

Economic Benefits of Open Space to Massachusetts Communities



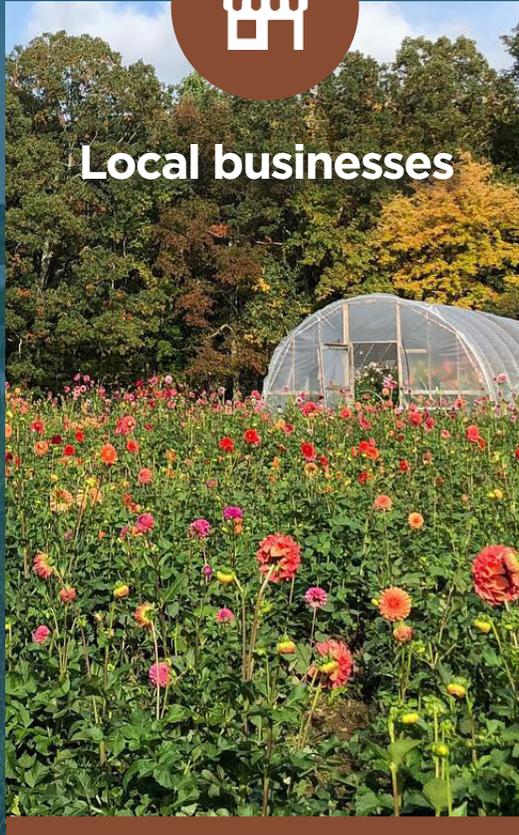
Land conservation benefits



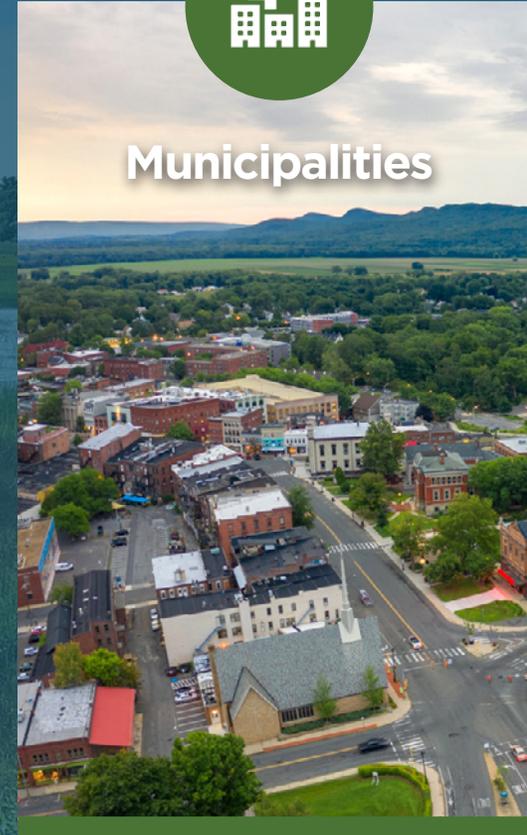
Residents



Local businesses



Municipalities



How land conservation can help address community concerns

Community Concern	How Land Conservation Helps
Resident energy costs for heating/cooling, heatwaves	Natural temperature moderation
Chronic illness, obesity, heart and lung disease, mental health	Enables recreation and improves human health
Air quality index warnings	Improves air quality
Flooding	Prevents development in vulnerable areas Stores and slows runoff from storms
Drinking water quality	Naturally filters and cleans water Enhances infiltration and replenishment of ground water resources
Stormwater management	Stores and slows runoff from storms
Jobs	Strengthens economic development Supports industries that rely on working landscapes (e.g., forestry and agriculture)
Equity	Supports environmental justice
Climate change	Moderates temperatures Helps accommodate rising sea levels and flooding



Land conservation benefits residents

- Enabling recreation
- Improving air quality
- Natural temperature moderation
- Improving human health and providing health care cost savings
- Supporting environmental justice (depending on the community and land conservation project)





Enabling recreation

- Conserved lands with public access allow for and encourage recreational use by residents
- According to the most recent State Comprehensive Outdoor Recreation Plan
 - ◆ Most recreational activities are conducted within five miles of home
 - ◆ Municipal access (e.g., beaches, parks, and nature preserves) is popular with 32% of residents visiting weekly
 - ◆ Top activities include running, jogging, or walking; hiking; swimming in freshwater or saltwater; road biking; swimming in pools; and canoeing, kayaking, rafting, or tubing

Illustration of the Range in Values for Recreational Activities in Massachusetts

Activity	Value per Person per Day (2016\$)
Backpacking	\$23
Camping	\$25
Freshwater Fishing	\$16-87
Hiking	\$91
Hunting	\$11-244
Picnicking	\$41
Sightseeing	\$36
Wildlife Viewing	\$8-98
General Recreation	\$10-57
Recreational Shellfishing	\$53
Snowmobiling	\$35

Source: A selection of activities based on the availability of recent Massachusetts studies. See the Recreation Use Values Database for a complete list <http://recvaluation.forestry.oregonstate.edu/database>.



Improving air quality

- The vegetation in conserved lands plays a role in improving air quality, helping nearby areas avoid the costs associated with pollution
- Trees and shrubs have the ability to remove pollutants from the air and store and sequester carbon
 - ◆ Carbon monoxide, nitrogen dioxide, ozone, coarse dust and fine particles, and sulfur dioxide
- The i-Tree tool provides an estimate of cost savings from pollutants not entering the atmosphere





Naturally moderating temperature

- Trees around residences keep homes cooler in the summer and warmer in the winter which reduces cooling and heating costs and improves human health and comfort
 - ◆ Also known as Urban Heat Island (UHI) Effect
- In Worcester
 - ◆ The loss in urban tree canopy increased peak temperatures 1 to 6 degrees Celsius and extended the summer warm period by up to 15 days
 - ◆ 17,113 street trees provided nearly \$1 million in energy savings benefits





Improving human health

- Conserved lands provide numerous health benefits
- Research indicates that people with access to the outdoors show long term health improvement
 - ◆ Nature reduces symptoms of attention-deficit disorder and post-traumatic stress disorder and improves mental health
 - ◆ Spending just 20 minutes connecting with nature can help lower stress hormone levels
 - ◆ Access to parks and recreational resources can reduce child obesity
 - ◆ Proximity to more green space is associated with reduced mortality and increased longevity





Can support environmental justice

- Additional local land conservation can help address current disparities in access to open space
- A New England study found
 - ◆ Substantial disparities in the percentage of nearby protected land for more vs. less socially marginalized communities
 - ◆ Households in communities with the lowest income have half as much protected lands as those in the highest income and communities with the highest proportion of people of color have less than 60% as much protected land as those with the lowest proportions





Land conservation benefits businesses

- Land conservation contributes to local economies in terms of jobs, business growth, taxes, and other revenue
 - ◆ Tourism and outdoor recreation economy
 - ◆ Farming
 - ◆ Forestry
 - ◆ Commercial fishing





Tourism

- Travelers to parks, trails, and other conserved lands spend money locally, supporting local businesses
- According to the Massachusetts Office of Travel & Tourism
 - ◆ 7.1% of domestic visitors to Massachusetts primary trip purpose was for outdoor recreation
 - ◆ The average visitor spends \$743 per trip
 - ◆ \$1.48 billion in outdoor recreation spending
 - ◆ \$37.9 million in local tax receipts
 - ◆ 9,200 jobs





Outdoor recreation economy

- The overall outdoor recreation economy includes spending by both residents and visitors on things like food, lodging, and transportation
- According to the Bureau of Economic Analysis outdoor recreation accounted for
 - ◆ \$7.69 billion in value added
 - ◆ 1.3% of state GDP
 - ◆ 90,600 jobs





Farming

- With 7,240 farms and 492,000 acres in farmland, agriculture is a key part of the landscape and economy
- 9th most threatened state for farmland loss
- Directly employs 25,920 individuals
- Annual market value of over \$475 million in agricultural goods.
- The average farm produces \$65,624 worth of agricultural products on 68 acres





Forestry

- According to US Forest Service the forest products industry in Massachusetts supports
 - ◆ 16,100 jobs
 - ◆ \$1.55 billion in income
 - ◆ \$1.44 billion value added
 - ◆ \$5.35 billion of output
- The average parcel size for nonindustrial private forestland is less than 20 acres in Massachusetts, and as parcel size decreases, so does the likelihood of timber harvesting
- A recent study of forest loss in New England found that ‘distance to nearest developed land’ was the greatest predictor of forest conversion to low-density development, followed by ‘distance to roads’





Fishing

- Coastal land conservation protects fish habitat and water quality contributing to the commercial fisheries industry and closely related economic sectors
- Largest state commercial fishing and seafood industry in New England region
- 143,902 full- and part-time jobs
- \$3.9 billion in income
- \$16 billion sales impacts
- \$6.1 billion in value-added





Land conservation benefits municipalities

- Avoiding costs of community services
- Strengthening economic development
- Enhancing home values, benefiting the tax base
- Protecting drinking water
- Naturally infiltrating and managing stormwater
- Preventing and controlling flooding
- Mitigating climate change





Municipal budget implications

- The full net impacts on municipal budgets are generally modest
- A comprehensive study in New England found that land conservation from 1990 to 2015 did not have a substantial impact on property tax rates
 - ◆ Including both ownership and easement-based protection
- In Massachusetts, on average land conservation resulted in a property tax increase of \$2.10 to \$3.18 in a typical bill

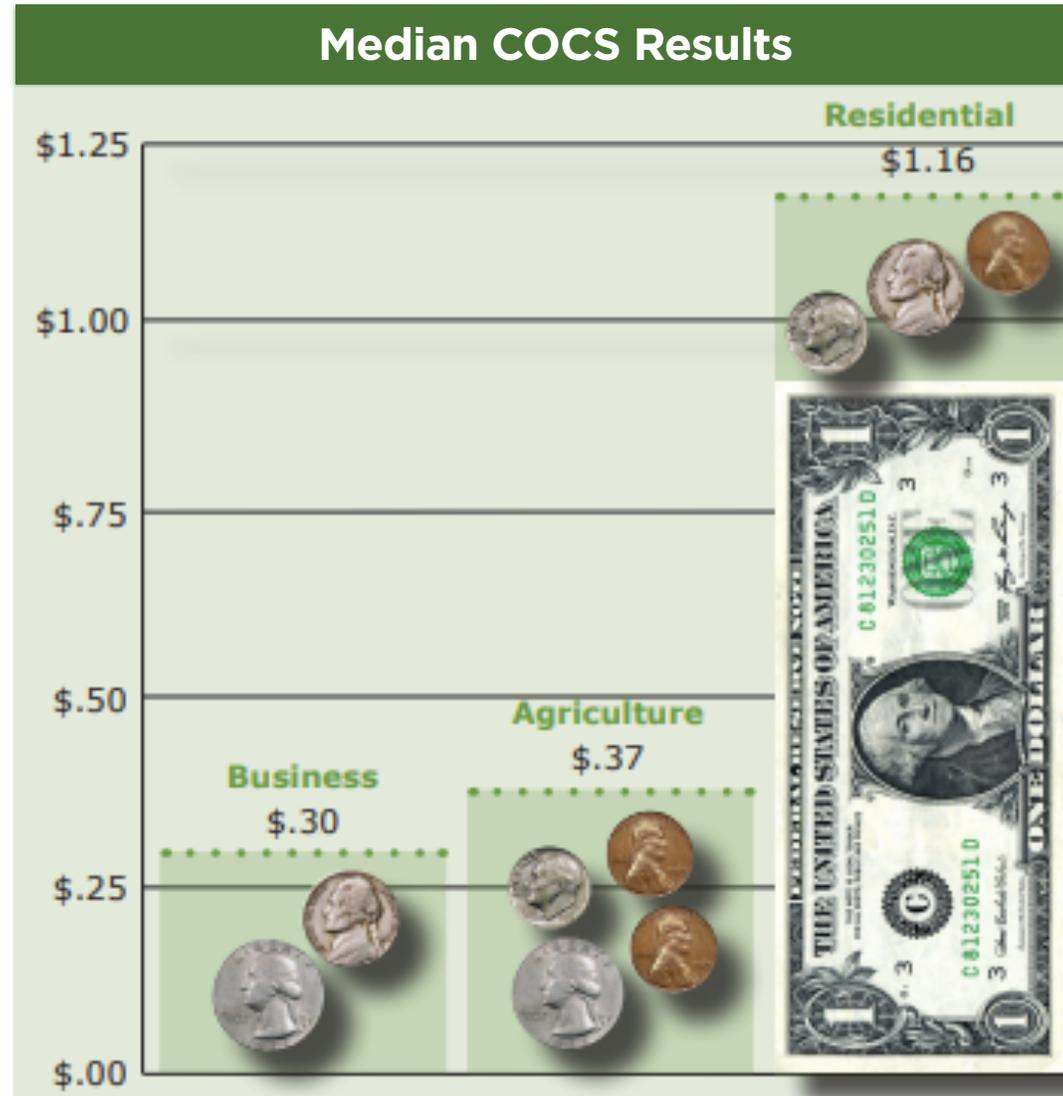


Town Hall
Meeting



Avoiding cost of community of services

- Residential lands often require more in government services (e.g., schools and fire departments) than they pay in taxes
- Undeveloped land can be beneficial to communities by bringing in more property tax revenue than it would use in services if developed



Median cost to provide public services for each dollar of revenue raised.

Source: Farmland Information Center. 2016. Cost of Community Services Studies. Partnership between the U.S. Department of Agriculture Natural Resources Conservation Service and American Farmland Trust.



Strengthening economic development

- Conservation enhances quality of life attracting talent, employers, and investment in local communities.
- Small-business decision makers rated park, recreation, and open space amenities as being the most important factor in measuring quality of life
- Saving land can also help local economies
 - ◆ New England study found conservation increased local employment numbers and the labor force
 - ◆ Especially true in rural areas.





Enhancing home values

- Conserved lands have a positive impact on nearby home values and associated property tax revenues
- In Amherst cluster housing with dedicated open space was found to appreciate at an annual rate of 22 percent, compared to a similar conventional subdivision's rate of 19.5 percent
- Vacant land that shares a border with a conserved parcel increases in value by 46 percent
- Open-space acquisitions increase home values across a municipality





Protecting drinking water

- Natural lands protect drinking water from contamination, filter and clean water, and enhance infiltration and replenishment of ground water resources
- Each acre of forest near a reservoir or well
 - ◆ Filters and protects 543,000 gallons of drinking water per year
 - ◆ With an annual value of \$2,500, or \$60,000 present value





Naturally infiltrating and managing stormwater

- The largest threat to Massachusetts waterways is from stormwater pollution
- Conserved lands can reduce stormwater runoff and filter pollutants, lowering the levels of phosphorus, nitrogen, and total suspended solids that end up in waterbodies, and thereby lowering management costs
- Land conservation is a proactive approach to avoiding stormwater management costs
- According to EPA an acre of natural land provides stormwater management values ranging from \$48,000 to \$79,000





Preventing and controlling flooding

- Flooding is the most expensive natural hazard in Massachusetts
- Forests and other natural landscapes help to store and slow runoff from storms, thereby reducing the frequency and magnitude of floods
- Conserving land in floodplains helps avoid these costs by preventing development in flood-prone areas where property damage is most likely during flood events
 - ◆ Wetlands around Boston are estimated to prevent \$42,111 of flood damage per acre





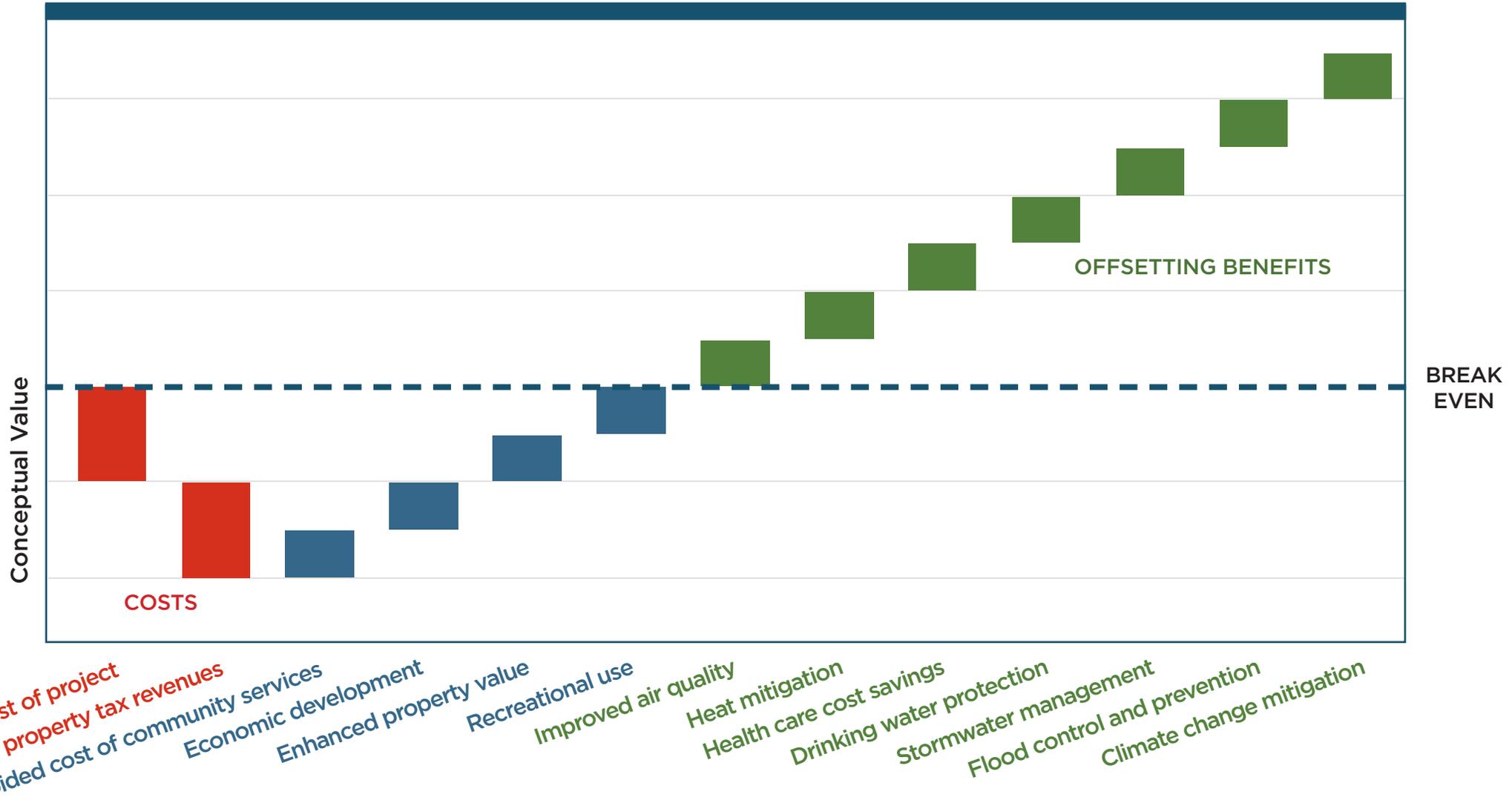
Mitigating climate change

- Climate change is expected to
 - ◆ Cause more flooding, especially where existing paved and developed areas increase storm flows
 - ◆ Strain public water supplies during droughts
 - ◆ Expand invasive plants and insects
 - ◆ Raise temperatures and sea levels
- Studies have shown that municipal land use and land cover decisions may have a larger effect on the magnitude of stormwater, flooding, and water quality impacts than climate change



Economic impact of a land conservation project

This graphic represents the potential categories of costs and benefits of land conservation. Not all projects involve municipal costs. The benefits realized, as well as the magnitude of the values, will vary by project.



Thank you

For more information:

This presentation is based on a
2022 research paper titled

**How Conserving Open Space
Provides Economic Benefits
to Massachusetts Communities**

The paper is available for download
massland.org/naturesvalue

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