

Pilgrim 1600
Conservation & Recreation
Economic Impact Analysis

W LANDWISE

August 7, 2025

DRAFT



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Purpose

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The recently conducted Pilgrim 1600 Acre Area Plan concluded that conservation of a large portion of the land is a community priority.

Our fiscal impact analysis looked at how different land uses could impact the Town's net revenues (revenues from local taxes - expenses for services). Understanding more broadly the economic value of recreation tourism could be key to demonstrating the anticipated return on investment in conserving the land.

Takeaway: The trail system is a unique aspect of the site, and its potential to generate economic benefits warrants further study.

Our feasibility assessments tested whether conservation could be funded by developing portions of the site and concluded that at the scales contemplated, substantial additional funding is likely required. We have identified a range of potential additional funding sources.

Takeaway: Strategizing how governance and funding could come together to realize community goals warrants further study.

There are many benefits to open space conservation.

Strong Local Economy

**Climate Change
Adaptation & Mitigation**

Abundant & Diverse Wildlife

Thriving Local Communities

Clean Water & Air

Healthy & Happy People

Source: CT Land Conservation Council

This study focuses on economic benefits and next steps.

Existing Conditions

How is the site being used today for outdoor recreation?

- Examine the physical characteristics of the site and existing trail networks
- Estimate current visitation from activity tracking apps and stakeholder conversations



Future Potentials

What can we learn from other recreational areas?

- Understand spending patterns of visitors, especially mountain bikers by reviewing economic impact studies done for areas around the country
- Compare the site to other mountain biking areas in New England, understanding its unique advantages



Economic Impact

What would be the economic impact of trail formalization?

- Envision future scenarios for the site and evaluate their feasibility
- Estimate the visitation, spending, and tax revenue gains from infrastructure investments



Governance

How might the property be stewarded and improved?

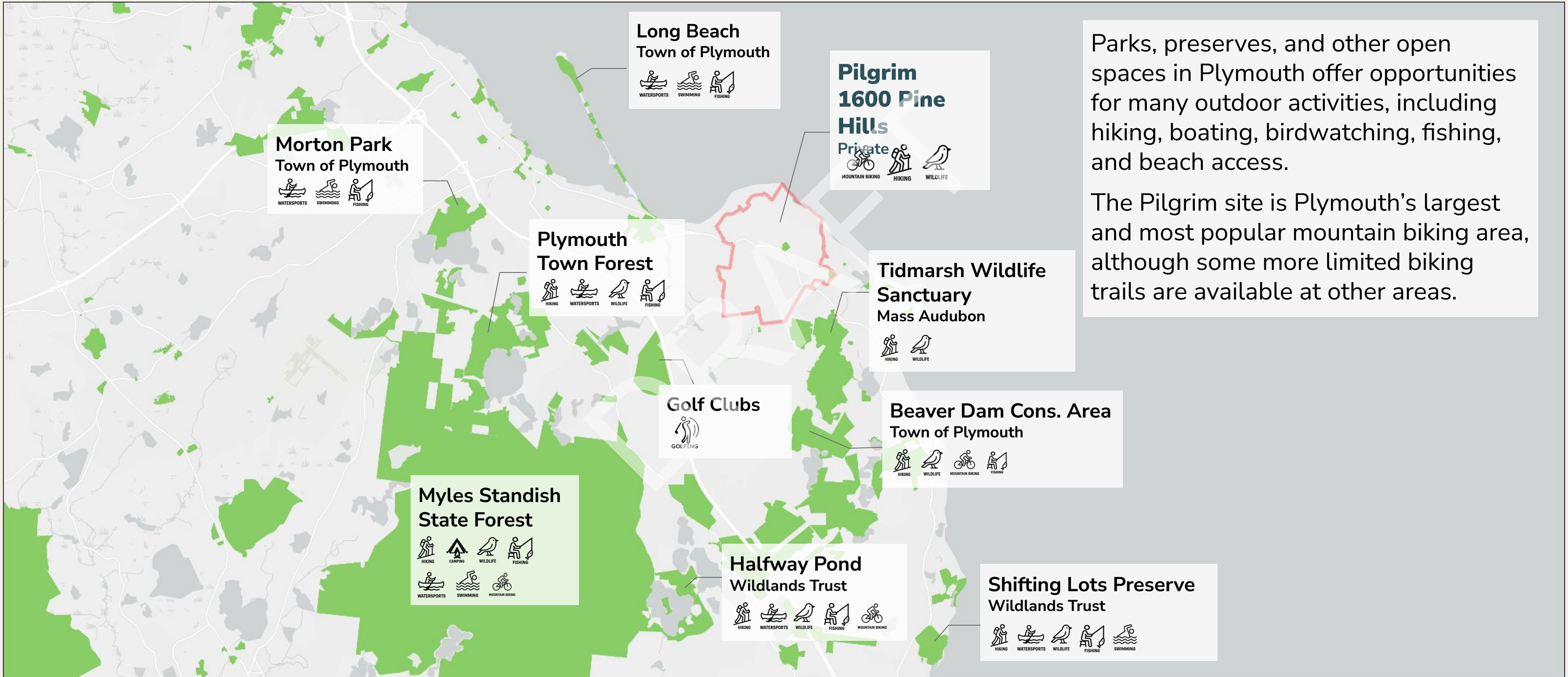
- Examine case studies of ownership and governance at other recreation areas
- Explore models of governance for the site



Existing Conditions

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Open Space Context



Parks, preserves, and other open spaces in Plymouth offer opportunities for many outdoor activities, including hiking, boating, birdwatching, fishing, and beach access.


The Pilgrim site is Plymouth's largest and most popular mountain biking area, although some more limited biking trails are available at other areas.

Source: OpenStreetMap

Aerial

The Pilgrim 1600 site is densely forested and overlooks Plymouth Bay. It is a 10 minute drive from downtown Plymouth and a 45 minute drive from Boston.

2023 Aerial

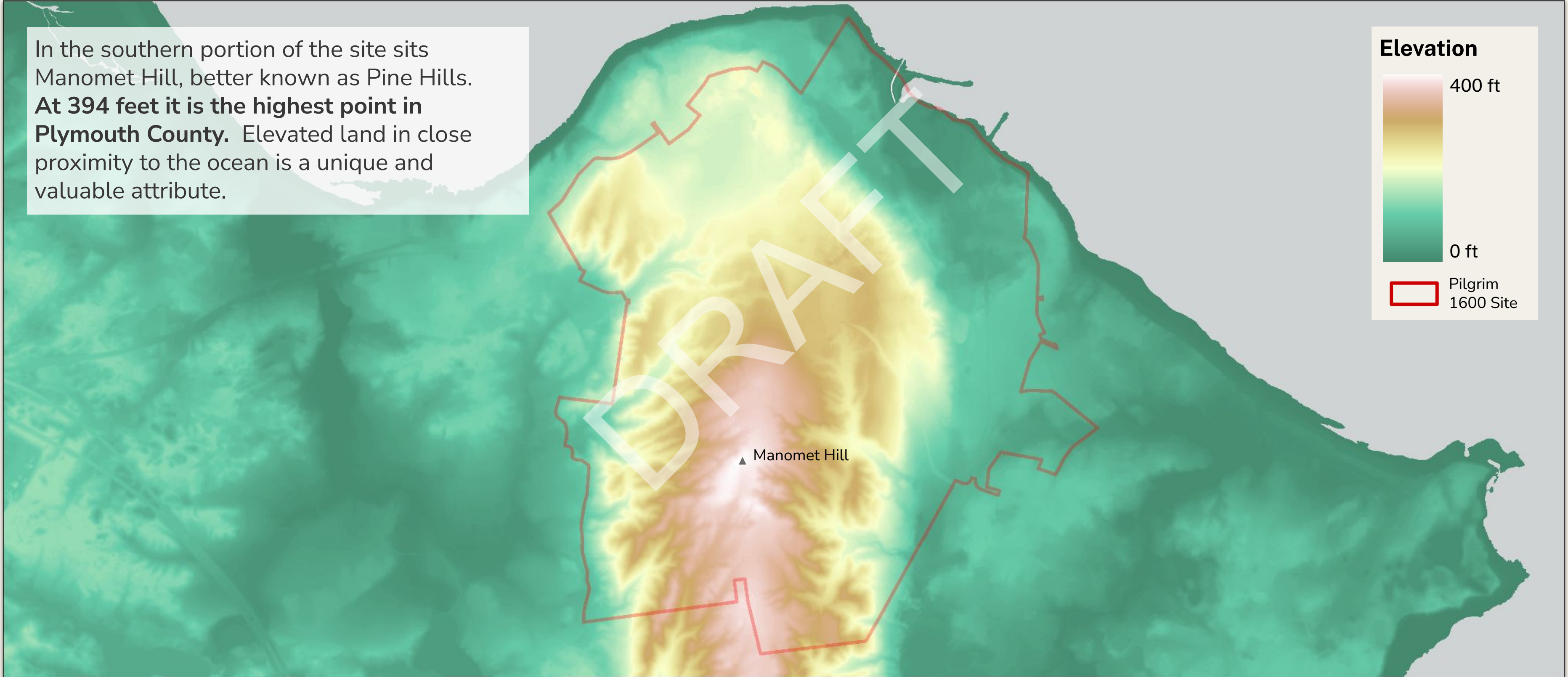
 Pilgrim 1600 Site



Source: Mass Mapper GIS, ESRI

Topography

In the southern portion of the site sits Manomet Hill, better known as Pine Hills. **At 394 feet it is the highest point in Plymouth County.** Elevated land in close proximity to the ocean is a unique and valuable attribute.



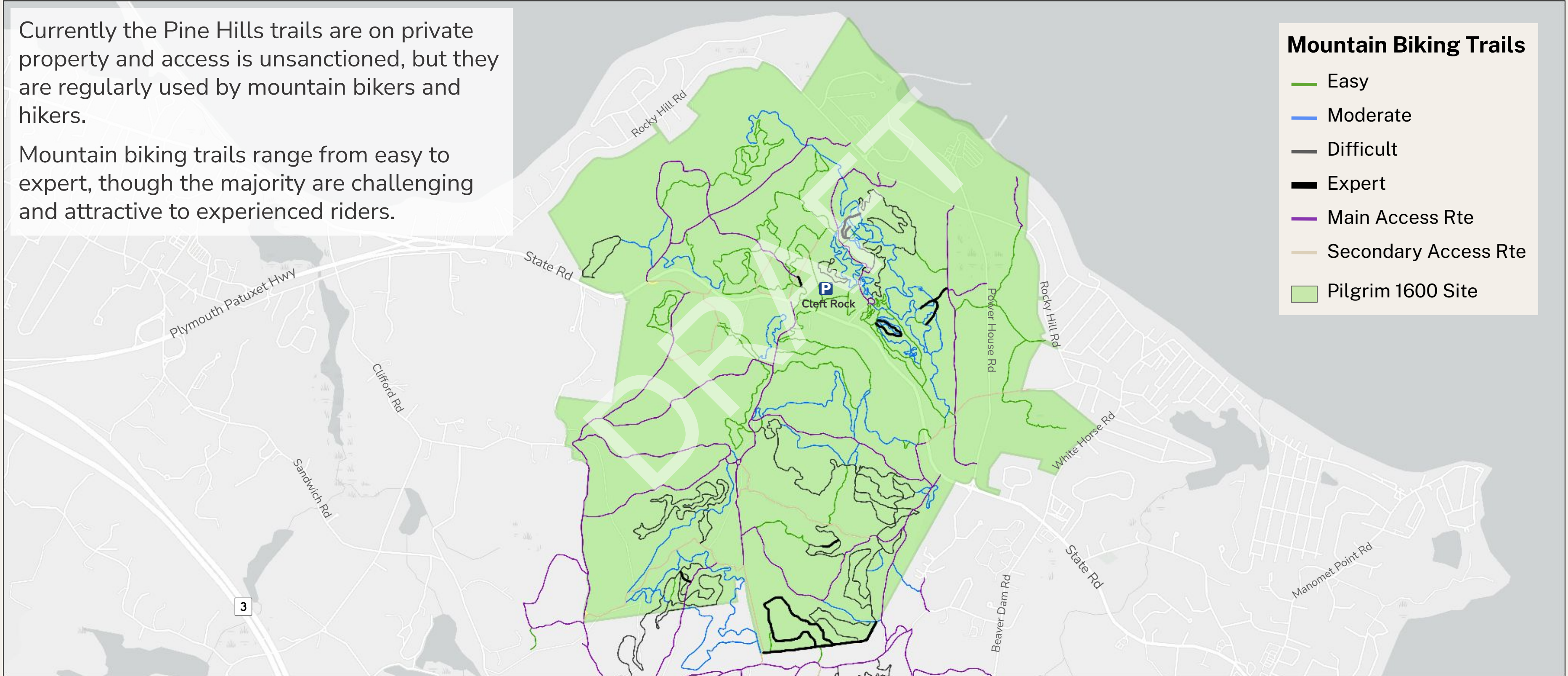
Source: Mass Mapper GIS

Trails On-Site

~48 miles of trails are on the Pilgrim 1600 / Holtec Site.

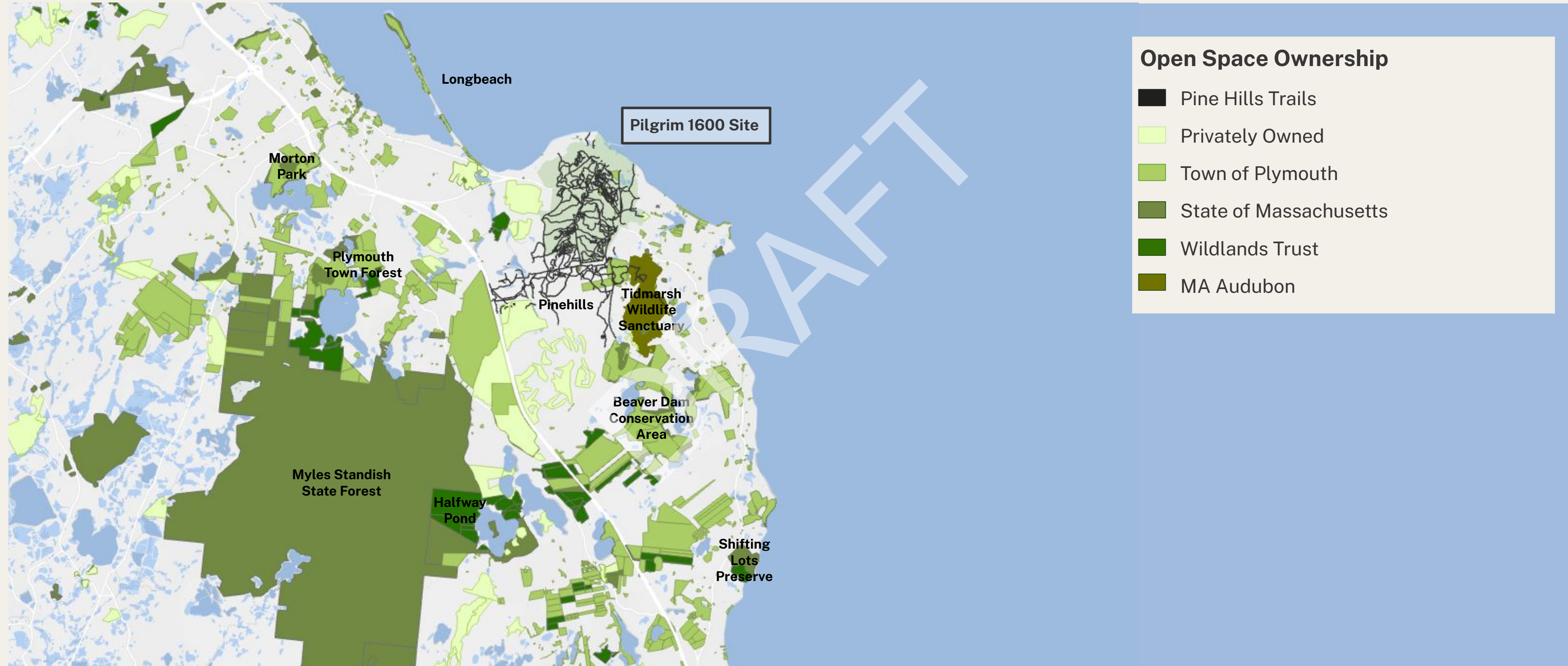
Currently the Pine Hills trails are on private property and access is unsanctioned, but they are regularly used by mountain bikers and hikers.

Mountain biking trails range from easy to expert, though the majority are challenging and attractive to experienced riders.



Trails Area-Wide

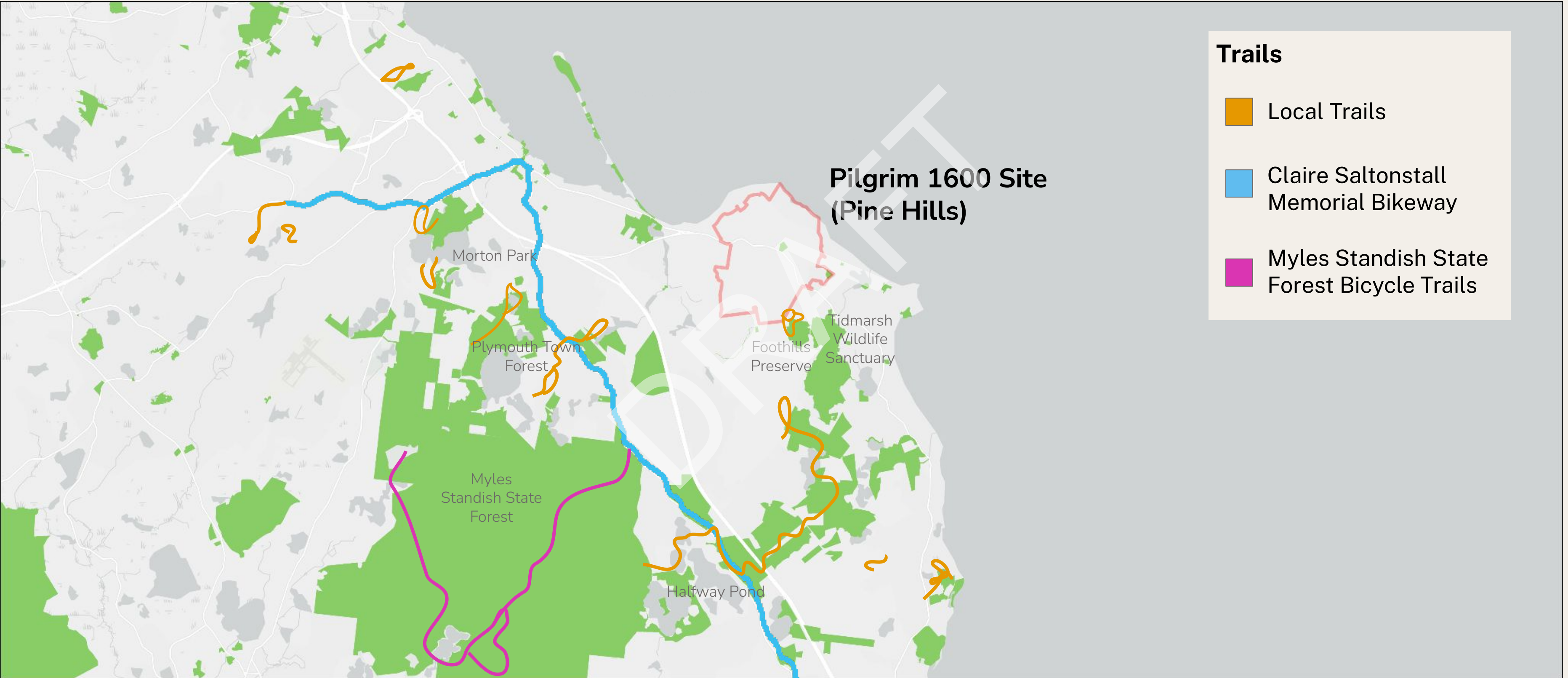
~25 miles extend further south onto properties owned by the Town Pinehills, and Mass Audubon for a total of 73 miles of connected trails.



Source: MassMapper, Plymouth Patriot Properties. Pinehills LLC is a real estate development company that owns much of the land just south of the Pilgrim 1600 site, containing trails extending beyond the ownership of Holtec.

Potential Updates - Regional Networking

A longer trail loop connecting the Pilgrim site to Plymouth's other open spaces can be a unique draw for visitors.



Mountain Biking Profile

Pilgrim 1600 Site - Pine Hills



Known as the Pine Hills riding area in the mountain biking community, the area is well-known for its technical features and challenging trails.

While the trails are unsanctioned and may not be regularly maintained, name recognition is high, and the area has potential to be an even more attractive mountain biking area.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
123	73	364 ft	▲ 50	○ 0	● 49	■ 38	◆ 28	◆◆ 8

Current Visitation

Trailforks Activity Records (2024)

172

Strava Users (2024)

580

Estimated Annual Visits

11,000

Driving Time from Boston

1 hour

Source: Landwise Advisors, Trailforks

Data Sources

Landwise integrated several data sources to estimate current outdoor recreation activity at the Pilgrim 1600 site.

Pilgrim 1600 Survey

3,814 Plymouth residents responded to the Pilgrim 1600 survey in early 2025.

The survey measures respondents' current previous use of the site, as well as their vision for the future of the site.



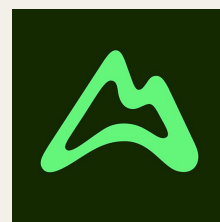
Activity Trackers



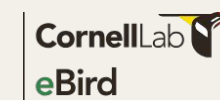
Strava social platform for **exercise and activity tracking**. Users record paths of their outdoor activities and post them. Data is aggregated for transportation planning.



Trailforks crowdsourced trail data and activity tracking geared to **mountain biking**. Users write trail reviews, provide updates on conditions, and record activities.



AllTrails trail info and tracking app for **hiking**. Users can discover and review hiking trails, and can record their own activities.



eBird database of **bird observations** providing researchers and amateur naturalists with data about bird distribution and abundance. Project of Cornell Lab of Ornithology.

Recreation Conversations

- **Pine Hills Area Trail System (PHATS)**
Mark Withington, Director
- **New England Mountain Biking Association (NEMBA)**
Nicole Freeman, Executive Director
Bill Boles, Community Engagement
George Lester, Southeast MA Chapter
- **International Mountain Biking Association (IMBA)**
Phil Milburn
- **Serious Cycles**
Seth Lawrence, Owner
Dennis Sullivan, Manager

Plymouth 1600 Survey

3,814 respondents in early 2025

Respondent Site Usage

- **55%** of respondents report having visited the site at least once before
- **546** respondents have hiked or explored by foot at the site
- **253** respondents have mountain biked at the site

Visions for the Site

The most highly supported use of the site is **mountain biking trails**, with **63% of respondents in favor**.

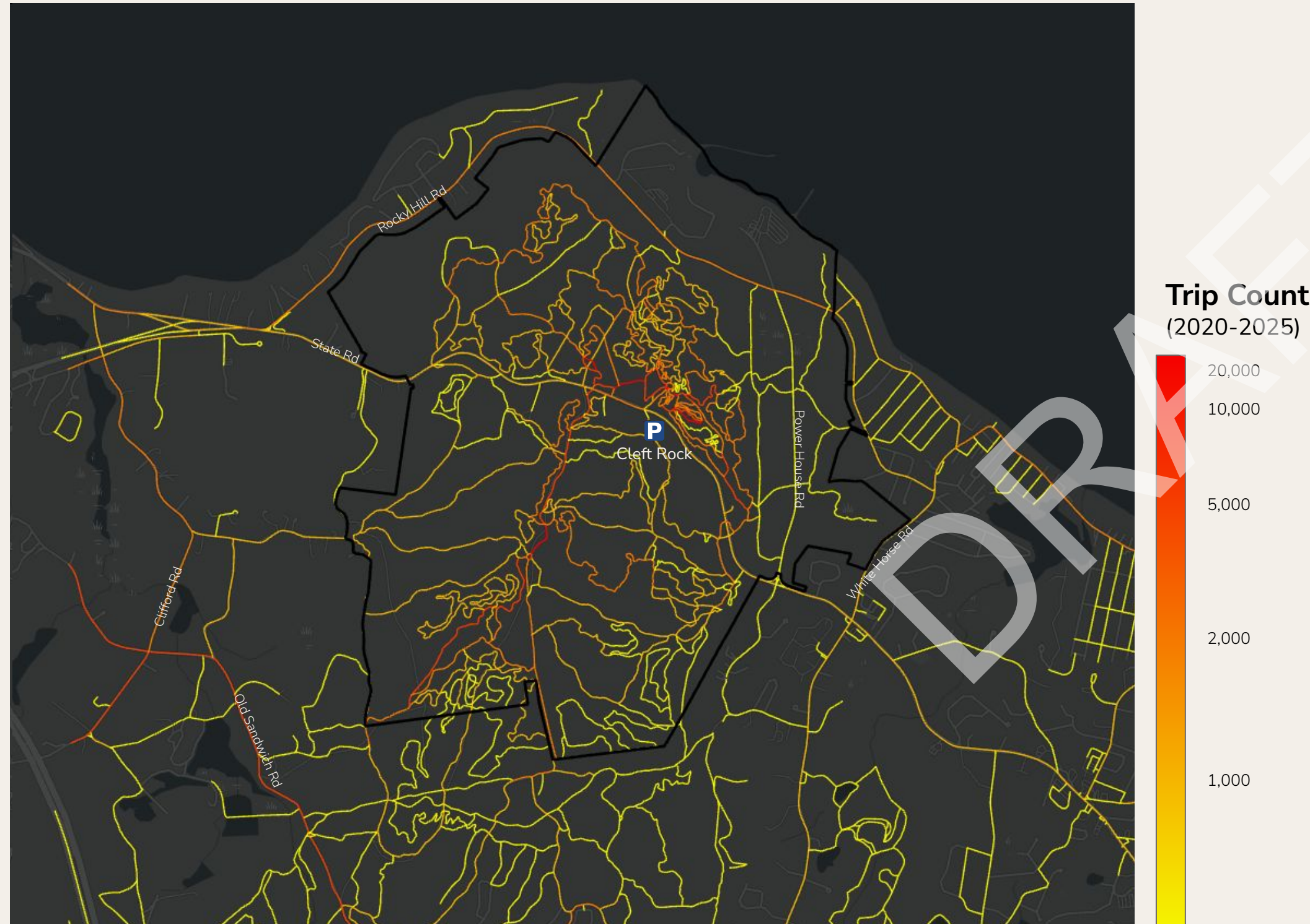
Other popular potential uses include nature center (59%), recreational harbor (42%), and outdoor museum (40%).

Support for Potential Site Uses

Potential Use	Favorability
1. Mountain Bike Trails	63%
2. Nature Center	59%
3. Recreational Harbor / Sailing Center	42%
4. Outdoor Museum	40%
5. Forest Obstacle Course	37%
6. Fishing and Aquaculture Harbor	36%
7. Agroforestry	33%
8. Tidal Power Station	31%
9. Science and Research Center	24%
10. Small-scale Retail	24%
11. Events and Retreat Center	23%
12. Green and Energy Tech Industrial Park	14%

Strava Activity Data

Mountain Biking and Cycling

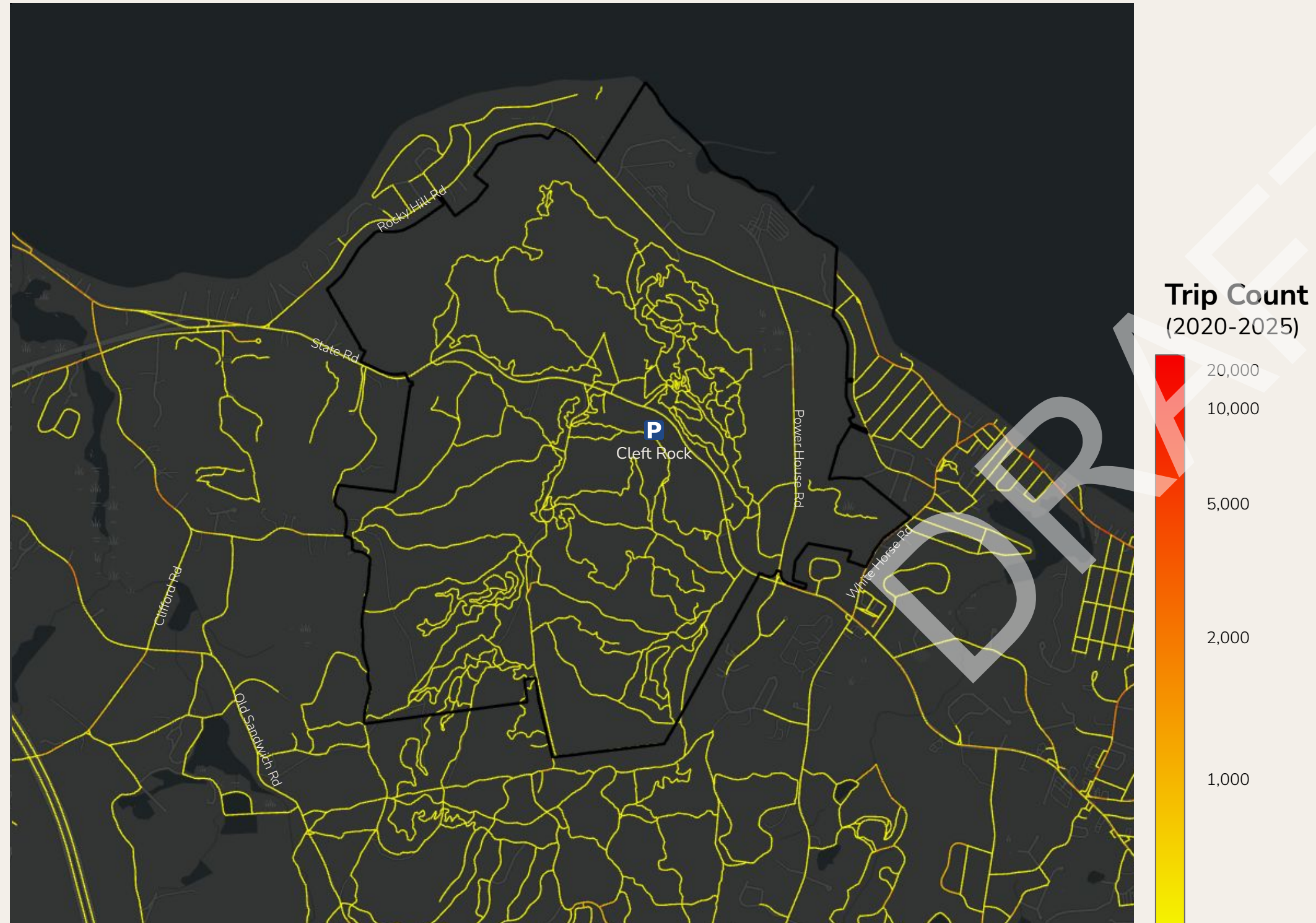


Strava data shows **high mountain biking activity throughout the site**, especially in the portion north of State Road nicknamed the “nuclear trails.” There is also high activity along the southern ridge leading to Manomet Hill. The southwest portion of the site may offer opportunities for new trail construction.

There also appears to be **significant road cycling in the area**, particularly along scenic Old Sandwich Rd and Clifford Rd. Future investments at the Pilgrim site could also cater to road cyclists along Rocky Hill Rd and State Rd.

Strava Activity Data

Hiking, Running, and Walking



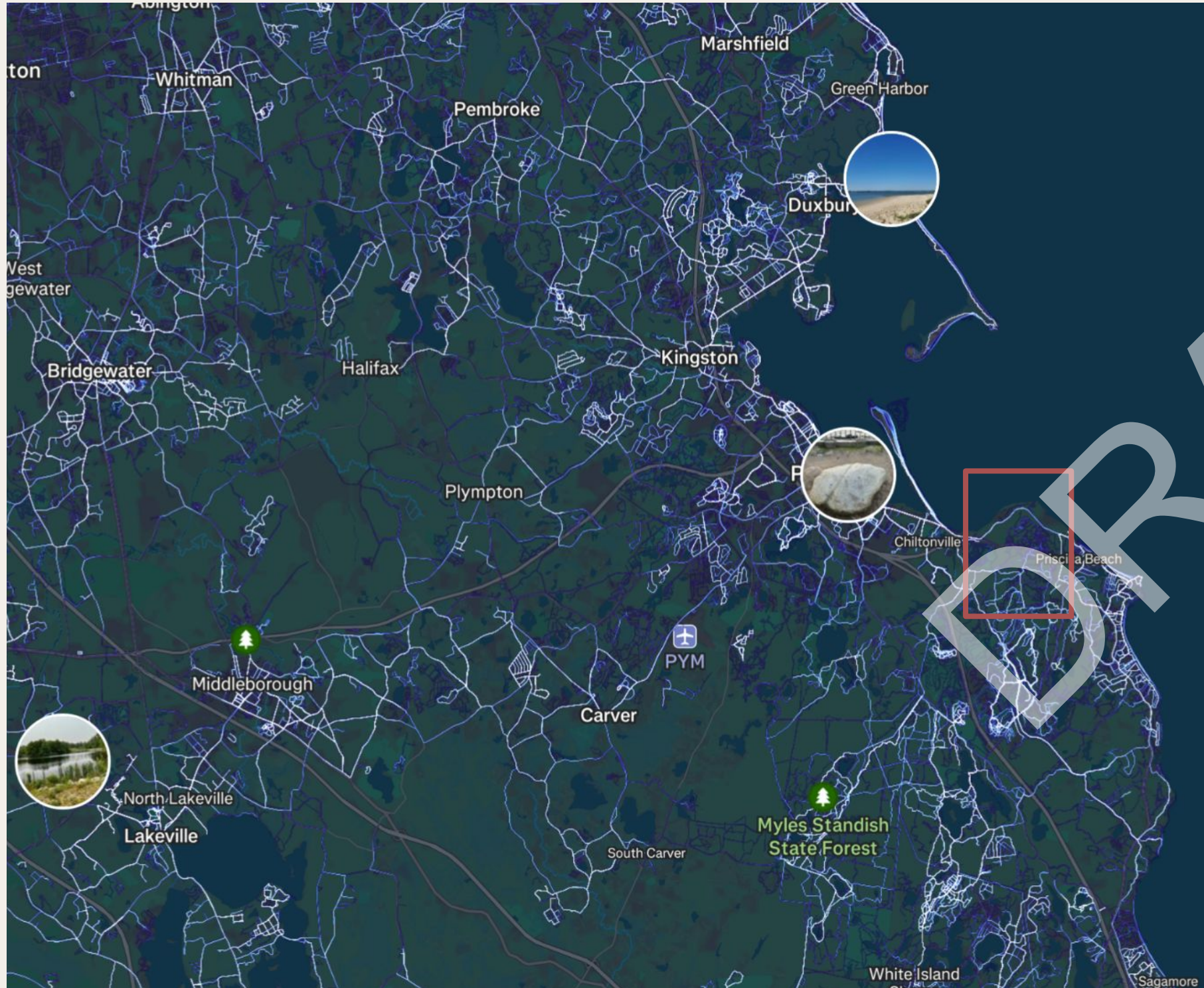
Compared to cycling, the number of recorded hiking, running, and walking trips is low at the site. These activities are concentrated near beaches away from the site.

The data suggest that either a disproportionately small number of visitors who explore the site on foot record their activities on Strava and/or that mountain biking is by far the site's dominant use.

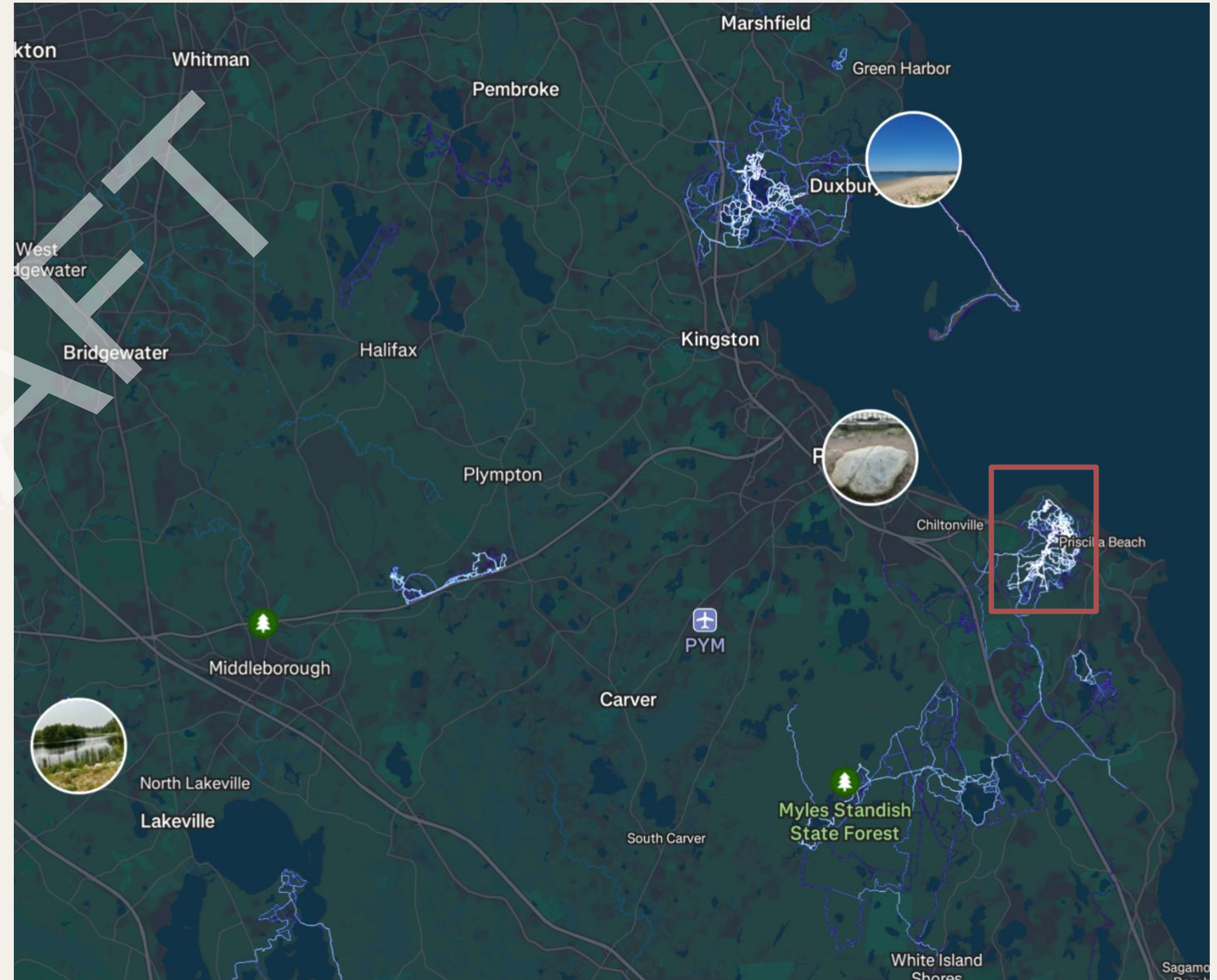
Strava Regional Heatmap

The Pilgrim site is one of only two mountain biking hotspots in the area. Formalizing it could take pressure off of unauthorized mountain biking elsewhere.

Walk/Run/Hike

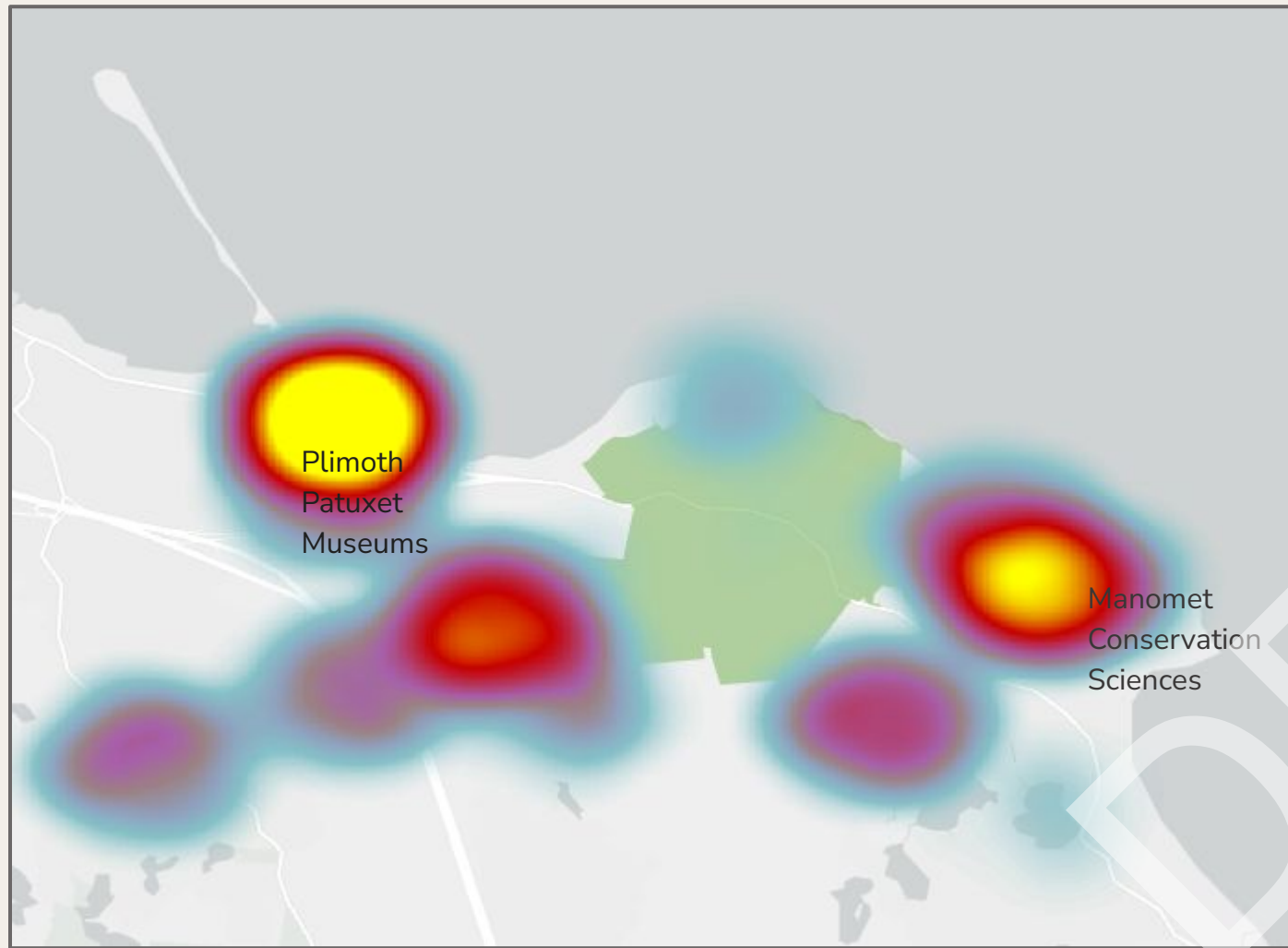


Mountain Bike



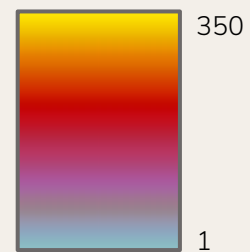
Bird Watching Activity


Observations in the local area from eBird app

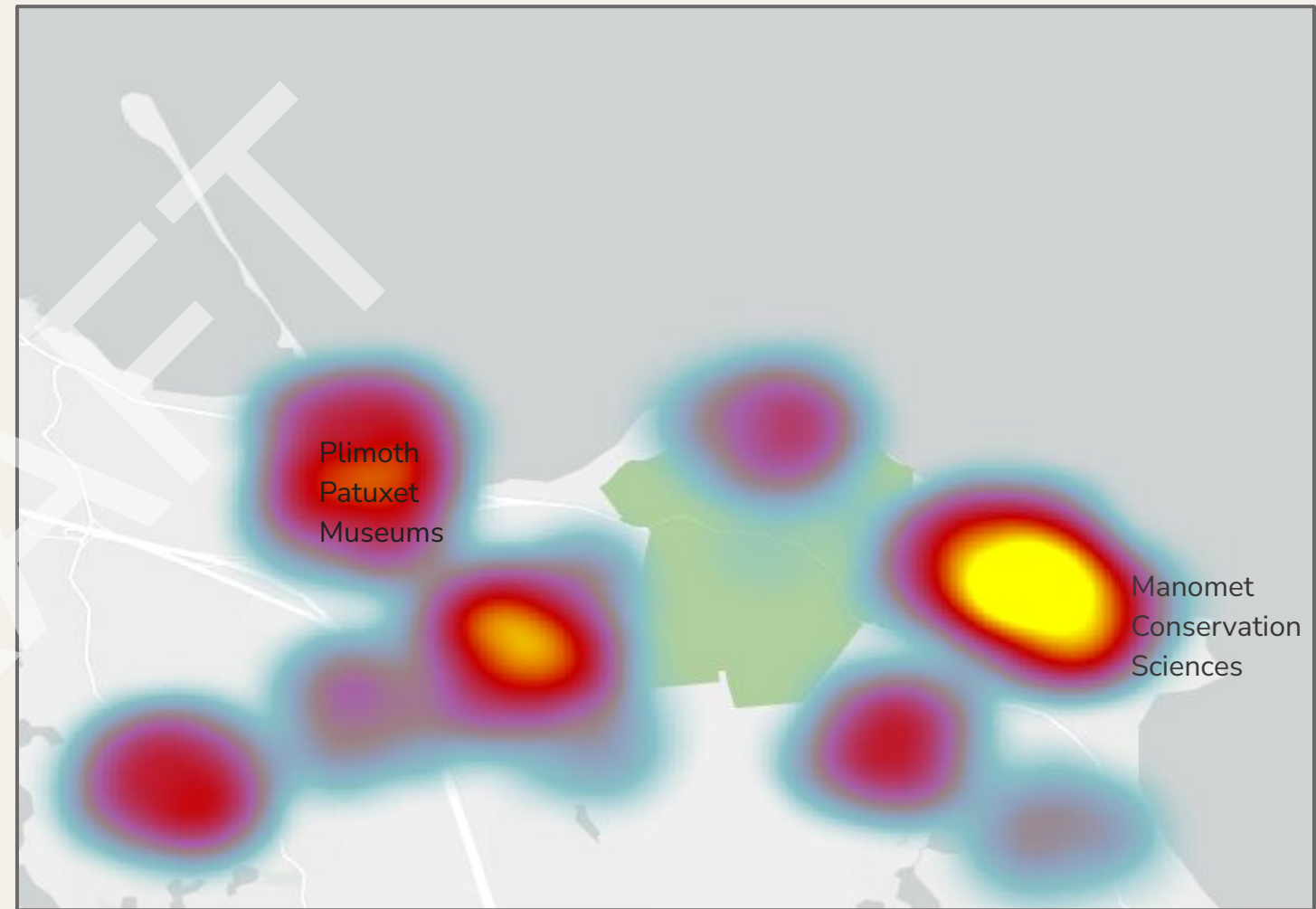


eBird registered users

Year round, all years

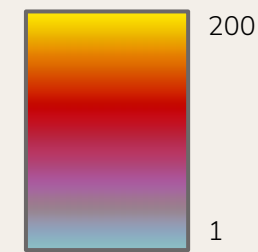



 Pilgrim 1600 Site



Species identified

Year round, all years



 Pilgrim 1600 Site

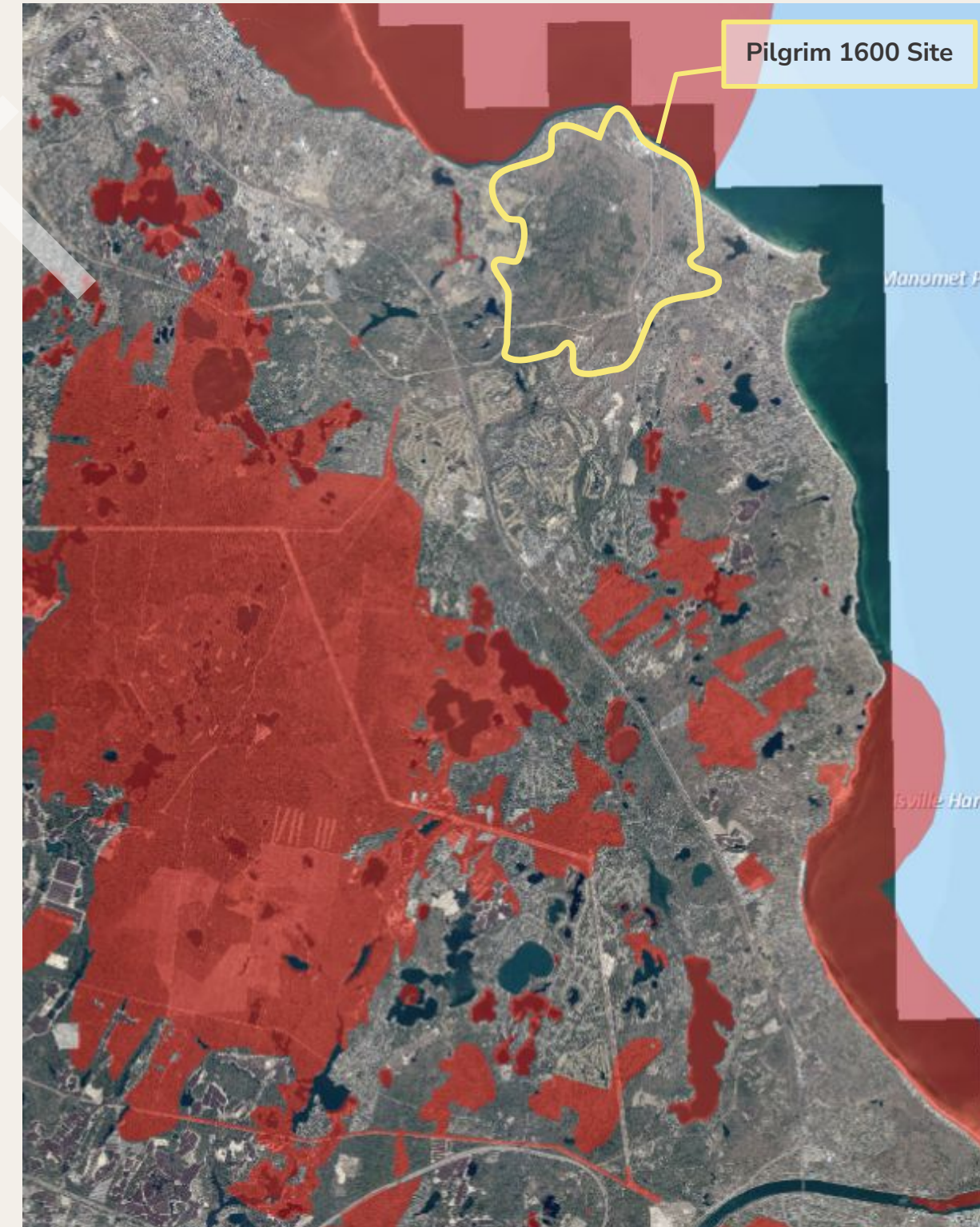
Source: eBird database of bird observations providing researchers and amateur naturalists with data about bird distribution and abundance. Project of Cornell Lab of Ornithology.

Community Conversation Themes

Wildlife Observation, Bird Watching

- Site has not recently been surveyed for habitat.
- Ecotopes of conservation concern may include:
 - Pine barrens (moths, beetles and whippoorwill)
 - Coastal ponds and vernal pools (salamanders, turtles, dragonflies, damselflies)

NHESP Priority Habitats of Rare Species



Community Conversation Themes

Hiking

- **Most hikers are local and enter from the south end of the site**, near the Pinehills community
- Hiking visitation is high at nearby conservation areas, like Tidmarsh, creating trail network opportunities
- Current hiking trails do not have direct access to the beach

Equestrian

- **Equestrian activity exists in the greater Plymouth area** (i.e. carriage tours, riding lessons).
- Portions of the site which have **steep slopes may not be suitable for riding.**

Mountain Biking

- Site is **already one of the top mountain biking areas in the region** despite being unsanctioned.
- **Unsanctioned status puts a limit on trail quality** which is maintained by volunteers. **Equipment and professional help would be welcome.**
- **Marketing** of mountain biking alongside traditional attractions **can encourage visitors to add recreation to Plymouth trip.**
- **Regional networking could be a big draw**, allowing for longer rides and better access. Trends in e-mountain bikes.
- Mountain biking education focuses on **diversifying the sport with skills clinics and beginner rides.**
- **Sport has a social element with group rides and congregating after.**
- Local breweries have partnered with mountain bikers, supporting trail development efforts.

Tourism & Recreation Trends

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Annual Visitation at Local Attractions & Recreation Areas

Reflects “visitor contacts” actual visitation on open sites is likely higher.



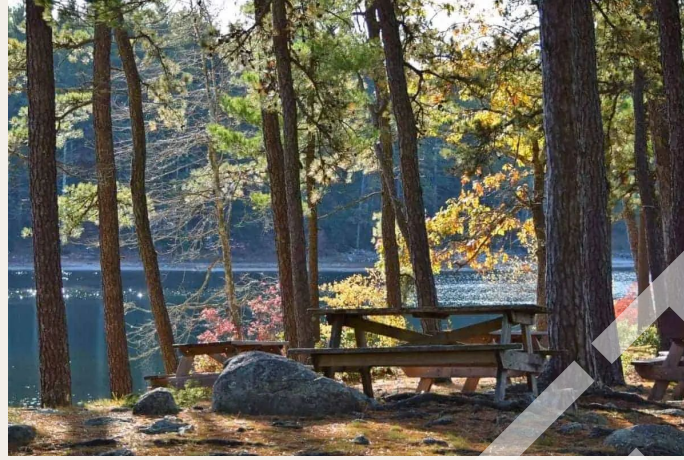
Pilgrim Memorial
State Park

47,000 visitor contacts
119,000 program attendance



Wildlands Trust Properties

50,000 visitors



Myles Standish
State Forest

71,000 visitors



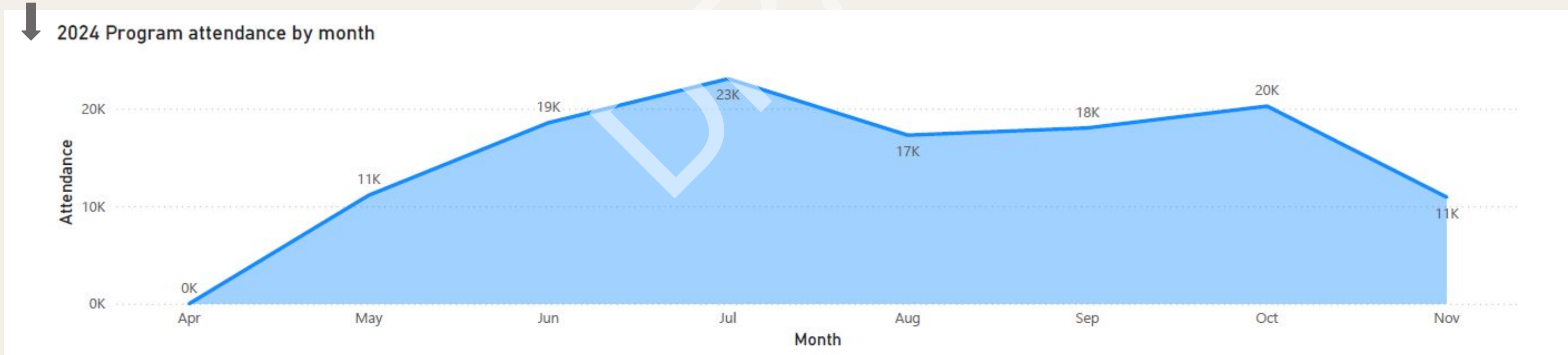
Tidmarsh Wildlife Sanctuary
Mass Audubon

20,000 - 25,000 visitors



Myles Standish Monument
State Reservation

1,000 visitor contacts



Source: Interviews and follow up data from DCR, Mass Audubon, and Wildlands Trust. Visitor contacts at State-owned sites are people on a tour or with direct interaction with a ranger. Open sites like Pilgrim Memorial have a lot more people walking through who never interact with DCR. Pilgrim Memorial State Park program attendance includes rock talks, trade table, and monument tours. Myles Standish State Forest data from Reserve America for the 2023 Camping Season multiple-night visitors are counted according to daily visits. Wildlands Trust visitor estimates based on a sample of daily counts.

Plymouth Travel & Tourism - Recreation and ecotourism has potential.

Economic Development Strategy (2018) - RKG

Number of tourists has been stable. Attractions are generally passive or observational, not active or experiential.

Recommendations:

- Accommodate tourism and recreation-based economic development activity at Holtec site.
- Enhance tourism and destination visitorship through strategic marketing, new asset development, and partnerships.
- Expand active tourism venues and diversity of activity with goal of boosting length of stay.

Public Space Action Plan (2007)

Focus is on "star attractions" rather than natural resources and scenic beauty. The Cape and Islands are more successful at attracting this type of tourism.

Downtown Waterfront Business and Development Plan (2002) - Fort Point Associates

Attracts value-oriented visitors – emphasizing cost advantages over Boston & Cape Cod. Slightly lower income, staying shorter time, spending less. Attendance and occupancy data indicates **summer decline, winter and fall growth.**

Plymouth Travel & Tourism - Spending is more often on food & drink.

Plymouth Master Plan (2025) - Stantec

More is spent on food and drink, less is spent on merchandise.

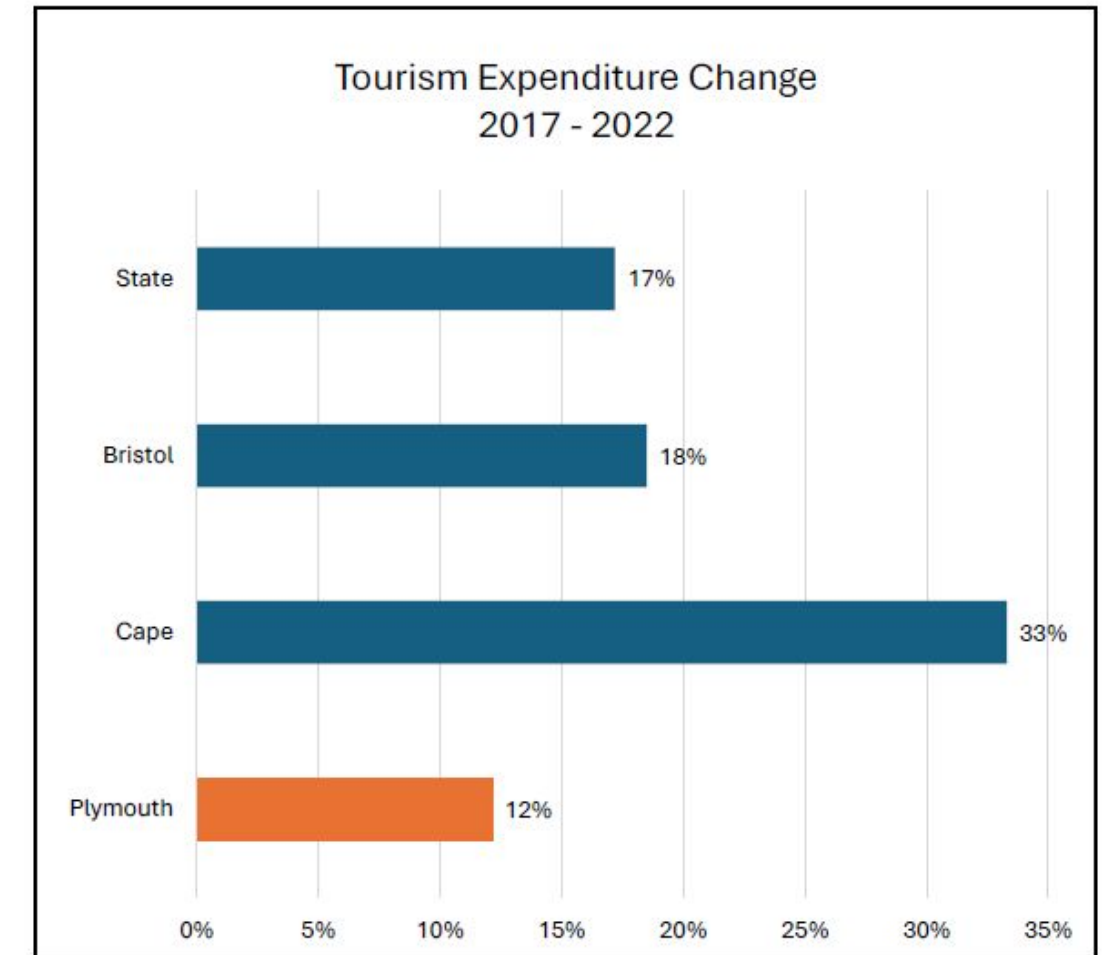
While overall tourism expenditures have grown, they have grown less in Plymouth than the State or nearby regions.

Retail may have peaked; tourism lags the state

- ~3.7M sqft of retail and restaurant space



Source: ESRI 2023 Retail Market Profile Data and 2018 Plymouth Economic Development Strategy Table 4-1.



Source: NP calcs - MOTT Annual Reports 2017, 2022. Domestic visitor impact

Nationally - Recreation planning has shifted to focused on sustainability and provision of holistic experiences.

- Multi-use trail networks for active transportation and recreation;
- A shift away from golf to more native and less manicured environments;
- The blending of recreation with retail/food and beverage, and entertainment.



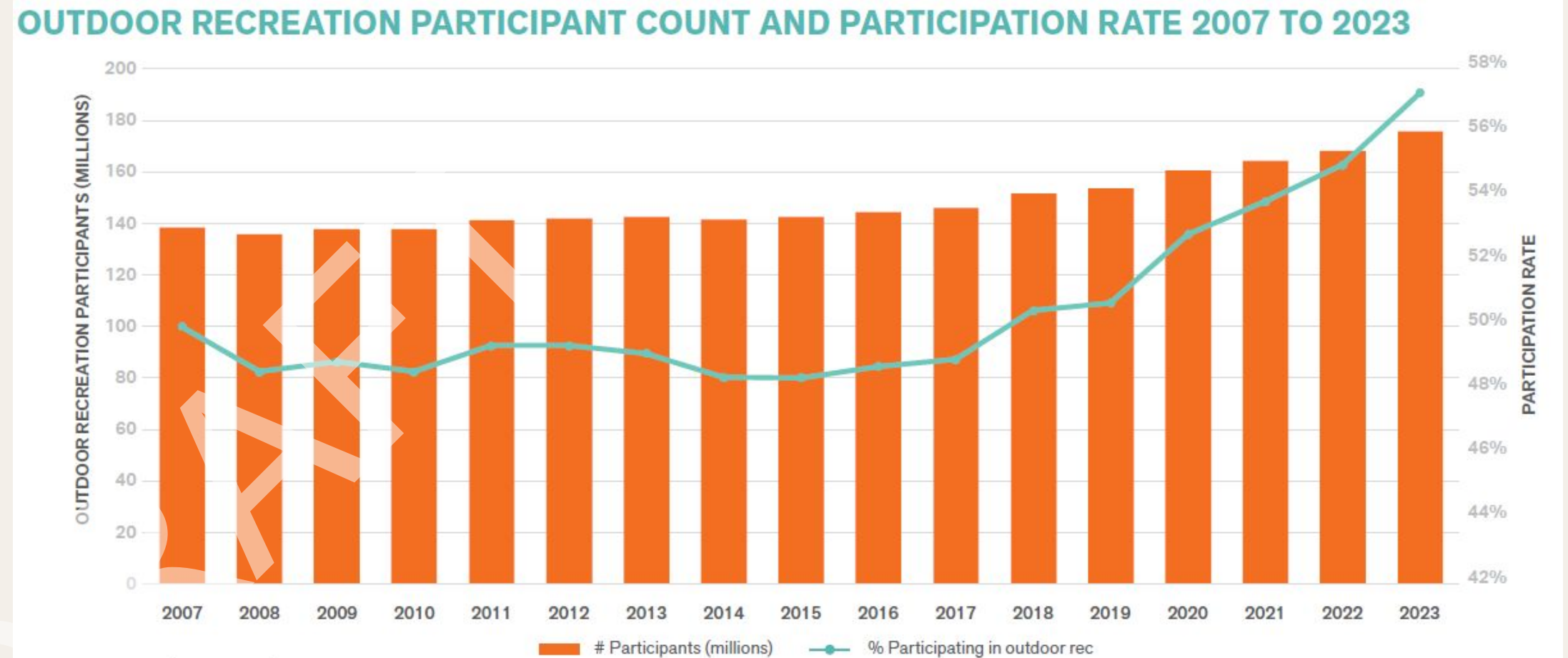
Source: StreetsBlogMass, Northern Strand Trail Lynn, MA

Nationally - The outdoor recreation participant base is growing.

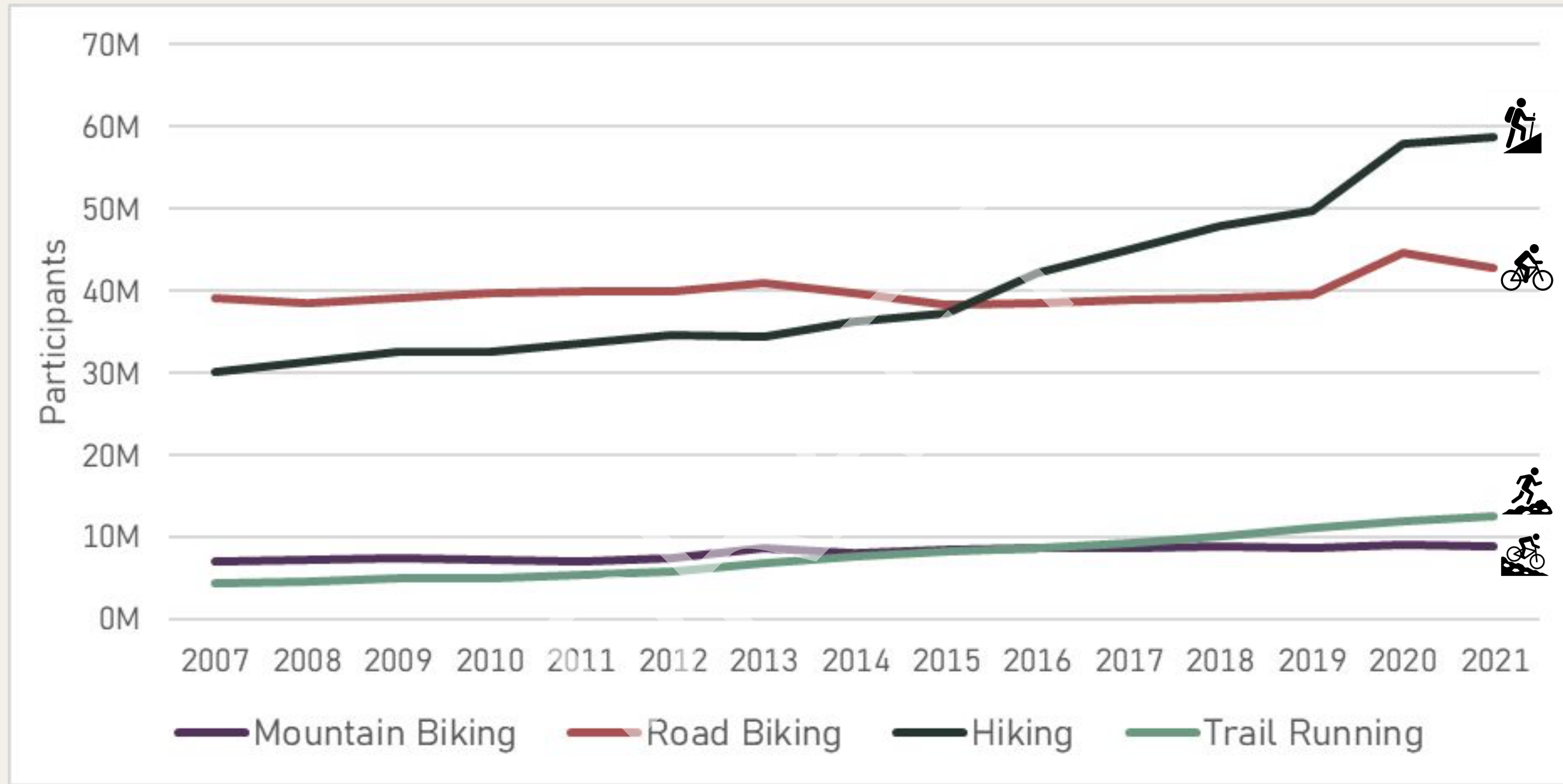
As of 2023, almost **57%** of Americans (age 6 and older) participated in outdoor recreation.

Top five activities by participation rate:

1. Hiking (20%)
2. Fishing (18.2%)
3. Running, Jogging & Trail Running (17.9%)
4. Camping (17.7%)
5. Bicycling - Road & Mountain (17.2%)



Nationally - Biking maintains a core-audience, foot activities are growing.



Mountain biking and road biking maintain a steady core audience.

Foot activities like hiking and trail running have seen significant growth in recent years.

Nationally - Most mountain bikers are highly engaged.

8.7 Million

Mountain bikers nationwide as of 2021

41.5%

Share of core mountain bikers, participating 13+ times per year

43.8

Median age

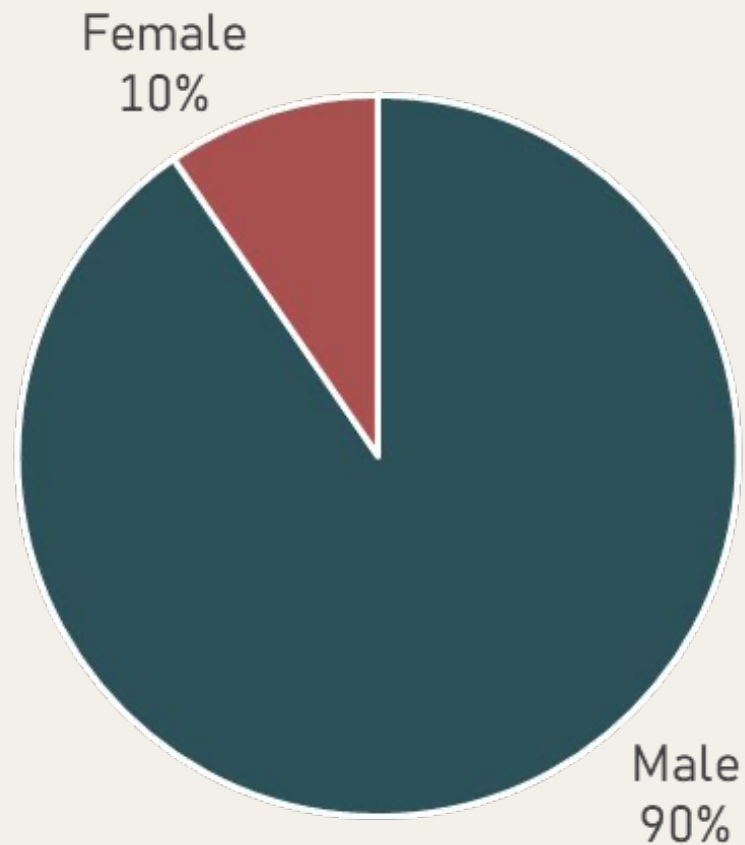
4.5

Average number of trips away from home per year for mountain biking

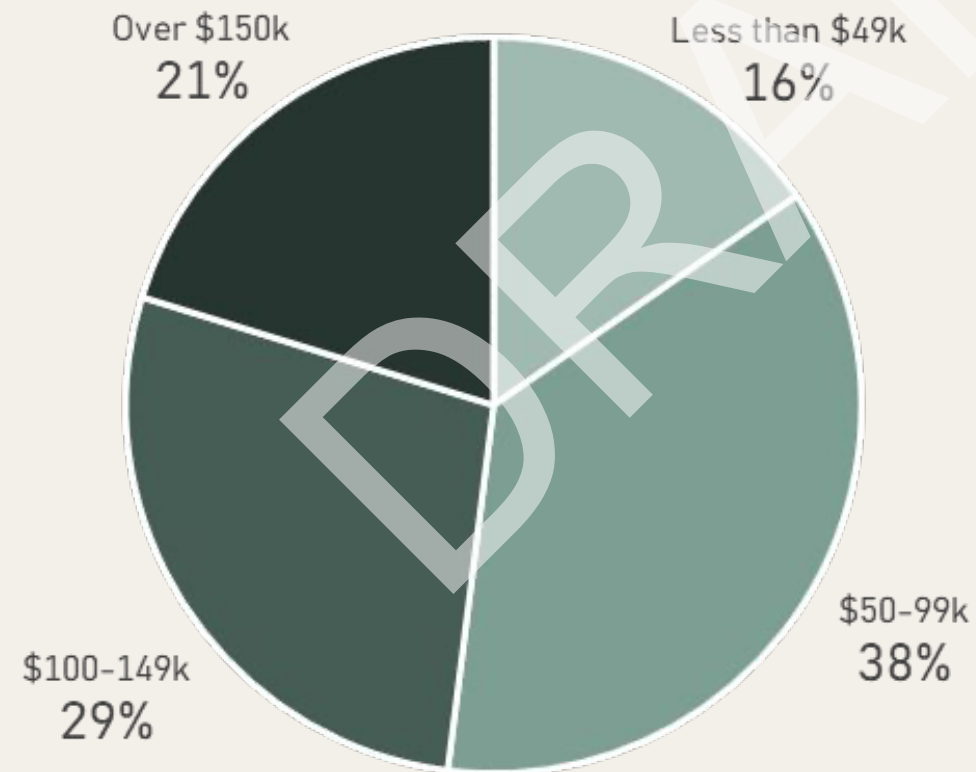
85%

Consider mountain biking to be part of their identity

Gender



Income



Mountain biking in the US is primarily **affluent, white, male, and middle-aged. However, the sport is gradually diversifying.**

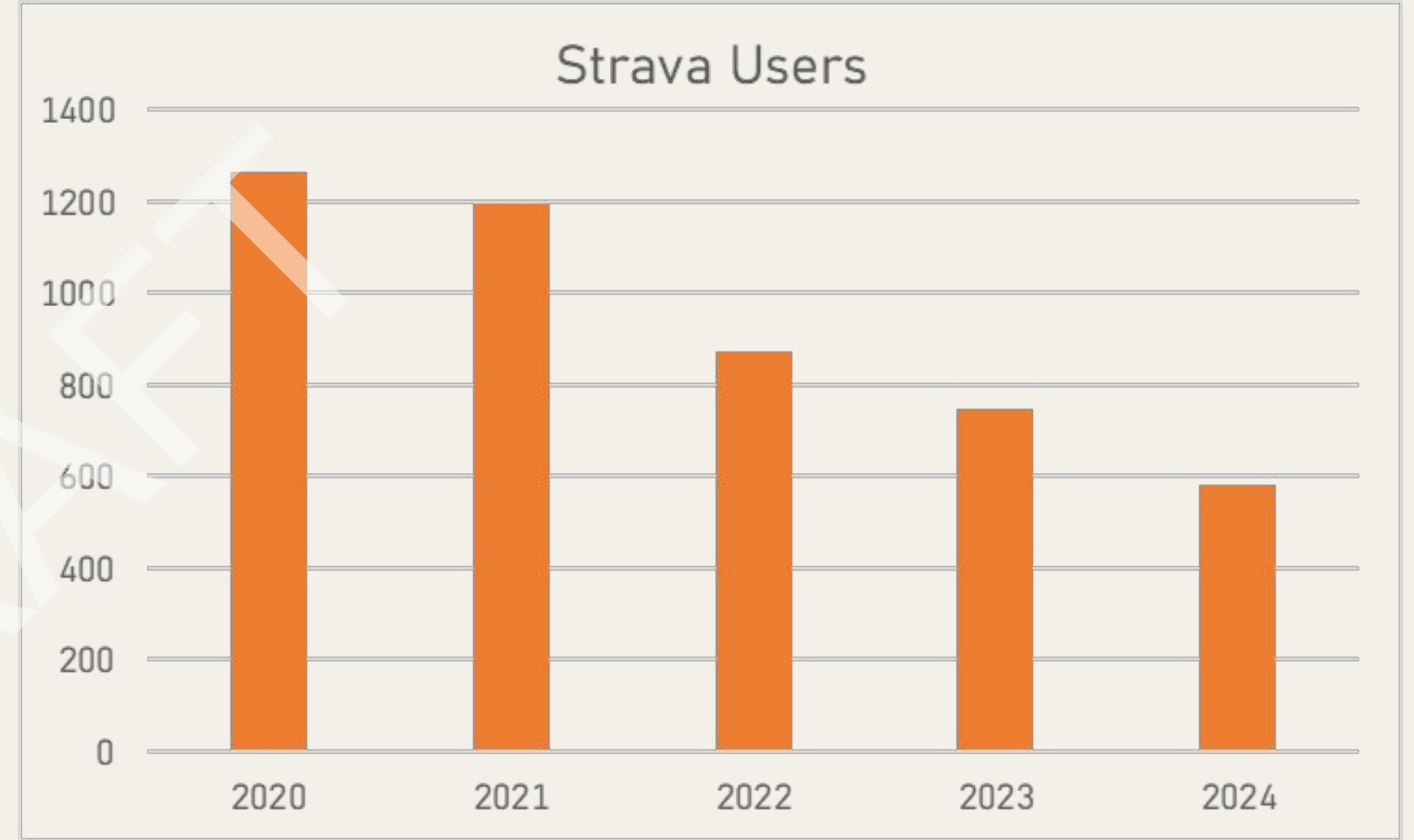
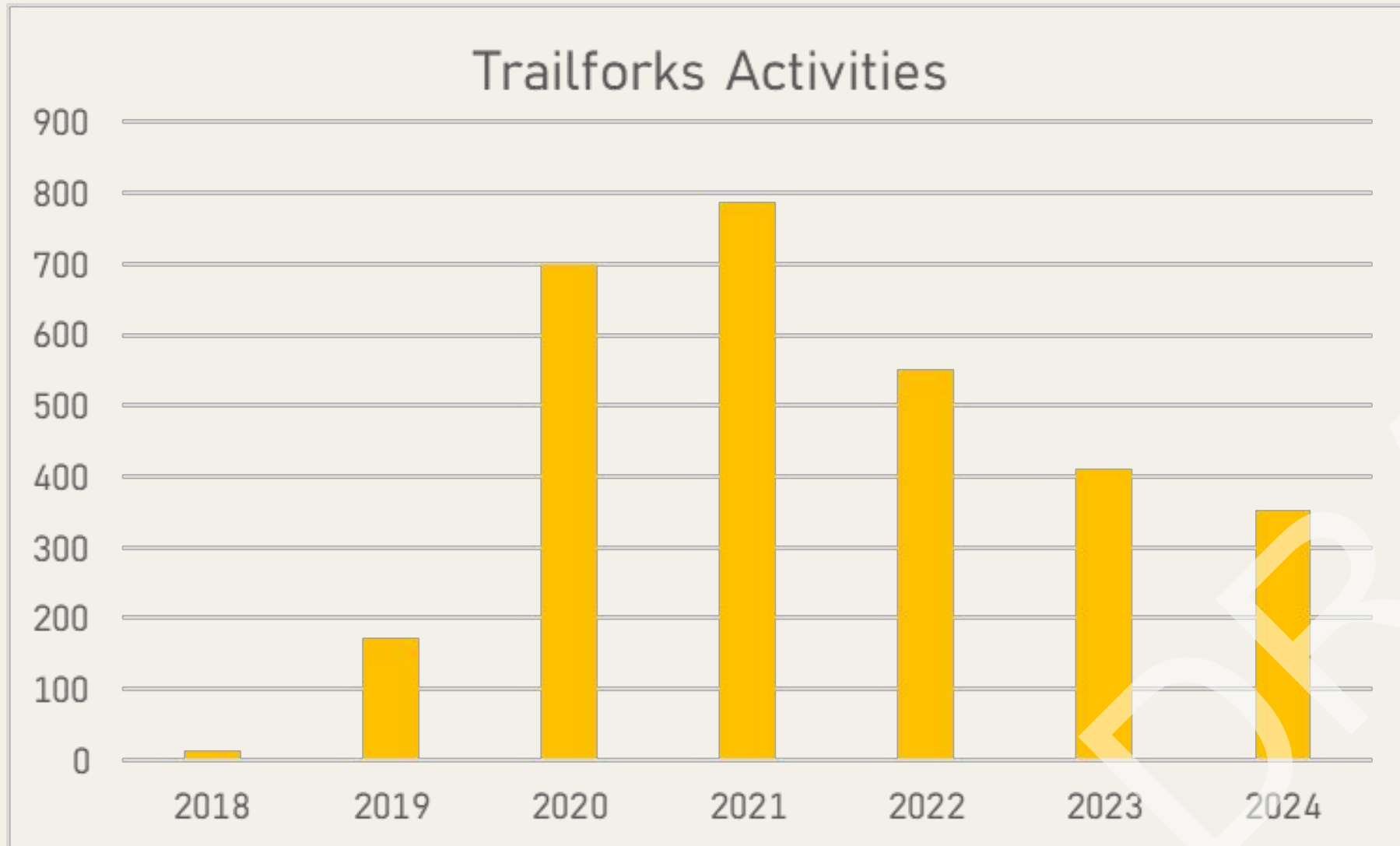
Most mountain bikers are **highly engaged with the sport, riding more than a dozen times per year** and traveling on multi-day trips to seek out the best trails.

Participation in mountain biking **grew dramatically during COVID, but has since stabilized and slightly declined.**

Source: Trust for Public Land (2025) "Economic Impacts of Mountain Biking", Buning et al. (2019) "A case study of the US mountain bike tourism market"

Mountain Biking Visitation Trends

Mountain biking usage of the Pilgrim 1600 site saw a big increase during the pandemic, but has tapered off some.



Possible Factors for Recent Decline

- Mountain bikers traveling further from home to more appealing destinations after the pandemic
- Destruction of mountain biking features and infrastructure at Pine Hills, reported in 2024
- Decline from a pandemic-era spike in mountain biking

Projected Economic Impact

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Methodology

How can we quantify the economic impact of formalizing the trails at Pilgrim 1600?

Direct Economic Impact =

Forecasted visitation × **Forecasted spend per visit**

Data Sources

Local Comparables

Landwise examined **eight riding areas in New England** which may **compete with the Pilgrim 1600 site** for mountain biking visitation, analyzing how riding area characteristics relate to visitation.

By positioning the Pilgrim 1600 site in the New England mountain biking landscape, we can **understand the necessary investments and forecast future visitation after trail formalization.**

National Case Studies

Landwise reviewed **seven economic impact studies of mountain biking** at riding areas across the country. The case studies span a wide range of riding area types, from national destination resorts and regional destinations to trails serving the local community.

These studies **estimate the spend per mountain biking visit** depending on the characteristics of the riding area.

We discount current visitation to zero in an economic impact calculation

- Mountain biking on the site is **not sanctioned** and **may be banned** at any time
- Trail formalization could **ensure the sustainability of current visitation** as well as attract additional visitation

Pine Hills Area Trail System as a Mountain Biking Destination

While the site is used for a variety of outdoor activities, we first focus here on expanding mountain biking, a major existing use which the site is uniquely suited.

- Trails for hiking and running may have a larger target audience, but **the selection of hiking trails in the Boston area is already vast**. In contrast, **quality mountain biking trails are much scarcer**.
- The site does not necessarily have a unique draw as a hiking destination. Meanwhile, **the site's mountain biking trails already attract visitors from throughout the region** due to their unique appeal.
- Mountain bikers are drawn to well-designed, well-maintained trails with interesting built features. This means that **investment in mountain biking infrastructure can yield a significant bump in visitation**. The appeal of hiking trails, on the other hand, is primarily determined by the inherent quality of the landscape and topography.
- Survey results show that **Plymouth residents strongly support mountain biking trails on the site**.

Hiking, running, mountain biking, and other outdoor activities should continue to coexist on the site. However, mountain biking likely holds the most economic development potential.

National Case Studies

Landwise conducted a literature review of eight economic impact studies of mountain biking at riding areas across the country.



Ownership

- National Forest Land
- Town
- Private
- Mixed*

*mix of state, city, county, nonprofit, and private ownership

National Case Study Summary

Spend per Visit at Mountain Biking Areas

We estimate that current spend per visit at the Pilgrim site is around **\$145**. This figure is in line with the inflation adjusted number for Goose Pond in Keene.

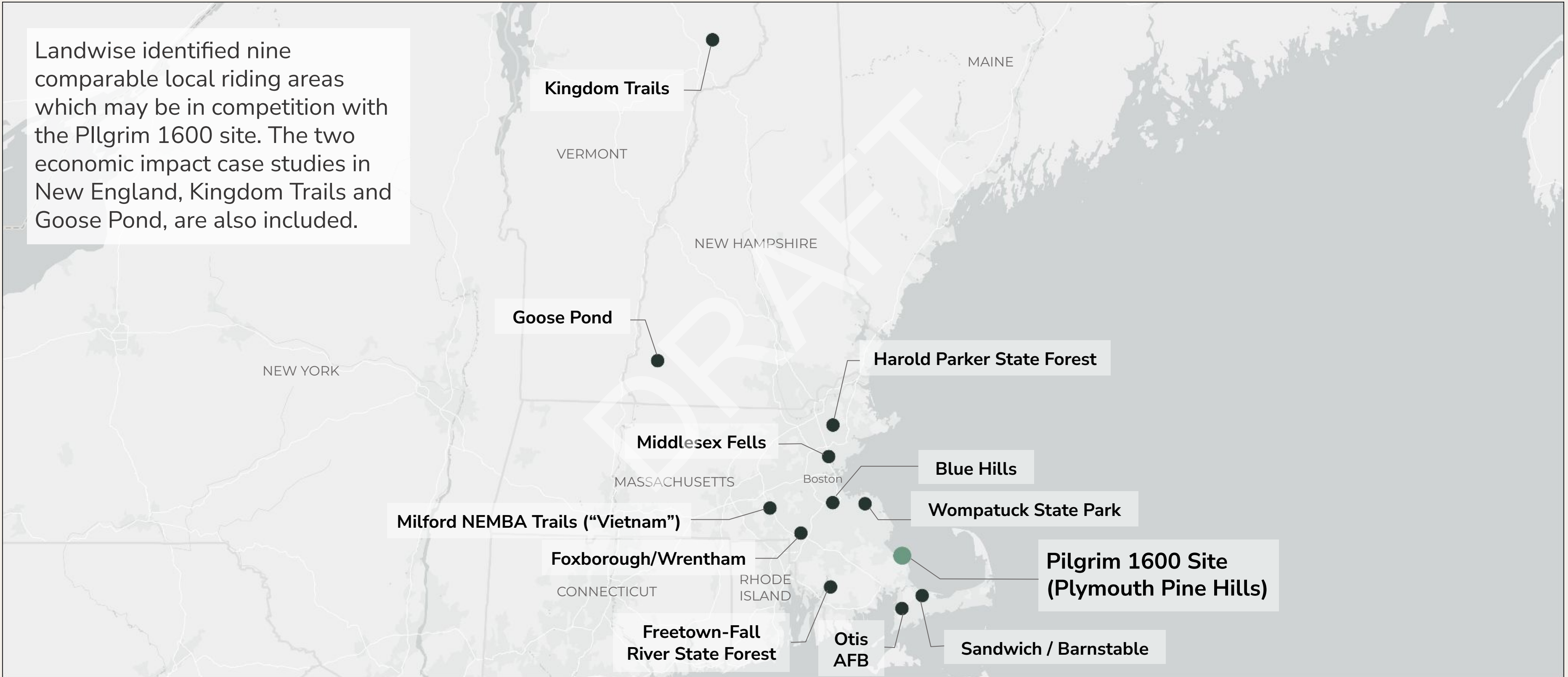
It is unlikely that the Pine Hills’ trail network will be extensive enough to attract many multi-day mountain biking trips. However, **by leveraging Plymouth’s other attractions such as coastal access and historic sites, visitors might be enticed to spend more**, stay longer, and incorporate mountain biking as part of a multi-activity trip.

Mountain Biking Area	Type	Annual Visitation			Spend Per Non-Local Visit		
		Total	Non-Local	Local	Study Result	Year	Inflation Adjusted
Moab, UT	National Destination	44,403	41,841	2,562	\$332	2021	\$405
Crested Butte, CO	National Destination	53,690	37,583	16,107	\$494	2018	\$637
Bentonville, AR	National Destination	160,000	90,000	70,000	\$278	2023	\$296
Bozeman-Big Sky, MT	Regional Destination	163,291	53,875	109,416	\$146	2018	\$188
Brevard, NC	Regional Destination	60,900	24,360	36,540	\$231	2017	\$304
Chattanooga, TN	Regional Destination	44,089	16,910	27,179	\$342	2022	\$389
Kingdom Trails, VT	Regional Destination	94,000	82,000	12,000	\$183	2016	\$247
Goose Pond, NH	Local Large	9,935	1,083	8,852	\$145*	2023	\$155

*Figure includes both local and non-local mountain bikers and includes local spending on mountain biking equipment

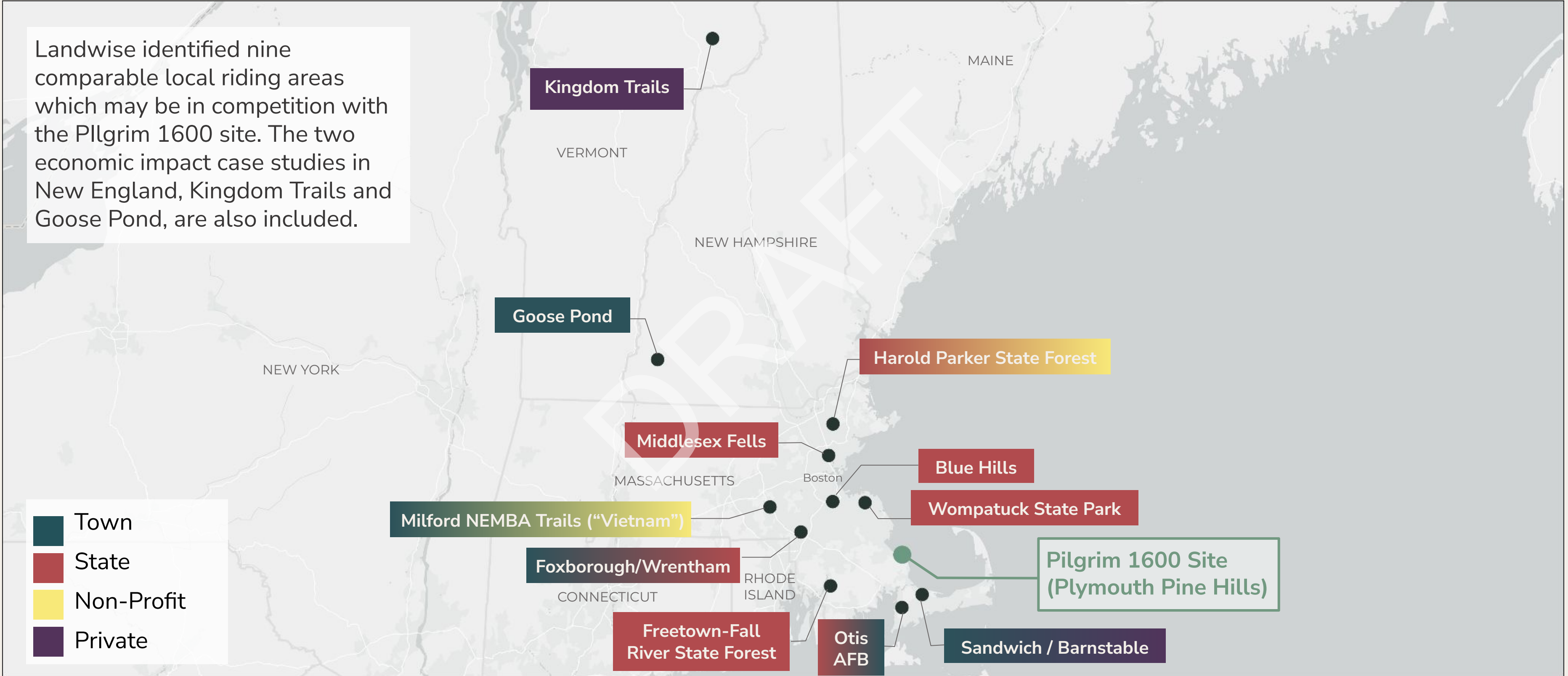
Local Comparables

Landwise identified nine comparable local riding areas which may be in competition with the Pilgrim 1600 site. The two economic impact case studies in New England, Kingdom Trails and Goose Pond, are also included.



Local Comparables - Ownership

Landwise identified nine comparable local riding areas which may be in competition with the Pilgrim 1600 site. The two economic impact case studies in New England, Kingdom Trails and Goose Pond, are also included.



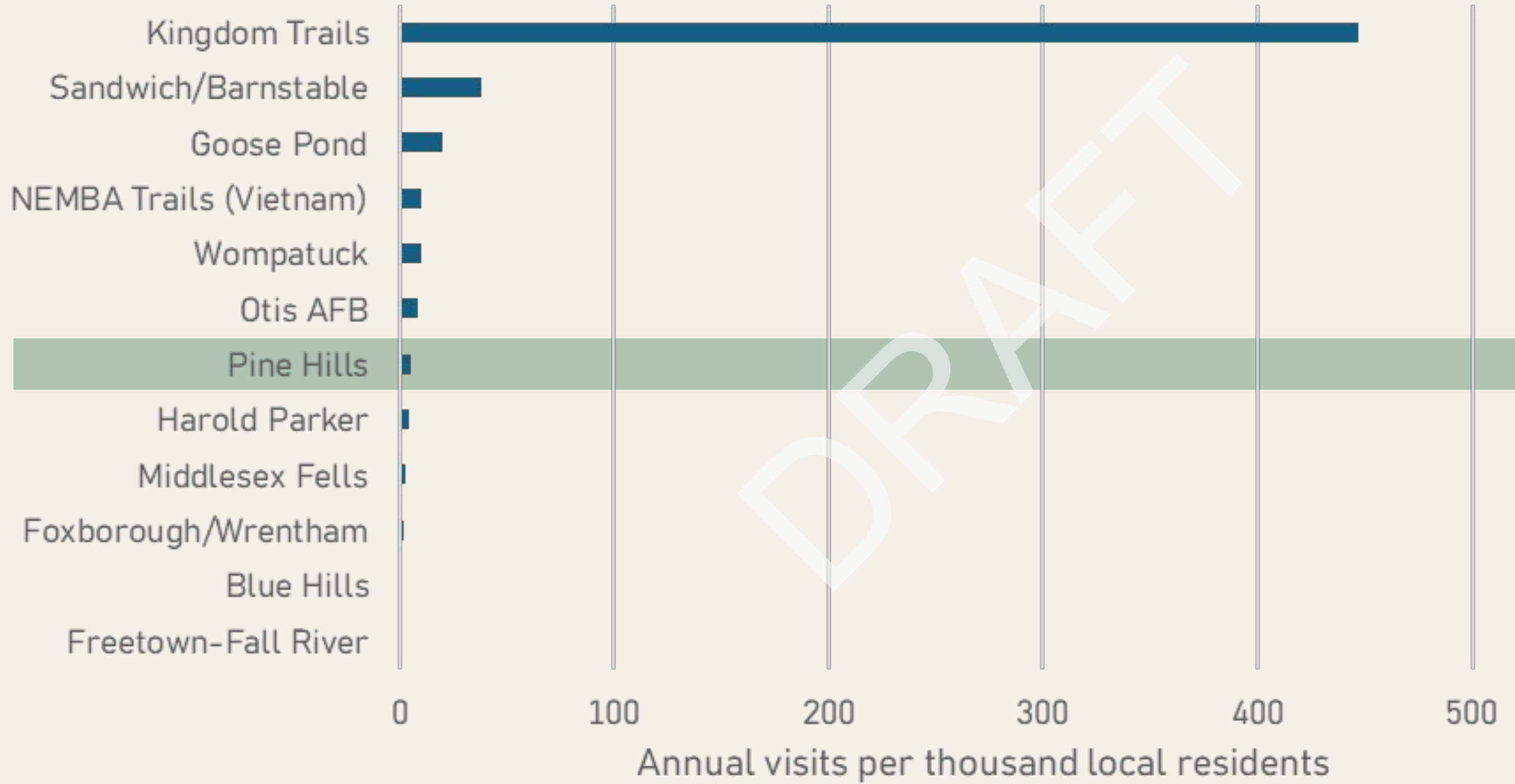
Local Comparables Summary

Location				Trail Characteristics			Trail Difficulty						Visitation & Estimated Spending		
Name	Notes	Location	Population in 30 minutes	Trail Miles	Total Vertical (ft)	Total Trails	Purple	White	Green	Blue	Black	Double Black	Est. Annual Visitation	Est. Spend per Visit	Est. Total Spend
Kingdom Trails	Regional Destination	Burke, VT	21,000	126	1,005	175	15	0	29	103	40	3	94,000	\$247	\$23,217,060
Sandwich/Barnstable	Vacation Destination	Sandwich, MA and Barnstable, MA	210,000	272	282	507	171	6	250	171	76	4	80,000	\$175	\$14,000,000
Middlesex Fells	Local to Boston	Stoneham, MA	2,149,000	70	269	113	88	3	26	75	9	0	60,000	\$80	\$4,800,000
NEMBA Trails (Vietnam)		Milford, MA	544,000	33	208	120	3	0	34	63	20	3	55,000	\$120	\$6,600,000
Harold Parker		Andover, MA	949,000	117	368	260	61	2	84	144	30	0	40,000	\$120	\$4,800,000
Wompatuck		Hingham, MA	544,000	96	212	325	125	34	100	134	57	0	35,000	\$120	\$4,200,000
Foxborough/Wrentham		Foxborough, MA and Wrentham, MA	1,312,000	92	263	384	37	9	129	160	81	5	30,000	\$120	\$3,600,000
Blue Hills		Milton, MA	1,352,000	105	585	138	22	13	49	63	13	0	15,000	\$120	\$1,800,000
Otis AFB		Falmouth, MA and Bourne, MA	129,000	74	210	177	32	0	75	67	29	6	11,000	\$175	\$1,925,000
Pine Hills		Plymouth, MA	230,000	73	364	123	50	0	49	38	28	8	11,000	\$145	\$1,595,000
Goose Pond		Keene, NH	49,000	147	1,007	234	4	1	117	89	21	6	9,935	\$155	\$1,539,925
Freetown-Fall River		Fall River, MA	1,312,000	140	309	228	24	2	53	162	11	0	6,000	\$120	\$720,000

Source: Trailforks, ESRI Landwise Advisors. Local population refers to those living within a 30 minute drive, estimated using ESRI network analyst and 2020 census data
 Note: Visitation estimates are for mountain biking only and are scaled up from Trailforks activity records.

Non-Local Visitation Index

Estimated annual mountain biking visits per thousand local residents (living within a 30 minute drive)



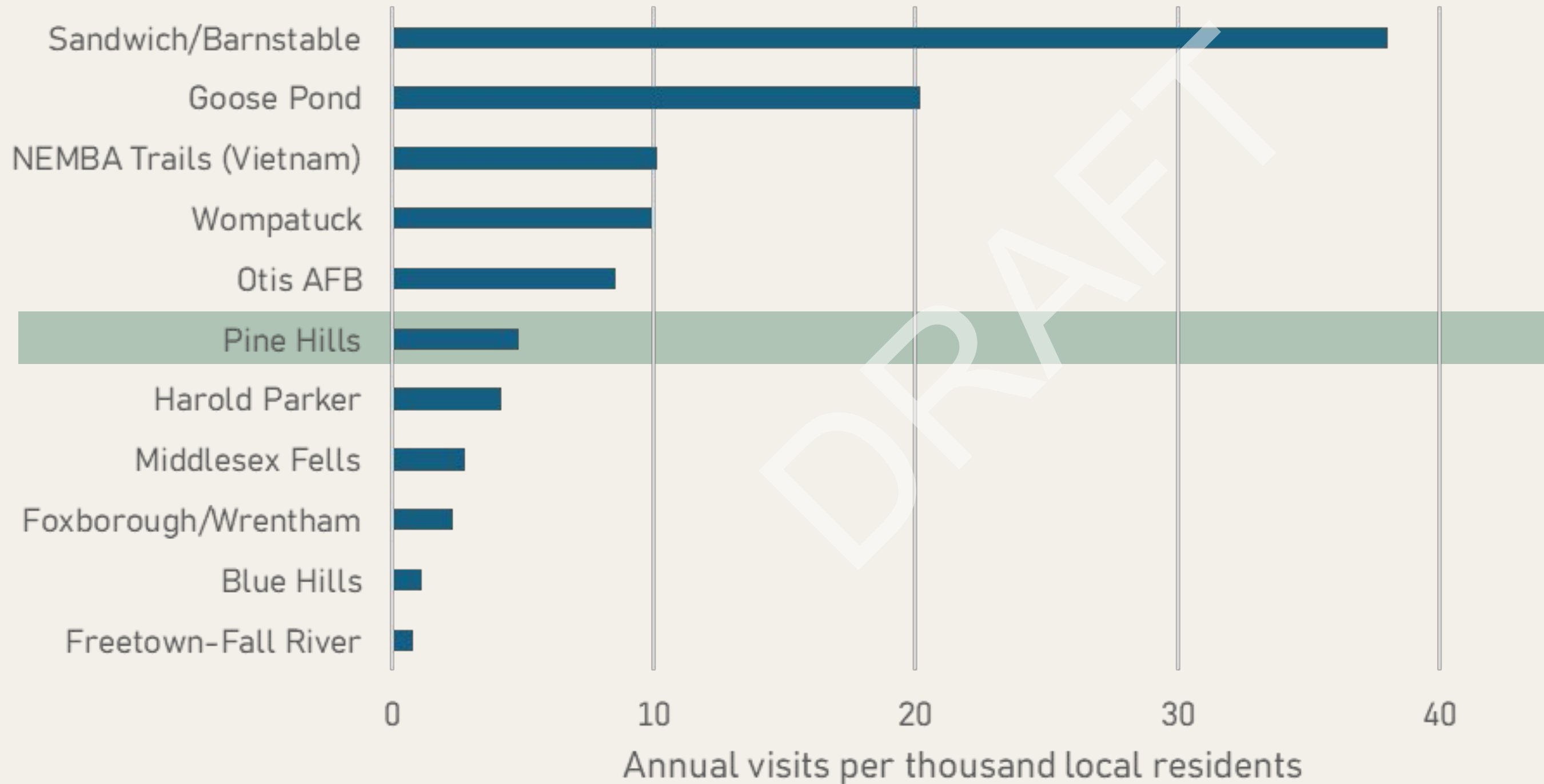
Source: Trailforks, ESRI, Landwise Advisors

Note: Visitation estimates are for mountain biking only and are scaled up from Trailforks activity records. Population is from the 2020 census. 30-minute driveshed calculated using ESRI network analyst.

Non-Local Visitation Index

Estimated annual mountain biking visits per thousand local residents (living within a 30 minute drive)

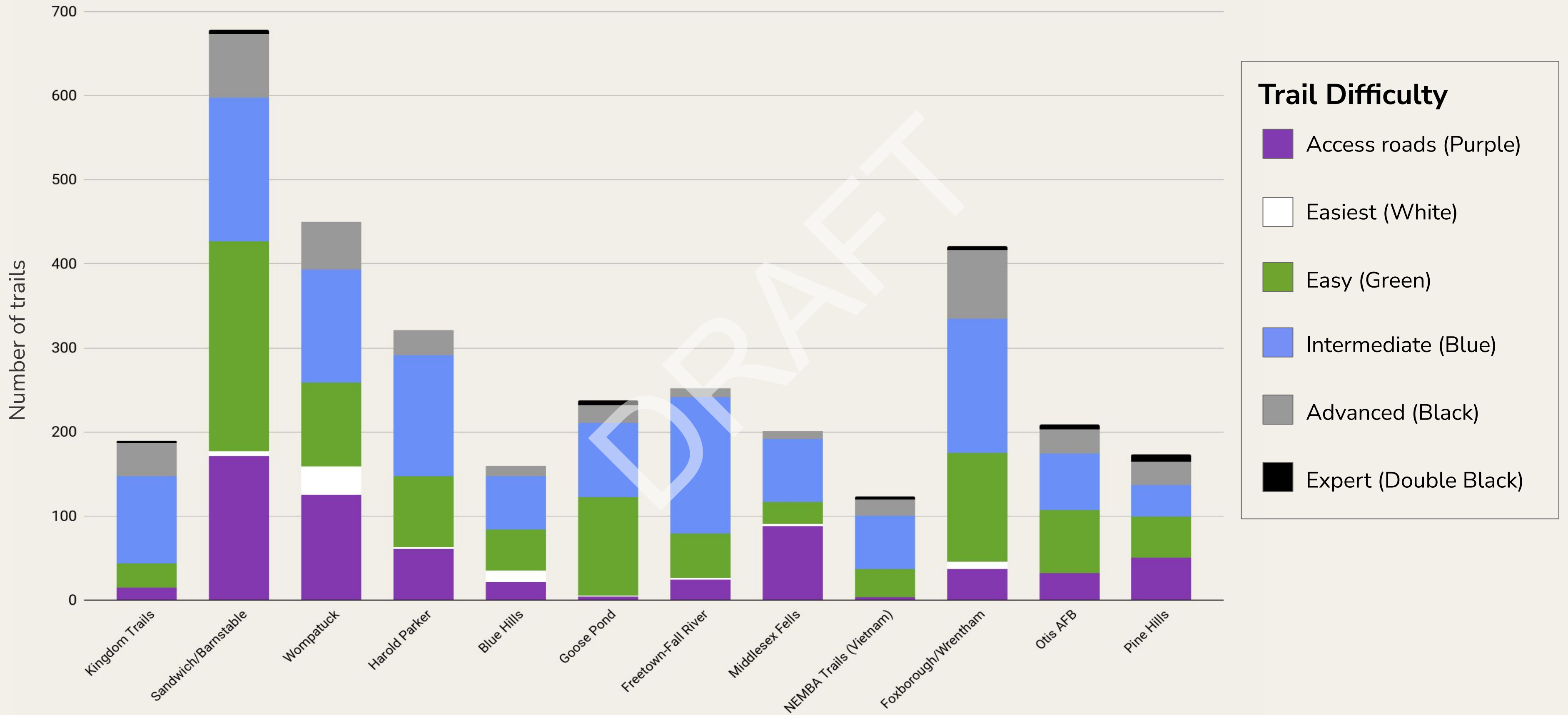
[Excluding Kingdom Trails]



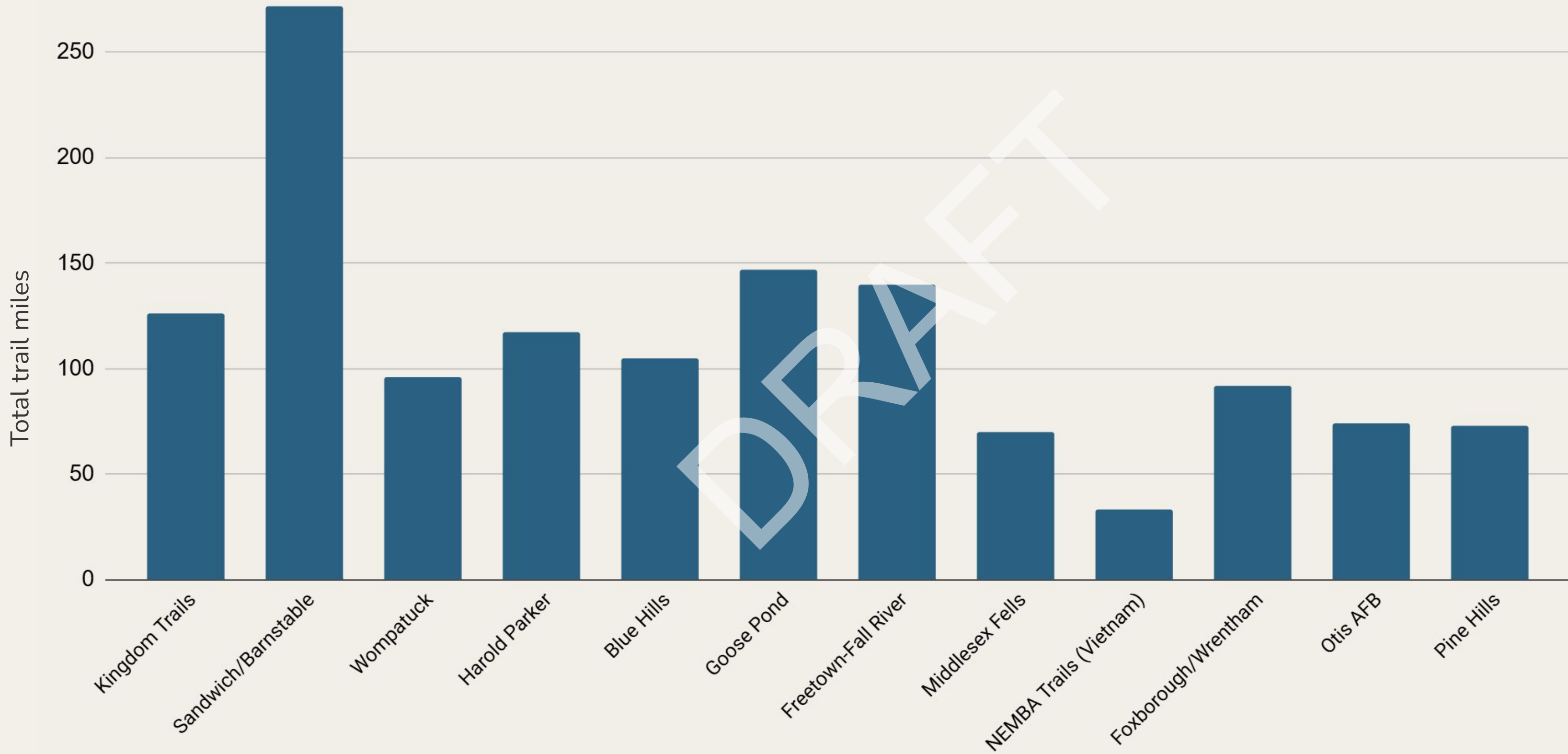
Source: Trailforks, ESRI, Landwise Advisors

Note: Visitation estimates are for mountain biking only and are scaled up from Trailforks activity records. Population is from the 2020 census. 30-minute driveshed calculated using ESRI network analyst.

Local Comparables - Range of Trail Difficulty



Local Comparables - Total Trail Mileage



Visitation Estimates

Visitation was estimated by scoring Pine Hills relative to local case studies.

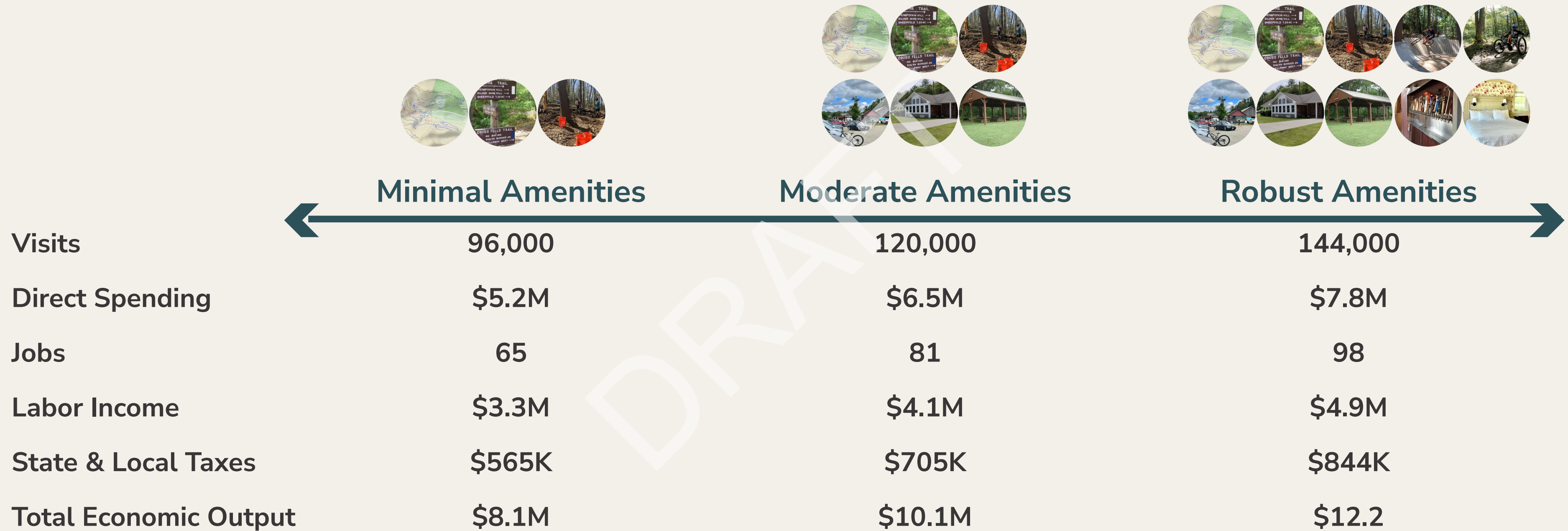
Factor	Weight	Northern New England		Urban Boston		Suburban Boston		South Shore and Cape				Pine Hills	
		Kingdom Trails	Keene	Middlesex Fells	Blue Hills	Harold Parker	NEMBA Trails	Wompatuck	Foxborough Wrentham	Freetown Fall River	Otis AFB		Sandwich and Barnstable
Length of Trails <small>generated mathematically</small>	15%	4.5	4.5	2.5	3.5	4.0	1.0	3.5	3.5	4.5	2.5	5.0	2.5
Challenging Trails <small>generated with experts & reviews</small>	15%	3.0	3.0	3.0	3.0	5.0	5.0	2.0	5.0	4.0	1.0	4.0	5.0
Variety & Uniqueness of Trails <small>generated with experts & reviews</small>	15%	5.0	3.0	3.0	2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	5.0
Scenic & Destination Value <small>generated with experts & reviews</small>	15%	4.5	3.5	3.5	3.5	3.0	2.5	3.0	2.5	3.0	4.0	4.5	3.5
Name Recognition <small>generated with experts</small>	15%	5.0	2.5	4.0	5.0	4.5	5.0	5.0	4.0	3.0	4.0	4.0	3.5
Infrastructure <small>generated with experts</small>	15%	5.0	4.0	2.5	4.0	4.0	4.5	4.0	2.5	2.0	2.5	5.0	3.0
Proximity to Population Centers <small>generated mathematically</small>	10%	0.5	0.5	5.0	3.5	2.5	1.5	1.5	3.5	3.5	0.5	1.0	1.0
Weighted Average Score	100%	4.1	3.1	3.3	3.5	3.9	3.5	3.1	3.6	3.1	2.5	4.1	3.5

Discount vs Comps		-18.0%	10.1%	5.8%	-0.7%	-12.9%	0.7%	11.5%	-2.9%	10.1%	29.5%	-17.3%	1.4%
Current Annual Visitation		94,000	9,935	60,000	15,000	40,000	55,000	35,000	30,000	6,000	11,000	80,000	11,000
Weight	100%	5%	5%	8%	12%	5%	12%	12%	12%	5%	12%	12%	

	Estimated Visitation	Spending Assumed	Minimal	Moderate	Robust
Mountain Biking Visitation		100%	32,000	40,000	48,000
Mountain Biking Spend		\$ 145	\$ 4,640,000	\$ 5,800,000	\$ 6,960,000
Hiking Visitation		20%	64,000	80,000	96,000
Hiking Spend		\$ 40	\$ 512,000	\$ 640,000	\$ 768,000
TOTAL VISITS		<i>rounded</i>	96,000	120,000	144,000
TOTAL SPEND		<i>rounded</i>	\$ 5,200,000	\$ 6,500,000	\$ 7,800,000

Note: Visitation in case study columns are for mountain biking only and come from analysis of Trailforks activity records to total visitation. Hiking visitation assumes 2x the number of hikers (based on Sasaki Pilgrim 1600 survey) with 20% spending \$40 / visit.

Economic Impact Summary

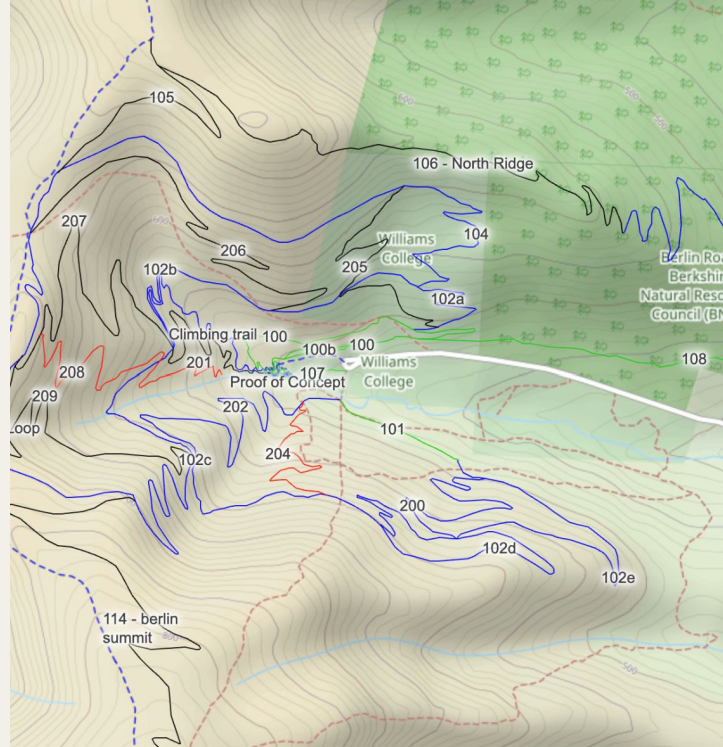


Values are unique and do not sum.

Note: Positioning table scoring assumes moderate amenities, with +/- 20% impact of lesser or more robust amenities.

Potential Upgrades - Trails

What upgrades might be needed to improve a multi-use trail experience?



Purple Valley Trails



Middlesex Fells



Western Massachusetts NEMBA



Blackstone Valley NEMBA



Vermont Mountain Biking Association

Trail Design

The site's existing informal trail network could be improved and expanded through professional master planning and trail design.

Wayfinding

Conflict mitigation through purpose built trails that are clearly named and marked, allowing riders to more easily navigate the area and pick routes of appropriate difficulty.

Trail Maintenance

Currently, trails on site are informally maintained by volunteers. Additional equipment, resources, and professional expertise could add to volunteer efforts.

Built Features

A variety of well-designed built features can greatly enhance the mountain biking experience. Adding a skills park or pump track can also make riding in the Pine Hills more interesting and fun. An observation tower could provide above tree-line views of Cape Cod bay.

Adaptive MTB Trails

Trails on site are not built with three-wheeled adaptive mountain bikes (aMTB) in mind. Updating trails to be aMTB-friendly will help make the trail network more accessible to those with disabilities.

Potential Upgrades - Amenities

What upgrades might be needed to improve the overall attractiveness of the site as a destination?



Kingdom Trails



Wompatuck State Park



MA State Parks



Kingdom Trails



Wildflower Inn, Kingdom Trails

Parking and Access

Parking is available on the Town's Cleft Rock parcel. Visibility, maintenance, and lot capacity can be improved. Additional trail connections to neighboring areas can also help increase access.

State Road bifurcates the site, a future overpass or underpass could help cross wildlife, hikers and bikes.

Visitor Center

A visitor center with restrooms, water bottle fill station, bike fix-it station, trail maps and guides, and interpretive exhibits could improve the experience. The visitor center could also house first aid supplies.

Event Space

Pavilions, grills, and other event facilities are a useful complement to outdoor activities and can help attract groups to the site.

Food and Drink

Much of the per-visit spend for mountain bikers and other recreational visitors comes in the form of dining and beverages. Locating a restaurant or brewery with trails can help capture additional visitor spending.

Accommodation

Adding camping and RV sites, as well as offering additional hotel options, could entice out-of-town visitors to stay longer in the Plymouth area.

Economic Impact Detail

The following measures of economic impact are anticipated to occur. Values are unique and do not sum.

DIRECT IMPACTS	Detail	Rate	LEVEL OF AMENITIES		
			Minimal	Moderate	Robust
Direct Spending	Direct spending of visitors on good and services	visitation x spending per visit	\$5,200,000	\$6,500,000	\$7,800,000
Jobs	Direct visitor-generated employment	\$80k in spending supports each job	65	81	98
Labor Income	Direct visitor-generated earnings	spending/income ratio 0.63	\$3,300,000	\$4,100,000	\$4,900,000
OTHER MEASURES					
Value Added	Measures contribution of visitor spending to the Gross Domestic Product (GDP) of a regional economy. Value added is equal to the difference between the amount an industry sells a product for and the production cost of the product.	spending/value added ratio 0.98	\$5,100,000	\$6,400,000	\$7,600,000
Economic Output	Economic Output is a measure of the total estimated value of the production of goods and services supported by visitor spending. Economic output is the sum of all intermediate sales (business to business) and final demand (sales to consumers and exports).	spending/output ratio 1.56	\$8,100,000	\$10,100,000	\$12,200,000

Note: Calculations focus on mountain biking visits (1) Area Economic Impact methodology and rates: [National Park Service - Visitor Spending Effects - Economic Contributions of National Park Visitor Spending](#).

Fiscal Impact Detail

The following tax benefits are anticipated. Local + State = Fiscal Impact Total

LOCAL FISCAL IMPACTS	Detail	LEVEL OF AMENITIES		
		Minimal	Moderate	Robust
Direct Tax, Local	Local option meals tax and local option rooms tax	\$72,000	\$90,000	\$108,000
STATE FISCAL IMPACTS				
Direct Tax, State	From tax collected on final purchases by visitors. Includes gas taxes and rooms taxes	\$272,000	\$340,000	\$408,000
Income Tax, State	From labor income generated - 5% state income tax rate	\$165,000	\$205,000	\$245,000
Induced Tax, State	From purchases made by employees. Assumes 90% spent within MA and 30% taxable expenses	\$56,000	\$70,000	\$83,000
State Subtotal		\$493,000	\$615,000	\$736,000
Fiscal Impact Total	Tax revenue (local and state) generated by visitor spending	\$565,000	\$705,000	\$844,000

Note: Direct Tax Local reflects a 2.5-3.5% increase in local room tax which was \$3.1M in FY2024.

Tax rates tailored to Plymouth, MA. Methodology: [Economic and Fiscal Impact Analysis of the Vermont Trails and Greenway Council Member Organizations](#)

Fiscal Impact Assumptions

Tax benefits were calculated using the following inputs

Minimal Amenities

Moderate Amenities

Robust Amenities

Mountain Bike Visitors	32,000	Hike Visitors	64,000		
Day Visitors	80%	Day Visitors	100%		
Overnight Visitors	20%	Spending	\$40		
		Percentage	20%		
State Sales Tax	6.25%				
Local Option Meals Tax	0.75%				
Rooms Tax	5.70%				
Local Option Rooms Tax	6.00%				
Gas Tax (24 cents / gallon)	8.00%				
Admission Fee	None				
Gifts and Souvenirs, % Taxable	90%				
Equipment, % Taxable	90%				
Day Visitors	Per Visit	Percent	Total	Tax Rev	Local Tax Rev
Total Spend	\$ 80		\$ 2,560,000	\$ 137,920	\$ 5,760
Transportation	\$ 16	20%	\$ 512,000	\$ 40,960	
Food & Drink (Restaurant)	\$ 24	30%	\$ 768,000	\$ 53,760	\$ 5,760
Food & Drink (Grocery)	\$ 16	20%	\$ 512,000	\$ -	
Overnight Lodging	\$ -	0%	\$ -	\$ -	
Gifts/Souvenirs	\$ 8	10%	\$ 256,000	\$ 14,400	
Recreation (admission fees)	\$ -	0%	\$ -	\$ -	
Equipment Purchases	\$ 16	20%	\$ 512,000	\$ 28,800	
Overnight Visitors	Per Visit	Percent	Total	Tax Rev	Local Tax Rev
Total Spend (per visit)	\$ 405		\$ 2,592,000	\$ 205,805	\$ 66,096
Transportation	\$ 49	12%	\$ 311,040	\$ 24,883	
Food & Drink (Restaurant)	\$ 81	20%	\$ 518,400	\$ 36,288	\$ 3,888
Food & Drink (Grocery)	\$ 49	12%	\$ 311,040	\$ -	
Overnight Lodging	\$ 162	40%	\$ 1,036,800	\$ 121,306	\$ 62,208
Gifts/Souvenirs	\$ 24	6%	\$ 155,520	\$ 8,748	
Recreation (admission fees)	\$ -	0%	\$ -	\$ -	
Equipment Purchases	\$ 41	10%	\$ 259,200	\$ 14,580	
Total Spend			\$ 5,200,000		
Avg Tax Revenue per Visit			\$ 10.74		
Direct Tax, Local			\$ 72,000		
Direct Tax, State			\$ 272,000		

Mountain Bike Visitors	40,000	Hike Visitors	80,000		
Day Visitors	80%	Day Visitors	100%		
Overnight Visitors	20%	Spending	\$40		
		Percentage	20%		
State Sales Tax	6.25%				
Local Option Meals Tax	0.75%				
Rooms Tax	5.70%				
Local Option Rooms Tax	6.00%				
Gas Tax (24 cents / gallon)	8.00%				
Admission Fee	None				
Gifts and Souvenirs, % Taxable	90%				
Equipment, % Taxable	90%				
Day Visitors	Per Visit	Percent	Total	Tax Rev	Local Tax Rev
Total Spend	\$ 80		\$ 3,200,000	\$ 172,400	\$ 7,200
Transportation	\$ 16	20%	\$ 640,000	\$ 51,200	
Food & Drink (Restaurant)	\$ 24	30%	\$ 960,000	\$ 67,200	\$ 7,200
Food & Drink (Grocery)	\$ 16	20%	\$ 640,000	\$ -	
Overnight Lodging	\$ -	0%	\$ -	\$ -	
Gifts/Souvenirs	\$ 8	10%	\$ 320,000	\$ 18,000	
Recreation (admission fees)	\$ -	0%	\$ -	\$ -	
Equipment Purchases	\$ 16	20%	\$ 640,000	\$ 36,000	
Overnight Visitors	Per Visit	Percent	Total	Tax Rev	Local Tax Rev
Total Spend (per visit)	\$ 405		\$ 3,240,000	\$ 257,256	\$ 82,620
Transportation	\$ 49	12%	\$ 388,800	\$ 31,104	
Food & Drink (Restaurant)	\$ 81	20%	\$ 648,000	\$ 45,360	\$ 4,860
Food & Drink (Grocery)	\$ 49	12%	\$ 388,800	\$ -	
Overnight Lodging	\$ 162	40%	\$ 1,296,000	\$ 151,632	\$ 77,760
Gifts/Souvenirs	\$ 24	6%	\$ 194,400	\$ 10,935	
Recreation (admission fees)	\$ -	0%	\$ -	\$ -	
Equipment Purchases	\$ 41	10%	\$ 324,000	\$ 18,225	
Total Spend			\$ 6,500,000		
Avg Tax Revenue per Visit			\$ 10.74		
Direct Tax, Local			\$ 90,000		
Direct Tax, State			\$ 340,000		

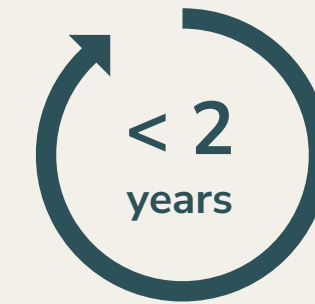
Mountain Bike Visitors	48,000	Hike Visitors	96,000		
Day Visitors	80%	Day Visitors	100%		
Overnight Visitors	20%	Spending	\$40		
		Percentage	20%		
State Sales Tax	6.25%				
Local Option Meals Tax	0.75%				
Rooms Tax	5.70%				
Local Option Rooms Tax	6.00%				
Gas Tax (24 cents / gallon)	8.00%				
Admission Fee	None				
Gifts and Souvenirs, % Taxable	90%				
Equipment, % Taxable	90%				
Day Visitors	Per Visit	Percent	Total	Tax Rev	Local Tax Rev
Total Spend	\$ 80		\$ 3,840,000	\$ 206,880	\$ 8,640
Transportation	\$ 16	20%	\$ 768,000	\$ 61,440	
Food & Drink (Restaurant)	\$ 24	30%	\$ 1,152,000	\$ 80,640	\$ 8,640
Food & Drink (Grocery)	\$ 16	20%	\$ 768,000	\$ -	
Overnight Lodging	\$ -	0%	\$ -	\$ -	
Gifts/Souvenirs	\$ 8	10%	\$ 384,000	\$ 21,600	
Recreation (admission fees)	\$ -	0%	\$ -	\$ -	
Equipment Purchases	\$ 16	20%	\$ 768,000	\$ 43,200	
Overnight Visitors	Per Visit	Percent	Total	Tax Rev	Local Tax Rev
Total Spend (per visit)	\$ 405		\$ 3,888,000	\$ 308,707	\$ 99,144
Transportation	\$ 49	12%	\$ 466,560	\$ 37,325	
Food & Drink (Restaurant)	\$ 81	20%	\$ 777,600	\$ 54,432	\$ 5,832
Food & Drink (Grocery)	\$ 49	12%	\$ 466,560	\$ -	
Overnight Lodging	\$ 162	40%	\$ 1,555,200	\$ 181,958	\$ 93,312
Gifts/Souvenirs	\$ 24	6%	\$ 233,280	\$ 13,122	
Recreation (admission fees)	\$ -	0%	\$ -	\$ -	
Equipment Purchases	\$ 41	10%	\$ 388,800	\$ 21,870	
Total Spend			\$ 7,800,000		
Avg Tax Revenue per Visit			\$ 10.74		
Direct Tax, Local			\$ 108,000		
Direct Tax, State			\$ 408,000		

Source: Spending percentages methodology based on Kingdom Trails.

Potential Level of Investment & Return

If \$12.4 million was invested in restoration, trail formalization and moderate amenities. Payback would be..

NATURAL AREAS							
Capital Costs	Per acre	Per mile	Assumptions				
Initial habitat restoration: Forest	\$4,000		Invasives removal, fuel removal				
Initial habitat restoration: Wetlands	\$15,000		Invasives removal, litter removal, biomass disposal, chemical application, erosion control measures				
Formalization of informal mountain bike courses		\$8,000					
Renewal and formalization of existing trails		\$5,000					
Trail signage system		\$500					
Boardwalks at wetlands		\$1,056,000	Black locust decking over PT wood structure, helical pile foundations				
Operation Costs							
General forestry	\$800		Biomass disposal, invasives removal, chemical control, litter removal.				
MTB Trail maintenance		\$1,200					
Trail maintenance		\$800	Litter removal, erosion control, compaction, biomass removal, branch and tree removal				
Boardwalk upkeep		\$15,000					
Wetlands upkeep	\$5,000						
By Piece	Acres Wetland	Acres Conserved Forest	Miles General Trails	Miles MTB courses	Miles Boardwalk	Capital Cost of Renewal	Annual Maintenance Cost
Warren Cove Ex.	3.7	349.3	5.37	2.30	0.06	\$1,566,000	\$306,000
Waterfront Ex.	16.1	28.9	0	0	0	\$358,000	\$104,000
Powerhouse Road Ex.	13.0	111.3	1.14	0.00	0.13	\$784,000	\$157,000
Cleft Rock Ridge Ex.	0.0	113.0	3.96	3.96	0	\$508,000	\$99,000
East Slope	27.5	103.5	2.39	2.39	0.33	\$1,209,000	\$231,000
Hilltop	6.0	799.0	18.64	7.99	0.01	\$3,467,000	\$694,000
Subtotal Natural Areas	66	1,505	31	17	0.53	\$7,900,000	\$1,600,000
AMENITIES							
Item	Notes					Capital Cost	Annual Maintenance Cost
Parking & Access	Paving of Cleft Rock lot (\$5,000 / space x 60 spaces) and Valley Rd access at (\$1,400 / LF in utilities x 5					\$1,000,000	\$100,000
State Rd Crossing Improvements	Signage and surface crossing (alternative structure or underpass)					\$250,000	\$5,000
Visitor Center	Restrooms, water fill station, bike fix-it station, trail maps, interpretive exhibits, first aid supplies					\$2,500,000	\$300,000
Event Pavilion	Pavilion, grills, picnic tables, electric outlets					\$750,000	\$100,000
Subtotal Amenities						\$4,500,000	\$505,000
Total						\$12,400,000	\$2,105,000



Direct Spending
\$12.4 M / \$6.5 M



State & Local Tax Revenue
\$12.4 M / \$705 K

Direct spending more than covers annual maintenance costs but local tax revenues do not.

Note: Natural Areas estimates from Sasaki, Amenities estimates from Landwise / discussion with Town.

Additional Economic Impact Considerations

Employment, Property Values, Growing Visitation

- **Outdoor recreation amenities have potential to attract like-minded companies, labor force, and residents.**

Example: **Adirondack Mountains, NY** - tourists considering permanently moving to the region view access to nearby outdoor recreation and affordability of housing the two most important factors (64% of respondents).

Example: **Brevard, NC** - mountain biking shifted the region's economy from manufacturing to tourism, bringing in bicycle shops, restaurants, lodging, and even a Colorado-based brewery. Outdoor recreation has played a significant role in the growth of Brevard, supporting 366 full-time jobs and \$9 million in job income.

- **Property owners with easy access to the trail system could see increases in property values.**

Example: **Razorback Greenway, Bentonville, AR**, houses within 0.25 miles of the Razorback Greenway, a walking/biking path that connects Bentonville to nearby cities, sell for an average of \$14,800 more than those two miles from the trail.

Example: **Sakonnet Greenway Trail, Portsmouth, RI** offers outdoor recreation like walking and horseback riding. The median sale price of houses in Portsmouth is \$700,000; adjacent to the Sakonnet Greenway Trail itself, the median sale price is \$827,500, an 18% increase.

- **“Growing pains” and negative impacts that come with additional visitation may need management and mitigation.**

Example: **Kingdom Trail Association (KTA)** spread across properties of private landowners who allow access, has faced challenges and tension points around traffic, congestion and pedestrian safety of residents and visitors alike. Property owners at critical junctions have informed KTA of intentions to discontinue mountain biking access, and the strain of visitors on rural infrastructure has necessitated KTA to seek additional funding to amend and solve issues.

Governance & Funding Considerations

DRAFT

Interviews Undertaken

Harvesting expertise, building a network of supporters.

- **Town of Plymouth**
 - Lynne Barrett, Director of Finance
 - Anne Slusser, Recreation Director
 - David Gould, Director Energy & Environment
 - Bill Coyle, Public Works: Parks & Forestry
- **State of Massachusetts**
 - Shaun Provencher, Land Protection Planner, Department of Conservation & Recreation (DCR)
 - Christy Edwards, Director of Land Protection & Capital Planning, MA Department of Fish and Game (DFG)
 - Paul Jahnige, Director, MA Office of Outdoor Recreation (MOOR)
- **See Plymouth** - Lea Filson, President/CEO
- **Wildlands Trust** - Karen Gray, President and Executive Director
- **Massachusetts Audubon Society** - David Santomenna, Senior Director of Land Conservation
- **Trustees of Reservations** - Jennifer Dubois, Vice President, Land Conservation Trustees of Reservations
- **Trust for Public Land** - Jody Valenta, MA Program Director

Other Potentials

- **Nature Conservancy** - requested interview

Process

Likely to include multiple steps and partners.



Owners with capital and mission aligned with site’s conservation and recreation potentials.

Examples

Town
Non-Profit Partners

Professionalize the system.

Examples

IMBA Trail Solutions
Master Plan

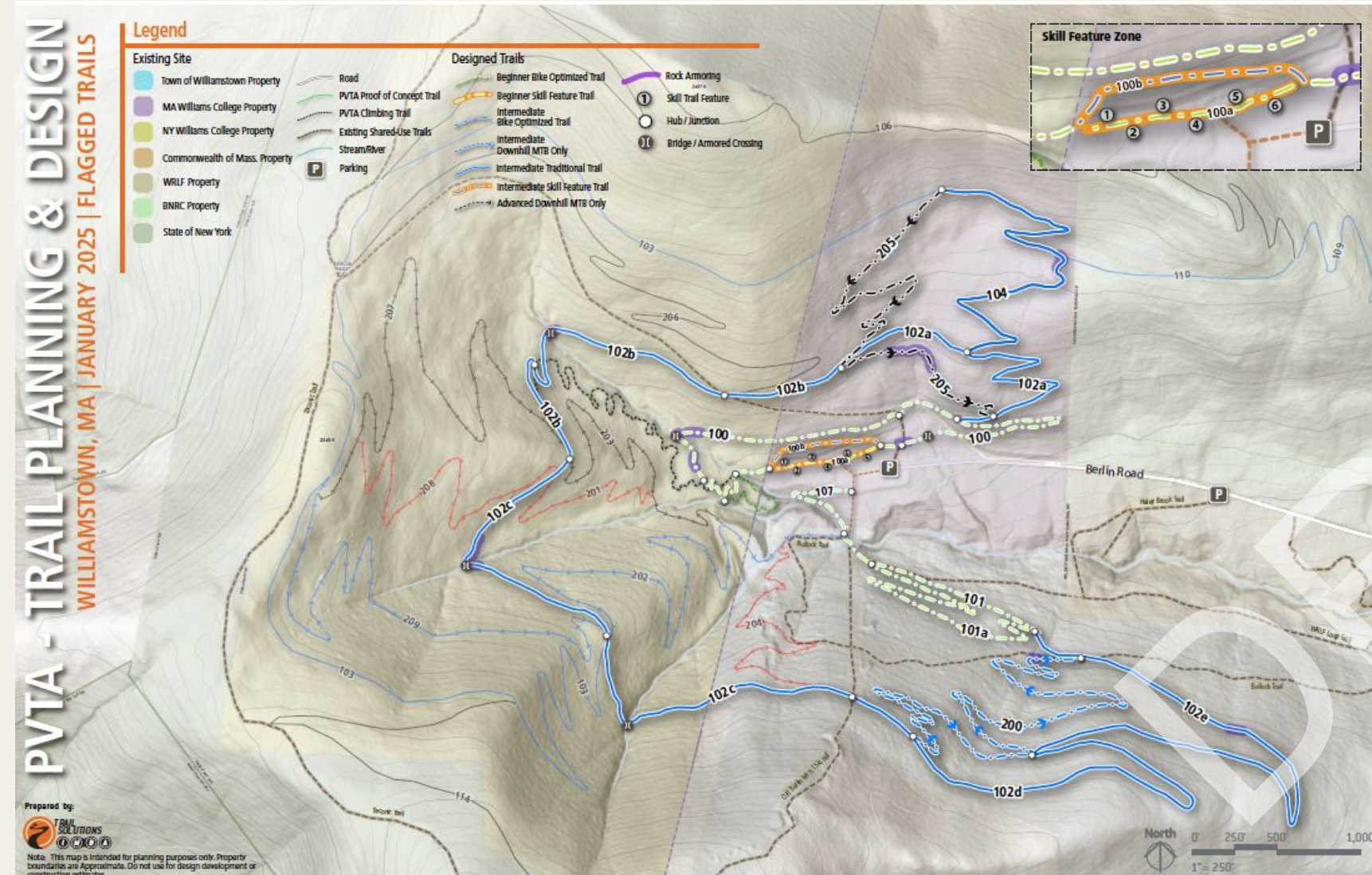
Steward and maintain the system long-term.

Examples

Additional Town Staff
Non-Profit Partners

Process Example

Purple Valley Trails, Williamstown, MA



2025

Plan to open 7 miles of trail by end of the year

Partnered with Backslope trails, builders of the Lake Placid World Cup XC course.

2024

First “Proof of Concept” Trail Opens

For formal permission to build and manage trails on their 800 Acre parcel at Berlin Mountain.

MOU Signed by Town & Williams College

For formal permission to build and manage trails on their 800 Acre parcel at Berlin Mountain.

2023

Trail Planning Funded by IMBA Accelerator Grant

To design 10-20-mile trail system for mountain biking, with provisions for pedestrians, horsemen, and adaptive equipment users

Acquire

Town of Williamstown
Williams College
Williamstown Rural Land Foundation

Improve

Purple Valley NEMBA Chapter
501c3, formerly Purple Valley Trail Alliance

Steward & Maintain

Source: [Purple Valley Trails](#)

Acquisition Approach

Multiple approaches could be undertaken

Long-term new permitting and development processes will occur which could yield community benefits.

Near-term the Town has right of first refusal on a purchase offer (270-days through 2031)

Permitting & Negotiations around Future Energy Use

State Permitting for Energy Use
Town PILOT Negotiations

Partial Development

Zoning Requirements
Transfer of Development Rights
Exactions

Public Funding

Town Financing
Federal or State Grants

Potential Partnerships

Wildlands Trust
MA Audubon Society
Trustees of Reservations

PRO Minimize capital outlay \$
CON Longer time horizon

PRO Not reliant on future energy use or market factors.
CON Capital outlay required \$\$\$

Negotiations Around Future Energy Use

Making a deal in the permitting of new energy facilities could allow the Town to achieve goals while limiting public spending. Exact timing depends on Holtec, timeline could be further out than desired.

State of MA - New Energy Use Permitting

- Likely to require additional permits at various levels of government including the Energy Facilities Siting Board (EFSB) within the Executive Office of Energy and Environmental Affairs (EEA).
- 2024 Climate Act contains comprehensive siting and permitting reforms for clean energy infrastructure and charges the EFSB with issuing a single consolidated permit, accelerating the deployment of clean energy infrastructure, ensuring communities are meaningfully engaged, and requiring that benefits of the clean energy transition are shared equitably in the Commonwealth.
- EFSB is required to promulgate regulations and guidance to implement these reforms by March 1, 2026. Recommendations report (2024) does not include nuclear, though several public comments say it should.

Town of Plymouth - New PILOT Agreement

- Current PILOT agreement with Holtec includes annually declining payment schedule through fiscal year 2031.
- Approaching 2031, the future tax status of the site will need to be determined.
- A new PILOT agreement or amendment is likely to be negotiated depending on the status of decommissioning and future energy uses on the site.
- Gifting land in lieu of tax payments, or a corresponding purchase and sale agreement which corresponds with the payment schedule - could be something that would be mutually beneficial to Holtec and the Town in achieving community priorities.

Need for Specialized Expertise

- Legal
 - Opportunity at hand requires specialized expertise outside day-to-day municipal capacity.
 - Town should consult with an attorney well-versed on the MA EFSB process and anticipated reforms, as well as large scale land conservation that can negotiate on the Town's behalf.
- Appraisal
 - An updated appraisal which considers findings of the market and site analysis aspects of the Pilgrim 1600 Master Plan should also be undertaken.

Leveraging Partial Development of Site

At the scale contemplated, feasibility tests illustrated that development of portions of the site will not on their own pay for conservation of the larger whole. Development regulations could be part of the toolkit.

Feasibility Tests

- Pilgrim 1600 Master Plan looked at feasibility of supporting conservation acquisition and restoration through development.
- Given scale of development and densities contemplated, infrastructure needs of the site, and high asking price assumed - a significant shortfall remains.

Zoning Requirements

- Zoning requirements like maximum lot coverage, setbacks, requirements for usable open space, provision of tree canopy and clustering of development are all ways in which buffer areas could be preserved around areas of the site considered for development.

Transfer of Development Rights (TDR)

- TDR program designed to protect sensitive resources by transferring development rights between sending and receiving sites.
- Sending sites must be within Rural Residential (RR) (which much of the Pilgrim 1600 site is).
- Receiving sites must be located in the Rural Residential (RR) zone, the R-40 zone, or the Rural Residential Receiving Area (RRRA).
- Program is often utilized by large owners who move rights between parcels in common portfolio.

Exactions

- Exactions like donation of conservation acreage might be negotiated during the development approval process.
- The goal would be to offset the impacts of growth on the Town's natural environment and recreation assets.

Public Funding

A range of public funding sources could be combined to acquire the property or portions of the property that could not be acquired through other means.

Town - Nuclear Mitigation Stabilization Fund

- Approximately \$10M that can be utilized to bring economic value to the Town.

Town - CPA

- Community Preservation Act (CPA) Surcharge of 1.5% can be used to acquire and protect open space, preserve historic buildings and landscapes, and create and maintain affordable housing.

Town - Municipal Bonds

- Long-term debt. Borrowing must be approved by voters and is paid off through tax revenue.
- Towns can use funds acquired from bonds for conservation of open space, often partnering with local non-profit entities.

Federal or State Grant Programs

- Tied to specific conservation and recreation values and outcomes.
- Priorities are constantly changing and federal funding programs are in flux.
- When time to make a deal funding programs and opportunities will be different than they are today.

Current Grant Programs

	Grant Name	Source of Funds	Use	Amount	Required Match	Term	Conditions
Acquisition	Forest Legacy*	Federal	Conservation; continuous private ownership of land (Conservation Easement - 85-90% of projects); preservation for recreation	Undetermined (ranges from thousands to millions)	Minimum 25% match	2 years (can be extended to 5)	Focus on privately owned, threatened forestlands; land-owners can sell their entire property ("In Fee") or a portion of the property's development rights ("Conservation Easement") to FLP; requires 75% of canopy cover to remain
	Land and Water Conservation Fund*	Federal	Acquisition, development, and renovation of parks, trails, and conservation areas	Undetermined (ranges from thousands to millions)	Up to 50% match	3 years (can be extended to 5)	Site must be maintained regularly for public recreational use
	MassTrails*	State and Federal	Trail design, construction, and maintenance; land acquisition	Up to \$100,000	20% match of total project costs	1 - 2 years	Prioritizes underserved populations; requires compliance with environmental review
	Landscape Partnership Grant*	State	Purchase of land for conservation, forestry, agriculture, or water supply protection	Up to \$1,250,000	Minimum 50% match	1 -2 years	Projects must include partners from 2 or more of the following categories: municipalities, 501C3 nonprofits, and state/federal land agencies; project must cover at least 250 acres; areas not transected by roads are prioritized
	Mass Audubon 30x30 Catalyst Fund*	State	Conservation; ecological restoration and preservation of coastal forests	\$150,000 - \$250,000	None	Not fixed	Government agencies, nonprofits, state/federal partners, and biking organizations are eligible; can be used for purchases of land with high ecological risk
Capital Improvements	Destination Development Capital Grant	State	Supports capital projects that enhance the state's tourism infrastructure and drive non-resident visitation	\$5,000 - \$200,000	100% match	Annual	Municipalities, nonprofits, and other entities are eligible; prioritizes projects that focus on climate resiliency, rural development, designated cultural districts, and Massachusetts 250 commemorations
	IMBA Trail Accelerator Grant	National Nonprofit	Trail design and planning - in-kind professional services from IMBA	\$10,000 - \$30,000	100% match	Annual	Government agencies, nonprofits, and mountain bike clubs are eligible; focus on projects designed specifically for mountain biking; prioritizes projects improving access
	NEMBA Signature Trail Grants	Local Nonprofit	Trail construction	Up to \$10,000	None	Annual	Must be submitted by a NEMBA chapter
	American Trails, Trails Capacity Program	National Nonprofit	Stewardship training; trail maintenance; research and education	\$2,000 - \$10,000	None	Annual	Government agencies and nonprofits are eligible; cannot be used for general operating expenses, only specific maintenance needs; focus on long-term capacity building
	NEMBA Trail Grants	Local Nonprofit	Trail construction and maintenance prioritized, although other projects considered	\$100 - \$1,500	None	Annual	NEMBA chapters, land managers, and nonprofits are eligible; requires written approval of land manager

*grant programs that can be used for acquisition

Potential Partnerships

Non-profit partners can help to fundraise, acquire grants, and ensure long-term protection of a property through a conservation restriction. Are not likely to assume ownership.

Key Implementation Partners

Wildlands Trust (prime)

- Works throughout Southeastern Massachusetts to permanently protect native habitats, farmland, and lands of high ecologic and scenic value that serve to keep our communities healthy and our residents connected to the natural world.
- Owns 2,500 acres in Town of Plymouth including Shifting Lots Preserve, Halfway Pond.
- Has had conversations with Holtec about conservation of property in past and worked successfully with Town of Plymouth.
- Capacity to organize funding from multiple sources to place conservation restriction on property with deed going to Town.

MA Audubon (potential CR co-holder)

- Owns several properties in Plymouth which are priority habitats including the Tidmarsh Wildlife Sanctuary which is a half-mile from but not contiguous with the site.
- Mission more closely aligns with passive recreation than active, but they share the goal of seeing the property preserved and could potentially be a co-holder of a conservation restriction (CR) or holder on a portion of the property.

Other

Trustees of Reservation

- Active in MA protecting and sharing places people love. Undertaking strategic plan, continually evaluating a variety of opportunities.
- Experience with active recreation including an active project with NEMBA in western MA.

Trust for Public Land

- Thought leader / research (i.e. Economic Benefits of Mountain Biking). Focus in MA is policy and capacity building. No land protection staff capacity in MA to support acquisition. Fundraise only when TPL is involved in the land transfer.

Stewardship & Maintenance Approach

The Town would seek to partner with a property manager with a proven track record.

Third-Party Management

- The Town of Plymouth has used third-party managers to manage Town-owned properties through lease agreements. Golf course is an example of this.

Mitigating Risks

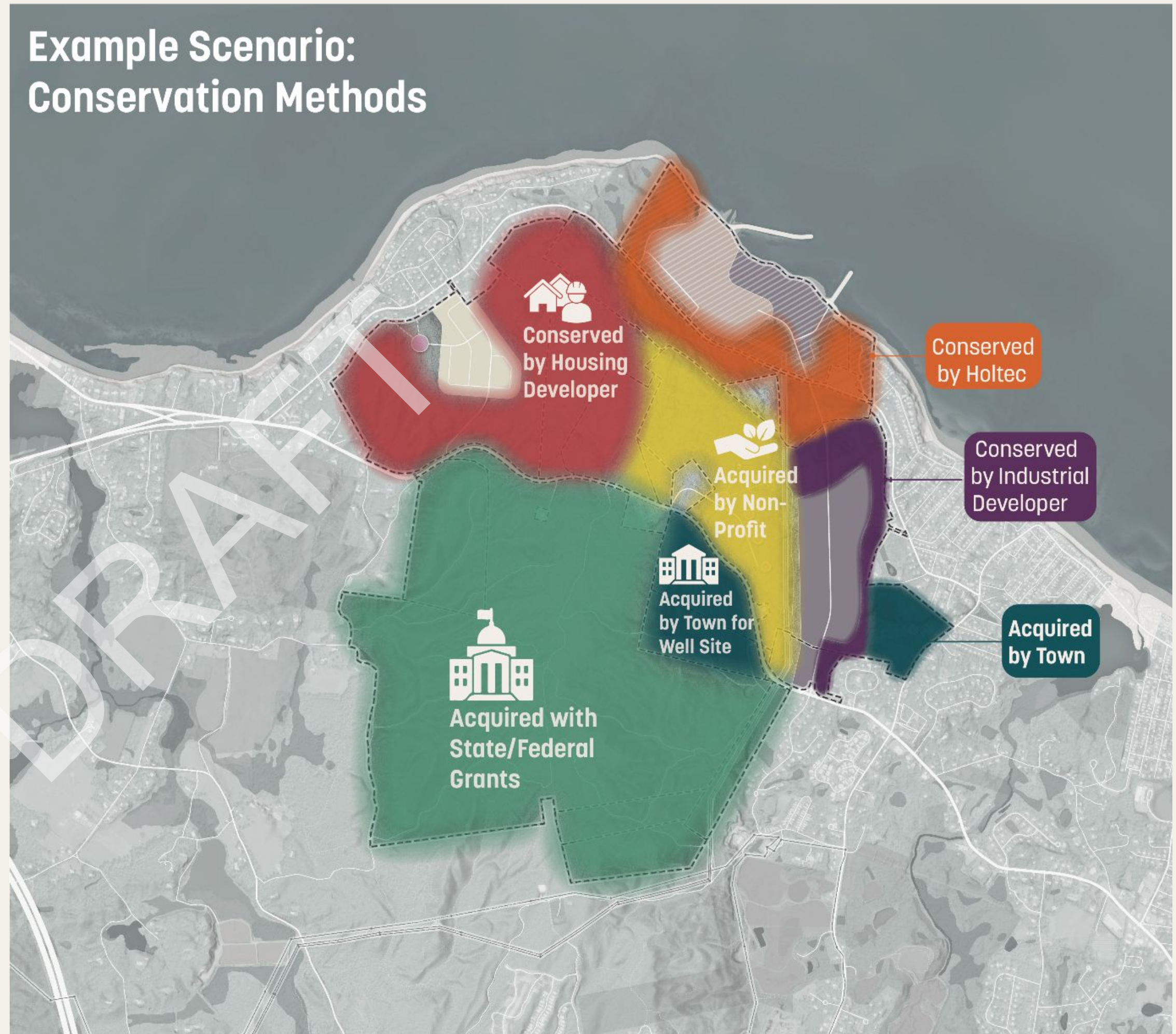
- Agreements with 501c3 organizations (i.e. NEMBA for trail maintenance) brings some liability and risk concerns as leadership changes can impact the longevity of organizations.

Details for the Conservation Restriction

- A conservation easement or conservation restriction (CR) will be a legal agreement between the landowner and land trust designed to permanently protect the conservation values of a property.
- This agreement will define allowed uses and often time built features are not allowed - specifics relating to mountain biking features would need to be determined.
- CR stewardship on an extensive trail system can be challenging.

Scenario Example

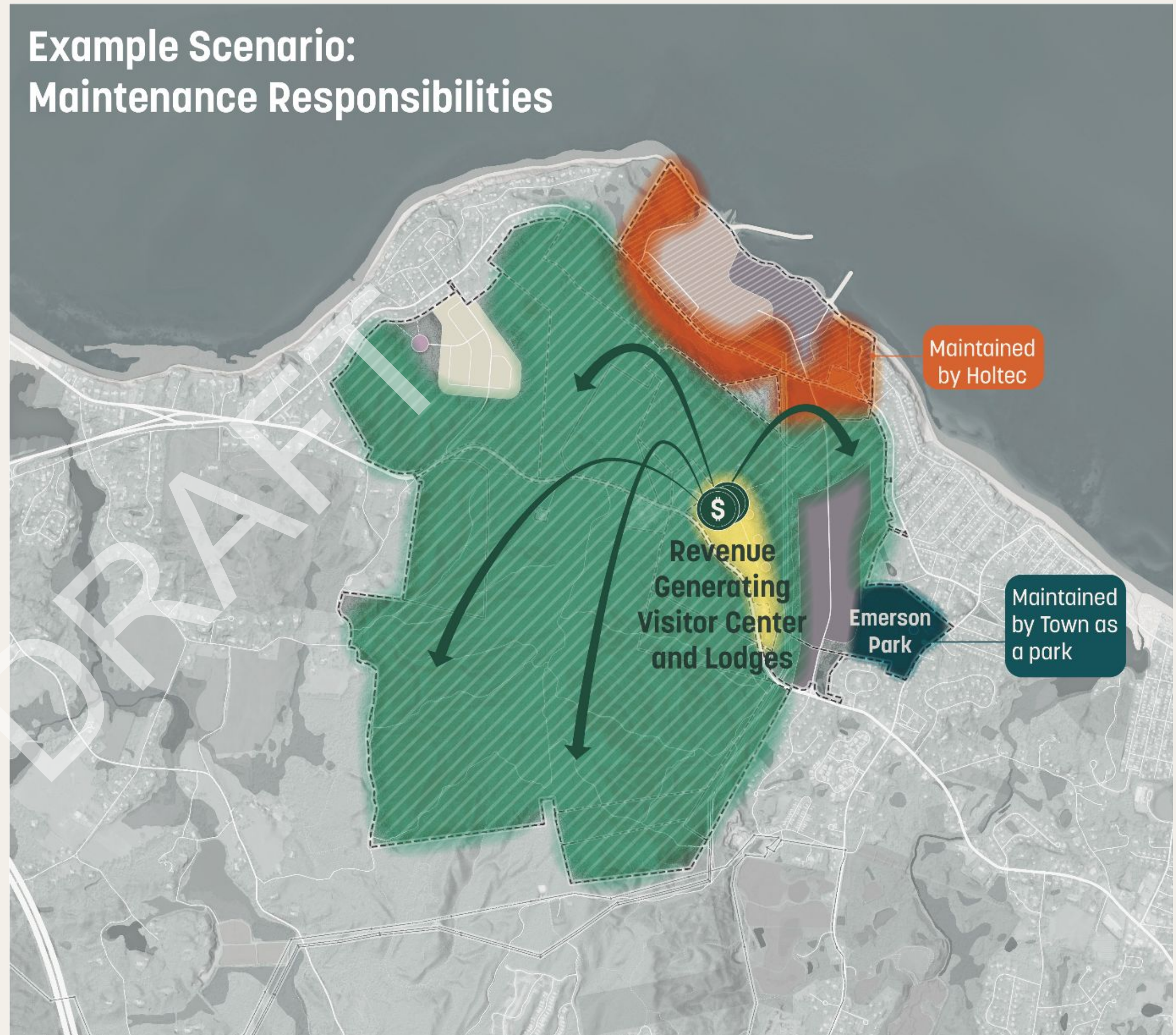
Many parties could contribute to the acquisition of conservation lands, distributing the cost between public, private and non-profit partners.



Source: Sasaki

Scenario Example

Revenue generating activities could help support maintenance and staffing.



Source: Sasaki

Resources Consulted

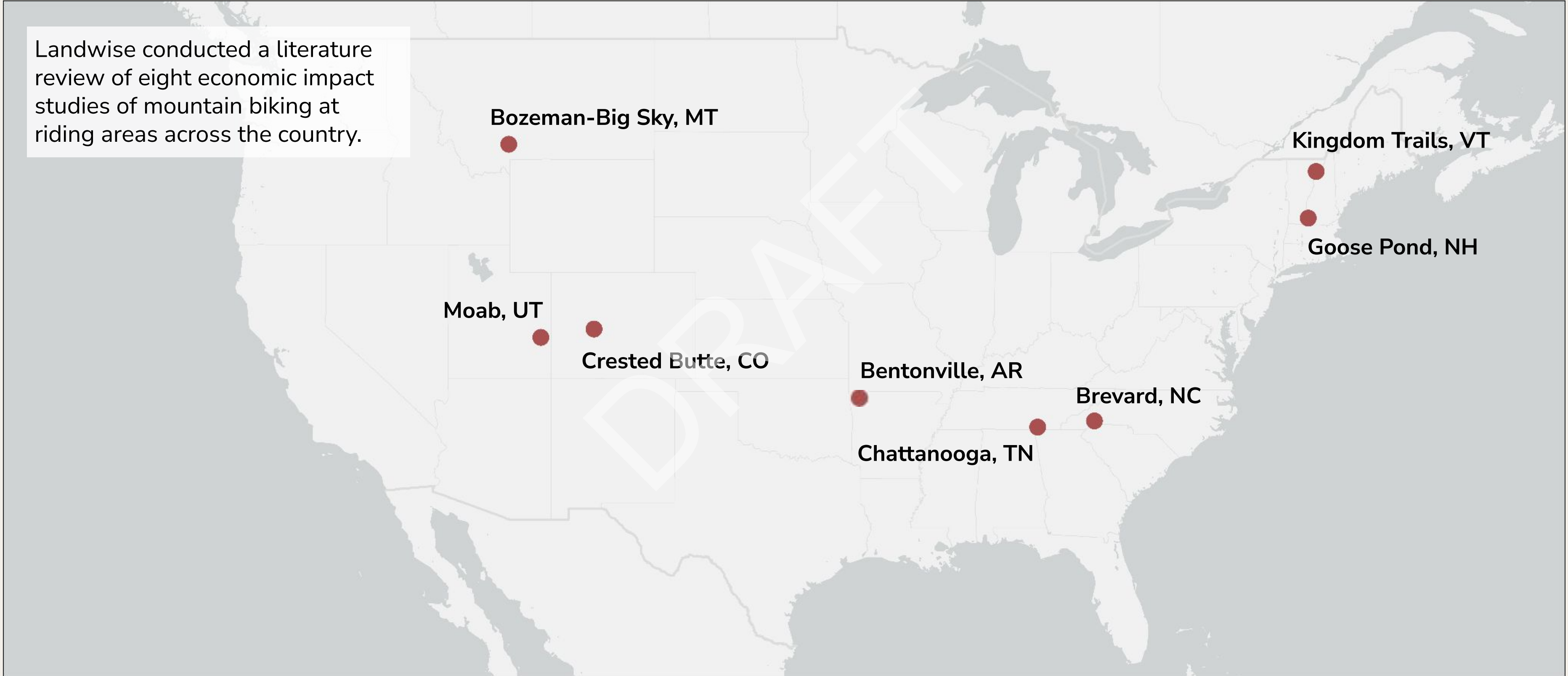
- ¹ BBC Research & Consulting. (2016). *Economic and health benefits of bicycling and walking: State of Colorado*. Colorado Office of Economic Development and International Trade.
- ² Buning, R. J., Cole, Z. D., & Lamont, M. (2016). *A case study of the US mountain bike tourism market*. *Tourism Management*, 57, 120–129.
- ³ Casey, T., Castaneda, C., & Perry, N. (2018). *Grand Valley Public Trail Systems Socio-Economic Study: Mesa County, Colorado*. Colorado Mesa University, Natural Resource Center, Dept of Social and Behavioral Science.
- ⁴ Clinton, J. (2025). *Economic benefits of mountain biking*. Trust for Public Land.
- ⁵ International Mountain Bicycling Association - Trail Solutions Program. (2018). *Grand Valley Strategic Trails Plan*. Prepared for Grand Junction Economic Partnership and Powderhorn Resort.
- ⁶ Outdoor Foundation & Outdoor Industry Association (2024). *Outdoor Participation Trends Report*.
- ⁷ Pine Hills Area Trail System. (2025). *PHATS Economic Model*.
- ⁸ Multiple Town of Plymouth & State of Massachusetts Planning Documents including Open Space & Rec Plans

Appendix - Case Studies

DRAFT

National Case Studies

Landwise conducted a literature review of eight economic impact studies of mountain biking at riding areas across the country.



Crested Butte, Colorado

National Destination Resort



Crested Butte is a well-known all-season resort town offering mountain biking in summer and snowsports in winter.

Most mountain bikers in Crested Butte come from outside the local area. Visiting mountain bikers spend **\$493.77 per visit** on average as of 2018, largely on accommodation and restaurant dining, creating **\$10.8M per year** in economic activity.

Trail Statistics

Trails 287	Trail Miles 1,080	Total Vertical 6,366 ft	Trail Difficulty					
			▲ 117	○ 6	● 71	■ 135	◆ 71	◆◆ 4

Ownership

National Forest land

Other Activities



Visitation

Annual Visits
53,690

Annual Non-Local Visits
37,583

Distance to City
4 hours from Denver

Economic Impact

Spend per Non-Local Visit
\$493.77

Total Spend
\$10.8M

State/Local Tax Revenue
\$801,676

Study Year
2018

Source: Outdoor Alliance, Trailforks, Travel Crested Butte

Goose Pond, New Hampshire

Local Riding Area, Large



Goose Pond is the main mountain biking area in Keene, New Hampshire. Most bikers at Goose Pond are local residents.

On average, mountain bikers at Goose Pond spend **\$145 per visit including equipment purchases** (\$106 per visit without equipment purchases). Mountain biking contributes **\$1-1.4M** to the local economy in Keene.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty
234	147	1,007 ft	
			4 1 117 89 21 6

Ownership

City-owned park

Other Activities



Visitation

Annual Visits
9,935

Annual Non-Local Visits
1,083

Distance to City
2 hours from Boston

Economic Impact

Spend per Visit*
\$145

Total Spend
\$1.4M

Study Year
2023

*Includes local spending on mountain biking equipment
Source: UNH, Trailforks, Upper Valley Trail Alliance

Kingdom Trails, Vermont

Regional Destination



Kingdom Trails in East Burke, Vermont is often considered the top mountain biking destination in New England, with more than 1,000 ft of vertical and an array of challenging trails.

Most mountain bikers at Kingdom Trails visit from outside the immediate local area, spending **\$182.98 per visit** as of 2016. **78% present of visitors stay overnight**, while 22% visit as a day trip.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
175	126	1,005 ft	▲ 15	○ 0	● 29	■ 103	◆ 40	◆◆ 3

Ownership

Privately owned by Kingdom Trails / VT Land Trust and other landowners

Other Activities



Visitation

Annual Visits
94,000

Annual Non-Local Visits
82,000

Distance to City
3 hours from Boston
2.5 hours from Montreal

Economic Impact

Spend per Non-Local Visit
\$182.98

Total Spend
\$13.7M

Study Year
2016

Source: Camoin Associates, Trailforks, Kingdom Trails

Moab, Utah

National Destination Resort



Moab is nationally known as a world-class destination for mountain biking with an impressive array of challenging trails.

Most mountain bikers in Moab visit from outside the local area. The average mountain biker spent an estimated **\$331.56 per visit**. Mountain biking generates an estimated **\$12.3M in economic activity** in the Moab area.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
332	1,647	8,692 ft	▲	○	●	■	◆	◆◆
			166	10	62	157	82	21

Ownership

National Forest land

Other Activities



Visitation

Annual Visits
44,043

Annual Non-Local Visits
41,841

Distance to City
3.5 hours from Salt Lake City

Economic Impact

Spend per Non-Local Visit
\$331.56

Total Spend
\$12.3M

State/Local Tax Revenue
\$1.9M

Study Year
2021

Source: Outdoor Alliance, Trailforks, Discover Moab

Bozeman-Big Sky, Montana

Regional Destination



The Bozeman-Big Sky area has an extensive network of mountain biking trails in the Custer-Gallatin National Forest.

Visitation numbers are impressive: **more than 160,000 mountain bikers per year** as of 2018. Most visitors are local residents, but many visit from outside the area as well. The average visiting mountain biker spends **\$146.01 per visit**.

Trail Statistics

Trails 457	Trail Miles 1,522	Total Vertical 6,618 ft	Trail Difficulty
			96 81 102 163 92 19

Ownership

National Forest land

Other Activities



Visitation

Annual Visits
163,291

Annual Non-Local Visits
53,875

Distance to City
30 mins from Bozeman

Economic Impact

Spend per Non-Local Visit
\$146.01

Total Spend
\$9.6M

State/Local Tax Revenue
\$411k

Study Year
2018

Source: Outdoor Alliance, Trailforks, Visit Bozeman

Brevard, North Carolina

Regional Destination



Brevard and Pisgah National Forest draw mountain bikers from across Western North Carolina and the Southeast.

The average visiting mountain biker from outside Western NC spends **\$231.21 per visit** as of 2017 in the Brevard and Asheville area. Mountain biking generates **\$12.4M** in economic activity.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
68	422	5,091 ft	▲ 53	○ 3	● 12	■ 34	◆ 18	◆◆ 1

Ownership

Primarily National Forest land

Other Activities



Visitation

Annual Visits
60,900

Annual Non-Local Visits
24,360

Distance to City
2.5 hours from Charlotte

Economic Impact

Spend per Non-Local Visit
\$231.21

Total Spend
\$12.4M

State/Local Tax Revenue
\$881k

Study Year
2017

Source: Outdoor Alliance, Trailforks, Explore Brevard

Chattanooga, Tennessee

Regional Destination



The Chattanooga area features more than 200 miles of mountain biking trails in close proximity to the city.

Most mountain bikers are local, but some 16,000 travel to visit. The average visiting mountain biker spends **\$342.33 per visit**, with an **average visit length of 3.8 nights**. Mountain biking contributes **\$6.9M** to the local economy each year.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
101	239	1,344 ft	▲	○	●	■	◆	◆◆
			32	5	32	23	8	0

Ownership

Mix of state, city, county, nonprofit, and private land

Other Activities



Visitation

Annual Visits	44,089
Annual Non-Local Visits	16,910
Distance to City	2 hours from Atlanta

Economic Impact

Spend per Non-Local Visit	\$342.33
Total Spend	\$6.9M
State/Local Tax Revenue	\$483k
Study Year	2022

Source: SORBA Chattanooga, Trailforks, Tennessee River Gorge Trust

Bentonville, AR

National Destination



Widely considered the “Mountain Biking Capital of the World,” Bentonville offers a unique blend of trails that seamlessly connect the city to Northwest Arkansas.

Offering a diverse range of trail difficulty, Bentonville’s visitation numbers are impressive: around 160,000 mountain bikers per year with 55% of visitation coming from riders outside of the region. On average, visiting mountain bikers spend **\$277.78 per visit.**

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty
337	135	418 ft	
			10 89 77 102 46 9

Ownership

Mix of private and city

Other Activities



Visitation

Annual Visits
160,000

Annual Non-Local Visits
90,000

Distance to City
40 mins from Fayetteville

Economic Impact

Spend per Non-Local Visit
\$277.78

Total Spend
\$25M

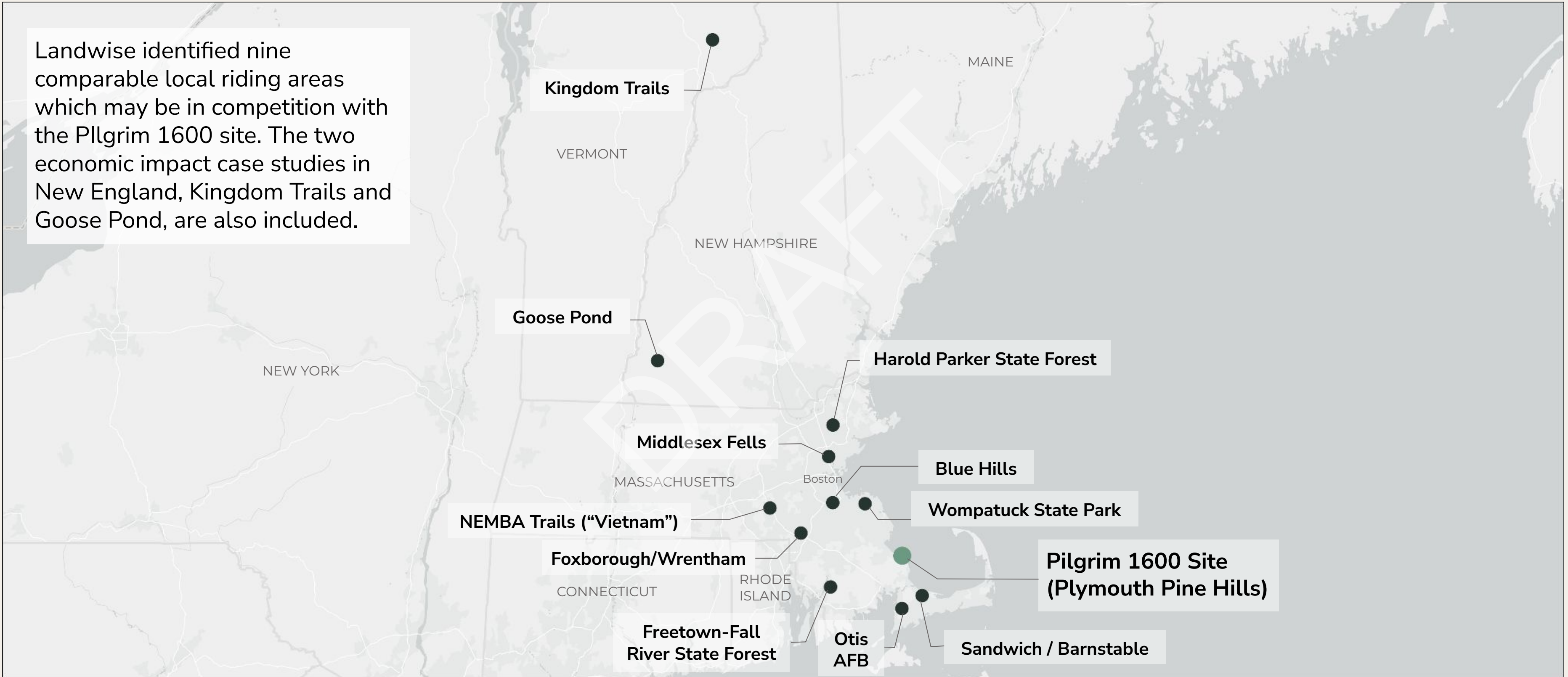
State/Local Tax Revenue
\$4.8 million

Study Year
2023

Source: BBC Research and Consulting, Trailforks

Local Comparables

Landwise identified nine comparable local riding areas which may be in competition with the Pilgrim 1600 site. The two economic impact case studies in New England, Kingdom Trails and Goose Pond, are also included.



NEMBA Trails at Milford (“Vietnam”)

Milford, MA



Jointly owned by NEMBA and town conservation commissions, the “Vietnam” Trails are purpose-built for mountain biking. Trails are well-designed, featuring challenging natural and artificial technical features as well as more beginner-friendly routes.

Although its trail network and topography are modest compared to other mountain biking areas, mountain bikers flock to Vietnam Trails in large numbers due to its high quality trails.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
120	33	208	▲ 3	○ 0	● 34	■ 63	◆ 20	◆◆ 3

Ownership

NEMBA, towns

Other Activities

Visitation

Trailforks Activity Records (2024)
870

Estimated Annual Visits
55,000

Driving Time from Boston
45 mins

Economic Impact

Estimated Spend per Visit
\$120

Estimated Total Spend
\$6.6M

Source: Landwise Advisors, Trailforks

Sandwich / Barnstable

Sandwich, MA and Barnstable, MA



At the western end of Cape Cod, lies a series of interconnected mountain biking areas: West Barnstable Conservation Area, Maple Swamp Conservation Area, Oak Ridge, and Discovery Hill.

Trails are well-maintained by the local NEMBA chapter and the towns of Sandwich and Barnstable. A significant share of mountain bike visitors are assumed to stay in the Cape overnight, justifying a higher estimated spend per visit.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
507	272	282	▲ 171	○ 6	● 250	■ 171	◆ 76	◆◆ 4

Ownership

Town and private

Other Activities



Visitation

Trailforks Activity Records (2024)
1,248

Estimated Annual Visits
80,000

Driving Time from Boston
1.5 hours

Economic Impact

Estimated Spend per Visit
\$175

Estimated Total Spend
\$14M

Source: Landwise Advisors, Trailforks, Alltrails

Otis Air Force Base

Falmouth, MA



The Otis trails, located adjacent to the Otis air national guard base in the southwest corner of Cape Cod, features challenging trails through pine forest and coastline views from the ridge.

Trails are maintained by Cape Cod NEMBA volunteers. Although most trails are sanctioned and are located on conservation land, some trails unofficially cross into restricted base property.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
177	74	210	▲	○	●	■	◆	◆◆
			32	0	75	67	29	6

Ownership

Town, State (MassWildlife), and Federal (Air National Guard)

Other Activities



Visitation

Trailforks Activity Records (2024)
172

Estimated Annual Visits
11,000

Driving Time from Boston
1.5 hours

Economic Impact

Estimated Spend per Visit
\$175

Estimated Total Spend
\$1.9M

Source: Landwise Advisors, Trailforks

Blue Hills Reservation

Milton, MA



Located just south of Boston’s city limits, the Blue Hills reservation boasts skyline views and easy access from I-95/128. Mountain biking trails in the Blue Hills are especially suitable for beginner and intermediate riders.

Trails are well-marked and well-maintained, although they are often shared with hikers and runners.

Trail Statistics

Trails 138	Trail Miles 105	Total Vertical 585	Trail Difficulty
			22 13 49 63 13 0

Ownership

State

Other Activities



Visitation

Trailforks Activity Records (2024)
232

Estimated Annual Visits
15,000

Driving Time from Boston
30 mins

Economic Impact

Estimated Spend per Visit
\$120

Estimated Total Spend
\$1.8M

Source: Landwise Advisors, Trailforks, Wikipedia

Harold Parker & Ward Reservation

Andover, MA



Harold Parker State Forest and the neighboring Ward Reservation host one of the most extensive mountain biking trail networks in the Boston area. Trails are maintained jointly by NEMBA, Friends of Harold Parker, and the Massachusetts DCR.

Local mountain bikers mention how fully exploring the trails there can fill up several full days. Each year, NEMBA hosts one of its marquee events, “Wicked Ride of the East,” at Harold Parker.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
360	117	368	▲	○	●	■	◆	◆◆
			61	2	84	144	3	0

Ownership

State and nonprofit
(Trustees of Reservation)

Other Activities



Visitation

Trailforks Activity Records (2024)
582

Estimated Annual Visits
40,000

Driving Time from Boston
45 mins

Economic Impact

Estimated Spend per Visit
\$120

Estimated Total Spend
\$4.8M

Source: Landwise Advisors, Trailforks, Wikipedia

Freetown-Fall River State Forest

Freetown, MA



Freetown-Fall River State Forest and the adjoining SE Massachusetts Bioreserve are a large conservation area near the Rhode Island state line. The area is known for rocky, technical trails, especially in its northern half.

The state forest is officially open for dirt biking during the warmer months, so trails are often shared with motorcyclists. This may account for relatively low mountain biking visitation numbers.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
228	140	309	▲	○	●	■	◆	◆◆
			24	2	53	162	11	0

Ownership

State

Other Activities



Visitation

Trailforks Activity Records (2024)
87

Estimated Annual Visits
6,000

Driving Time from Boston
1 hour

Economic Impact

Estimated Spend per Visit
\$120

Estimated Total Spend
\$720k

Source: Landwise Advisors, Trailforks, Alltrails

Middlesex Fells Reservation

Stoneham, MA



Middlesex Fells is one of the most urban and accessible riding areas in greater Boston. Visitors can easily arrive at the park on public transit.

The park is often recommended as a good option for beginners, although more advanced trails are also on offer. High points in the park provide views of downtown Boston.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
113	70	269	▲ 88	○ 3	● 16	■ 75	◆ 9	◆◆ 0

Ownership

State

Other Activities



Visitation

Trailforks Activity Records (2024)
875

Estimated Annual Visits
60,000

Driving Time from Boston
In City

Economic Impact

Estimated Spend per Visit
\$80

Estimated Total Spend
\$4.8M

Source: Landwise Advisors, Trailforks, Alltrails

Wompatuck State Park

Hingham, MA



Wompatuck State Park, referred to as “Wompy” by locals, is considered the most extensive mountain biking area on the South Shore. The park’s largest hill, Prospect Hill, features the longest switchback trail in Massachusetts.

Park staff, NEMBA, and other volunteers maintain the trails and have been busy expanding the network in recent years.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
325	96	212	▲ 125	○ 34	● 100	■ 134	◆ 57	◆◆ 0

Ownership

State

Other Activities



Visitation

Trailforks Activity Records (2024)
541

Estimated Annual Visits
35,000

Driving Time from Boston
45 mins

Economic Impact

Estimated Spend per Visit
\$120

Estimated Total Spend
\$4.2M

Source: Landwise Advisors, Trailforks, Alltrails

Foxborough/Wrentham

Foxborough, MA and Wrentham, MA



F. Gilbert Hills and Wrentham state forests, along with nearby Knuckup Hills, is a popular area for both mountain biking and motorized sports like dirt biking.

Although the area still contains many good mountain biking trails, many trails in Wrentham state forest have been damaged by and dirt bike activity. Motorized off-roading is officially sanctioned during the summer months.

Trail Statistics

Trails	Trail Miles	Total Vertical	Trail Difficulty					
384	92	263	▲ 37	○ 9	● 129	■ 160	◆ 81	◆◆ 5

Ownership

State and Town

Other Activities



Visitation

Trailforks Activity Records (2024)
436

Estimated Annual Visits
30,000

Driving Time from Boston
45 mins

Economic Impact

Estimated Spend per Visit
\$120

Estimated Total Spend
\$3.6M

Source: Landwise Advisors, Trailforks, Alltrails