

A decorative graphic on the left side of the slide. It features a large, light green circle at the top left, a smaller solid green circle at the top center, and four leaf-shaped elements. Two of these leaves are filled with a close-up photograph of a green leaf, showing detailed vein patterns. The other two leaves are solid light green. The leaves are arranged in a cluster, with the largest leaf being the most prominent.

Former Residence Redesign at Duke Farms

Robert Gates, Carrie Martin &
Deanna Miller



Goals

To create a suite of options for the landscaping of the former residence at Duke Farms that:

1. Sequesters Carbon
2. Attracts Pollinators
3. Attracts Visitors
4. Creates Stunning Viewsheds



Design Process

Existing Conditions & Site Analysis	Best Practices	Concept Design	Next Steps
<p>Visit the site & take photos.</p> <p>Create environmental maps of the current ecological and topographic conditions.</p> <p>Understand circulation patterns.</p>	<p>Collect inspiration from precedents.</p> <p>Research the science behind and application of carbon sequestration, pollinator gardens, arboretums, and best practices.</p>	<p>Establish tree species and meadow mix.</p> <p>Create preliminary designs.</p>	<p>Implementation and future maintenance.</p> <p>Crosswalk to planning practice.</p>

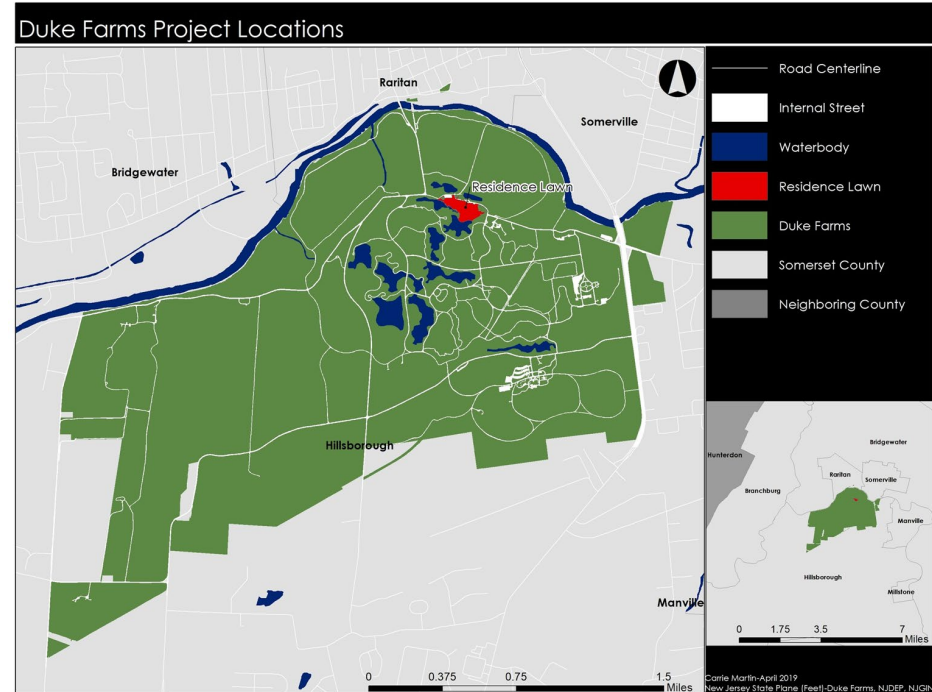


1. Existing Conditions & Site Analysis



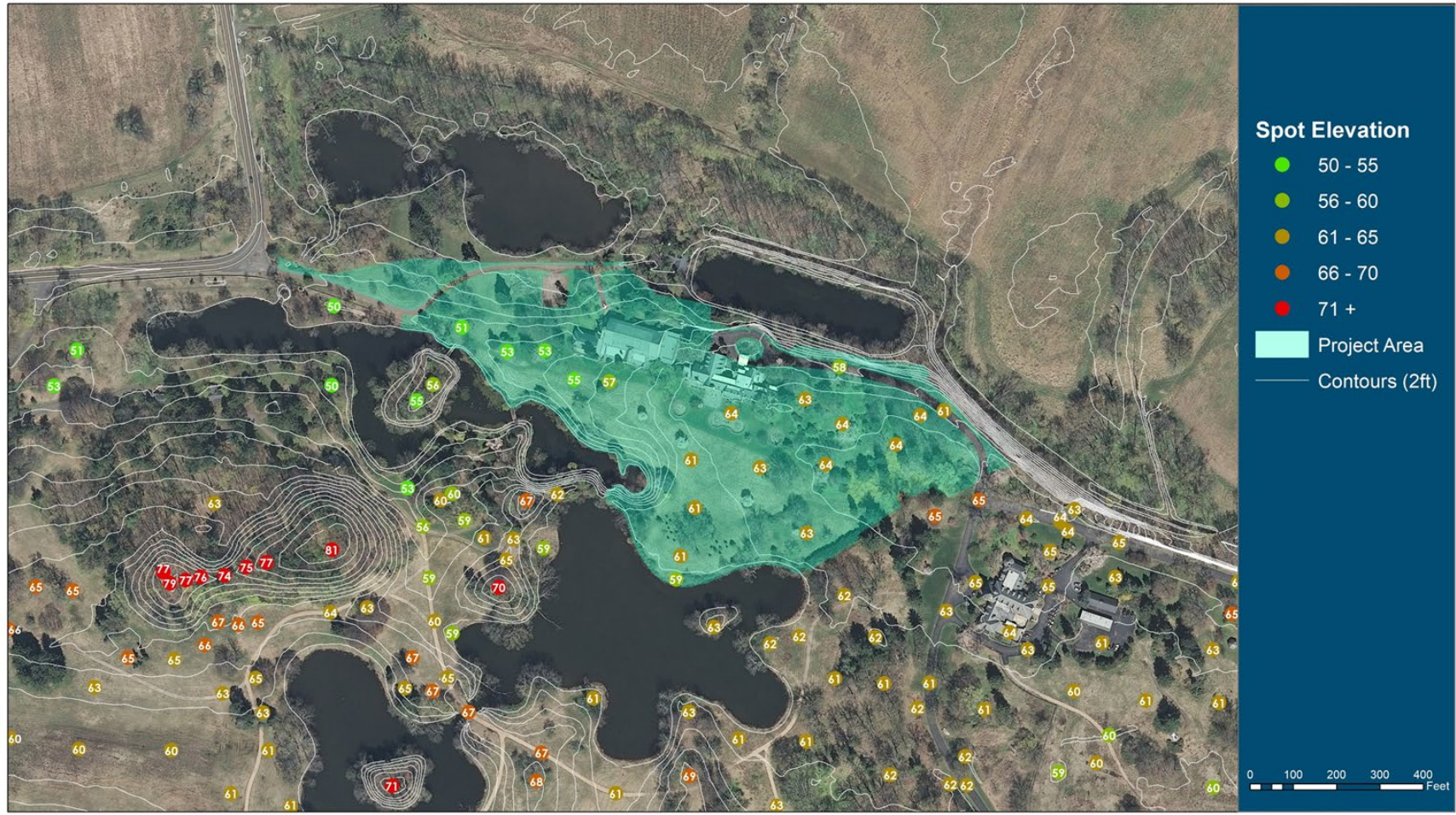
Existing Conditions

- ~ 12 acre site near North Gate entrance
- Former site of Doris Duke Estate
- Currently open space
- Located between Meditation Garden and Boat House
- Irrigation System 6 -12 inches underneath footprint of former estate



Duke Farms - Meadows Project

Existing Conditions - Topography and Spot Elevation



Duke Farms - Meadows Project

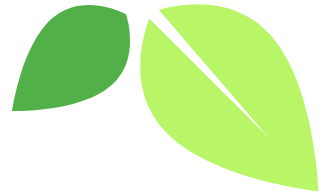
Existing Conditions - Soil Types





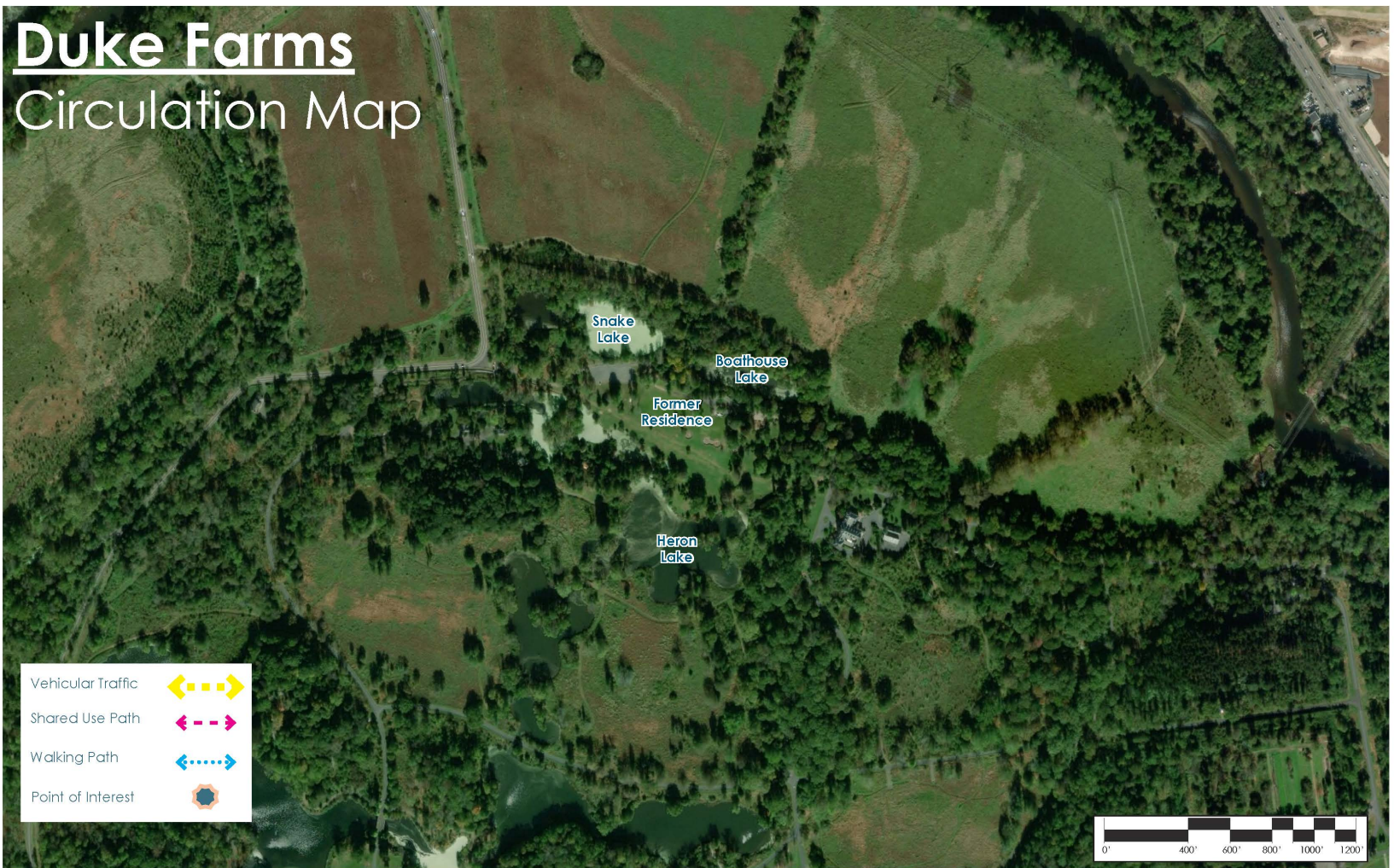
Somerset County Greenway

- Somerset County Parks trail connection to Duke Farms via North Gate Entrance
- Connect Duke Farms to Somerset County Parks System
- Bike / Pedestrian path coming Summer 2019
- Increase Circulation to the Site



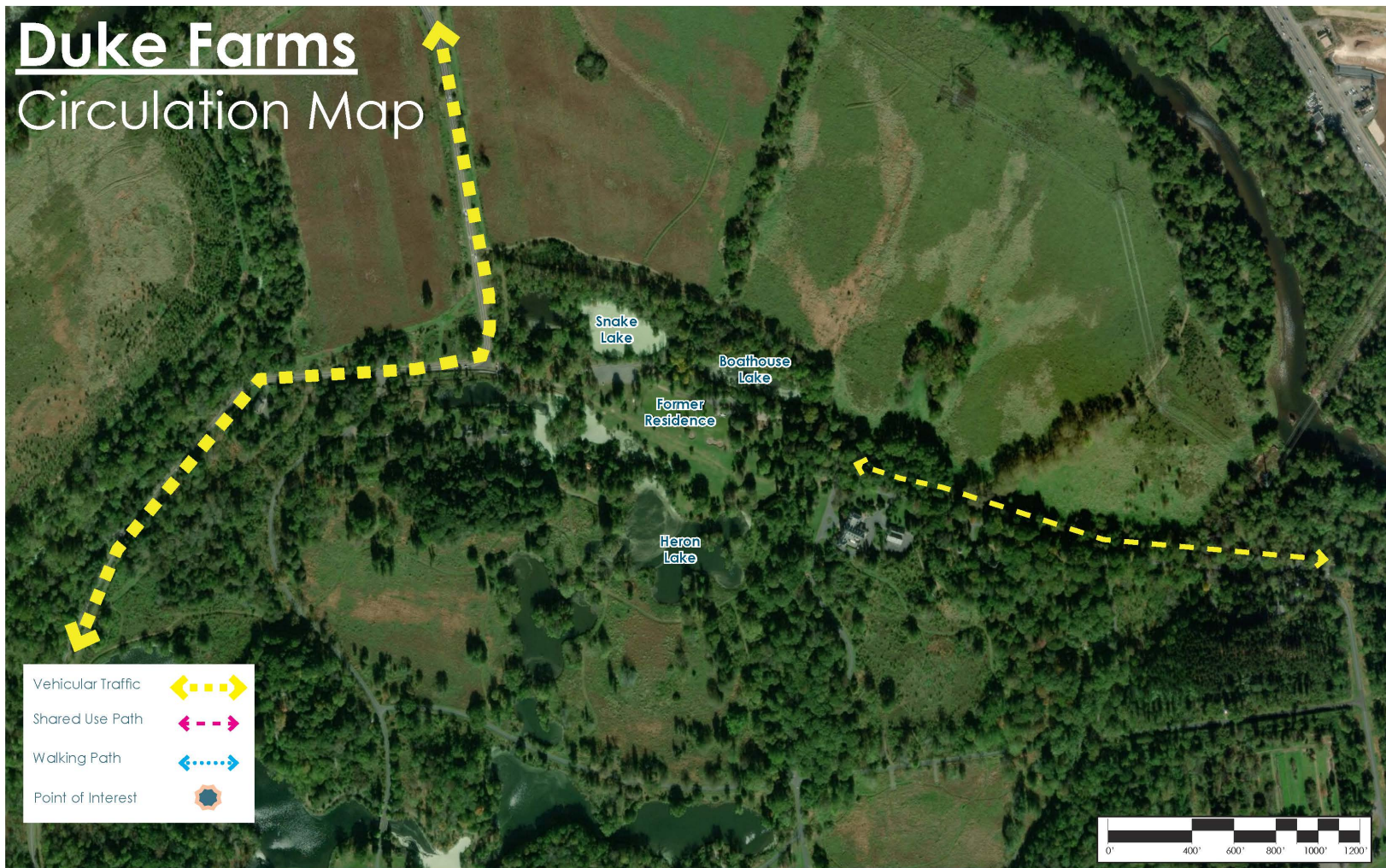
Duke Farms

Circulation Map



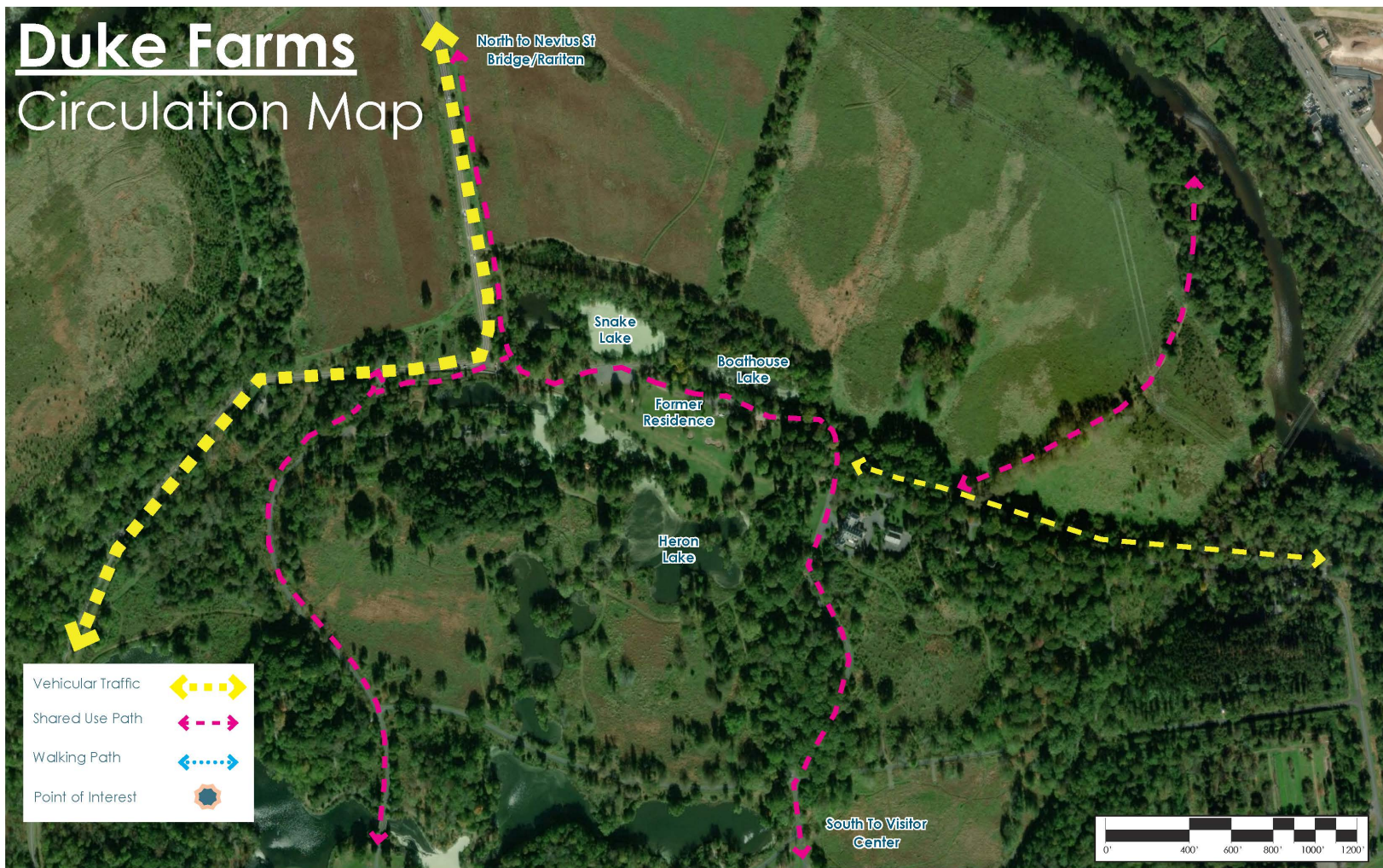
Duke Farms

Circulation Map



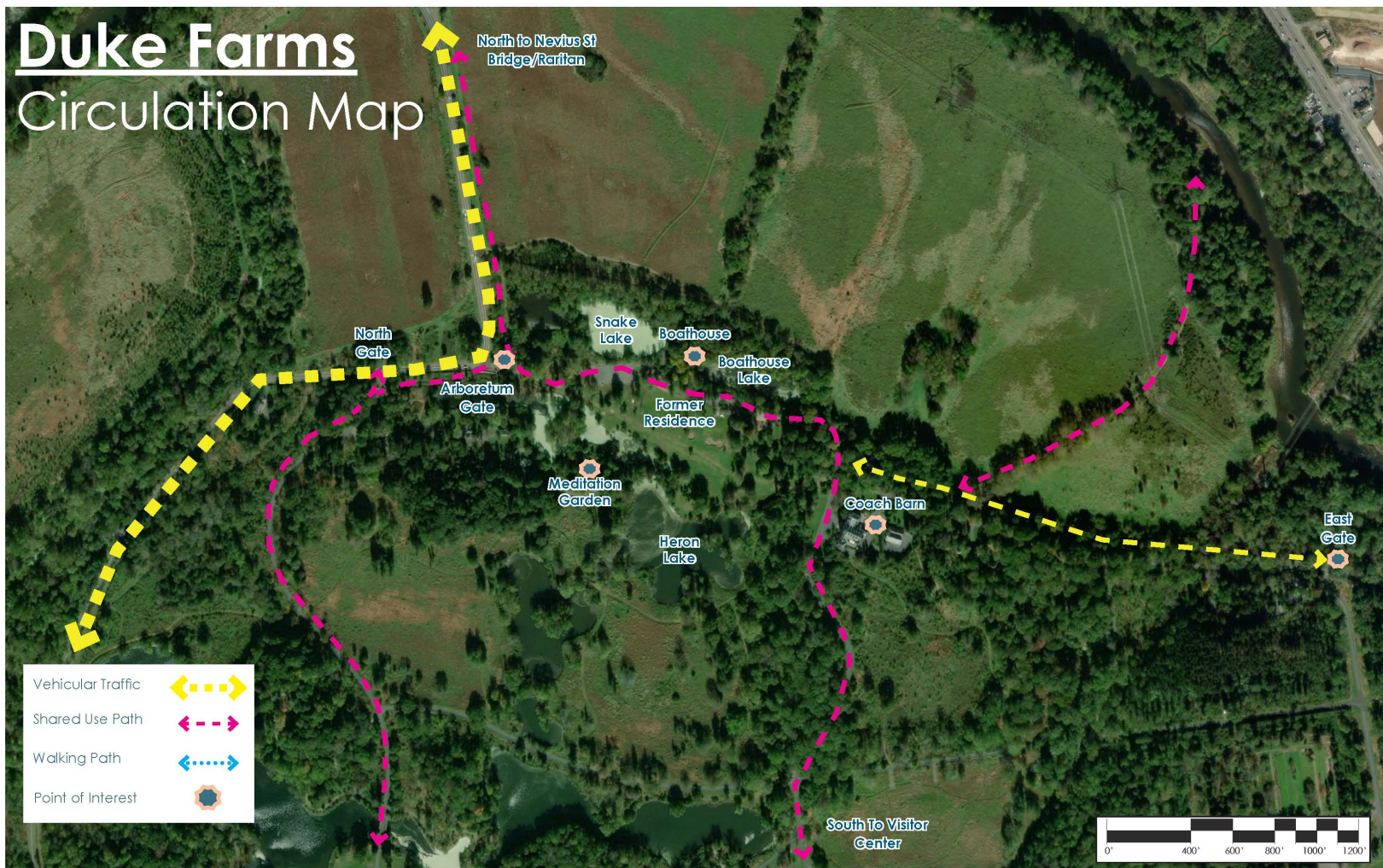
Duke Farms

Circulation Map



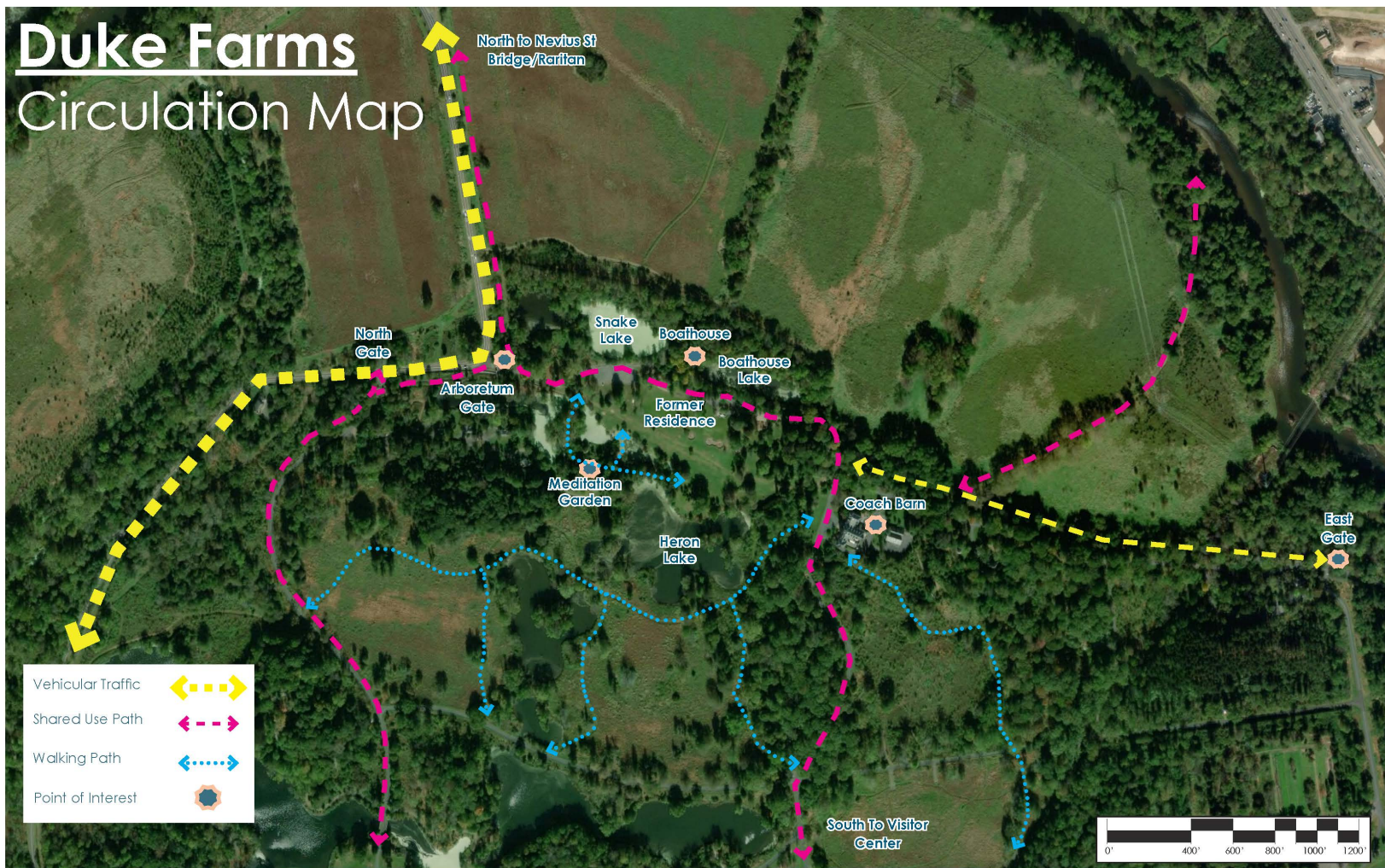
Duke Farms

Circulation Map



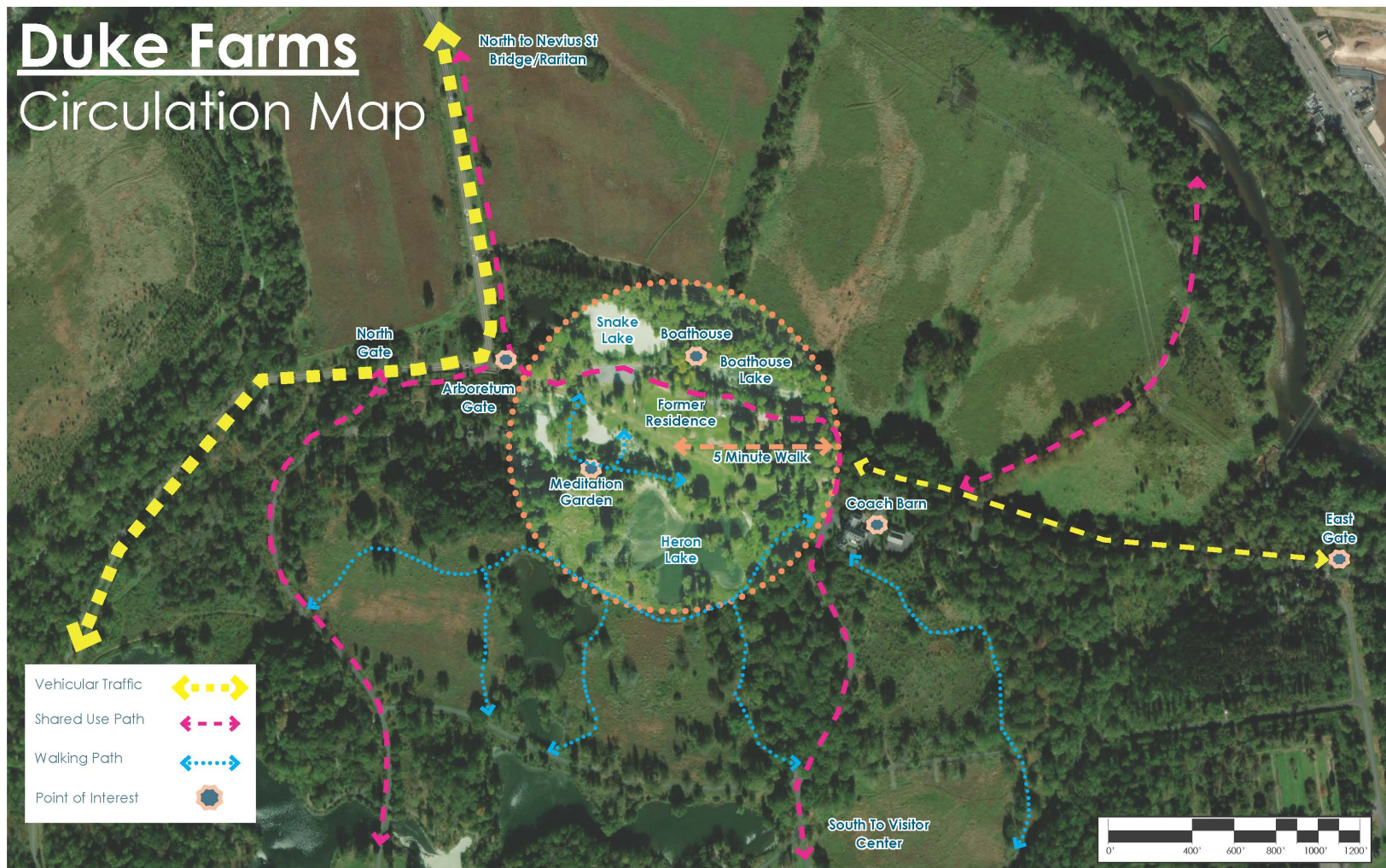
Duke Farms

Circulation Map



Duke Farms

Circulation Map



Former Residence Site Opportunities & Constraints



Former Residence Site Opportunities & Constraints



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Former Residence Site Opportunities & Constraints



Former Residence Site Opportunities & Constraints

The map shows the following labeled areas and features:

- A. CONNECTION TO SHARED USE PATH** (Green label, top left)
- A. GRAVEL LOT** (Red label, top center)
- C. MATURE TREE STANDS** (Green label, top center)
- B. IRRIGATION SYSTEM** (Red label, top right)
- D. IMPORTANT VIEWSHEDS** (Green label, center)
- C. STEEP SLOPE BANKS** (Red label, center)
- B. CONNECTIONS TO MEDITATION GARDEN** (Green label, bottom left)
- D. OPEN AREAS** (Red label, bottom right)

Other labels include **Frog Lake** (blue text, left) and various letters (A, B, C, D) in red and green boxes indicating specific points of interest.



Former Residence Site Opportunities & Constraints





2. Research Best Practices

Inspiration



Willowwood
Arboretum
Gladstone, NJ



Finch Arboretum
Spokane, WA



Dene Slope
Central Park, NYC

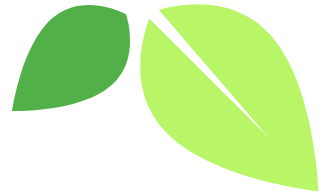
(The Willowwood Arboretum,
n.d.; JSain-Baird, 2017; AHBL,
Inc., 2018)



Meadow Goals

- Establish a meadow on dry ridge near the fountains
- Create a clearly mown path around the edge of the meadow
- Include an annual crop cover species
- Include Tall Drifts and Enhanced Drifts
- Include forbs and grasses that attract native bees

(J.M. Hartman, personal communication, April 8, 2019)

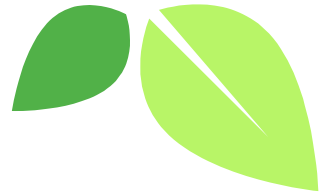




Arboretum Goals

- Meet American Public Gardens Association Level II requirements
- Label trees with their species name
- Accommodate wires (above) and paving (below) when deciding how much space you have to plant
- Account for tree's canopy diameter at full maturity
- Hickory, Maples, small shrubby trees/bushes for Meadows
- Favor natives and avoid invasives

(J.M. Hartman, personal communication, April 8, 2019)





3. Concept Design

Hand Drawing

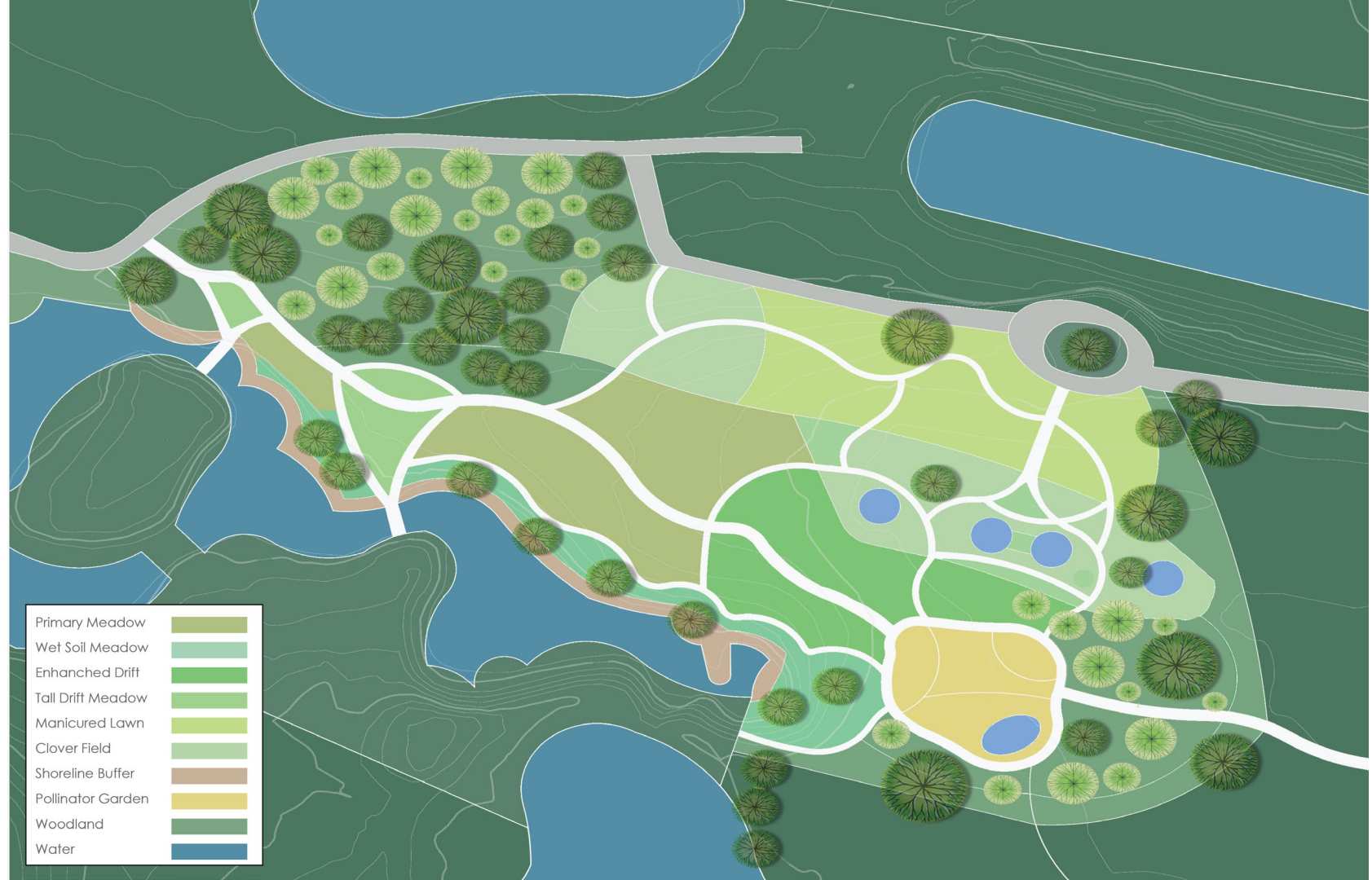








- Primary Meadow
- Wet Soil Meadow
- Enhanced Drift
- Tall Drift Meadow
- Manicured Lawn
- Clover Field
- Shoreline Buffer
- Pollinator Garden
- Woodland
- Water



Primary Meadow	
Wet Soil Meadow	
Enhanced Drift	
Tall Drift Meadow	
Manicured Lawn	
Clover Field	
Shoreline Buffer	
Pollinator Garden	
Woodland	
Water	



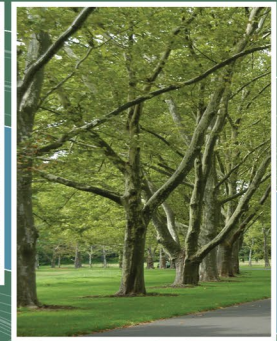
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Pollinator Garden	
Woodland	
Water	

(Master Gardeners of Northern Virginia, n.d)





(Gardener's Supply Company, 2019;
The Willowood Arboretum, n.d.)



(Duke Farms, 2012; J Carroll, 2018)



Meadow-CO2 Sequestration Capacity

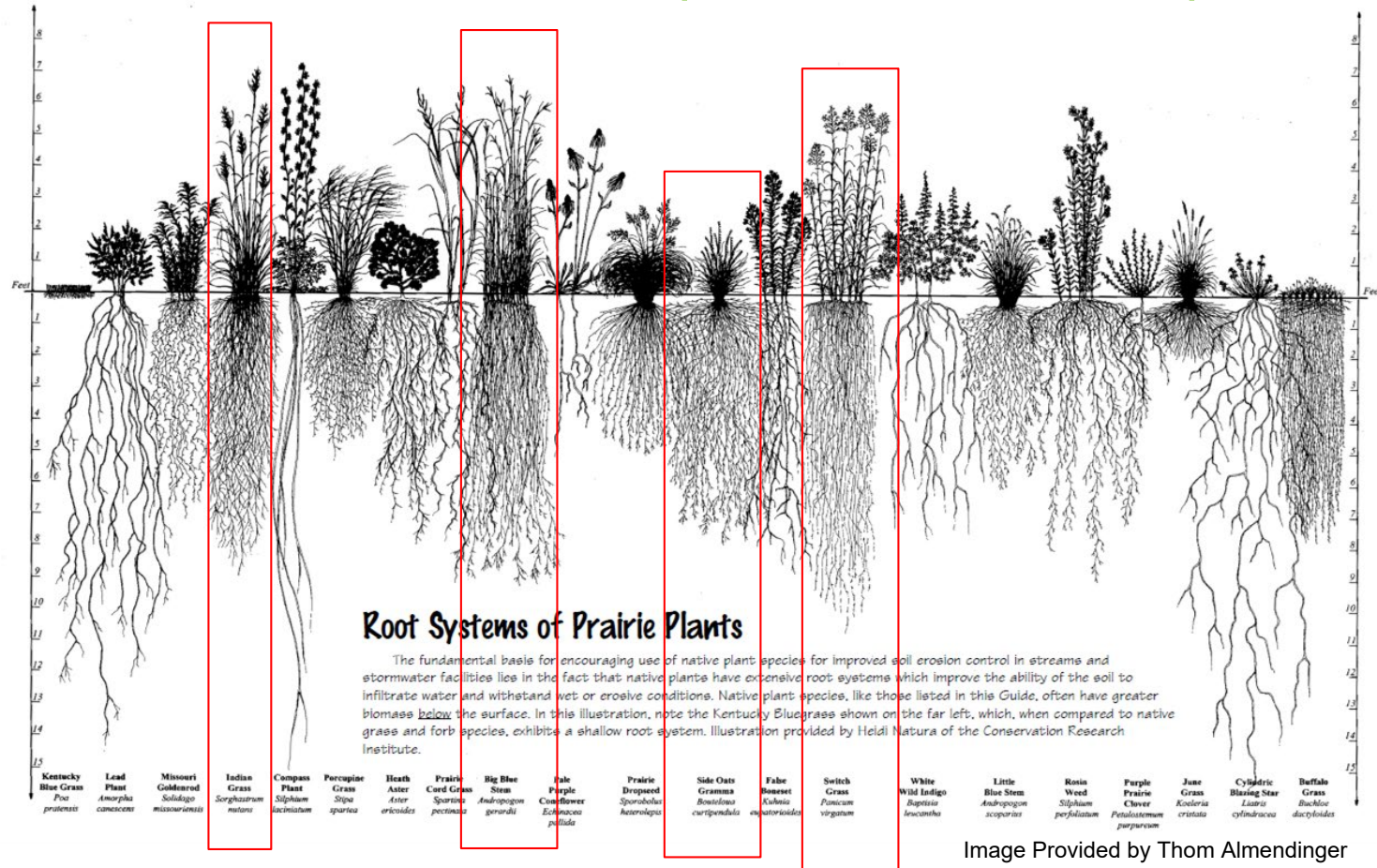
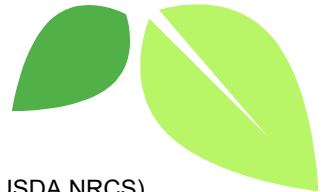


Image Provided by Thom Almendinger



Co-Benefits

- Use of native plants
- Attraction of pollinators
- Creation of pollinator habitat
- Visually stunning flora





4. Next Steps



\$57.95

x 75

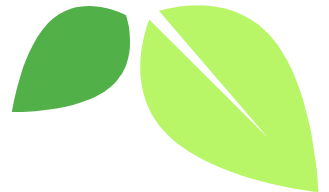
Price per pound of Native Northeast
Wildflower Seed Mix (18 sp.)

50 lbs covers 1.5-2 acres
25 lbs covers 1/2-1 acre

\$4,346.25

Price for a 3 ac. Meadow

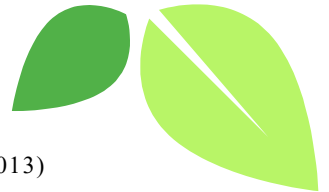
(AmericanMeadows. Com, 2019)





Implementation & Maintenance of Meadows

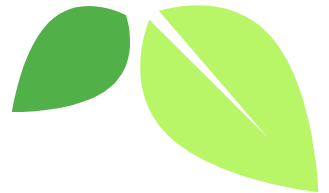
- Preparing the Site
- Seeding
- Mowing





Implications for Land Use Policy

- Planners craft land use policy on an institutional level
- Private property owners, as well, exert control over the use and management of their land
- Duke Farms' innovative land use and land management is a model for private landowners
- Planners can pull BMPs and innovative land use management from innovative private landowners like Duke Farms



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