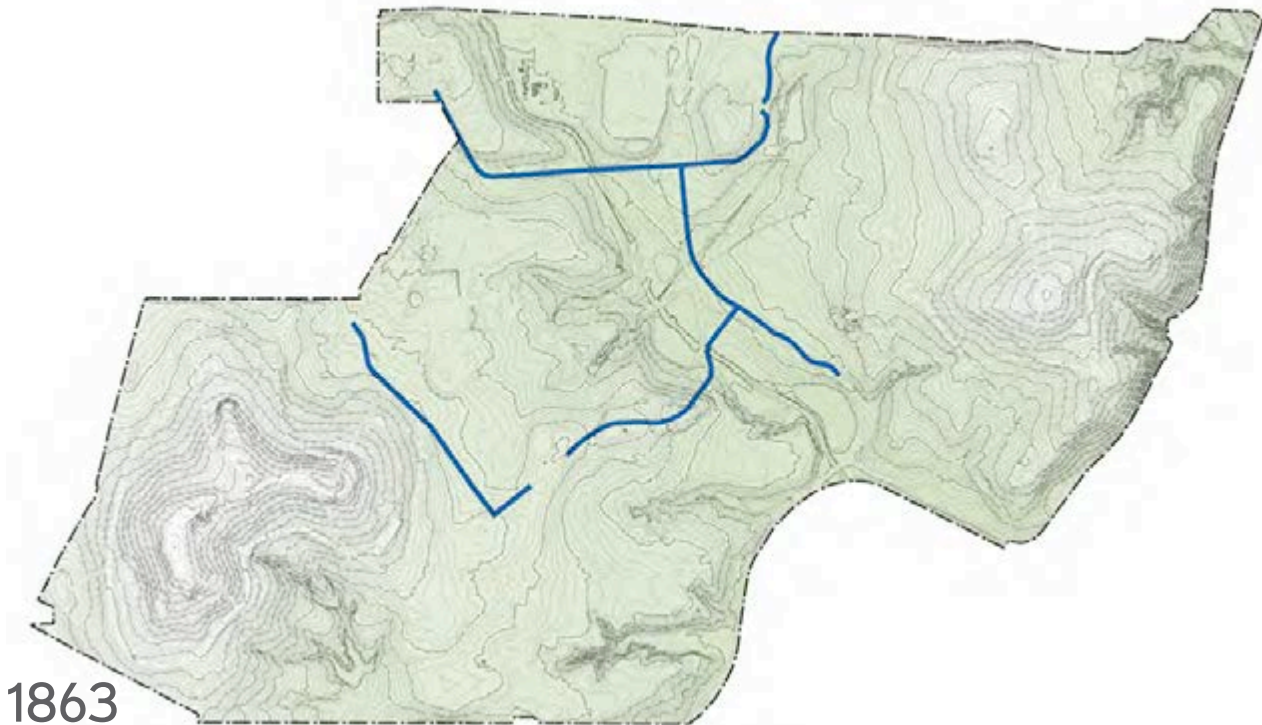
- ENTRY
- PRIMARY VEHICULAR
- SERVICE VEHICULAR
- PARKING ACCESS
- PARKING
- LAWN/MOWN PATHS
- MULCH/GRAVEL PATHS
- ASPHALT PATHS





# APPENDIX: EXISTING CONDITIONS ANALYSIS

1863-1968: Circulation Systems/Proposals and Landform

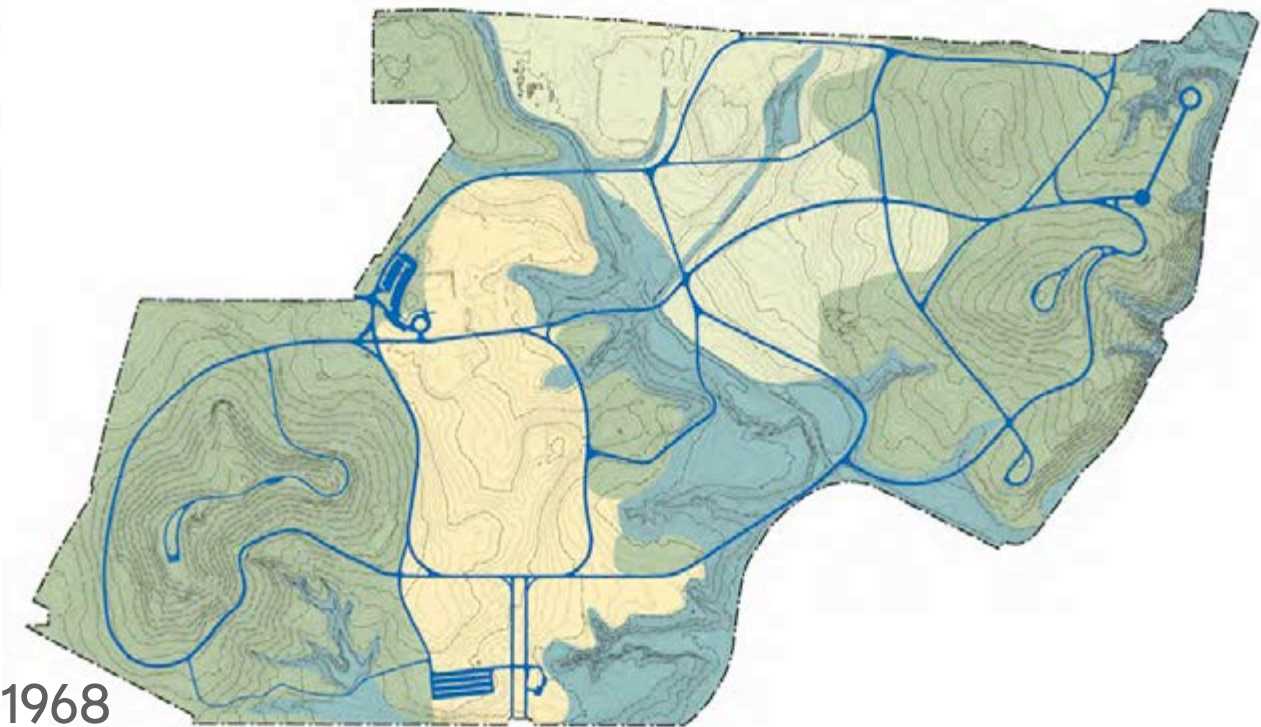
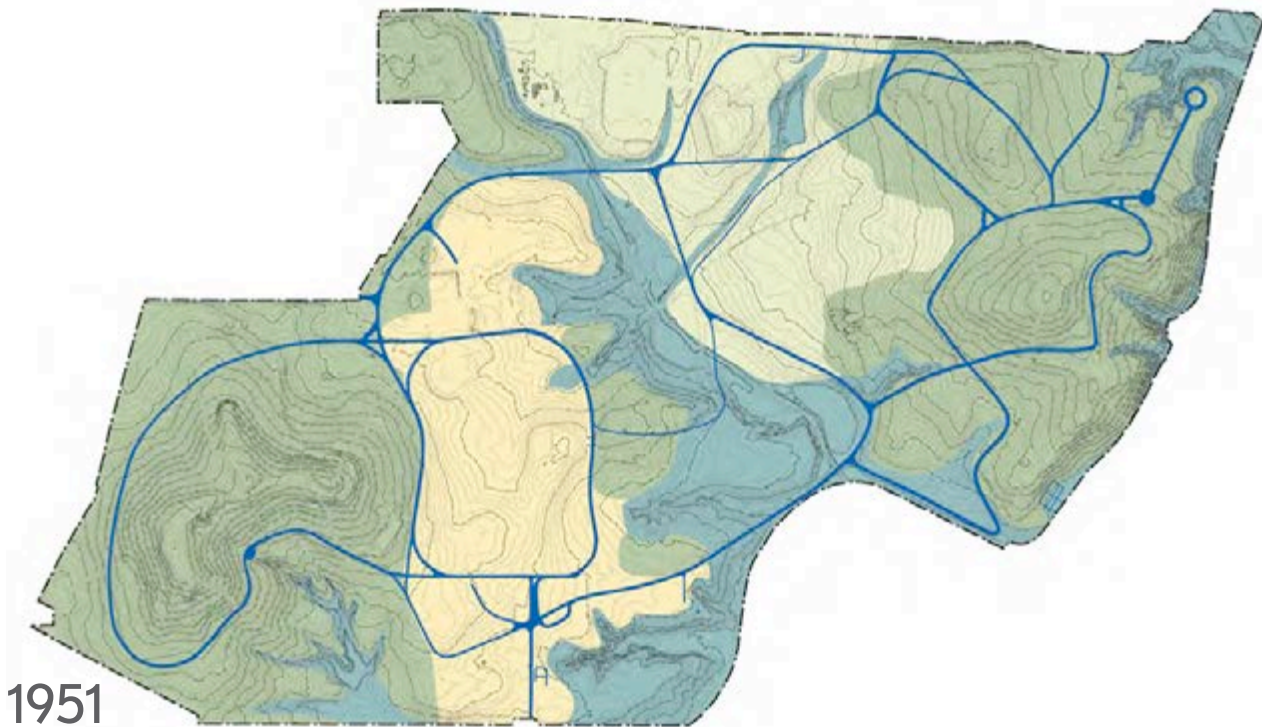
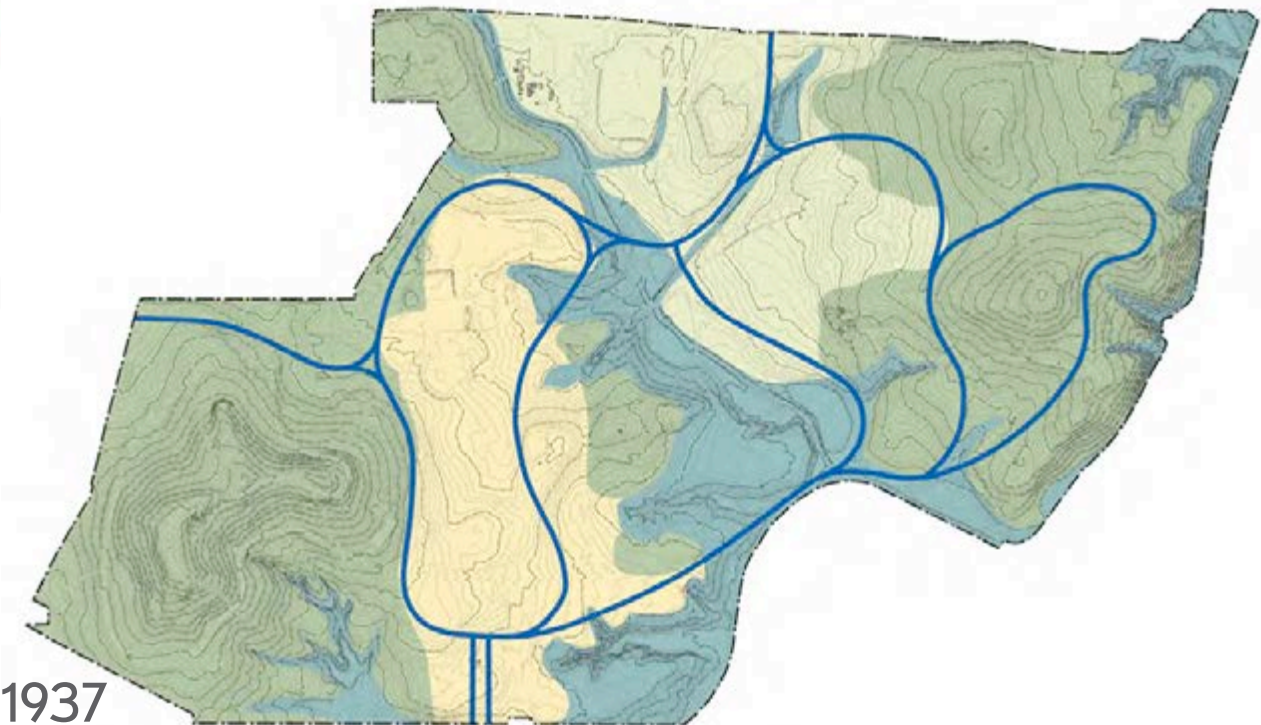
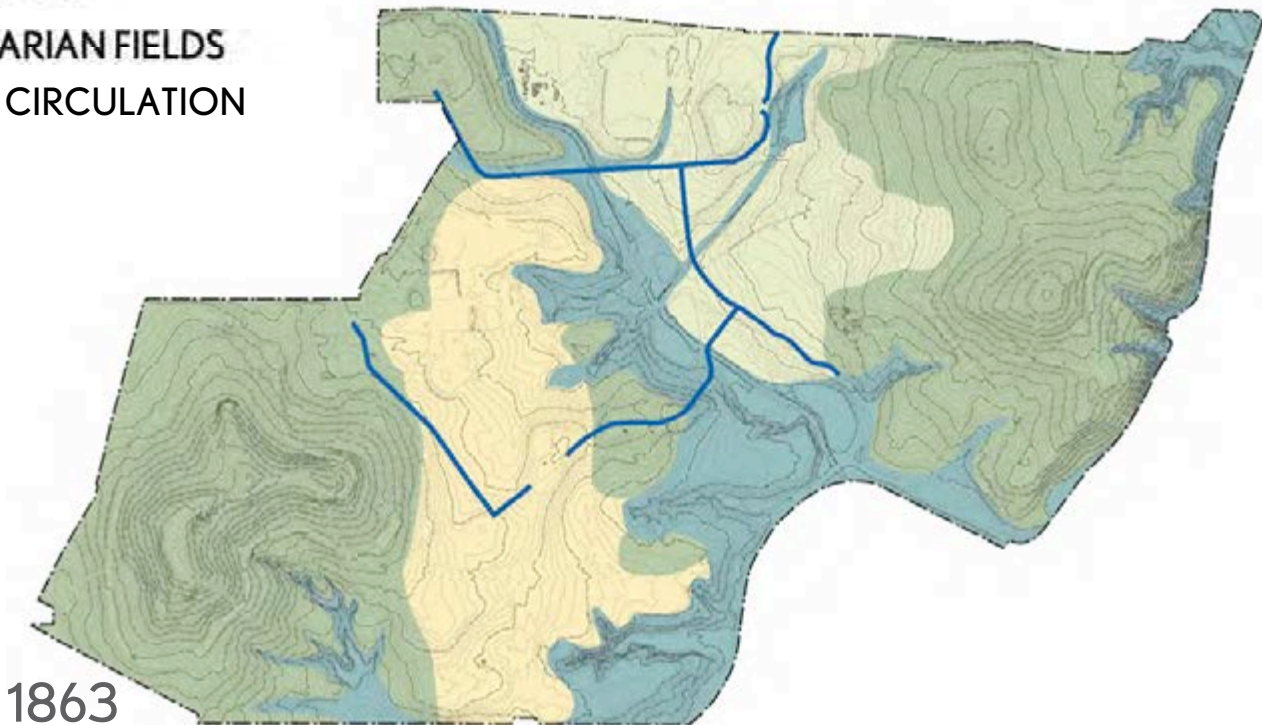




# APPENDIX: EXISTING CONDITIONS ANALYSIS

1863-1968: Circulation Systems/Proposals and Character

- DENDRITIC RAVINES
- WOODED HILLS
- MEADOW
- AGRARIAN FIELDS
- VEH. CIRCULATION

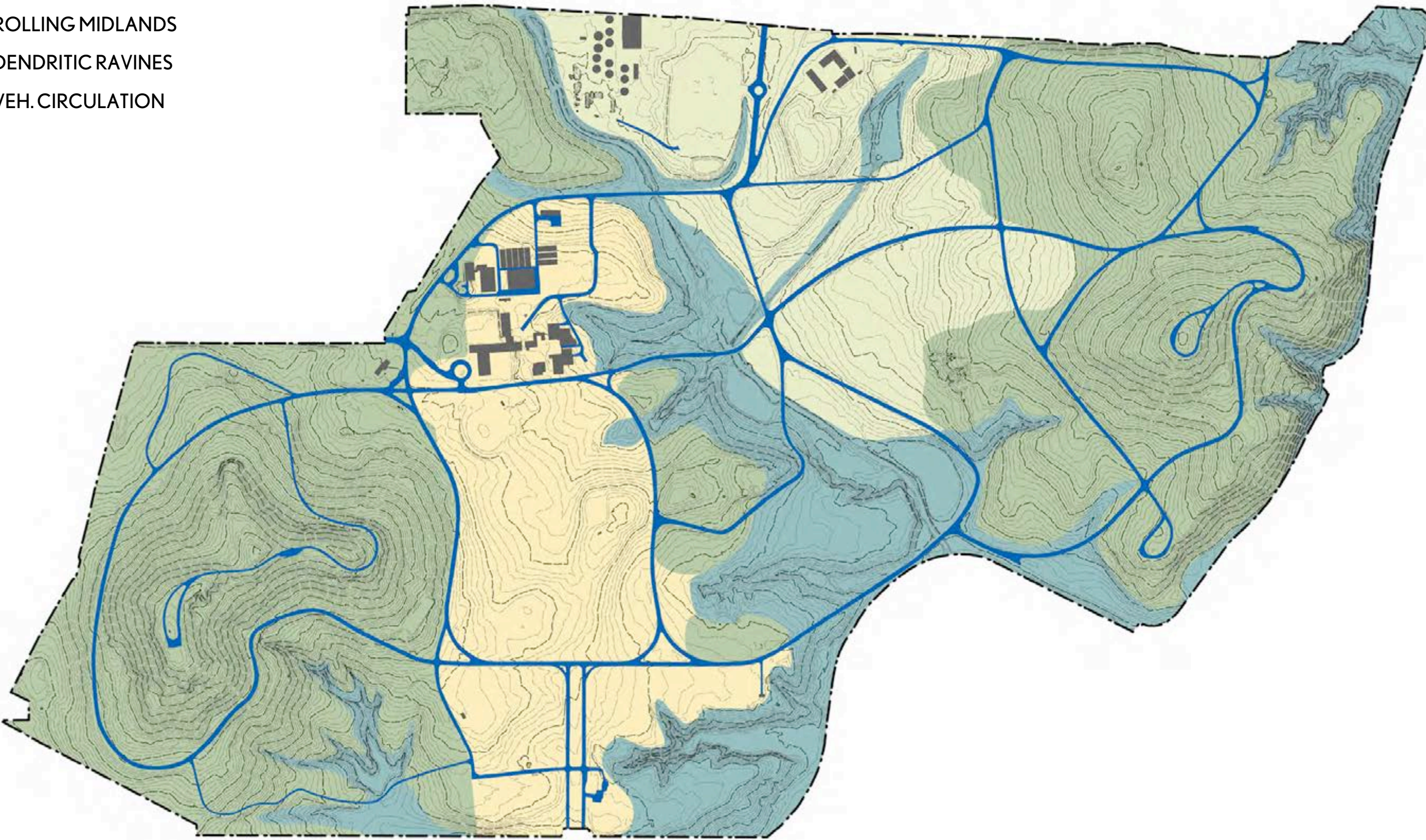




# APPENDIX: EXISTING CONDITIONS ANALYSIS

2017: Vehicular Circulation and Character

- WOODLAND HILLS
- ROLLING MIDLANDS
- DENDRITIC RAVINES
- VEH. CIRCULATION

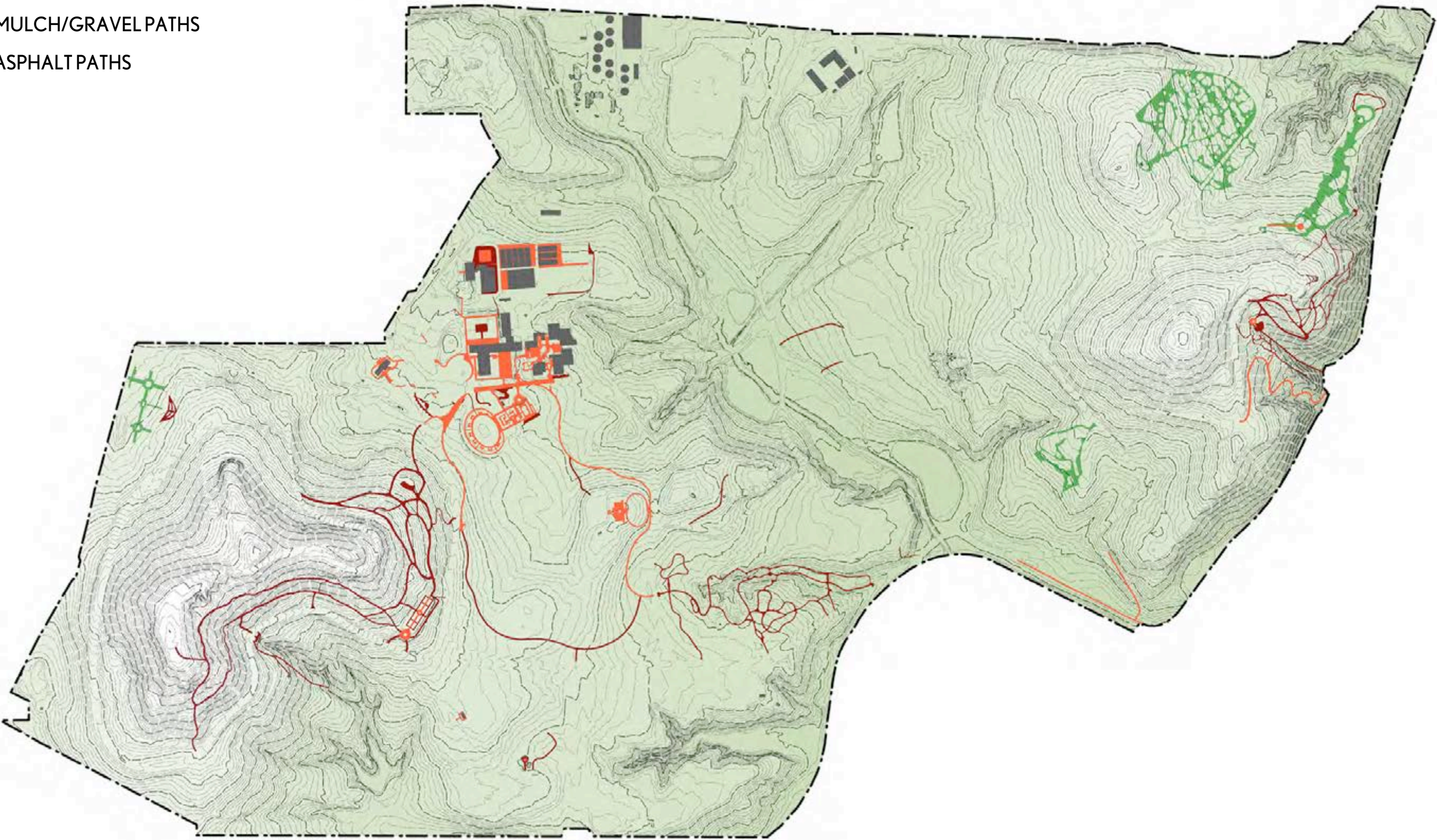




# APPENDIX: EXISTING CONDITIONS ANALYSIS

2017: Pedestrian Circulation

- LAWN/MOWN PATHS
- MULCH/GRAVEL PATHS
- ASPHALT PATHS

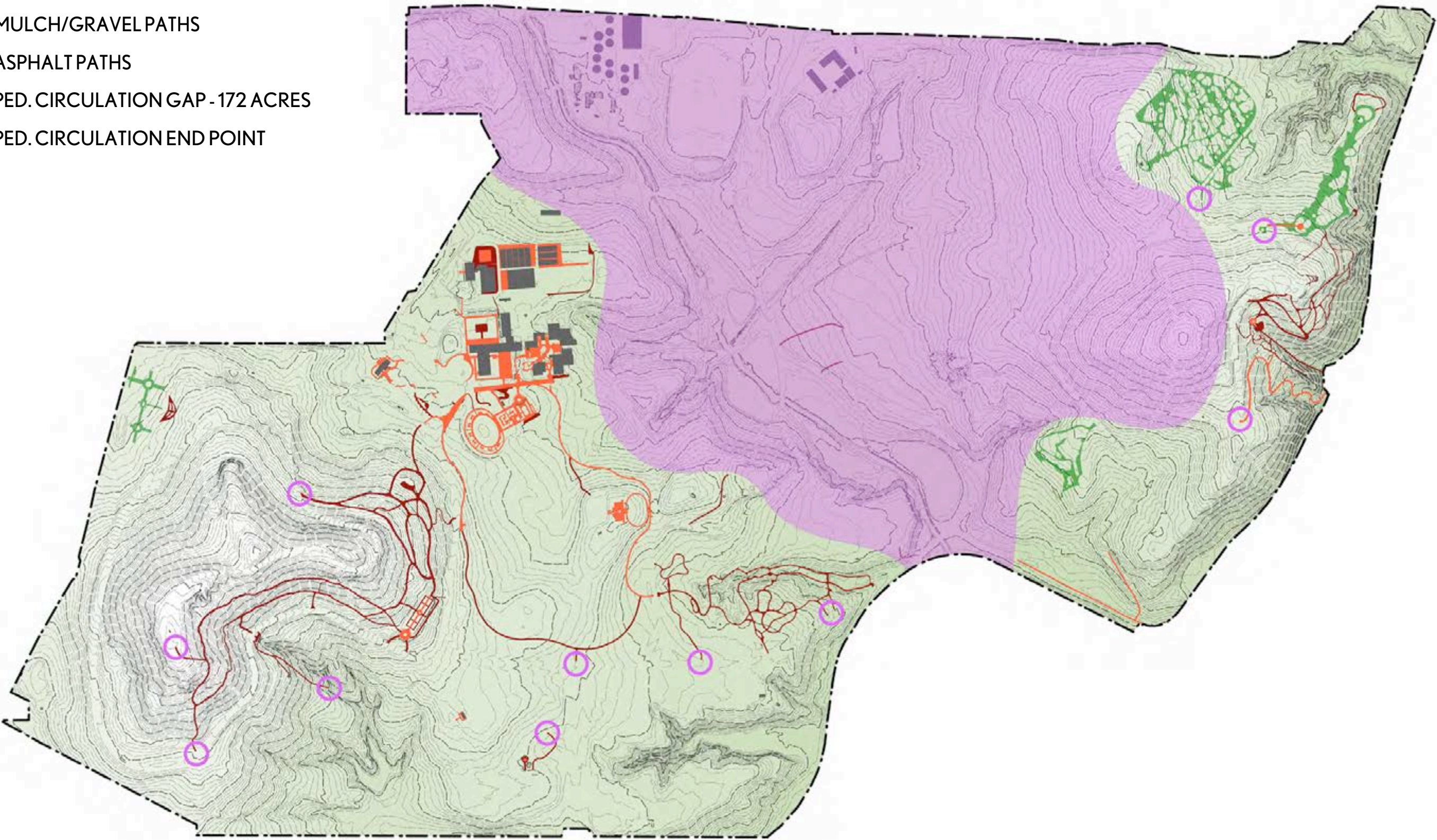




# APPENDIX: EXISTING CONDITIONS ANALYSIS

## 2017: Pedestrian Circulation Assessment

- LAWN/MOWN PATHS
- MULCH/GRAVEL PATHS
- ASPHALT PATHS
- PED. CIRCULATION GAP - 172 ACRES
- PED. CIRCULATION END POINT





# APPENDIX: EXISTING CONDITIONS ANALYSIS

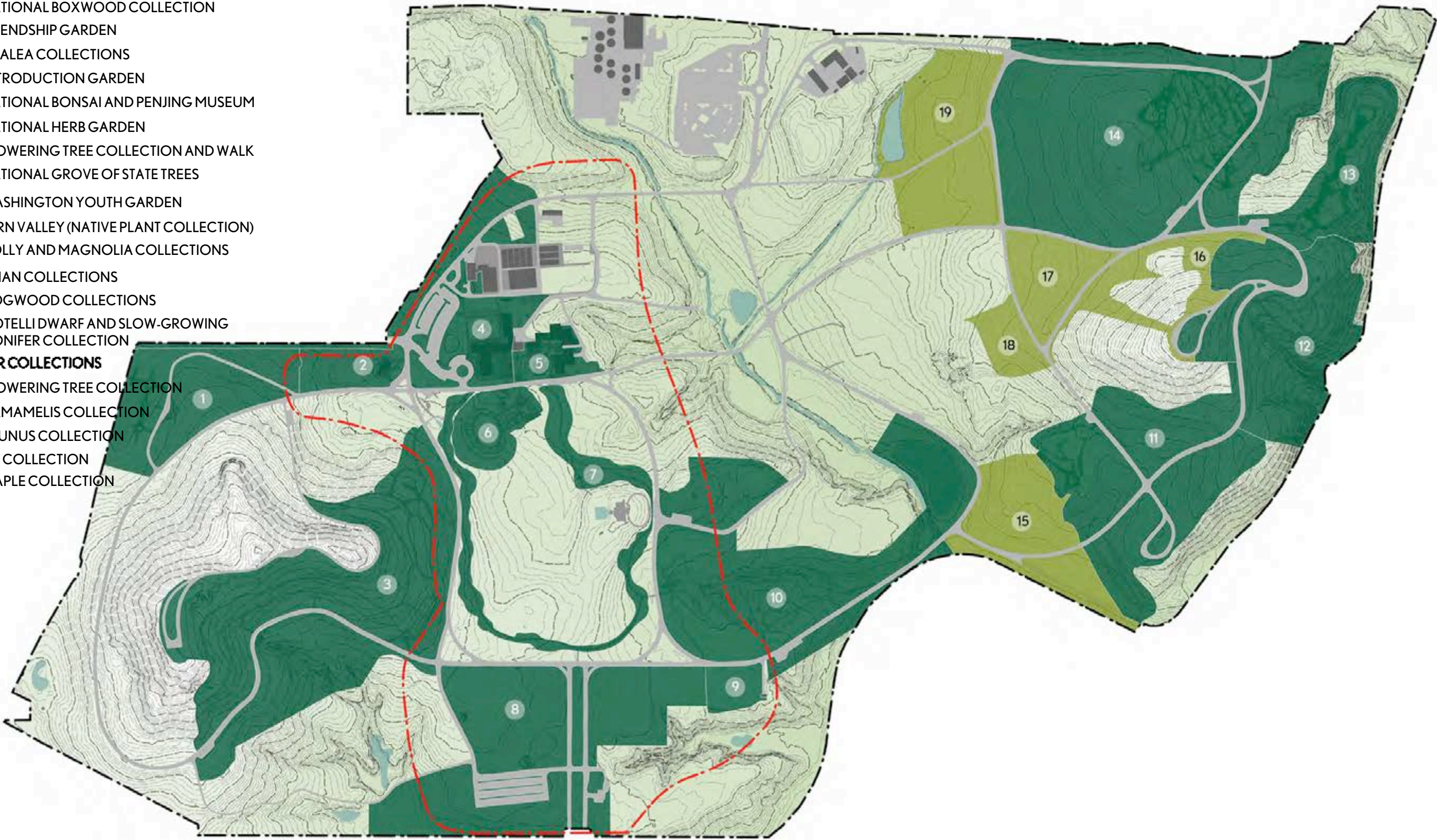
## 2017: Collections

### MAJOR COLLECTIONS

- 1 NATIONAL BOXWOOD COLLECTION
- 2 FRIENDSHIP GARDEN
- 3 AZALEA COLLECTIONS
- 4 INTRODUCTION GARDEN
- 5 NATIONAL BONSAI AND PENJING MUSEUM
- 6 NATIONAL HERB GARDEN
- 7 FLOWERING TREE COLLECTION AND WALK
- 8 NATIONAL GROVE OF STATE TREES
- 9 WASHINGTON YOUTH GARDEN
- 10 FERN VALLEY (NATIVE PLANT COLLECTION)
- 11 HOLLY AND MAGNOLIA COLLECTIONS
- 12 ASIAN COLLECTIONS
- 13 DOGWOOD COLLECTIONS
- 14 GOTELLI DWARF AND SLOW-GROWING CONIFER COLLECTION

### MINOR COLLECTIONS

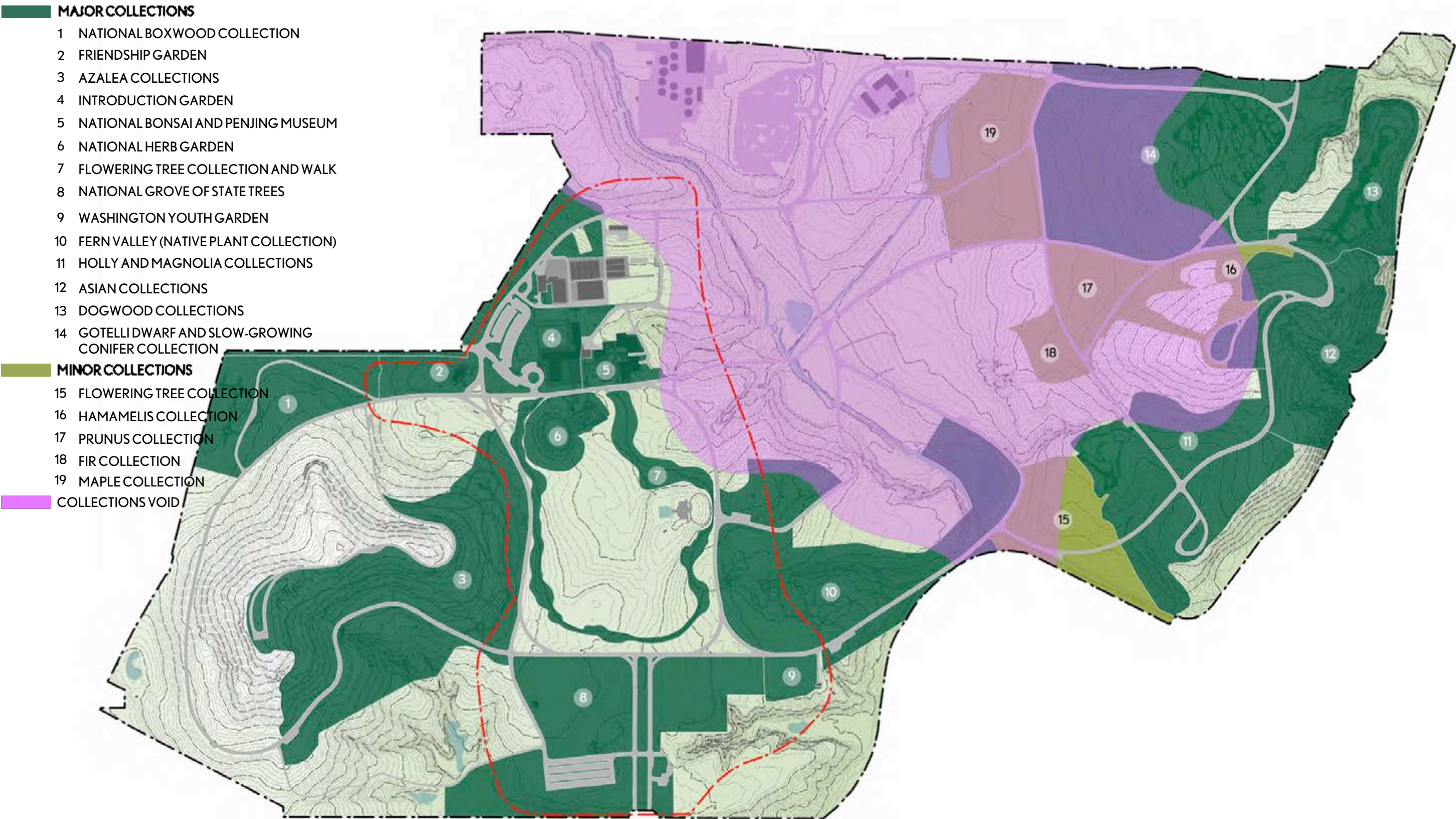
- 15 FLOWERING TREE COLLECTION
- 16 HAMAMELIS COLLECTION
- 17 PRUNUS COLLECTION
- 18 FIR COLLECTION
- 19 MAPLE COLLECTION





# APPENDIX: EXISTING CONDITIONS ANALYSIS

## 2017: Collections Assessment



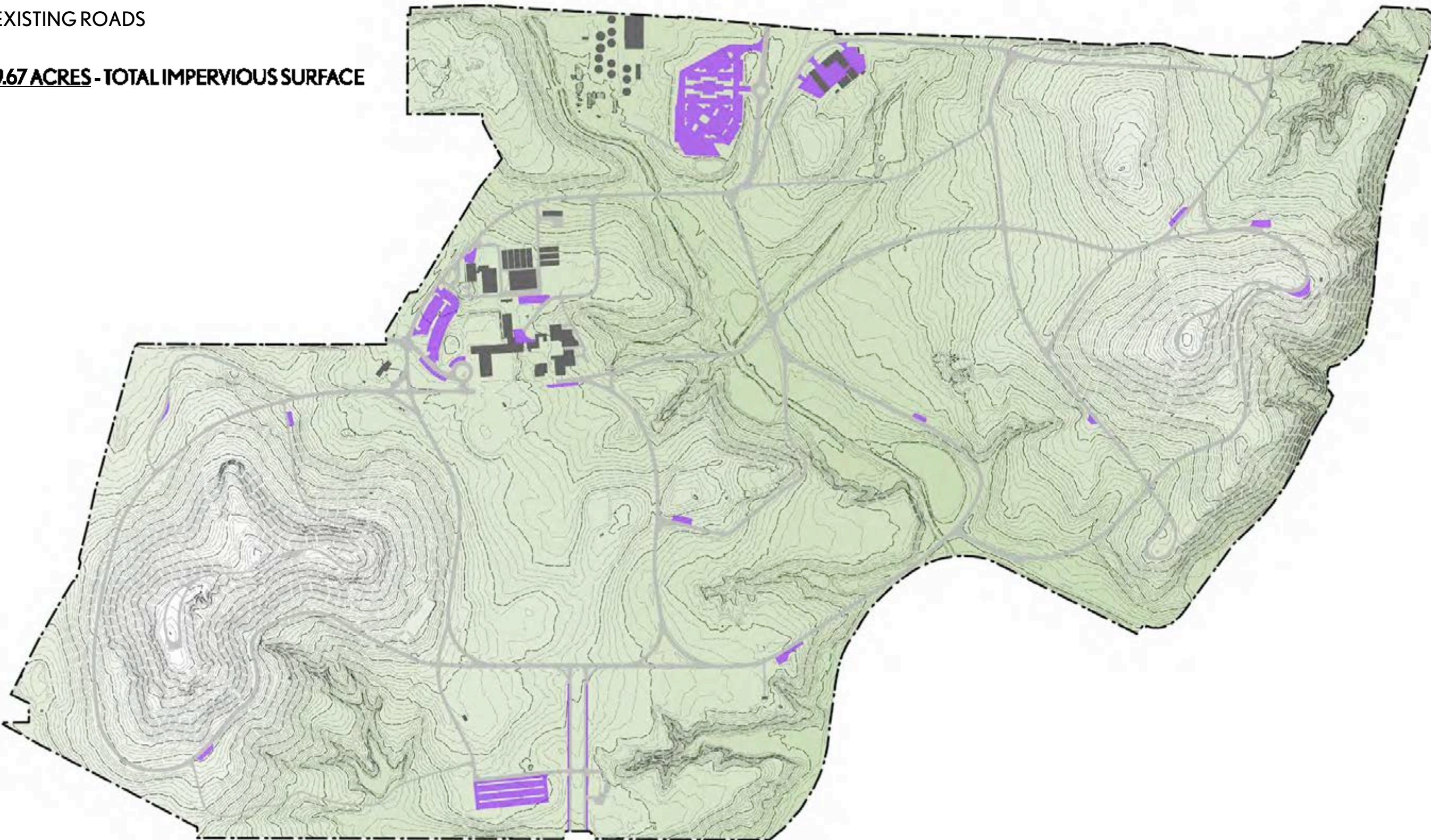


# APPENDIX: EXISTING CONDITIONS ANALYSIS

2017:Existing Parking and Impervious Paving

- EXISTING PARKING - APPROX 609 SPACES
- EXISTING ROADS

APPROX 39.67 ACRES - TOTAL IMPERVIOUS SURFACE





# APPENDIX: EXISTING CONDITIONS ANALYSIS

## 2017: Landscape Character

- COLLECTION LAWN
- EVERGREEN HEDGE
- FLOWERING TREE WALK
- WOODLAND
- TREES IN LAWN
- LAWN
- MEADOW
- TURF/GRASSES COLLECTION
- BONSAI GARDENS
- FRIENDSHIP GARDEN
- PERENNIAL COLLECTIONS
- AZALEA ENTRY COURT
- POLLINATOR GARDENS
- DISPLAY GARDENS
- ADMINISTRATION GARDENS
- ORCHARD/NURSERY
- OFF LIMITS TO PUBLIC
- LOST LANDSCAPE
- RAVINE VEGETATION
- WATER

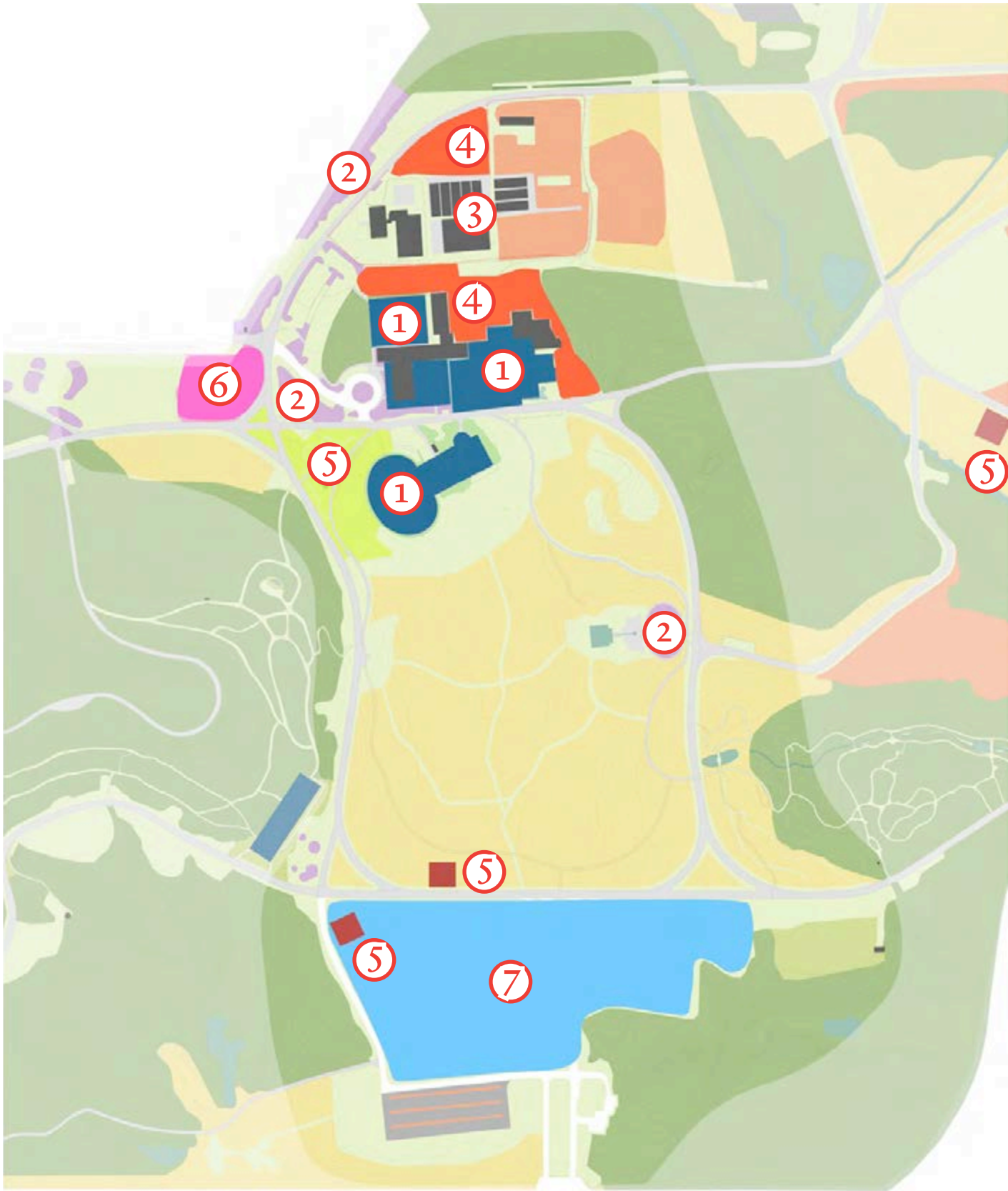




# APPENDIX: EXISTING CONDITIONS ANALYSIS

## 2017: Landscape Character Assessment

- 1. Gardens as internal rooms
  - Administration Garden
  - National Bonsai & Penjing Museum
  - National Herb Garden
- 2. Varying horticultural intensifications
- 3. Areas closed to the public
- 4. Service/indeterminate space
- 5. Temporary research
  - Pollinator Gardens
- 6. Arbor House
- 7. Incomplete Collection
  - Grove of State Trees

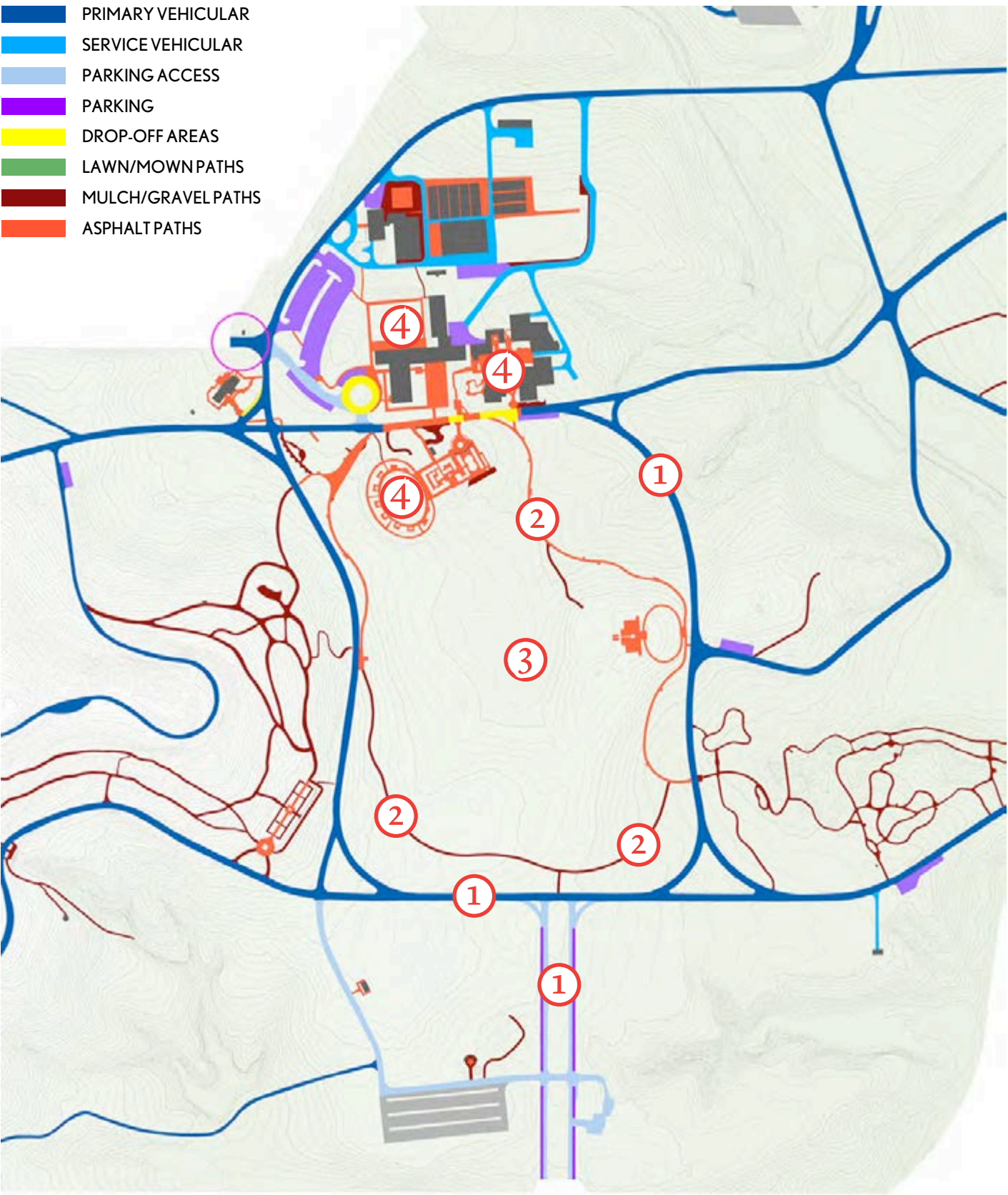




# APPENDIX: EXISTING CONDITIONS ANALYSIS

## 2017: Circulation Assessment

- 1. Vehicular drive serves as primary pedestrian path
- 2. Flowering Tree Walk lacks circulation connections to adjacencies
- 3. Limited circuits providing options for different length walks
- 4. Primary collections operate as discrete offerings, separated from each other and internally focused

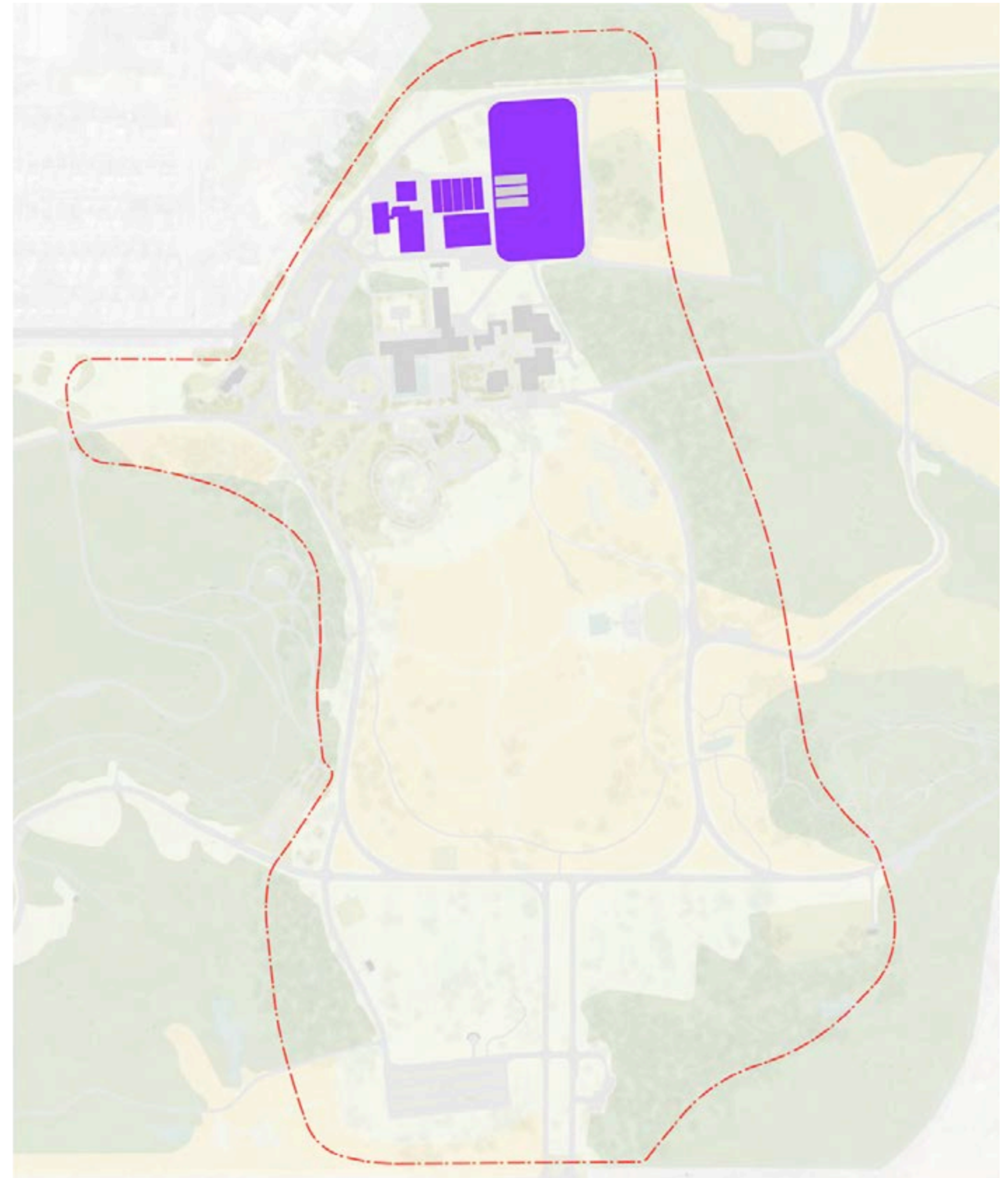




# APPENDIX: EXISTING CONDITIONS ANALYSIS

## Synergies: USNA and ARS Mission

- Take advantage of the location to highlight the science behind the Arboretum
- Expose and celebrate through programming
- Increase public awareness

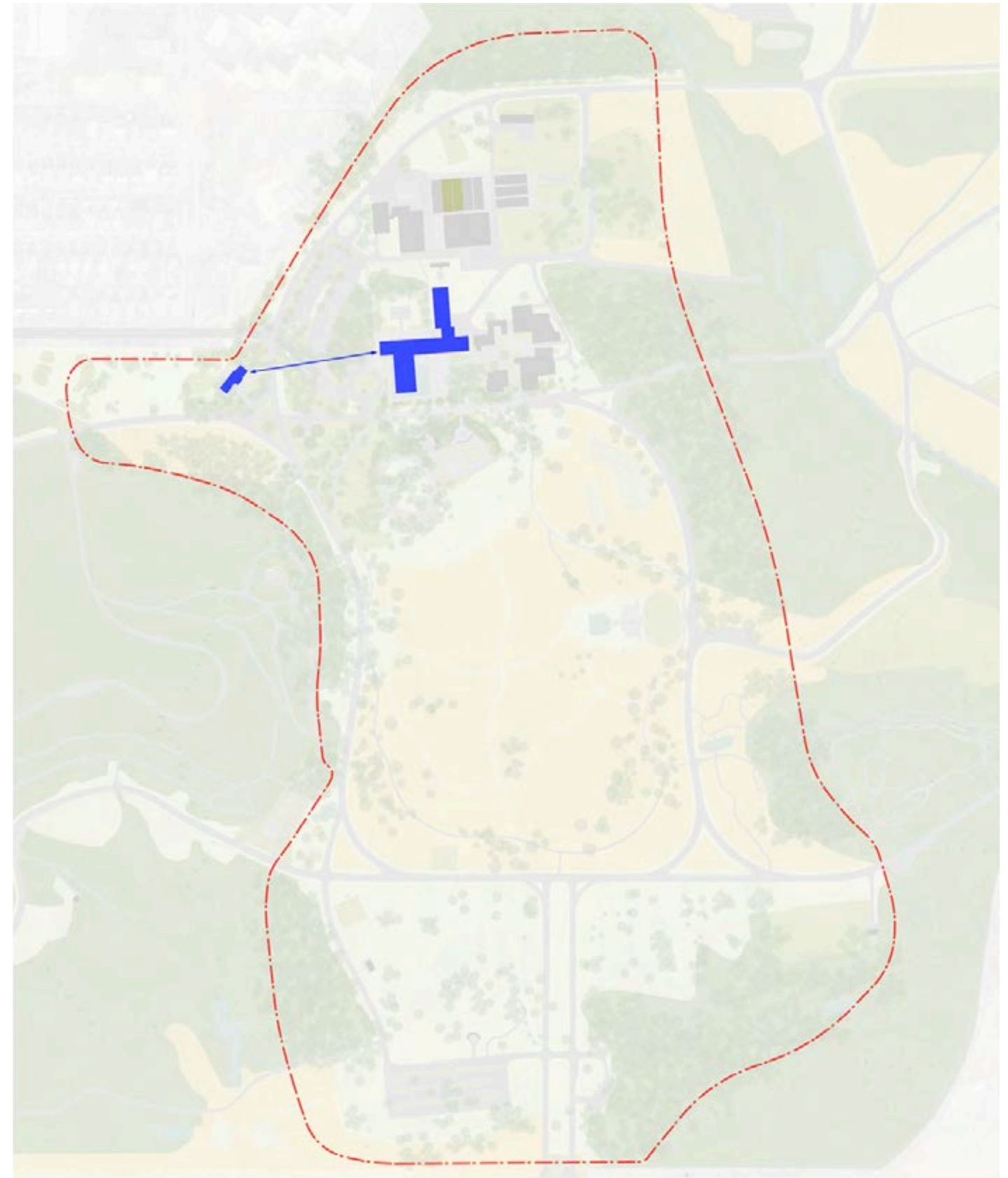




# APPENDIX: EXISTING CONDITIONS ANALYSIS

## Synergies: USNA and FONA

- Strengthen physical connection, relocate offices to Administrative Core
- Recognize their fundraising capacity
- Utilize FONA's resources for interpretive guides, docents, etc.





# APPENDIX: BUILT RESOURCES SURVEY

## Existing Site Conditions

- 01 - GATEHOUSE

02 - "M" STREET RESIDENCE

09 - COMFORT STATION 1

10 - RAIN SHELTER

12 - SHOP / STORE / OFFICE

13 - OFFICE / SHOP

14 - EQUIPMENT STORAGE

15 - GARAGE STORAGE

16 - GARAGE STORAGE

18 - HEAD HOUSE / GREENHOUSE

19 - ADMIN. BUILDING

20 - ARBOR HOUSE

20A - RESTROOM

21 - GAZEBO / AZALEA

22 - COMFORT STATION 2

25 - FLAM. LIQ. STORAGE

29 - GAZEBO-CHINA

30 - GAZEBO-BEECH

46 - GAZEBO-GOTELLI

47 - BRICK KILN COMPLEX

48 - RED OAK SPRINGHOUSES
- 49 - JAPANESE PAVILION

51 - CHINESE PAVILION

52 - BRICK BRIDGE WALL

53 - BEECHWOOD ROAD BRIDGE

54 - MEADOW RD BRIDGE

55 - MORRISON GARDEN

56 - R STREET GATES

57 - NY AVENUE GATES

58 - CONIFER ROAD GATES

59 - M STREET GATES

60 - BLADESNBERG GATES

61 - DOGWOOD FOUNTAIN

62 - IRON FENCE/WALL

63 - CAPITAL COLUMNS

65 - NATL. HERB GARDEN

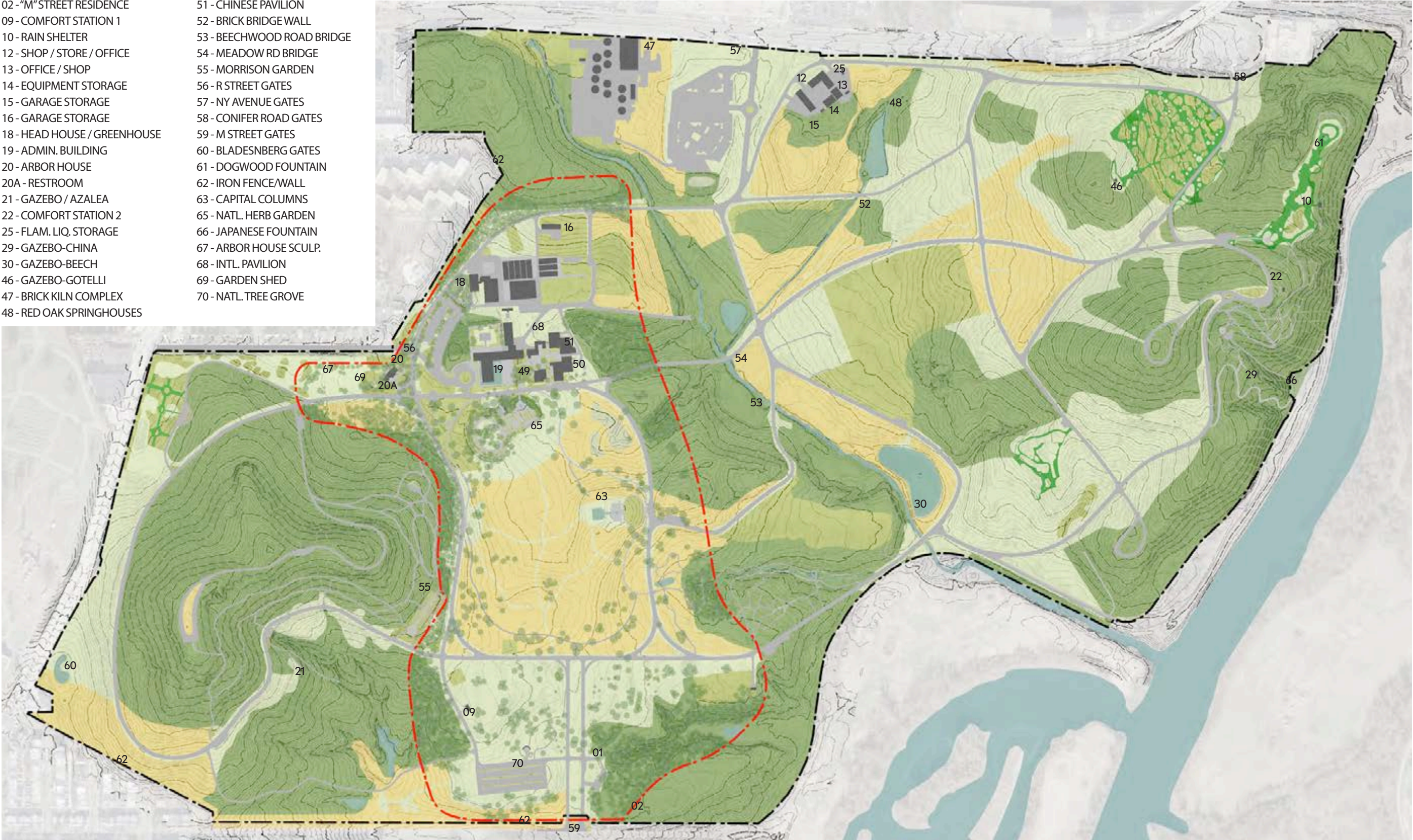
66 - JAPANESE FOUNTAIN

67 - ARBOR HOUSE SCULP.

68 - INTL. PAVILION

69 - GARDEN SHED

70 - NATL. TREE GROVE





# APPENDIX: BUILT RESOURCES SURVEY

## Proposed Site Conditions

- 01 - GATEHOUSE

02 - "M" STREET RESIDENCE

09 - COMFORT STATION 1

10 - RAIN SHELTER

12 - SHOP / STORE / OFFICE

13 - OFFICE / SHOP

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# APPENDIX: PRECEDENTS

## Teaching Greenhouses





# APPENDIX: PRECEDENTS

## Teaching Greenhouses





# APPENDIX: PRECEDENTS

## Ordered Dense Core: Miller House and Garden



ALL PHOTOS BY MILLICENT HARVEY, 2013



# APPENDIX: PRECEDENTS

Promenade: Miller House and Garden



PHOTO BY ALAN WARD  
REED HILDERBRAND



# APPENDIX: PRECEDENTS

## Promenade Garden: Kew Gardens



PHOTO BY JOSEPH JAMES, 2017



PHOTO BY KEW GARDENS



# APPENDIX: PRECEDENTS

## Promenade Pavilion: Rice University Brochstein Pavilion



ALL PHOTOS BY THOMAS PHIFER AND PARTNERS, 2009



# APPENDIX: PRECEDENTS

## Meadow Parking at Tanglewood Music Center





# APPENDIX: PRECEDENTS

## Parallel Shoulder Parking



PIERCE STOCKING SCENIC DRIVE, SLEEPING BEAR DUNES



ARBORWAY JAMAICA PLAINS, ARNOLD ARBORETUM





# APPENDIX: PRECEDENTS

Tree Lined Drives: World's End: Hingham, MA — Frederick Law Olmsted



TREE-LINED CARRIAGE PATHS DESIGNED BY FREDERICK LAW OLMSTED





# APPENDIX : STRATEGIC PLAN 3 (2013-2017)





# APPENDIX: USNA MASTERPLANS 2000 & 2007





