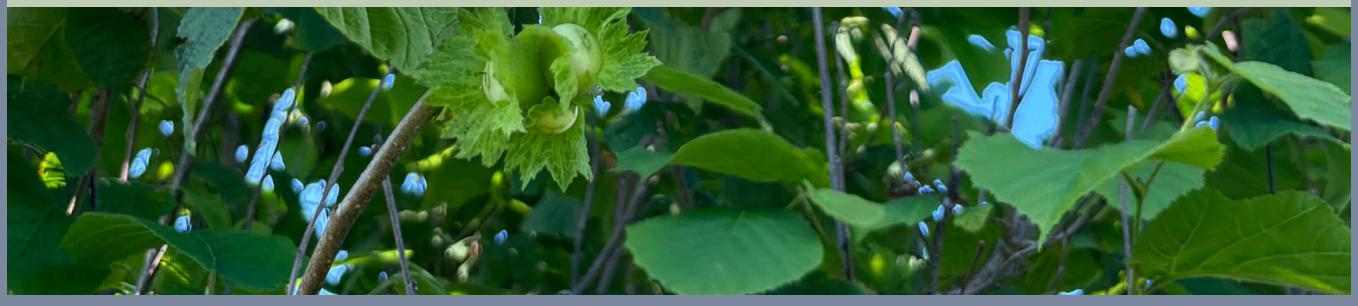
The Martha’s Vineyard Food Forest Plan

A guide for siting and building community food forests on Martha’s Vineyard



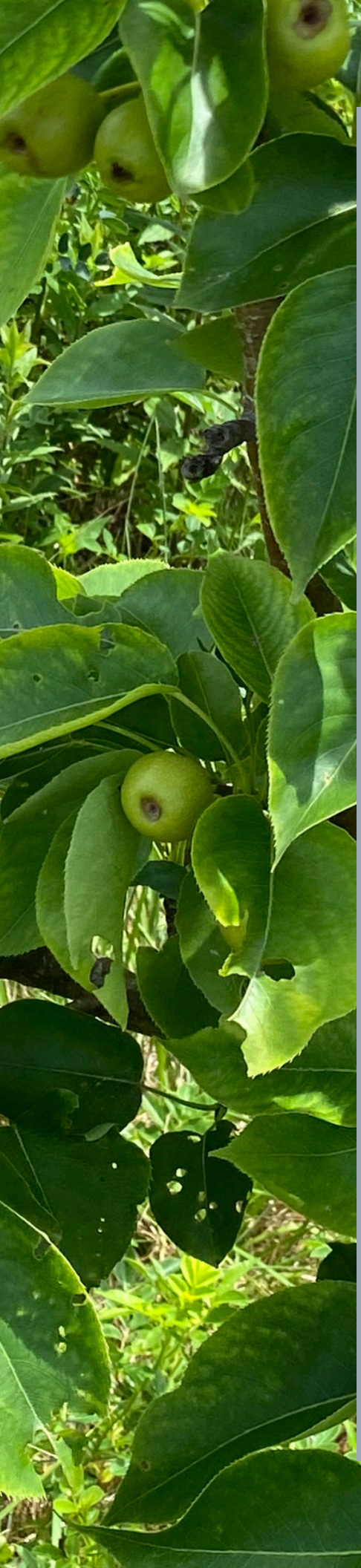
The Martha's Vineyard Food Forest Plan

2025

Writing, illustration, & mapping by
Mary Sage Napolitan

In partnership with the Martha's Vineyard Commission

Supported by the Massachusetts Municipal Vulnerability Preparedness Program



Contents

The Martha's Vineyard Community Food Forest Plan

Project Overview

The MV Community Food Forest plan is a reimagining of our public lands as community foodscapes, and a guide for creating them.

In a changing coastal climate, a robust and resilient food system is critical for the health and security of our community. Transforming public landscapes into an island-wide network of perennial food forests will contribute to a stronger food system by diversifying our cultivation methods, diminishing barriers to equitable food access, and increasing local food production overall. In order to accomplish that vision, this plan aims to answer two questions: *Where* can we establish public food forests to maximize their benefits? And, *how* do we create them?

Using the Toolkit

This plan is meant to guide and support the creation of community food forests on Martha's Vineyard and beyond, from site selection to implementation. Towns, organizations, businesses, community groups and/or individuals can use the elements of the plan as a complete roadmap for developing public perennial foodscapes anywhere, or referenced to inform any of the individual steps in the process of creating a food forest.

A complete design for the Aquinnah community food forest provides a full site plan example on page (#))Additional resources, examples of public food forests and community foodscaping efforts, and sources for procuring perennial edible plants can be found on page (#) for further reference. Use this guide at any phase to plan, build, and/or expand perennial food production spaces in any landscape.

Use this plan to:

- Determine a location for a new public food forest on Martha's Vineyard
- Find criteria for identifying potential sites for public food production in any town
- Guide the site planning, layout, and/or plant selection for a new food forest at any site
- Reference simple best practices for successful food forest installation & maintenance
- Select perennial edible plants that are suitable for Martha's Vineyard

What is a Food Forest?

A food forest is a polyculture of perennial food-bearing plants that mimics the structure, diversity, and ecologies of natural forests. Food forests typically include a mixture of plant species with varying heights and growth habits interplanted together, creating multiple vertical vegetation layers resembling the layers of a forest. The trees, shrubs, and herbaceous plants fill unique niches and grow together to form a self-sustaining, forest-like garden providing perennial yields of fruits, nuts, herbs, and vegetables. Food forests are not meant to replace existing forests, but to use forest ecosystems as a model in our own food system.

For the purposes of this project, "food forest" is used in this document as a shorthand for any multispecies planting of food-producing perennials. Some perennial foodscapes may closely resemble a forest, with multiple layers and a tall overstory. Others may have only one or two layers of plants, or a simple hedge border of mixed berry shrubs. The essential aim, in any form, is to take examples from naturally diverse, dynamic ecosystems to integrate perennial food plants into our shared landscapes and create abundant, resilient community spaces.

Why Food Forests?

Food forests allow us to expand, diversify, and strengthen the local food system by integrating food production into spaces beyond farm fields. Perennial plants, trees, and shrubs are inherently low maintenance, low input, and more adaptable to climate and weather variations than annual food crops, and can provide long-term yields of a variety of fruits, nuts, and vegetables for many years. Perennial 'edible commons' also improve equitable access to fresh, nutritious local food, encourage community participation in growing and harvesting food, and create spaces for gathering, collaboration, and education.

In additional to the social benefits, public food forests are environmentally regenerative models for food production that also provide numerous ecological benefits. Deep-rooted perennial plants stabilize soil and prevent erosion, improve water infiltration and reduce runoff and sequester atmospheric carbon, and the biodiverse polycultures provide food and habitat for native wildlife. Establishing food forests can also improve access to green space in more highly developed areas for people, animals, and insects alike, and provide shade and cooling effects in a warming climate.

This is perennial, low-input, communal approach to local food cultivation is a multibeneficial method that improves community food security and integrates climate preparedness, ecological restoration, and climate change mitigation into our food production practices.

TOWN ASSESSMENTS

Assessment Criteria · Community Input · Site Recommendations

Assessment Criteria

Where should we do this?

In order to determine where these public food forests may be successfully established, an Island-wide assessment was conducted to identify potential sites in each town. These assessments aim to find locations where establishing a public food forest would be environmentally, logistically, and legally viable, and would maximize community access, engagement, and benefit from these spaces. Assessment criteria were developed by identifying the conditions and qualities that would characterize and support a successful public food forest space, and translating those characteristics into objective criteria that would define an ideal site. Those criteria, as detailed below, were then used to analyze all parcels in each town and isolate sites that have those ideal characteristics. The results of this assessment are a refined selection of recommended locations for public food production spaces.

For the purposes of this process, which intends to identify *public* sites specifically, the results of this assessment process are notably constrained to only include town-owned properties, wherein municipal ownership serves as a straight-forward criteria for property that is or reasonably could be open to the public and collectively managed. Therefore, this excludes the many more potential sites that might be developed on privately owned and/or conserved land. There are undoubtedly many more locations on properties owned by organizations, businesses, and individual that would make excellent food forest sites as well, and which would further enrich island's local food system and community food access, should the owners wish to do so.

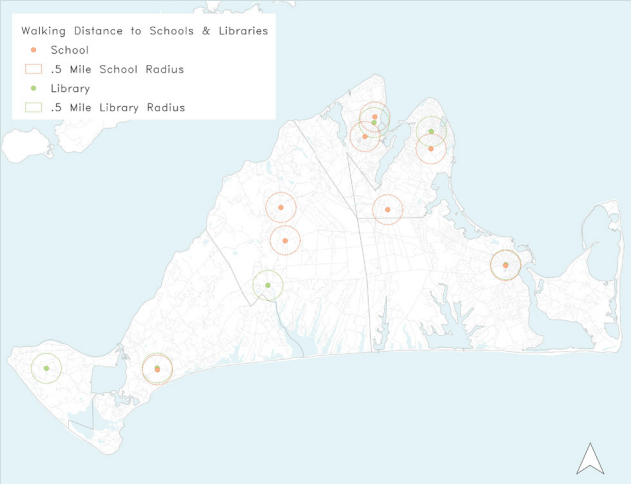
Site Criteria

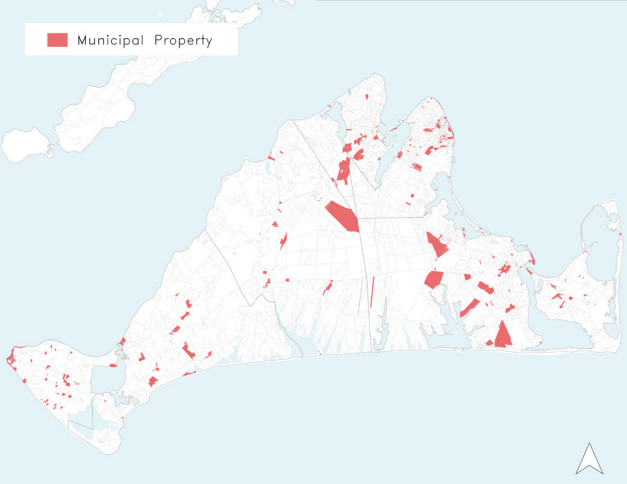
Priority (Required) Criteria

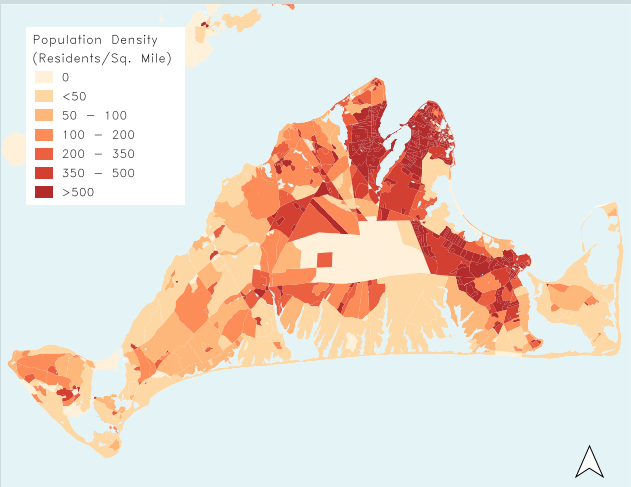
1. Site can be open to the public; Town-owned property.
2. Outside of current coastal flood zones and projected sea level rise and inundation zones.
3. Minimum 1000 square feet unbuilt, non-impervious land area.
4. Not within delineated wetlands or wetland buffer zones.

Secondary (Preferred) Criteria

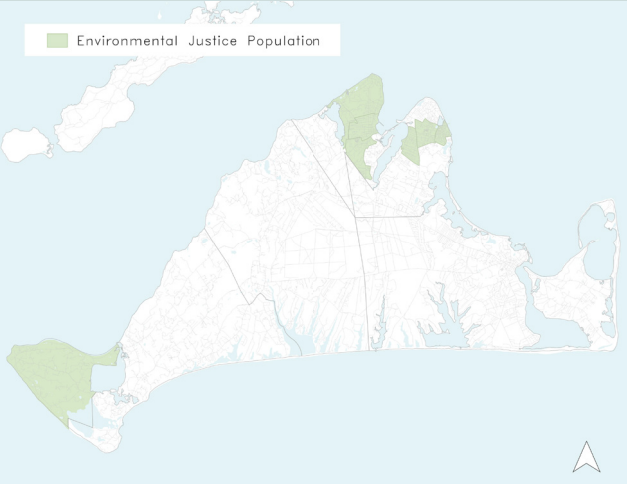
1. Within walking distance (.5 miles) of school or library and/or within Environmental Justice population and/or within a high-density neighborhood.
2. Accessible by public transportation and/or safe walking access.
3. Access to public parking.
4. Access to a water source for irrigation at planting time.



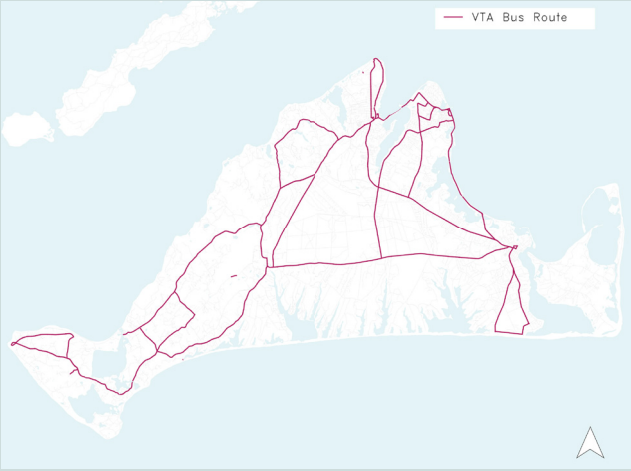


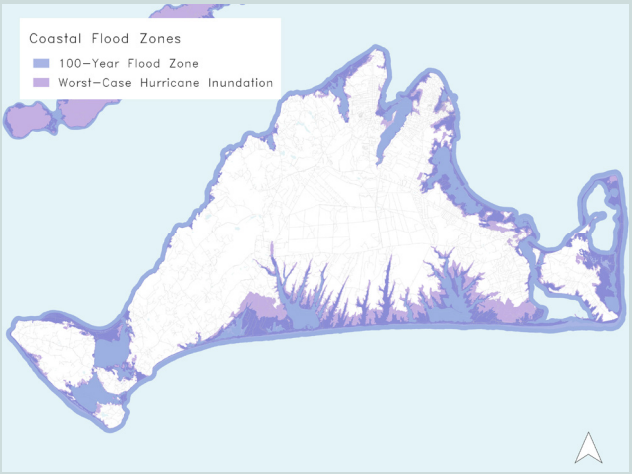


Data source: US Census 2020, Dukes County MA



Data source: US Census 2020, Environmental Justice Populations, Dukes County MA





Data source: FEMA Flood Hazard Areas (2016); NOAA SLOSH Storm Surge (2022)

“Where would you like to see a public food forest on Martha’s Vineyard?”

Public input results collected at MV Museum Earth Day Event April 19, 2025

Recommendations

The following maps illustrate the parcels in each of Martha's Vineyard's six towns that meet the primary and secondary criteria for recommended public food forest sites as defined on page 8. By meeting those criteria, these sites represent the public lands in the most viable, accessible, and socially beneficial potential locations for community food production spaces. In addition to the property addresses, these assessments also note the soil type(s) of each site[1], which can be referenced for site planning and plant selection purposes (see pg. 33) in the event of implementation.

These parcels are recommended as potential food forest locations based on relatively coarse-scale geographic, regulatory, and environmental data[2], and have not been assessed or approved individually for this use by town boards or representatives for the properties.

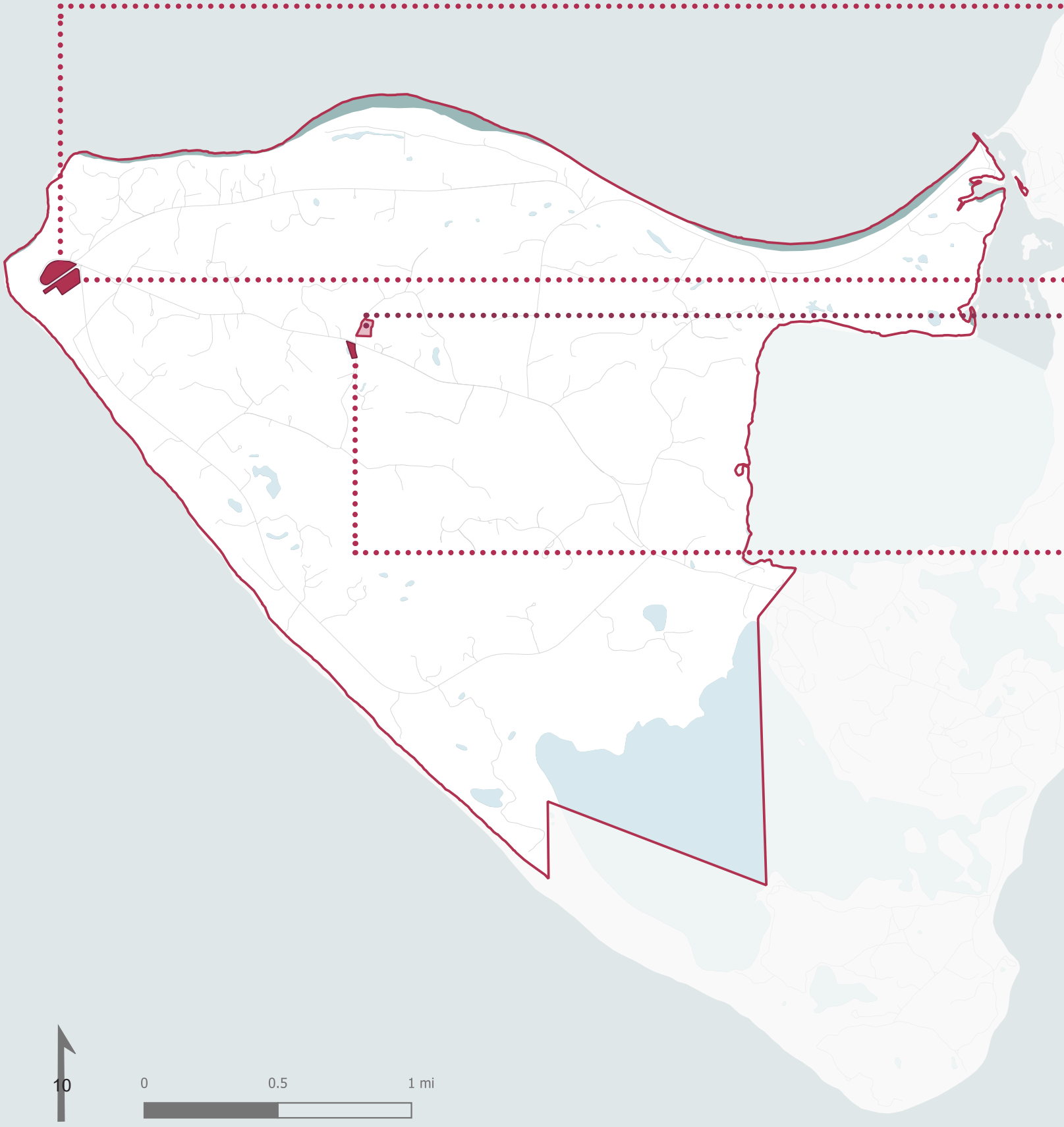
The purpose of this assessment and the resulting recommendations is to provide a refined list of high-value locations from which a site for each town can be prioritized for seeking necessary approvals and pursuing implementation. The specific additional assessments, consultations, and/or approval required to confirm the viability of any one site and pursue implementation will vary by property.

While these recommendations identify the most accessible potential sites for public food production spaces in each town, they are by no means a comprehensive list of all the possible or beneficial locations for the spaces. Beyond the sites suggested here, increasing publicly accessible food production in any location will only serve to further strengthen food stability and equity for our community.

1 Soil data: USDA Web Soil Survey, Dukes County MA, 2025

2 Assessment data: US Census (2020), Dukes County MA; MassGIS Community Boundaries; MassGIS Level 3 Parcels; MassDEP Wetlands; 2021 NOAA C-CAP Version 2 Impervious Cover, Massachusetts; FEMA Flood Hazard Areas (2016)

AQUINNAH



Aquinnah Circle

36 Aquinnah Circle

Nantucket 489 well-drained stony sandy loam

Aquinnah Beach Parking Lot

Moshup Trail

Moshup 308 moderately well-drained loam

*Planned Aquinnah Food Forest

939 State Road, behind AQ Town Hall

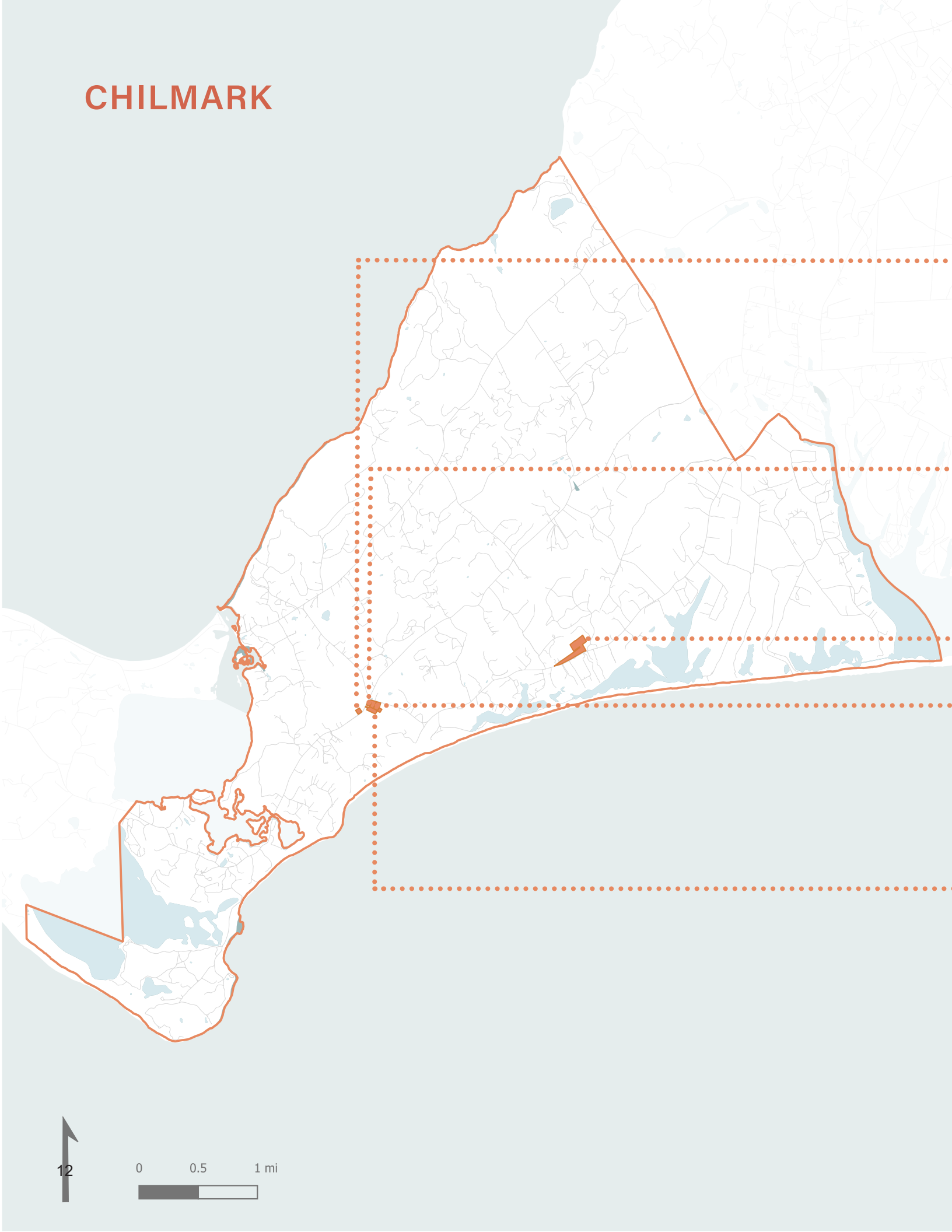
Case Study on pg. 28

Aquinnah Public Library

1 Church Street

Nantucket 489 well-drained stony sandy loam

CHILMARK



Chilmark Police Station

15 State Road

Eastchop 264 excessively drained loamy sand

Chilmark Post Office

4 State Road

Eastchop 264 excessively drained loamy sand

Abel's Hill Cemetery

322 South Road

Eastchop 264 excessively drained loamy sand

Chilmark Library & Chilmark Community Center

520-522 State Road

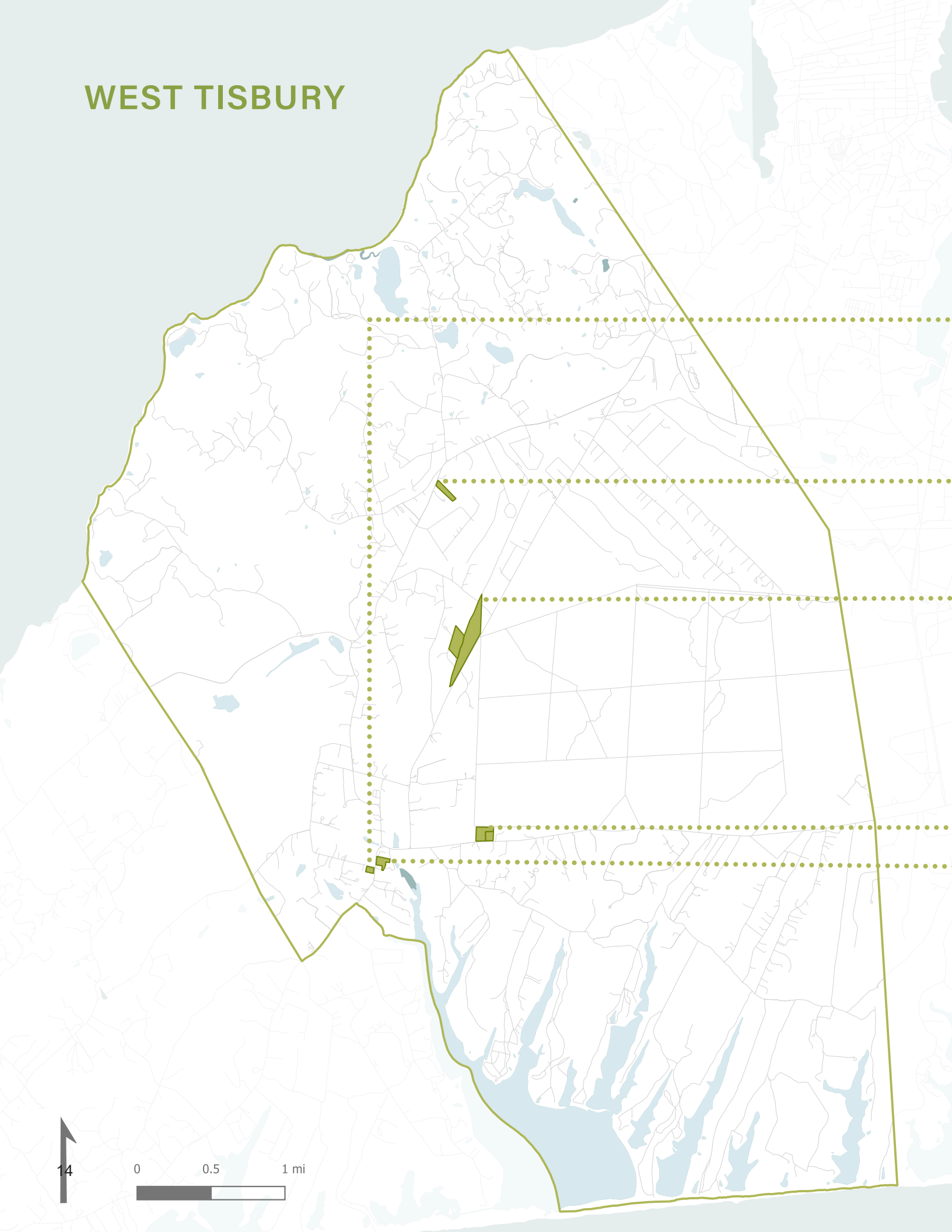
Nantucket 380 well-drained sandy loam

Chilmark School

8 State Road

Nantucket 380 well-drained sandy loam

WEST TISBURY



West Tisbury Town Hall

1059 State Road

Riverhead 288 well-drained sandy loam

West Tisbury Public Safety Building

454 State Road

Riverhead 288 well-drained sandy loam

West Tisbury Elementary School

401 Old County Road

Riverhead 288 well-drained sandy loam
Eastchop 264 excessively drained loamy sand

West Tisbury Fire Station & Baseball Field

551 & 565 Edgartown Road

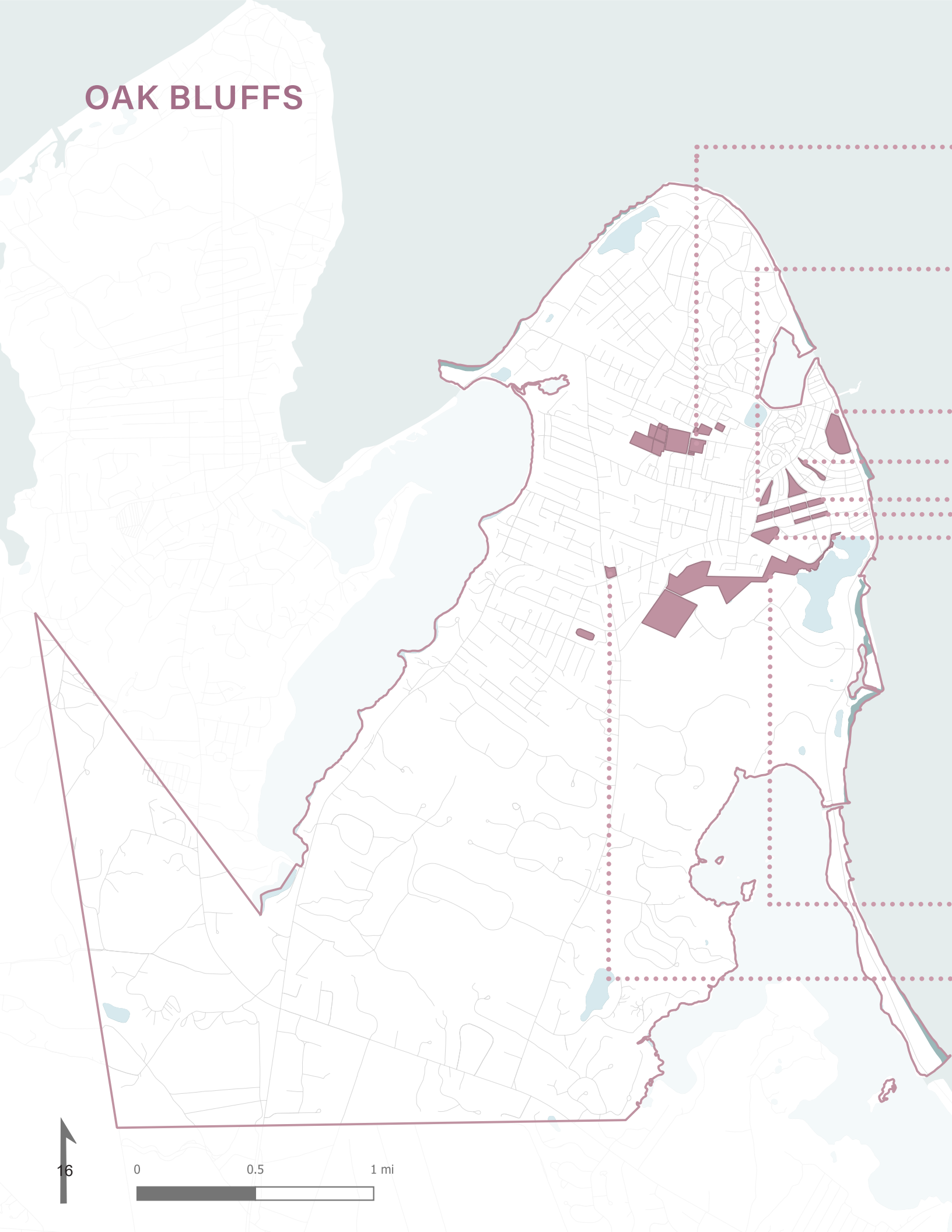
Carver 259 excessively drained loamy coarse sand

West Tisbury Public Library

1042 State Road

Riverhead 288 well-drained sandy loam

OAK BLUFFS



Oak Bluffs Library & Town Offices

56 School Street

Carver 259 excessively drained loamy coarse sand

Hiawatha Park

109-147 Circuit Avenue

Carver 259 excessively drained loamy coarse sand

Ocean Park

Seaview Avenue

Carver 259 excessively drained loamy coarse sand

Hartford Park

2-22 Massasoit Avenue

Carver 259 excessively drained loamy coarse sand

Nashawena Park

Nashawena Avenue

Carver 259 excessively drained loamy coarse sand

Naushon Park

Naushon Avenue

Carver 259 excessively drained loamy coarse sand

Veira Park

57 Naushon Avenue

Carver 259 excessively drained loamy coarse sand

Oak Bluffs School

50 Tradewinds Road

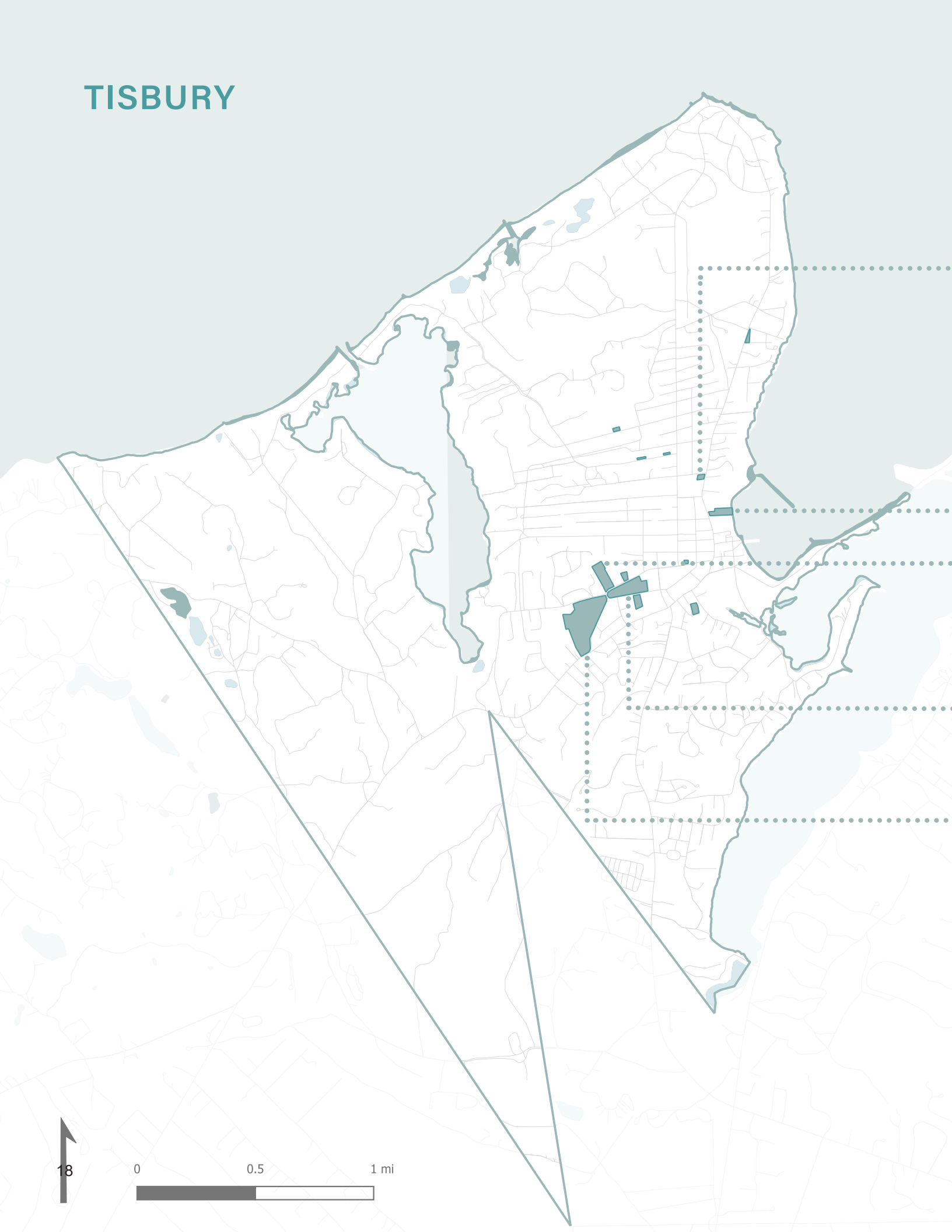
Carver 259 excessively drained loamy coarse sand

Oak Bluffs Fire Station

6 Firehouse Lane

Carver 259 excessively drained loamy coarse sand

TISBURY



Vineyard Haven Library

200 Main Street

Carver 259 excessively drained loamy coarse sand

Owen Park

19 Owen Park Way

Carver 259 excessively drained loamy coarse sand

Tisbury Fire Station

215 Spring Street

Carver 259 excessively drained loamy coarse sand

Tisbury School

40 West William Street

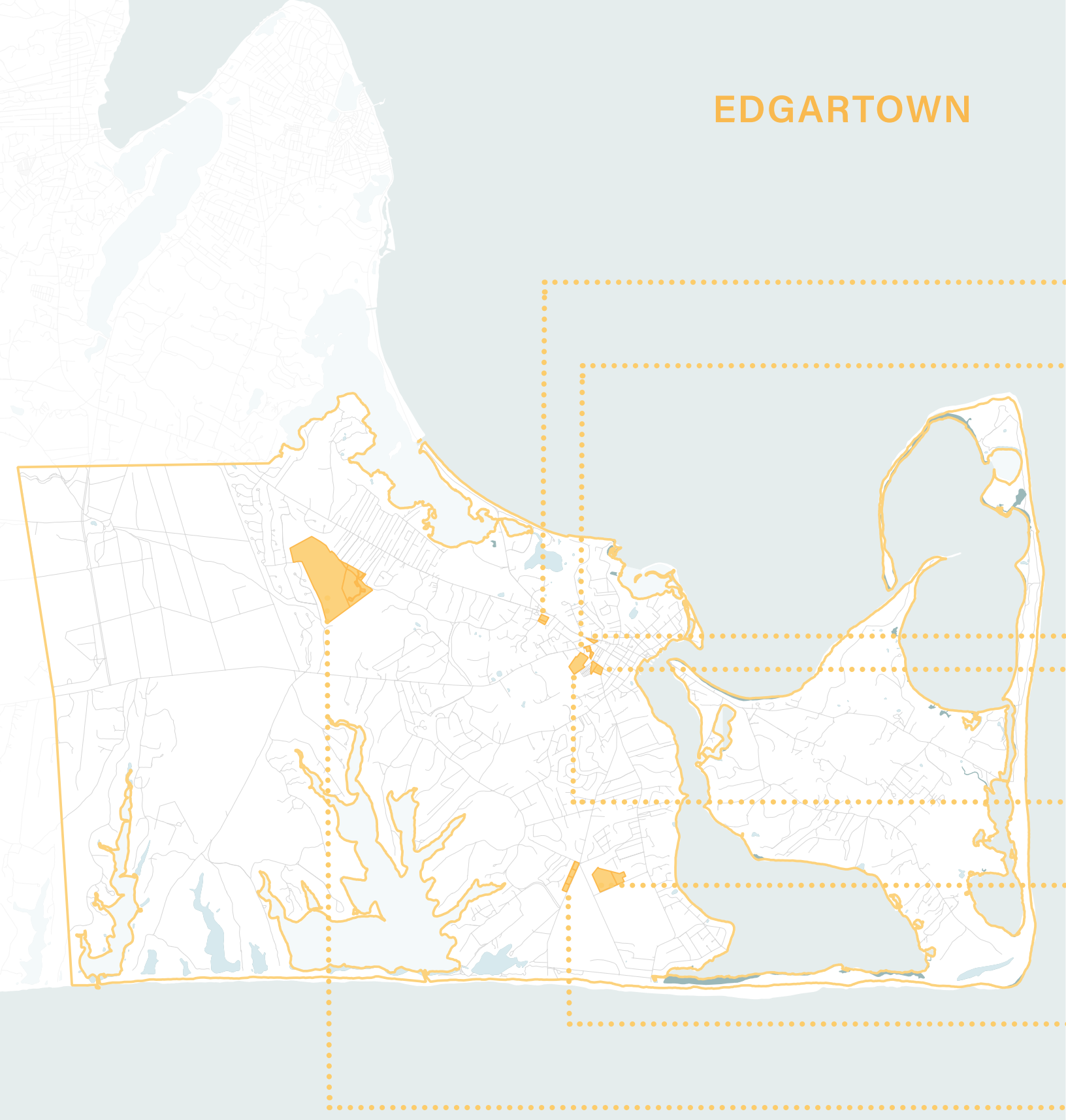
Carver 259 excessively drained loamy coarse sand

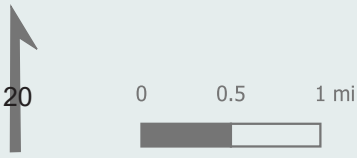
Oak Grove Cemetery

299 State Road

Carver 259 excessively drained loamy coarse sand

EDGARTOWN





Edgartown Park & Ride

288 Upper Main Street

Carver 259 excessively drained loamy coarse sand

Edgartown Library

26 West Tisbury Road

Carver 259 excessively drained loamy coarse sand

Cannonball Park

149 Upper Main Street

Carver 259 excessively drained loamy coarse sand

Edgartown Fire Station

68 Peases Point Way

Klei 297 moderately well-drained loamy coarse sand

Edgartown School

35 Robinson Road

Carver 259 excessively drained loamy coarse sand

Leased Agricultural Land

14 Aero Avenue

Katama 287 well-drained sandy loam

146-152 Herring Creek Road

Katama 287 well-drained sandy loam

Edgartown Open Space

379 Pennywise Path

Carver 259 excessively drained loamy coarse sand

PLANNING GUIDELINES

Forest Layers - Form Examples - Plant Selection

Site Planning

Once the where has been determined, the location, site conditions, infrastructure, and existing uses of the chosen site will inform how perennial food production will be best integrated into the space. Site planning should work from patterns to details, beginning with a broad concept for the space, refining the general form and planting schemes to suit the site conditions, and finally honing site-specific plan details, selecting plant species, and preparing for implementation.

This toolkit comprises guidelines and principles for this planning process, as well as more standard best practices for installation and maintenance. While these tools and practices are meant to collectively support the next steps of successfully establishing public perennial foodscapes at any of the town sites recommended in this plan, this toolkit can be utilized for implementing food forests anywhere.

Planning Considerations

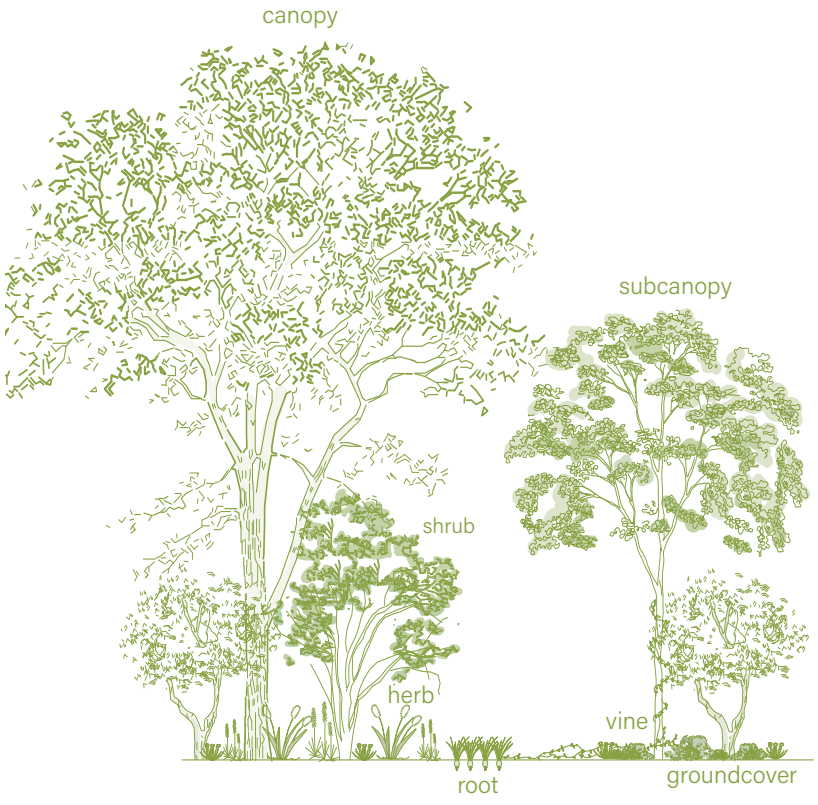
The size, structure, layout, and plant community of each food forest will be unique. There are many forms that these plantings can take, and the particular characteristics and goals of the site, including community interests and needs, should be considered in order to create a well-planned and successful community foodscape. These details will help to define the particular constraints and opportunities of the site, and will influence where and how food-producing plants can be best incorporated into the space. With those factors in mind, a site-appropriate form concept can be identified, from which a more detailed plan will be developed. Questions to consider include:

- What is the current use of the site? What activities occur on the property that might interfere with establishing perennial plantings or community access to the space, and vice versa?
- Who are the people associated with the property? Who uses or interacts with the space as it is now? How do they impact the site, and how will they be impacted by a change to it?
- How much space is available for planting? Is there a large expanse of unused land, existing garden beds, or narrow parking lot edges? Is it one space, or multiple patches around the property?
- What is the terrain of the site? Is the planting space on flat ground, or a slope?
- What is the form and layout of the existing vegetation on the site? Are there existing trees and shrubs? An overstory? Expansive grass? Is there landscaping in place that could be enriched with edible plants, or is it otherwise unmanaged?
- What species already inhabit the space? Are there native plants, specimen trees, or other desireable flora that should be protected? Is there wildlife habitat and/or animal species present that will be impacted by disturbance?
- Are there buildings, infrastructure, utilities that impact where planting can occur, or which plants can be included? Power lines that limit tree heights? Structures that will shade plantings?

The Layers of a (Food) Forest

The vertical architecture of natural forests, consisting of multiple vegetation layers, is a model for structuring perennial food forests. Each layer is a category of plants that share common heights, growth habits, and environmental requirements, and occupy their own physical space and ecological niche within the forest system: Canopy, subcanopy, shrub/subshrub, herbaceous, vine, groundcover, and roots. These layers can be emulated in constructed food forests by interplanting species of differing heights, habits, and charactaristics, which can coexist and complement one another without overcompeting for the same space or resources. Adding multiple layers of vegetation expands the variety and number of plants that can thrive in an area, enhancing both the diversity and productivity of the food forest.

A food forest does not need to include all of these layers, though they should include at least three. Existing vegetation, infrastructure, and uses of each particular site will inform how the layers can be utilized, and which plant forms are most site appropriate. Where multilayered plantings are not possible, the incorporation of a single layer of perennial food plants (eg. fruit trees or berry bushes with no other overstory or understory plants) into our public landscapes will still provide great benefits, even if not resembling a forest. In any case, considering the forest layers and the habits of the plants within them can help make the most of available space, build resilient systems, and diversify harvests.



Canopy: The tallest trees, which determine how much light and water reaches the understory. May be large trees or smaller, even semi-dwarf fruit trees. Existing trees may form the canopy.

Subcanopy: Smaller trees that occupy vertical space below the canopy.

Shrubs: Smaller (4-12') woody understory plants.

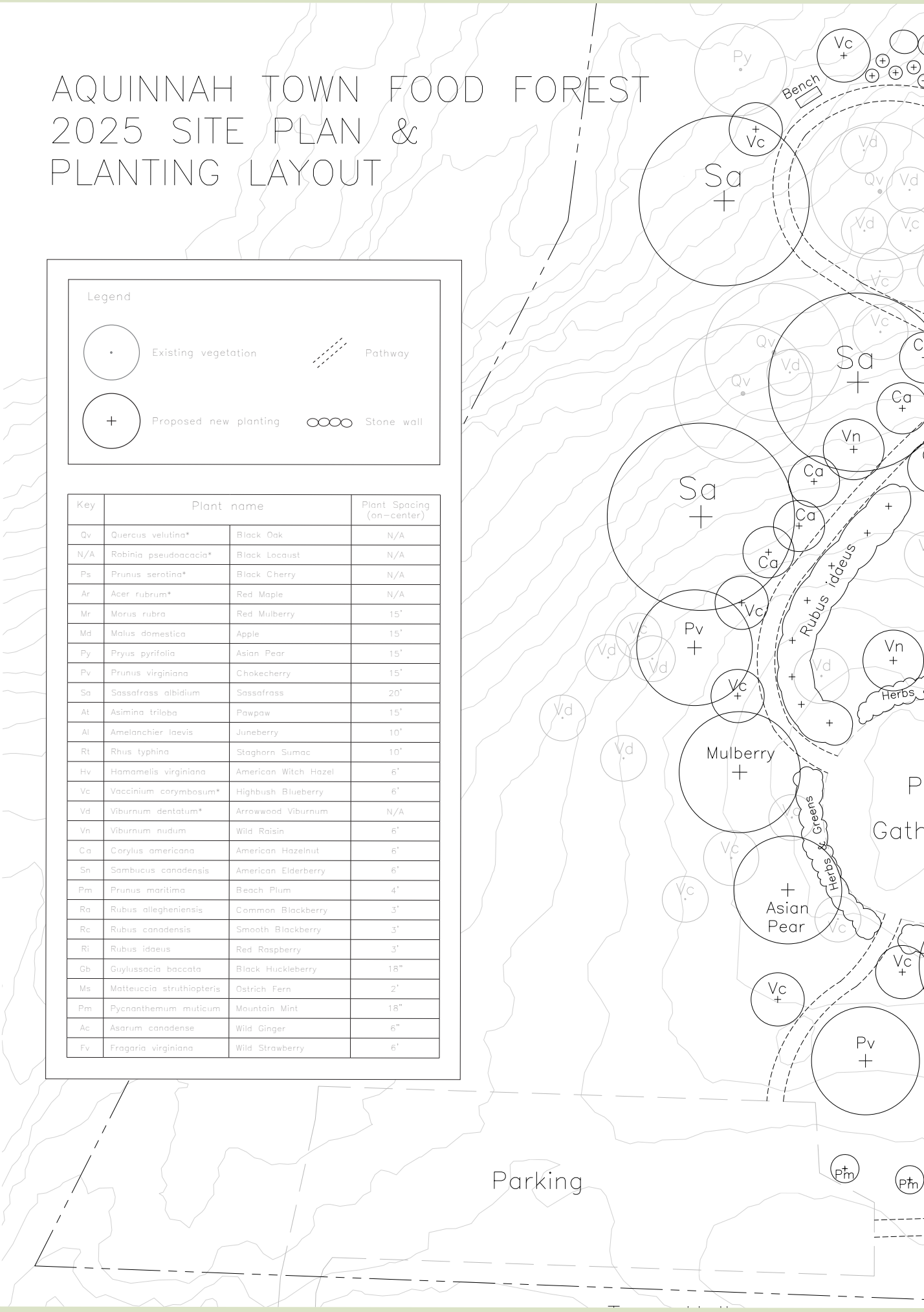
Herbaceous: Perennial greens, herbs, and flowers.

Vines: Climbing and creeping plants.

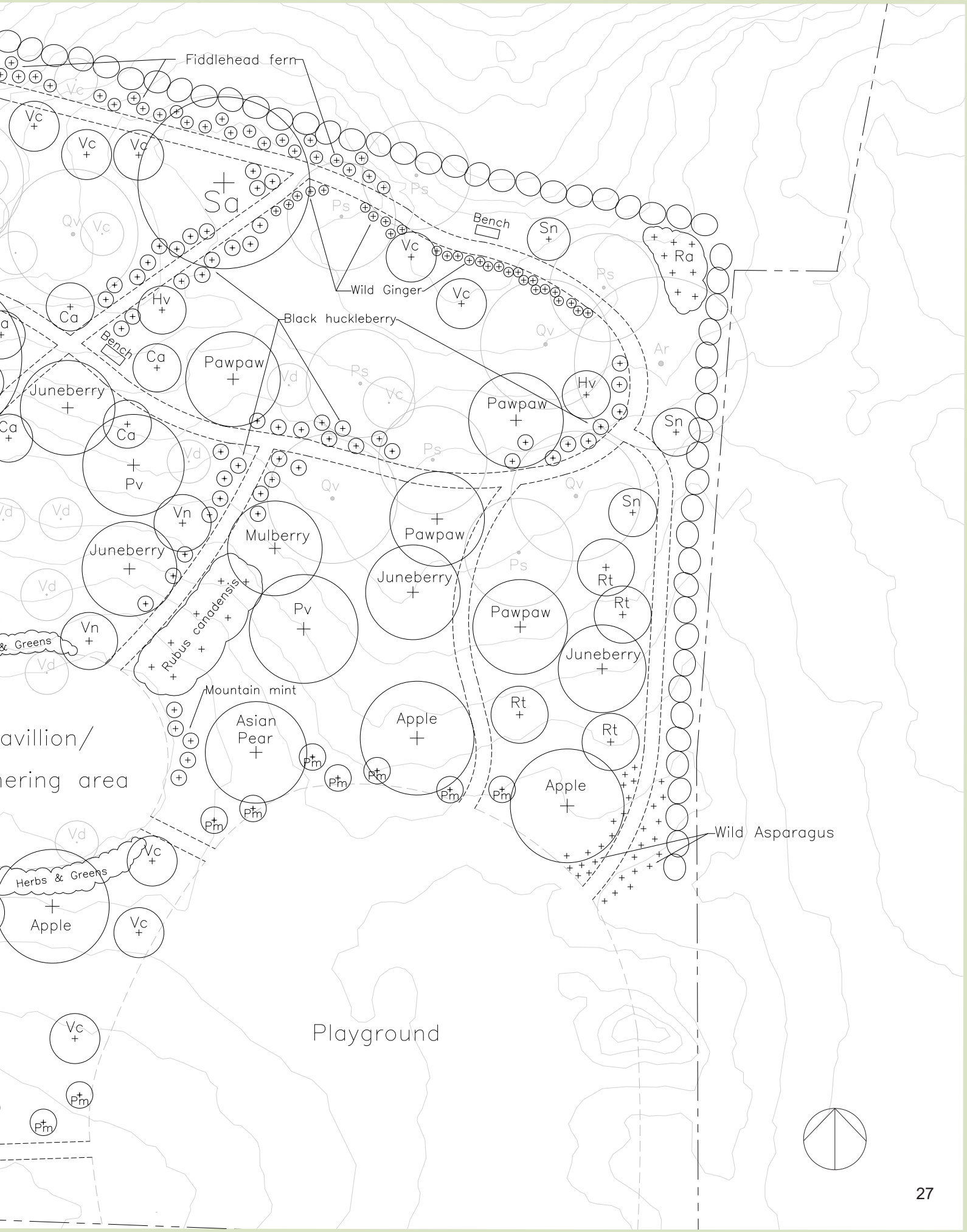
Groundcovers: Low-growing, spreading plants on the ground level.

Roots: Edible plants below the soil surface.

AQUINNAH TOWN FOOD FOREST
2025 SITE PLAN & PLANTING LAYOUT



Key	Plant name		Plant Spacing (on-center)
Qv	Quercus velutina*	Black Oak	N/A
N/A	Robinia pseudoacacia*	Black Locaust	N/A
Ps	Prunus serotina*	Black Cherry	N/A
Ar	Acer rubrum*	Red Maple	N/A
Mr	Morus rubra	Red Mulberry	15'
Md	Malus domestica	Apple	15'
Py	Pryus pyrifolia	Asian Pear	15'
Pv	Prunus virginiana	Chokecherry	15'
Sa	Sassafrass albidium	Sassafrass	20'
At	Asimina triloba	Pawpaw	15'
Al	Amelanchier laevis	Juneberry	10'
Rt	Rhus typhina	Staghorn Sumac	10'
Hv	Hamamelis virginiana	American Witch Hazel	6'
Vc	Vaccinium corymbosum*	Highbush Blueberry	6'
Vd	Viburnum dentatum*	Arrowwood Viburnum	N/A
Vn	Viburnum nudum	Wild Raisin	6'
Ca	Corylus americana	American Hazelnut	6'
Sn	Sambucus canadensis	American Elderberry	6'
Pm	Prunus maritima	Beach Plum	4'
Ra	Rubus allegheniensis	Common Blackberry	3'
Rc	Rubus canadensis	Smooth Blackberry	3'
Ri	Rubus idaeus	Red Raspberry	3'
Gb	Guylussacia baccata	Black Huckleberry	18"
Ms	Matteuccia struthiopteris	Ostrich Fern	2'
Pm	Pycnanthemum muticum	Mountain Mint	18"
Ac	Asarum canadense	Wild Ginger	6"
Fv	Fragaria virginiana	Wild Strawberry	6'


Fiddlehead fern
Sa
Bench
Wild Ginger
Black huckleberry
Bench
Pawpaw
Juneberry
Pv
Mulberry
Pawpaw
Juneberry
Pawpaw
Juneberry
Rubus canadensis
Mountain mint
Asian Pear
Apple
Apple
Herbs & Greens
Apple
Herbs & Greens
Wild Asparagus
Playground
avillion/
hering area

Form Examples

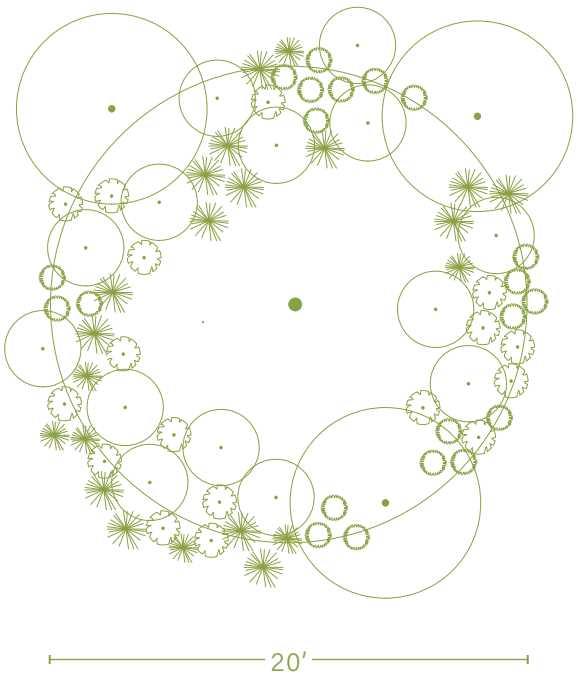
New Food Forest

In unused open space such as a field, lawn, or recently disturbed area, a new forest of food-producing plants can be constructed from scratch. In this case, the available space will define the size and shape of the forest overall, as well as the maximum appropriate height and spread of the canopy layer. Within those limitations, the number of layers, overall mature height, and full plant palette can be designed as desired, starting with the canopy layer. As with any site plan, the layout, layer structure, and plant selection should be designed based on mature plant sizes, using plants that will be compatible with the space's limitations and with each other at their full sizes. A new forest in an open space should also include access points and pathways through the interior to allow for public engagement, harvesting, and maintenance. *Potential application examples: Schools, Libraries, Chilmark Police Station, West Tisbury Fire Station, West Tisbury Town Hall, Ocean Park, 14 Aero Ave.*

Micro Forest

In small spaces (<1000 sq. ft.), the vertical vegetation layers can be utilized to create compact, diverse "forests" with as few as 2-3 trees as an canopy. While all of the sites identified in this plan have minimum 1000 sq. ft. impervious surface, this model may still be appropriate at many of the recommended locations in areas such as parking islands, foundation plantings around buildings, and other smaller marginal areas. Microforests can efficiently integrate food production into spaces where the property's uses and functional requirements limit the amount of available growing space, or transform properties with multiple small planting areas into patchworks of perennial food abundance.

Potential applications: Vineyard Haven Library, Aquinnah Library, Edgartown Library, Chilmark Library, Edgartown Fire Station, Veira Park, Edgartown Park & Ride.



Forest Edge Extension

Where a forest's edge meets cleared land or cultivated landscape, food-producing plants can form an extension of that transitional zones. Plants cascading in height, starting with taller trees and shrubs farthest back at woods' edge, expands and diversifies that ecologically rich marginal space and naturalizes food production into the existing landscape. Many sites on Martha's Vineyard have some wooded edge which can be extended with layered edible plants. This method is particularly apt in spaces where central open spaces can't be plants due to site use requirements, such as sports fields or cemeteries, small sites with minimal clear space, or where maintaining options for mixed-use of the open space is generally desired. *Potential application examples: Cemeteries, schools, Tisbury Fire Station, Chilmark Community Center.*

Woodland Garden

In wooded spaces, select edible plant species can be added into the forest system, enriching the woodland with more food sources. This is a good method for open canopy, previously disturbed, or degraded forested areas, where there is often more space and resources available for introduced species. An inventory of the existing vegetation will be necessary for this approach prior to more detailed planning or installation. In more disturbed or sparse woods, tree and shrub layers can be substantially enhanced and diversified, while simply underplanting the forest with shade-tolerant edible sub-shrubs, herbaceous plants, vines and/or groundcovers may be more appropriate where there is already a dense overstory. *The new Aquinnah town food forest (pg. xx) will demonstrate this method, integrating part-sun and shade-tolerant edible plants into an existing open-canopy wooded area adjacent to a playground and town buildings.*

Interplanted gardens & landscaping

Sites with gardens and managed landscapes can be enhanced with food-producing plants within those existing plantings. Many edible plants are also beautiful when integrated into ornamental landscapes. Fruit and nut trees and edible shrubs can be used to fill in landscapes or in place of non-edible ornamental plants in new landscape installations. This approach works well anywhere that has existing gardens, parking islands, or foundation plantings that can be added to. This is demonstrated at the West Tisbury Library, where fruit trees, fruiting shrubs, herbs, berries, and perennial greens are interplanted within gardens amongst native flowers and ornamental plants. *Potential application examples: Libraries, West Tisbury Public Safety building, Oak Bluffs Fire Station, Ocean Park*

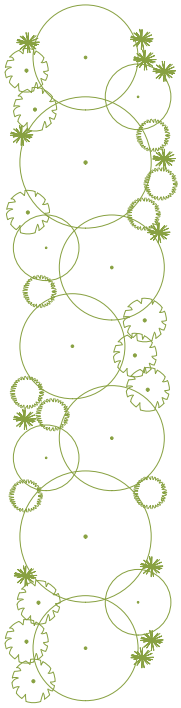
Form Examples

Terraced Rows

Areas with sloped terrain can be planted with terraced rows running perpendicular to the hillside. Planting "on contour" prevents soil erosion, passively captures water runoff as it moves downhill, and allows for flatter, accessible pathways on the cross slope between rows. Digging small swales (shallow depressed channels) just above each planted row will direct and capture stormwater near plants. This method can be implemented on slopes of any degree, and is particularly useful in steeper areas where deep-rooted perennial plants will improve slope stability, stormwater management, and site accessibility, while also producing food. *Potential application examples: Hiawatha Park, Owen Park, Oak Bluffs Library & Town Hall.*

Edible Hedge

A multi-layered row of food-producing plants along property edge, road, path, parking lot, etc. Sometimes this is just an opportunity to use edible plants in locations where plantings are already desired for privacy, noise, or windblocks. These more narrow plantings are also appropriate for the edges of parks, playgrounds, fields, gardens, or other open spaces that have uses that prohibit extensive plantings, such as sports or events that require open space. These edible borders could be utilized at many schools, public parks, and town buildings. *Potential application examples: Ocean Park, Oak Bluffs Town offices & library, Chilmark Library, Chilmark Post Office, Edgartown Park & Ride, Veteran's Park, Cemeteries, West Tisbury Fire Station, Tisbury Town Hall, Aquinnah Beach Parking Lot, Owen Park, Schools.*



Plant Selection

Perennial food forests are meant to be resilient, long-lived systems that continue to evolve and produce food for many years. To achieve this, these systems should comprise plant species that are well-adapted to their site conditions, and which provide the products that people need and want. There are many perennial edible plants from which to choose (see pg. 42 for full list). Selection should aim to utilize plants that will establish well in the environment in which they are planted, and thrive over time with minimal long term maintenance. Considering a site's environmental variables that will influence plant growth and productivity will aid in determining the plant species that are most appropriate for a space.

Soils

Soil texture, determined by the size and composition of its particles, affects the soil's ability to retain nutrients, drain water, resist erosion, and withstand compaction. Soil textures are classified as sand (coarse), silt (medium), and clay (fine), and soils with a mixture of the types are classified as loam. Plant species have varying tolerances and requirements for nutrient availability, soil compaction, drainage rate, and drought, and should be selected for their compatibility with a site's soil characteristics. **Soil types of the recommended food forest sites are noted on the town maps.*

Sun exposure

The relative location of nearby buildings, trees, or other obstructions will influence the sun exposure of a space, and therefore how sun- or shade-tolerant the plants used in the area should be. Inadequate or excessive sun exposure can impact growth rate, size, and fruit production. New trees and taller shrubs will grow to create more shade over time as well. Understory plants should generally be more shade-tolerant, and plants requiring more sun should be placed to the south of taller plants and other shade-casting features.

Growth Habit

Spatial or functional restrictions may limit the size, spread, and/or growth habits that are appropriate for a location. Site planning and plant selection should account for the mature height and width of the plants, and only use plants that will not outgrow their space. Growth habit should also be considered in relation to the size and uses of the planting location, so that the plants' habits, such as spreading, suckering, vining, or sprawling, will be manageable for the space.

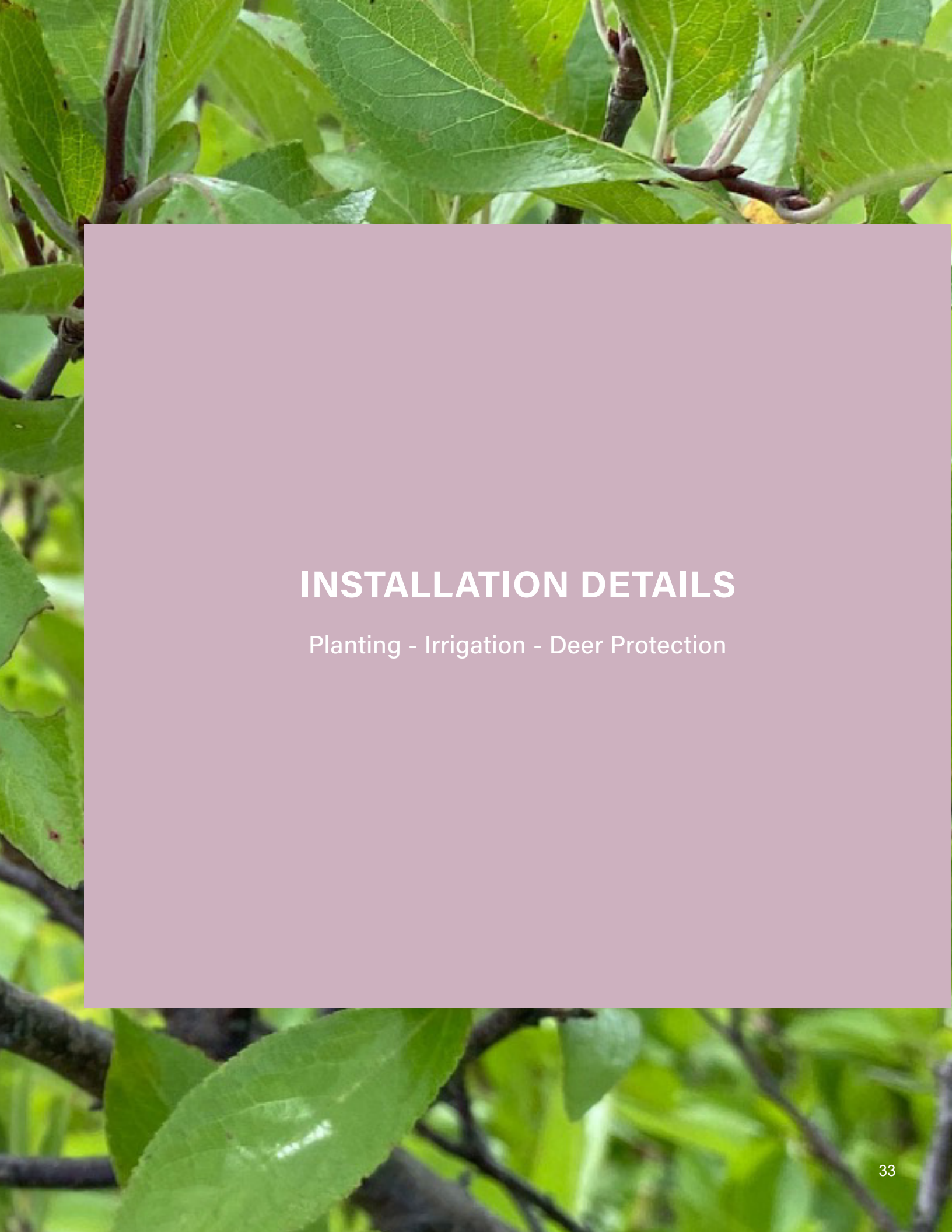
Moisture

The moisture content and drainage rate of soil influences which species will succeed in that soil. In addition to texture, soil types are also characterized by drainage class, ranging from poorly drained to excessively drained, where higher drainage rate generally correlates with drier soil. Plants should be selected for a given site based on their moisture needs' compatibility with the site's soil moisture and drainage rate. More drought-tolerant species are better adapted for more well-drained and excessively-drained soils, and those with higher moisture needs will do better in finer textured, more moderately drained soils.

Soil moisture is also impacted by topography and surrounding drainage patterns, as certain areas may collect more water from surface runoff. These patterns can be utilized for passive irrigation by siting food forests within those areas or within the path of runoff, and can be manipulated to some extent with additional efforts to redirect stormwater for capture in desired planting areas.

Diversity

Diversity is critical to resilient ecosystems, and a diverse plant palette supports a dynamic, productive food forest. Using a variety of plants can stagger and extend harvesting opportunities, and makes the food forest more adaptable to climate variability. A multi-layered palette of plants with different growth habits, mature sizes, root structures, and environmental requirements also allows for more plants to fit in a given space. However, more individuals of fewer species will incur larger, more concentrated harvests of particular crops, and will benefit fruiting plants that need others for pollination. Plant selection should aim for maximum species diversity within the constraints of the site's conditions and the productivity goals for the space.



INSTALLATION DETAILS

Planting - Irrigation - Deer Protection

Planting

Plant Spacing

Plants with similar growth habits must be planted at a distance from one another that will provide them enough space to mature to their full size without excessive competition or crowding. For example, large trees should be planted at least as far apart as their mature canopies will spread, and shrubs at a distance from other shrubs that is equal or greater than each plants' expected mature width.

The minimum planting distance for any two plants of similar type or growth habit can be determined by dividing the sum of the two plants' mature widths (D) by 2:

$$\text{Minimum planting distance} = \frac{D(1) \times D(2)}{2}$$

Overstory plants - trees and tall shrubs - can be planted with an extra 30% space between them (or more) to create more canopy gaps and provide more sun exposure and/or more space for understory layers:

$$\text{Open-canopy planting distance} = \left(\frac{D(1) \times D(2)}{2} \right) \times .3$$

Wider spacing creates conditions where less shade-tolerant plants can grow in the areas with less canopy cover and more shade-tolerant plants can be used directly beneath the overstory plants. Fruiting trees and shrubs that require cross-pollination (apples, pears, blueberries, etc.) should be planted within 100' of another of the same family for best fruit production.

Smaller plants can be spaced based on their mature size using the same basic formula, but they will also tolerate tighter spacing. Plants with a spread of 18" or less can be placed as close as 1' apart. Close placement of these plants creates a dense groundcover, acting as living mulch and minimizing the space available for unwanted opportunistic or invasive plants.

Plants that occupy different vertical layers, and whose size and shape will not impede each other's growth, can be planted closer together than those of the same habit. When interplanting plants of different layers, any two plants can be spaced, at minimum, at the distance of the smaller of the plants' mature width. For example, a low-growing 3' tall x 3' wide shrub and an upright 12' wide large shrub can be planted 3 feet apart, as the mature spread of the larger shrub will occupy higher vertical space where it will not compete with the smaller shrub. However, understory plants that require more sun exposure should be planted farther from the base of taller plants that may shade them out as they mature.

Planting Steps

Using best planting practices supports successful plant establishment and long term growth.
This process can be used for plants of any size:

1 Dig a hole of the same depth and 2x as wide as the plant's root ball or container, setting aside the upper layer of topsoil separate from the subsoil as it is removed.

2 Use a shovel's edge or rake to scarify the sides and bottom of the hole where soil has been flattened by digging.

3 Remove the plant from its container and gently loosen the roots.

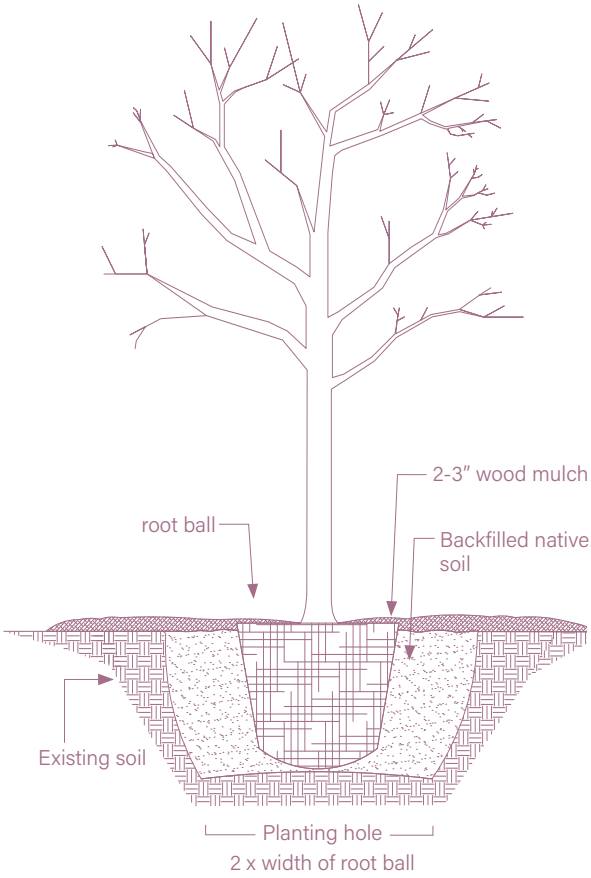
4 Place the plant in the prepared hole, and check that it is at the appropriate depth. Larger trees and shrubs should be set so that the base of the trunk is slightly above ground level. This ensures that mulching will not bury plants too deep or cause girdling. If necessary, add soil to the bottom of the hole to achieve the proper planting depth, and then replace the plant in the hole.

5 Backfill the hole around the plant, starting with the subsoil (i.e. soil that came from the bottom of the hole). Once the subsoil has been used, fill the rest of the hole with the reserved topsoil, up to the ground level outside the hole. The top of the plant's base should be above the final soil grade.

6 Gently press soil in around the plant to ensure the hole is filled, being careful not to excessively compact the soil. Add more topsoil, as needed, to reach ground level again after tamping. Soil should be settled enough to remove air pockets and stabilize the plant, but not so compact as to restrict root development or water infiltration.

7 Water the entire hole deeply, using a gentle hose stream or a slow drip to ensure water soaks in around the plant.

8 Apply a layer of wood mulch on top of the soil around the plant up to the base of the trunk, but no higher, about 2" depending on planting depth. Spread mulch over the surface of the entire planting hole, covering all disturbed soil, and as far out as the dripline of the plant. If installing many plants in the same area at once, mulch can be applied to the whole space after they've all been planting, covering any exposed soil.



Infrastructure

Irrigation

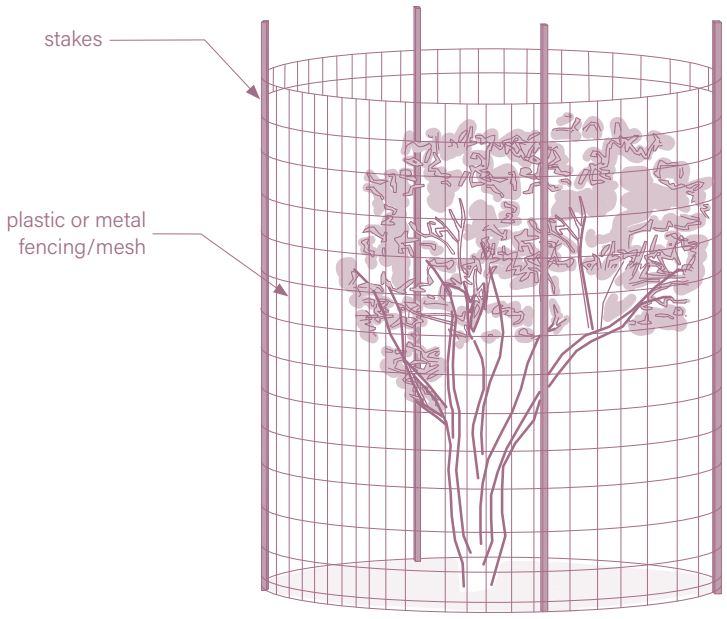
Once established, most perennial plants planted in appropriate conditions for their growing requirements should not need long-term irrigation, but consistent watering in the first year is important for plant survival and development. 1 inch of water per week for new plants will support strong establishment, which can be provided by hand or a temporary irrigation system when rainfall amounts are not adequate, and should be done by watering deeply once or twice per week. In areas with existing irrigation systems, such as gardens or landscapes that are being interplanted with food plants, the irrigation rate used for existing perennial plants would be adequate, although new plantings may need some additional watering in dry periods.

In locations that do not have a water source available for periodic early watering, rain catchment barrels can be utilized to store water on site. Mulching at planting time, will help maintain soil moisture. Groundcover plants also act as living mulch, which will shade the soil, prevent evaporation, and improve water infiltration into the ground to plants' roots. Site planning that places plants in the path of natural drainage can also minimize the need for additional watering. Building rows perpendicular to a slope, or planting in lower areas that rain and runoff naturally move towards will leverage drainage patterns to benefit new plants. Using any of these methods will help to ensure plants receive enough water and reduce the need for ongoing irrigation and maintenance.

Deer Protection

New plantings will benefit from, and arguably require, protection from deer browsing in some form. In some cases, such as larger installations in open spaces, a full perimeter fence will be more feasible and appropriate, and will effectively prevent deer from accessing the area. Perimeter fencing can help to minimize tick populations within the food forest. A deer fence should be a minimum of 8 feet high, and made with strong wire or metal grid material for effective long-term protection.

In many scenarios, permanent perimeter fencing may be unnecessary, infeasible, or undesirable. In high-traffic, high-density, and/or more developed areas with ongoing human activity, there will be inherently less deer presence and risk of damage, although new plants should still be protected while they establish. Edible hedges and plantings at woods' edge, near buildings, and/or in other marginal or irregularly shaped spaces may be difficult or unrealistic to fence in entirely, but will also still benefit from some early protection. In any of these cases, plants that are more susceptible to deer browse, particularly young trees and shrubs, can be protected with individual cages at planting time. As the plants mature, they will become woodier and taller, and therefore less palatable and reachable to deer, and will also be able to withstand occasional deer browsing over time as they establish. Protective cages can be constructed by placing 4 stakes in the ground around the plant at a distance that will contain the it's full spread. Metal hardware cloth, plastic deer fencing, or other flexible material can then be wrapped around the stakes and attached with zip ties or staples. The cages should be high and wide enough to prevent deer from reaching in to eat the plant.



RESOURCES

Plant List - Additional References - Nurseries

Perennial Food Plants for Martha's Vineyard

Large Tree		Height	Spread	Light	Moisture	Edible Parts
Pecan	Carya illinoinensis	70-100'	40-75'	full sun	medium	Nut
Shellbark Hickory	Carya laciniosa	70-100'	40-70'	full sun	moist	Nut
Shagbark hickory	Carya ovata	70-90'	50-80'	sun-part shade		Nut
Hybrid chestnut	Castanea dentata x mollisima	40-60'	40-60'	full sun	medium	Nut
Hackberry	Celtis occidentalis	40-60'	40'	sun-part shade	adaptable	Fruit
American persimmon	Diospyros virginiana	35-60'	30-40'	full sun	dry-medium	Fruit
Heartnut	Juglans ailantifolia	40-60'	40-60'	full sun	medium	Nut
Butternut	Juglans cinerea	40-60'	40-50'	full sun	moist	Nut
Red mulberry	Morus Rubra	30-60'	20-50'	sun-shade	adaptable	Fruit
Black cherry	Prunus serotina	50-80'	40-60'	full sun	medium	Fruit
European pear	Pyrus communis	20-30'	15-20'	full sun	medium	Fruit
White Oak	Quercus alba	70-100'	50-75'	sun-part shade	dry-medium	Nut
Black Oak	Quercus velutina	50-100'	50-80'	sun-part shade	dry-medium	Nut
Sassafrass	Sassafrass albidium	35-50'	30-50'	sun-shade	moist	Leaf
Small Tree		**Height**	**Spread**	**Light**	**Moisture**	**Edible Parts**
Allegheny serviceberry	*Amelanchier laevis*	15-35'	15-25'	sun-part shade	adaptable	Fruit
Paw Paw	*Asimina triloba*	15-30'	15-30'	sun-shade	medium-moist	Fruit
Chinquapin Chestnut	*Castanea pumila*	10-15'	10-15'	sun-part shade	medium	Nut
Cornelian Cherry	*Cornus mas*	15-25'	15-25'	full sun	adaptable	Fruit
Quince	*Cydonia oblonga*	12-15'	12-15'	sun-part shade	medium	Fruit
Fig	*Ficus carica*	10-30'	10-30'	full sun	medium-moist	Fruit
Apple	*Malus domestica*	15-30'	15-30'	sun-part shade	medium	Fruit
Allegheny plum	*Prunus allegheniensis*	12-25'	12-18'	full sun	medium	Fruit
American plum	*Prunus americana*	15-20'	15-20'	full sun		Fruit
Sweet Cherry	*Prunus avium*	25-30'	20-30'	full sun	medium	Fruit
Pie cherry	*Prunus cerasus*	15-35'	15'	full sun	medium	Fruit
European plum	*Prunus domesticus*	10-20'	10-20'	full sun	moist	Fruit
Hardy Almond	*Prunus dulcis*	12-15'	12-15'	full sun	dry-medium	Nut
Hog plum	*Prunus hotulana*	12-30'	12-20'	sun-shade	dry-medium	Fruit
Peach	*Prunus persica*	15-20'	15-20'	full sun	medium	Fruit
Japanese plum	*Prunus salicina*	20-30'	15-25'	sun-part shade	moist	Fruit
Bird Cherry	*Prunus virginiana*	15-25'	15-25'	sun-part shade	adaptable	Fruit
Duke cherry	*Prunuz x gondouinii*	12-15'	12'	full sun	medium	Fruit
Asian pear	*Pyrus pyrifolia*	12-18'	12-18'	sun-part shade	dry-medium	Fruit
Winged sumac	*Rhus copallenum*	20-35'	15-30'	full sun	dry	Berry
Shrub		**Height**	**Spread**	**Light**	**Moisture**	**Edible Parts**
Juneberry	*Amelanchier canadensis*	6-20'	6-20'	sun-shade	moist	Berry
Nantucket serviceberry	*Amelanchier nantucketensis*	2-5'	3-6'	full sun	dry-medium	Fruit
Dwarf serviceberry	*Amelanchier spicata*	3-6'	3-6'	sun-part shade	adaptable	Fruit
Wild Sarsparilla	*Aralia nudicaulis*	2'	2'	sun-shade	moist	Root
Red chokeberry	*Aronia arbutifolia*	6-12'	6-12'	sun-part shade	medium-moist	Berry
Black chokeberry	*Aronia melanocarpa*	2-6'	2-6'	sun-part shade	dry-moist	Berry
American hazelnut	*Corylus americana*	6-15'	8-13'	sun-shade	medium	Nut
Beaked hazelnut	*Corylus cornuta*	6-12'	6-12'	sun-part shade	adaptable	Nut

Perennial Food Plants for Martha's Vineyard

Shrub		Height	Spread	Light	Moisture	Edible Parts
Goumi	*Elaegnus multiflora*	6-10'	6-10	sun-part shade	adaptable	Fruit
Black huckleberry	*Guylussacia baccata*	1-3'	3-4'	sun-shade	medium-moist	Berry
Spicebush	*Lindera benzoin*	6-12'	6-12'	part-full shade	moist	Fruit, bark
Honeyberry	*Lonicera caerulea*	4-6'	4-6'	full sun	adaptable	Fruit
Northern bayberry	*Myrica pensylvanica*	6-12'	6'12	sun-shade	dry-medium	Berry
Sandhill plum	*Prunus angustifolia*	4-20'	4-20'	sun-part shade	dry-medium	Fruit
Beach plum	*Prunus maritima*	3-6'	3-6'	full sun	dry-medium	Fruit
Eastern dwarf cherry	*Prunus pumila*	3-6'	3-6'	sun-part shade	dry-medium	Fruit
Nanking cherry	*Prunus tomentosa*	6-10'	6-10'	sun-part shade	adaptable	Fruit
Winged sumac	*Rhus copallinum*	8-20'	10-20'	sun-part shade	dry-medium	Fruit
Smooth sumac	*Rhus glabra*	10-20'	10-15'	sun-shade	dry-medium	Fruit
Staghorn sumac	*Rhus hirta*	10-25'	10-25'	sun-part shade	dry-medium	Fruit
American black currant	*Ribes americanum*	3-6'	3-6'	sun-shade	medium-moist	Fruit
Golden currant	*Ribes aureum*	3-8'	3-6'	sun-part shade	medium-moist	Fruit
American gooseberry	*Ribes hirtellum*	3-5'	3-5'	sun-shade	medium-moist	Fruit
Missouri gooseberry	*Ribes missouriense*	2-5'	2-5'	sun-shade	dry-medium	Fruit
Jostaberry	*Ribes x culverwellii*	4-8'	3-6'	sun-shade	medium	Fruit
Allegheny blackberry	*Rubus allegheniensis*	3-8'	6-12'	sun-part shade	adaptable	Fruit
Smooth blackberry	*Rubus canadensis*	7-10'	6-12'	sun-shade	medium	Fruit
American red raspberry	*Rubus idaeus c. strigosus*	3-6	3-9'	sun-part shade	dry-medium	Fruit
Black Raspberry	*Rubus occidentalis*	3-8'	6-12'	sun-shade	adaptable	Fruit
Purple flower raspberry	*Rubus odoratus*	3-6'	6-12'	sun-shade	medium	Fruit
Thimbleberry	*Rubus parviflorus*	4-6'	4-6'	sun-shade	medium	Fruit
Vermont blackberry	*Rubus vermontus*	5'	5'	sun-shade	medium-moist	Fruit
Black elderberry	*Sambucus nigra*	8-20'	4-10'	sun-part shade	moist	Berry
Black elderberry	*Sambucus canadensis*	6-12'	6-14'	sun-part shade	medium-moist	Fruit
Lowbush blueberry	*Vaccinium angustifolium*	18-24"	12-24"	sun-part shade	dry-medium	Fruit
Highbush blueberry	*Vaccinium corymbosum*	6-12'	4-12'	sun-part shade	moist	Berry
Black highbush blueberry	*Vaccinium fuscatum*	4-12'	3-10'	sun-part shade	medium-moist	Fruit
American cranberry	*Vaccinium macrocarpon*	6-12"	1-3'	sun-part shade	moist	Fruit
Early lowbush blueberry	*Vaccinium pallidum*	2-3'	2-3'	part-full shade	dry-medium	Fruit
Nannyberry	*Viburnum lentago*	15-20'	8-12'	sun-shade	dry-moist	Fruit
Northern wild raisin	*Viburnum nudum*	6-12'	6-12'	sun-part shade	medium-moist	Berry
Highbush Cranberry	*Viburnum trilobum*	8-12'	6-10'	sun-part shade	moist	Fruit
Spicebush	*Lindera benzoin*	6-12'	6-12'	part-full shade	moist	Fruit, bark
Herbaceous		**Height**	**Spread**	**Light**	**Moisture**	**Edible Parts**
Asparagus	*Asparagus officinalis*	3-6'	2-3'	full sun	medium	Stalks
Roman chamomile	*Chamaemelum nobile*	3-6"	6-12'	sun-part shade	medium-dry	Flower
Perennial goosefoot	*Blium bonus-henricus*	1-3'	1-3'	part shade	medium	Leaves
Loveage	*Levisticum officinale*	3-4'	3-4'	sun-part shade	medium-moist	Leaves, flowers
Ostrich fern	*Matteuchia struthiopteris*	2-6'	5-6'	part-full shade	medium-moist	fiddleheads
Lemon balm	*Melissa officinalis*	1-2'	2-3'	sun-part shade	dry-medium	Leaves
Hoary mountain mint	*Pycnanthemum incanum*	2-5'	2-4'	sun-part shade	dry-medium	Leaves
Short-toothed mountain mint	*Pycnanthemum muticum*	2-4'	2-4'	sun-part shade	medium	Leaves

Perennial Food Plants for Martha's Vineyard

Herbaceous		Height	Spread	Light	Moisture	Edible Parts
Slender-leaved mountain mint	*Pycnanthemum tenuifolium*	2-4′	2-4′	sun-part shade	adaptable	Leaves
Whrled mountain mint	*Pycnanthemum verticillatum*	2-3′	2-3′	sun-part shade	adaptable	Leaves
Sweet Cicely	*Myrrhis odorata*	3′	1-2′	sun-part shade	mesium	Leaves
Watercress	*Nasturtium offiniale*	6-12″	6-12″	sun-part shade	medium-wet	Leaves
Oregano	*Oregano vulgare*	1-2′	2-3′	sun-part shade	dry-medium	Leaves
Wood Sorrel	*Oxalis montana*	2-6″	4-8″	sun-shade	medium	Leaves
Mayapple	*Podophyllum peltatum*	12-18″	1-2′	part-full shade	medium	Fruit
Solomon's seal	*Polygonatum biflorum*	1-3′	2-3′	sun-shade	dry-medium	Greens
Rhubarb	*Rheum rhubarbarum*	2-4′	3-4′	sun-part shade	medium-moist	Stalk
Rosemary	*Rosemarinus officinalis*	2-4'	2-4'	full sun	dry-medium	Leaves
French sorrel	*Rumex acetosa*	1-3'	1-3'	sun-part shade	medium	Leaves
Sheep sorrel	*Rumex acetosella*	6"	6"	sun-part shade	dry-medium	Leaves
Broadleaf sage	*Salvia offinialis*	18-30"	2-3'	full sun	dry-medium	Leaves
Thyme	*Thymus vulgaris*	6-12"	6-18"	sun-part shade	dry-medium	Leaves
Stinging nettles	*Urtica dioica*	1-5'	2-5'	sun-part shade	medium-moist	Leaves
Wild mint	*Mentha canadensis*	12-18"	18-24'	sun-part shade	medium-moist	Leaves
Wild Basil	*Chenopodium vulgare*	12-24"	12"	sun-shade	dry-medium	Leaves
Sea Kale	*Crambe maritima*	2-3'	2-3'	full sun	dry-medium	Leaves
Turkish Rocket	*Bunia orientalis*			sun-part shade	dry-medium	Leaves
Good King Henry	*Chenopodium bonus-henricus*	1-2'	1-2'	sun-part shade	moist	Leaves
Sochan	*Rudbeckia lacinata*	6-8'	2-4'	sun-part shade	moist	Leaves
Groundcover		**Height**	**Spread**	**Light**	**Moisture**	**Edible Parts**
Wild ginger	*Asarum canadense*	4-8"		part-full shade	medium	Root
Bunchberry	*Cornus canadensis*	4-9"		sun-shade	moist	Berries
Woodland strawberry	*Fragaria vesca*	8"	1'	sun-part shade	medium	Berries
Wild strawberry	*Fragaria virginiana*	4-12"	1'	sun-part shade	dry-medium	Berries
Wintergreen	*Gaultheria procumbens*	3-6"	1'	part-full shade	medium-moist	Berries
Creeping snowberry	*Gaultheria hispidula*	4-6"		part-full shade	medium-moist	Berries
Dwarf raspberry	*Rubus pubescens*	8"	4-12"	sun-shade	medium-moist	Berries
Blue Huckleberry	*Guylussacia frondosa*	2-4'	2-4'	sun-part shade	moist	Fruit
Wild garlic	*Allium canadense*	6-24"	6-8″	sun-part shade	dry-medium	Root/bulb
Walking onion	*Allium cepa profliferum*	2'	8-12″	full sun	medium	Bulb/stalk
Welsh Onion	*Allium fistulosun*	2′	8-12″	sun-part shade	dry-medium	Bulb/stalk
Ramps	*Allium tricoccum*	12"	6-8″	part-full shade	medium	Bulb/stalk
Nodding wild onion	*Allium cernum*	1-2'	6-12″	sun-part shade	medium	Bulb/stalk
Skirret	*Sium sisarum*	8-12'	8-12'	full sun	moist	Root, shoots
Vine		**Height**	**Spread**	**Light**	**Moisture**	**Edible Parts**
Hog peanut	*Amphicarpaea bracteata*	1-5'		sun-shade	medium-moist	Root nut
Groundnut	*Apios americana*	5-15'		part-full shade	medium-moist	Tuber
Caucasian Mountain Spinach	*Hablitzia tamnoides*	6-12'	4-6'	sun-part shade	adaptable	Leaves
Hops	*Humulus lupulus*	20-30'	5-10'	full sun	medium	Shoots
Maypop	*Passiflora incarnata*	10-30'		sun-part shade	dry-medium	Fruit
Northern dewberry	*Rubus flagellaris*	4"	8-15'	sun-part shade	adaptable	Fruit
Fox grape	*Vitis labrusca*	10-40'	5'	sun-part shade	medium	Fruit
Silver-leaved grape	*Vitis aestivalis*	10-40'	5'	sun-part shade	moist	Fruit
River grape	*Vitis riparia*	10-40'	5'	sun-part shade	adaptable	Fruit

Community Organizations & Projects

Boston Food Forest Coalition; Boston, MA
Building public food forests on vacant lots throughout Boston
https://www.bostonfoodforest.org

Cultivating Community; Portland, ME
Supporting community orchards in Portland, Maine
https://cultivatingcommunity.org/

Food Forest Initiative of Cape Cod; Orleans, MA
Community collective installing public food forests on Cape Cod

Edible Landscapes of Cape Cod; West Barnstable, MA
Edible landscape design, build, & education
https://www.ediblelandscapes.net/

Resilient Roots; West Barnstable, MA
Food forest design & education
https://www.resroots.org/

Help Yourself! Inc.; Northampton, MA
Planting public access fruit trees in Western Massachusetts
http://www.helpyourselfedibles.org/

Norwood Food Forest; Norwood, MA
Student-built community food forest at Endean Park in Norwood, MA
https://www.norwoodma.gov

UMass Lowell Food Forest; Lowell, MA
Food Forest built on vacant lot on UMass Campus
https://www.uml.edu

Additional References

Edible Forest Gardens Volume 1 & 2 (2005)
David Jacke, Eric Toensmeier

The Community Food Forest Handbook (2018)
Batherine Bukowski, John Munsell

Perennial Vegetables (2007)
Eric Toensmeier

Community Forest Gardens: Case Studies Throughout the United States (2023)
Katherine Favor, ATTRA Sustainable Agriculture
https://attra.ncat.org/publication/community-forest-gardens-case-studies/

Falling Fruit (Urban Harvest Map)
http://www.fallingfruit.org

Nursuries & Seed Sources

Fedco Seeds; Clinton, ME
Seeds, fruit trees, shrubs, & perennial vegetable plants
https://fedcoseeds.com/

Humble Abode Nursury; Ashfield, MA
Ships locally propogated perennial food plants
https://humbleabodenursery.com/

Edible Landscapes of Cape Cod; West Barnstable, MA
Cape Cod perennial edible plant nursery
https://www.ediblelandscapes.net/

Experimental Farm Network; Philadelphia, PA
Perennial fruit & vegetable seeds
https://www.experimentalfarmnetwork.org/

Edgewood Nursery; Falmouth, ME
Small edible & medicinal plant nursery
https://edgewood-nursery.com/

True Love Seeds; Philadelphia, PA
Perennial vegetable & herb seed
https://trueloveseeds.com/

MVP

Municipal Vulnerability Preparedness