

Parks and Beaches:
Common Cents for the Common Wealth



Conservation & Recreation Campaign

A project of The Trust for Public Land



Visit your public lands.

The Massachusetts Department of Conservation and Recreation maintains an excellent online guide to parks and other public lands throughout the state. It's great for planning a family picnic, a soccer game, a nature outing, an outdoor adventure, an overnight camping trip, or an entire vacation. The website is also a good place to familiarize yourself with the breadth of what we own as citizens of Massachusetts and what the Commonwealth is responsible for managing on our behalf.

www.mass.gov/dcr/forparks.htm

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Parks and Beaches: Common Cents for the Common Wealth

The last year has shone a spotlight on the deterioration of the Massachusetts state park system. That spotlight has revealed understaffed, underfunded and unrepaired parks in need of millions of dollars of maintenance and more than \$1.6 billion in capital project spending. From the collapsing road ascending Mt. Greylock to Plymouth Rock's rotting stone portico, the story has focused on the environmental and recreational loss Massachusetts has suffered by failing to protect its natural resources. Thankfully for Mt. Greylock and Plymouth Rock the story ends with necessary repairs being begun; however, these are only two of hundreds of public spaces that need attention.

But there is another serious cost when our parks, beaches and historic monuments are allowed to fall apart – a cost in lost jobs, wages and taxes. In Massachusetts, where tourism is one of the leading industries, our parks are more than luxuries; they are job-producing necessities whose rise or fall will be felt in employment numbers, city, town and state revenues and by businesses ranging from hotels, to restaurants to retail.

This report is the first effort to quantify the dollar value of our parks managed by the state Department of Conservation and Recreation. Common sense has always dictated that the value of our parks system to the economy of Massachusetts is enormous: nearly a quarter of this state's acreage — 1.3 million acres — is protected open space and almost half of that is state property. Anyone who lives in or has visited the Berkshires, Cape Cod, Plymouth or Salem knows the central place that tourism, recreation and spending has in our economy.

Parks and Beaches: Common Cents for the Common Wealth quantifies that value of the park system as an engine of Massachusetts economic development, including:

- ***\$5B in outdoor and recreational tourism spending resulting in:***
- ***50,000 jobs statewide***
- ***\$1.5B in wages***
- ***Just under a billion dollars in recreational equipment spending.***

The impact of parks on the economy goes well beyond the dollars spent by the millions of visitors who come to Massachusetts each year specifically for our beaches, monuments, woods and hills. There are millions of other visitors who come to visit family and sightsee that include visits to our parks and beaches as well as scenic drives and

historic sites spending money in our cities and towns. Our public lands also help drive the rural economy with timber sales of \$70 million per year in an industry that now employs roughly 3,500 state residents earning a collective \$117 million.

Beyond tourism dollars and timber sales, the financial ramifications of Massachusetts parks reveals an even deeper value to the state economy: Parks as a crucial component of business and employee relocation and thus of job creation.

Recent college graduates rate the availability of outdoor activities second only to job availability when deciding to stay or leave Massachusetts, according to a survey sponsored by the Boston Foundation and the Greater Boston Chamber of Commerce. Access to beaches, oceans, and mountains is one of the state's three most desirable features, according to a quality of life survey conducted for the Massachusetts Institute for a New Commonwealth (MassINC).

If Massachusetts is to continue to compete for high-skill, high-wage jobs against states like New Hampshire, Colorado, Texas and New York, employers and employees need to see a clean, well managed inviting system of parks and beaches as part of the package.

Finally, as property owners, business leaders and elected officials, we need to understand that the condition of our parks helps set the value of our homes, businesses and communities. This report confirms that where parks are well maintained, property values rise. Where they are allowed to deteriorate, values fall. Parks and public lands help save money too. Massachusetts Audubon estimates that the protected lands we own contribute \$6.5 billion worth of green infrastructure services (clean air, drinking water, flood control, etc.) to our state and municipalities. Public health and park professionals are working together across the country to quantify the savings in health care costs resulting from physical activity in parks.

Our parks are more than places for us to exercise, relax and enjoy our historic and natural legacy. They are a crucial underutilized part of our economy. If allowed to deteriorate further we will eventually feel the ripple effects in lost visitors, lost jobs and lost dollars. But this is a resource that we have not properly cared for, and the upside — in increased jobs, taxes, products and private sector revenues — is waiting to be generated by careful, thoughtful stewardship of our resources.



Parks and Beaches: Common Cents for the Common Wealth

Massachusetts has an underutilized economic asset in our parks, forests, and open space. Across the United States, the competition for jobs and people has become increasingly fierce. Historically, Massachusetts was able to sustain its economy through its strong research and development infrastructure, its entrepreneurial energy, and its impressive talent base. Businesses and people wanted to locate and invest in Massachusetts, where the perception of high quality of life and emphasis on innovation adequately made up for other factors—such as relatively high business and housing expenses.

But Massachusetts is up against a new reality: nationwide and globally, localities are increasingly investing in research and development, as well as in the types of amenities that can retain and attract highly-skilled workers and immigrants. In this environment, the Commonwealth needs to reassess its investments in order to stay competitive. For over one hundred years we have been investing in the protection and management of public land deemed critical to our future.

In recent years, however, we have failed to protect our investment. We need to take responsibility as stewards for the opportunities lost and build a new future grounded in our environment, our economy and our communities.

Some of the economic benefits derived from parks are intuitive, but others may be surprising.

Healthy Industries - parks stimulate economic growth in the tourist, recreation and alternative energy industries.

Healthy Workforce - parks are essential to maintaining a high quality labor force.

Healthy Communities - parks build communities, integrating new residents spurring new development and building social capital.

Healthy Governments - an investment in parks makes good fiscal sense as they serve as a magnet to spur redevelopment in our cities and towns, boost the tax base, and generate cost savings in infrastructure and healthcare.

Massachusetts' Parks and Open Spaces: Our Common Wealth

Massachusetts has a rich and diverse system of parks and open space. Approximately one-quarter, or 1.3 million acres, of Massachusetts is protected open space and 43 percent of that (606,650 acres) is state-owned.¹ The Department of Conservation and Recreation (DCR) is the lead land manager, responsible for managing 450,000 acres of the state's open space. DCR has inherited Massachusetts' proud tradition of being first in the nation: 1634 – the first public common in America; 1868 – the first playground; 1893 – the first metropolitan park system.

All of the Commonwealth's 6.4 million residents are within a few minutes or a few hours' drive of all of the forests and parks. Park facilities include on-road and off-road biking trails; rivers for canoeing and kayaking and lakes and ponds for boating and windsurfing; easily accessible and remote campgrounds; hiking, horseback and off-road vehicle trails that wind up mountains and along river beds; running paths; playgrounds; skating rinks; cross-county ski trails and downhill skiing areas; snowmobile trails; swimming pools and beaches; athletic fields; tennis and basketball courts; hunting and fishing areas; and nature watching and birding areas.

DCR properties also play an important role in preserving the Commonwealth's culture and history. DCR is responsible for the preservation and management of 2,000 historic and cultural resources, 110 sites on the National Register of Historic Places, four National Historic Landmarks, and three National Engineering Landmarks.

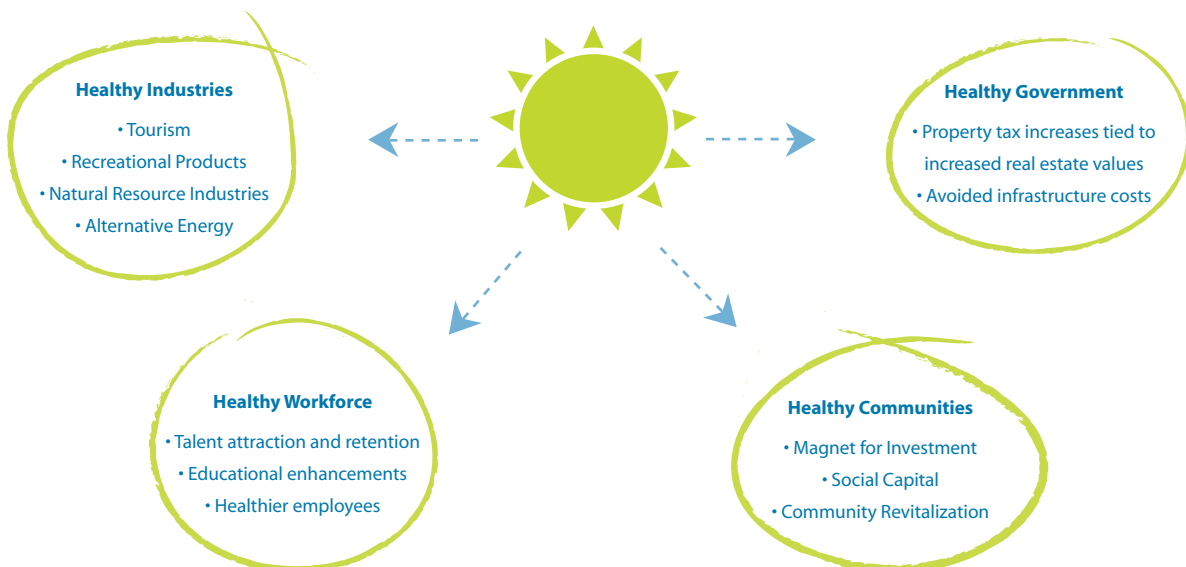
However, DCR properties are just one component of a larger system of parks and public lands managed by state agencies, municipalities, the federal government, and nonprofit organizations. An additional 440,000 acres of open space are protected by the Commonwealth's cities and towns as well as the Department of Fish and Wildlife. The National Park Service maintains 20 national parks, and non-profits such as the Trustees of Reservations and Mass Audubon protect for the public another 85,000 acres of open space.

An Economic Asset at Risk

A 2004 survey of Massachusetts citizens found that 82 percent deemed general upkeep of park facilities to be very important to their selection and usage of parks. Restroom facilities and exercise opportunities were also key factors. Ninety percent of respondents singled out cleanliness as most important. Other significant factors included the availability of parking and the maintenance levels of landscape and facilities.² Clearly, as we visit our state parks we find that the current level of investment by the Commonwealth is not meeting these expectations. Nuisances such as litter and graffiti, poorly maintained or blighted and derelict facilities, and groups congregating and engaging in offensive activities deter visitation and investment into adjacent areas. The inability to sufficiently fund and staff such functions as landscaping, facility maintenance, safety management, educational programs and cleaning and litter removal means we are underutilizing an under appreciated asset in our parks and public lands.

What is the cost of this neglect? One of our more important economic assets is not being effectively tapped as a source of economic strength for our businesses, our citizens and our government.

Healthy Parks: A Healthy Environment



Healthy Parks: Healthy Industries

The long-term health of the Massachusetts economy depends on a strong economic base comprised of diverse and competitive industries that continue to prosper and make long-term investments in the Commonwealth. There are several important industries in the state with strong linkages to our park and open space system.

These industries are:

1. Tourism
2. Outdoor recreation goods and services
3. Natural resource based industries
4. The alternative energy industry

KEY FACT: Recreational tourism in Massachusetts accounts for as much as \$5 billion in direct and secondary spending, generating over 50,000 jobs and \$1.5 billion in wages.

Tourism is one of Massachusetts' leading industries, responsible for an estimated \$19.7 billion in spending, generating 208,600 jobs and \$6.3 billion in wages. Outdoor recreation accounts for as much as 25% of that total, based on national research.³ According to a 2004 study conducted by the Massachusetts Office of Travel and Tourism (MOTT), outdoor recreation was the primary reason for 1.8 million visitors (6.5% of 29.8 million visitors) to come to the Commonwealth.⁴ Based on total tourism expenditures, these trips alone would account for \$1.24 billion in total spending, 13,100 jobs, and \$396.9 million in wages. Outdoor recreation is particularly important to two of the state's premier tourism regions, the Berkshires and Cape Cod. In a 2005 survey of Berkshires visitors, three quarters identified the region by its combination of beautiful scenery and culture, and eighty percent reported that scenic beauty played a role in their travel decision. Three 2004 surveys of Cape Cod visitors showed beach-going to be the favorite vacation activity (38-42 percent) followed by outdoor activities (27-35 percent).⁵ DCR lands are high on the list of places that provide the stunning scenery, history and culture, and equal parts exciting activity and tranquil repose to attract tourists.

KEY FACT: Just under \$1 billion is spent in Massachusetts every year on outdoor recreational equipment.

The outdoor recreation industry includes recreational equipment rental, sales, and repairs, recreational clothing and gear sales, and guide and instructional services. It also includes companies that develop and produce outdoor recreational products such as ski equipment, watercraft, and outdoor footwear. About \$990 million is spent in Massachusetts every year on outdoor recreation equipment.

A survey for the U.S. Fish and Wildlife Service of the economic impacts of wildlife-related outdoor recreation activities in Massachusetts found that in-state spending on equipment for hunting, fishing, and wildlife watching alone totaled over \$530 million in 2001 (\$571 million in 2006 dollars).⁶ An additional \$181 million (\$195 million in 2006 dollars) was

spent on outdoor recreation services including guide fees, public and private land use fees, equipment rental, boating costs, bait, ice, and heating and cooking fuel.⁷

KEY FACT: Public lands provide the raw materials that help sustain Massachusetts' resource-based industries, which are particularly important to the state's rural communities.

Public lands provide the raw materials for a wide range of natural resource-based economic activities including wood products manufacturing, hydro and biomass, farming and fishing. Using local raw materials provides greater statewide impact than imported materials, saves energy costs, and is a particularly important economic generator in rural communities.

MOUNT WACHUSETT COMMUNITY COLLEGE IN GARDNER IS A LEADER IN RESEARCHING BIOMASS APPLICATIONS.

Prior to opening a new biomass power plant in December of 2002, the College's utility bills exceeded \$750,000 per year. The facility uses 1,000 tons of biomass a year and produces enough heat for a 500,000-square-foot campus. The College projects an annual savings in avoided costs of electricity of \$276,000 over the next decade.⁸

Percentage of Visitor Activities in Massachusetts Tied to Parks and Public Lands

Historical Places/Museums	15.1%
Beach Activities	13.5%
Rural Sightseeing	9.6%
Outdoor	9.0%
Zoo/Aquarium/Science Museum	8.3%
Sports Event	6.6%
National/State Parks	5.6%
Water Sports/Boating	4.5%
Cultural Events/Festivals	2.5%
Golf	2.1%
Winter Sports	1.0%

Source: Massachusetts Office of Travel and Tourism: Massachusetts Domestic Visitor Profile: Calendar Year 2004, April 29, 2005

The most significant of these natural resource industries is wood products manufacturing. As of 2004, there were 3,455 people employed in the wood product manufacturing industry collectively earning over \$117 million, paying over \$409 million for materials, and producing shipments worth over \$639 million.

DCR properties provide a portion of the timber harvested for wood products production. In 2005, DCR placed approximately 2,000 acres of land under timber harvest sales contract, with revenues of \$1,080,000. The estimated direct value to the Massachusetts economy of these sales is approximately \$20 million, with indirect benefits of approximately \$50 million.^{9,10,11} Current yield is thought to be well below the potential sustainable harvest. While Massachusetts currently produces just 2 percent of the wood it uses, estimates indicate approximately 41 percent could be sustainably harvested from Massachusetts' forests, cutting down on imports and creating new jobs.¹²

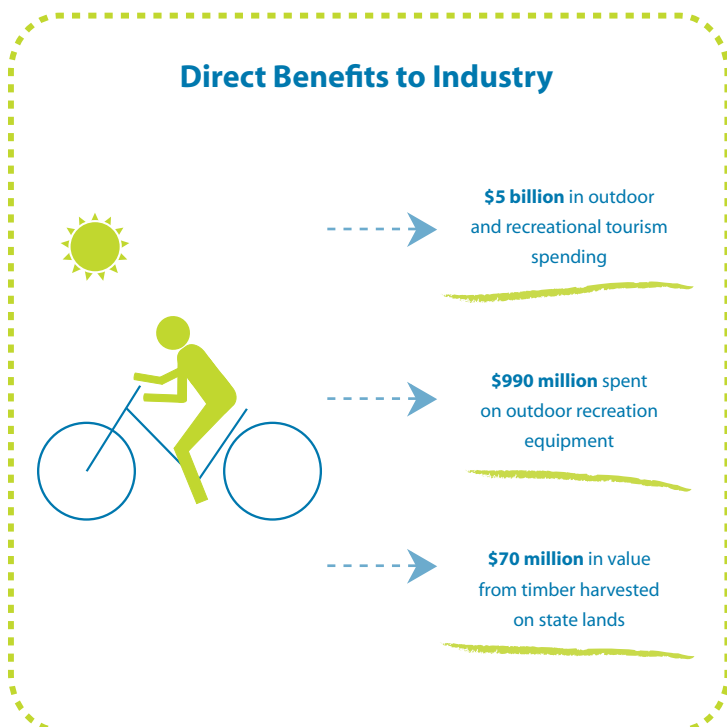
KEY FACT: Massachusetts forests provide a feedstock for the emerging biomass industry- helping to create jobs in the state's alternative energy industry as well as to reduce dependence on increasingly scarce and costly oil and natural gas supplies.

The Commonwealth's rivers fueled an industrial revolution and powered this country through a civil war and years of economic growth. Our Commonwealth is establishing itself as a leader in

renewable energy technologies with measurable impacts on pollution, economic growth and climate change. DCR parklands can become laboratories for alternative energy demonstration projects, ensuring that more of the energy we consume comes from clean and efficient resources. Over the next decade, DCR can become a model for energy reduction and production as well as other sustainable practices. Surplus energy generated from DCR systems will be returned to the electric grid to reduce the Commonwealth's dependence on foreign oil and fuels.

As Massachusetts continues to search for ways to diversify its energy sources, public lands and the raw materials they provide may become increasingly significant. Wood biomass for heating, cooling, and energy generation is an important renewable resource that's gaining value as oil prices rise. Biomass offers the benefit of providing a dependable, year-round source of energy.

The Massachusetts Biomass Energy Working Group estimates that there are approximately 2.48 million tons of biomass generated in the state annually, and that the forests of Massachusetts could sustainably provide another 1.93 million tons per year beyond what is currently harvested.¹³ The biomass industry is creating jobs in rural communities through increased harvesting and production activities. At least two operating biomass energy generation facilities are located in the state: Mount Wachusett Community College and the Pinetree Power Plant in Westminster. In addition, a demonstration project at Heyes Forest Products in Orange is currently in the planning and permitting phase.



TIMBER HARVESTS FROM DCR PROPERTIES GENERATE ECONOMIC BENEFITS TO THE COMMONWEALTH.

A study of the economic benefits of the Quabbin Reservoir Watershed in the late 1990s estimated Quabbin's 1995 timber harvest contributed \$33.7 million (\$40.3 million in 2006 dollars) to the state's economy. In addition, the avoided costs of fuel oil imports, based on an average heating value of 125 gallons of oil per cord of wood, was valued at \$530,500 (\$1.23 million in 2005 dollars). It should also be noted that timber sold for firewood is often the product of forest thinning operations that increase the value of the remaining trees, generating additional economic benefit.



Healthy Parks: Healthy Workforce

For states striving to compete economically, people make all the difference. Much attention is paid to the need for cities and regions in the Commonwealth to attract highly mobile, highly skilled professional workers. Yet of comparable importance and at least as difficult to tackle is the challenge of addressing the skill deficits of the existing workforce. In seeking to build a stronger workforce in the Commonwealth, our parks are part of the equation: parks play a role in human capital development in three important ways.

1. Attracting and retaining talented workers.
2. Educating and developing the future workforce.
3. Improving workforce health and productivity.

KEY FACT: Parks and open space figure prominently in the mix of amenities essential to attracting and retaining knowledge workers and new economy companies, both critical ingredients in the Commonwealth's economic competitiveness.

In the new economic development paradigm where jobs follow people, high quality of life is essential to attracting industry and to promoting entrepreneurship. Recent college graduates as well as older working adults say that parks, recreational opportunities, and open space contribute to their perception of Massachusetts as a desirable place to live. Three recent studies yielded the following results:

- Following job availability, access to outdoor activities is the second most important factor for recent college graduates assessing whether to stay or leave the state, according to a 2003 study sponsored by the Boston Foundation and the Greater Boston Chamber of Commerce.¹⁴

- Access to beaches, oceans, and mountains is one of the state's most desirable features, according to a 2003 quality of life survey conducted for the Massachusetts Institute for a New Commonwealth (MassINC). It was the third most frequently mentioned characteristic by respondents when asked what they liked about the state. In the same survey, over half of respondents reported that they considered loss of open space, including loss of farmlands and parks, as a threat to quality of life.¹⁵

- Residents who leave the state report that natural surroundings are among the attributes they miss most, according to a 2006 survey of former Massachusetts residents conducted for The Boston Globe. The survey found that 22 percent indicated that natural surroundings were what they missed most, a close second only to family.¹⁶

KEY FACT: Our parks provide learning laboratories for K-12 and post-secondary students.

Public lands and recreation areas serve school districts and students by providing alternative sites and methods of learning. Research has demonstrated far-reaching benefits, including improved cognitive and social skills, higher scores on standardized tests, greater enthusiasm among teachers for instruction, and higher attendance records, when the environment is used as an integrating context for learning. The increased emphasis on earth and space science in the Massachusetts Comprehensive Assessment System (MCAS) framework, included in the tests for 5th and 8th graders, may create new opportunities to use parklands for instructional purposes.

Universities routinely use DCR lands as learning laboratories. For example, Clark University students recently conducted a project that included detailed forest mapping with multi-season satellite imagery. The high-resolution maps developed through this forest-based research have a number of potential uses, such as targeted field sampling to address insect and disease problems, hiking guides, location of non-timber forest products, links to GPS for real-time forest interpretive programming as a tourist attraction, and general forest planning.

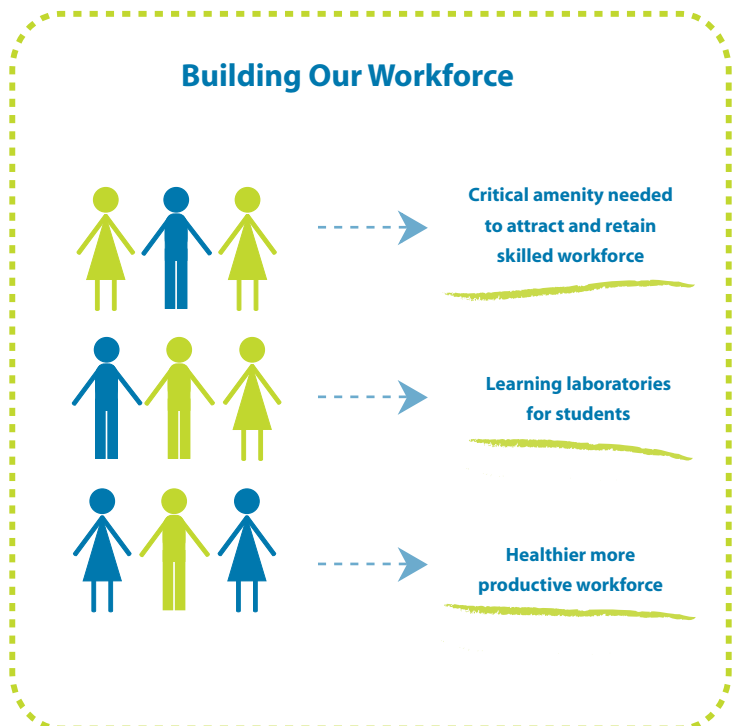
KEY FACT: Access to parks and increased physical activity improves the health and productivity of the workforce.

Access to parks and open space is often linked to increased physical activity. A group of studies reviewed in the *American Journal of Preventive Medicine* showed that "creation of or enhanced access to places for physical activity combined with informational outreach" produced a 48.4 percent increase in frequency of physical activity.¹⁷ Other research indicates that the presence of natural settings is important to physical and mental health even when little or no physical activity ensues, and that

using parks for community gardens increases consumption of fresh produce, with attendant health benefits.^{18, 19, 20, 21}

There's a clear and obvious link between physical activity and health, but in Massachusetts, as elsewhere, increasing physical activity is not simply a public health stance—it is a workforce issue. Massachusetts' employers provided health insurance to 3.8 million state residents in 2004. That represents a costly burden as insurance premiums have ballooned in recent years. Reducing healthcare costs through increased physical activity could significantly cut employer health insurance premiums and make businesses more competitive. According to the Trust for America's Health, in Massachusetts, \$283 per resident was spent in 2003 on medical costs related to obesity²² (\$307 in 2005 dollars, adjusted for medical cost inflation). This translates into a total of almost \$1.2 billion in obesity-related costs for the employer-insured. Reducing those costs by only 10 percent would result in over \$115 million in savings. With Massachusetts recently enacting the first universal health insurance program in the nation, these cost savings are critical to the Commonwealth as we support those who cannot afford access to health care.

Parks and public lands have additional public health benefits. Ten counties in Massachusetts received failing grades in the American Lung Association's *State of the Air 2006* report. Over 5.8 million residents breathe air with dangerously high levels of ozone and/or particle pollution.²³ Massachusetts' parks and forests filter particle pollutants and can reduce the conditions that cause and aggravate asthma in adults and children.



Healthy Parks: Healthy Communities

Livable, healthy communities are vital to the economic strength of the Commonwealth. Massachusetts' economic future is highly dependent on ensuring that its rural towns, suburban communities and urban centers remain vibrant. Public parks and open spaces are an important part of what makes a community livable. Parks act as a magnet for investment in our communities, provide a quality place for building community and social networks, and support the development of young people into healthy, productive adults.

KEY FACT: Amenities offered by parks stimulate new real estate investment

Perhaps no other measure of the relationship between parks and real estate investment is more telling than how developers who build near parks use them as a central marketing tool. The developer of the upscale Milton's Landing condominium complex adjacent to the Neponset River Reservation uses the Reservation's recently

developed parks and trails as well as the development's proximity to the Blue Hills Reservation as a major selling point in its promotional materials.

Milton's environs offer many recreational opportunities, such as boating or kayaking along the Neponset River; skiing, hiking, or horseback riding on the Blue Hills Reservation; swimming at Cunningham Park or Houghton's Pond; golfing at many nearby private and public courses, or just walking along the Riverway Path.

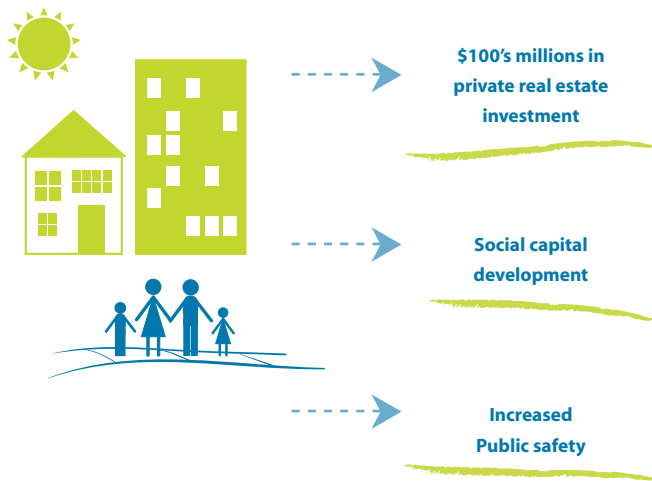
Some property owners will actually go so far as to build new parks or to invest in the upkeep of existing parks. The developers of the \$1.2 billion NorthPoint development in Cambridge, currently in the midst of construction, are planning to create a 10-acre central park as a major amenity of the 45-acre mixed-use development. As described on the web site: "with its 10 acres of lush lawns, water garden and scenic pathways, NorthPoint's park is destined to become a center of recreation, fitness and entertainment—for residents and employees alike." The park's direct connection to DCR's Charles River Park System is also highlighted.

EDUCATIONAL SERVICES

- Environmental education programs, special events, exhibits and publications are some of the ways Boston Natural Areas Network builds an informed and enthusiastic constituency for urban open space.
- In 2001, DCR served 1.3 million park visitors through 4,600 interpretive and environmental education school programs as well as certification of teachers to teach environmental curricula.
- Mass Audubon offers a broad array of programs, classes, camps, and special events for 200,000 children and adults annually.²⁴



Direct Benefits to Communities



PARKS HELP TO BUILD COMMUNITY.

- **NEPONSET RIVER COMMUNITIES.** The Neponset River Reservation borders the Boston neighborhoods of Dorchester and Mattapan as well as the communities of Milton and Quincy. The development of new parks and trails in the reservation is seen as creating a greater sense of community pride, raising awareness of the value of the river as a community asset, spurring support for further riverfront park development, and breaking down some of the social barriers between communities surrounding the park.
- **LAWRENCE.** Neighborhood participation in the development of Brook Street Park in the city of Lawrence contributed to community building efforts there. Guided by community-based organizations, neighborhood residents took the lead role in planning the development of the park. Local residents volunteered over 500 hours through their participation in park planning, design, and advocacy. Their efforts resulted in the creation of a park that provides safe recreation opportunities, contributes to improved air and water quality, and has helped to grow the city's tax base by adding value to the surrounding neighborhood.

KEY FACT: Parks are essential to building social capital

In addition to promoting physical revitalization, parks can make an important contribution to the development of the "social capital" that provides a foundation for economic revival, particularly in low-income neighborhoods. Parks are our common ground supporting frequent, casual contact among neighbors, which leads to the formation of neighborhood social ties, provides a focus for neighborhood activities, builds community identity, increases the sense of community ownership and stewardship, and connects people from diverse cultures. All of that can help to strengthen community institutions and social relationships and to create a stronger foundation for community development.

Parks help immigrants adapt and socially integrate into their new communities. Many immigrant groups use parks for important cultural celebrations and ceremonies from their home countries. A recent report by the Barr Foundation, for example, notes how different immigrant groups in Boston use parks in religious and spiritual practices, family events, informal social interactions, and food production.²⁵

KEY FACT: Well-designed and maintained parks support youth development and increased public safety.

Nationally, the recreational activities offered by parks have been demonstrated to reduce antisocial behavior among youth.

In Fort Myers, Florida, police documented a 28 percent drop in juvenile arrests after the city began the STARS (Success Through Academic and Recreational Support) Program, which involved building a new recreation center in the heart of a low-income community.²⁶

After Philadelphia police helped neighborhood volunteers clean up vacant lots and plant gardens, burglaries and thefts dropped 90 percent.

Midnight basketball has also helped prevent juvenile crime. Over a one-year period, Kansas City reported a 25 percent decrease in arrests of juveniles in areas where midnight basketball programs were offered.²⁷

In Fort Worth, Texas, crime dropped 28 percent within a one-mile radius of community centers where midnight basketball was offered. In the areas around five other Fort Worth community centers where the programs were not offered, crime rose an average of 39 percent during the same period.²⁷

In the summertime, when Phoenix basketball courts and other recreation facilities are kept open until 2 a.m., police calls reporting juvenile crime drop as much as 55 percent.²⁷

According to former Newark, New Jersey Mayor Sharpe James, "For the same money that would put one new police officer on the street, the city could hire three recreation leaders who would have a much greater impact on keeping kids out of trouble and reducing crime."²⁸

Healthy Parks: Healthy Government

Parks and public lands provide a number of fiscal benefits to the Commonwealth and its communities. Revenues to cities and towns are enhanced through increased property taxes resulting from increased private investment. Recreational tourism results in increased room, meal and general sales tax revenue to the state. Finally, one of the largest fiscal benefits of our parks is in the avoided costs resulting from natural “ecosystem services”.

KEY FACT: Property value increases tied to Massachusetts’ extensive network of parklands contribute hundreds of millions of dollars annually to local property tax coffers.

Proximity to well-maintained parks increases residential and commercial property values and stimulates real estate investment. John L. Crompton, distinguished professor at Texas A&M University and the nation’s leading analyst of the relationship between parks and property values, concludes, based on extensive empirical research, that a typical premium is in the range of 20 percent for an property within three blocks of a well maintained park.²⁹ A 2002 study of the Rose Kennedy Greenway’s adjacent property values estimated that the development of the park would increase those values by \$252 million per year.³⁰ A 2006 study found that homes located within close proximity to rail trails sold, on average, in 29.3 days as compared to 50.4 days for other homes.³¹ Increased property values generate property taxes as well as build equity and wealth for homeowners.

Public opinion surveys indicate that people are willing to pay more for homes near parks and are more likely to purchase homes in neighborhoods with parks. In a 2001 survey conducted for the National Association of Realtors by Public Opinion Strategies, 50 percent of respondents said they would be willing to pay 10 percent more for a house located near a park or other protected open space. In the same survey, 57 percent of respondents said that if they were in the market to buy a new home, they would be more likely to select one neighborhood over another if it was close to parks and open space.³²

KEY FACT: DCR parks and other public lands in Massachusetts are important sources of “green infrastructure services” that are estimated to save the Commonwealth over \$6 billion annually in avoided infrastructure construction and maintenance costs.

Green infrastructure services provide natural protection of the environment and reduce the need to invest in built infrastructure to counter pollution and environmental degradation. As cities and towns develop, protected public lands become even more important as repositories of ecosystem services.

According to the Massachusetts Audubon Society, the Commonwealth’s undeveloped and recreational land generates

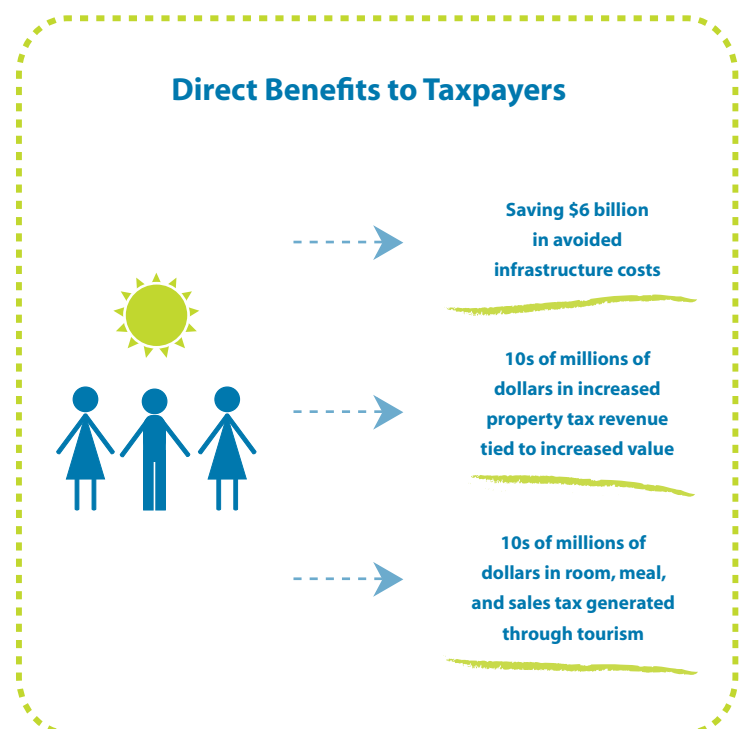
more than \$6 billion annually in green infrastructure services— 85 percent of which is provided by forests, wetlands, lakes, and rivers left largely in their natural state.³³ DCR properties comprise over 30 percent of the Commonwealth’s open space and recreational lands and are thus responsible for roughly one-third of this value. Loss of these “free” services could result in an increased burden on taxpayers due to the need for additional water treatment, air quality management, climate regulation, and flood control, as well as reduced property values and tourism revenues.

In addition to their direct role in providing ecosystem services, DCR and other state lands provide venues for basic and applied research in fields such as air and water quality improvement and toxin reduction. The Waquoit Bay National Estuarine Research Reserve provides logistical support to researchers from universities, scientific institutions, other government agencies, and nonprofit organizations from around the country.

Parks: Worth Our Investment

In 1875, Frederick Law Olmsted, the America’s most celebrated landscape architect and designer of New York City’s Central Park, the nation’s first great urban park, completed an empirical study demonstrating the impact of Central Park on the value of adjacent residential properties. Reflecting on this study 46 years later, Olmsted’s son, also a noted landscape architect, commented:

It has been fully established that ... a local park of suitable size, location, and character and of which the proper public maintenance is reasonably assured, adds more to the value of the remaining land in the residential area in which it serves than the value of the land withdrawn to create it.



The dissemination of Olmstead's findings may have marked the first widespread recognition within the U.S. of the link between parks and economic development. Over the years, that link has become increasingly established. Yet, too often, investments in parks are too little or too late to realize their full contribution to economic prosperity.

Massachusetts' parks and open space present an amazing opportunity for the economic and social development of our communities, our citizens, and our future. The use of our parks as an economic tool requires a radical shift in our thinking from parks as discretionary spending to a necessary investment. We have demonstrated that our parks support our economy and generate billions of dollars. The next step is to invest in our parks and public lands.

The following steps are recommendations to improve investment in and, hence, economic return on our parks:

- Continue to invest in our parks by rebuilding our infrastructure and providing more funding for operations and maintenance to assure the quality of parks and recreational facilities.

- Create incentives for private businesses and non-profit organizations to partner and provide a wide variety of programs, in cooperation with park managers. Outdoor recreation and education services will provide economic opportunity for area residents as well as improve the quality of visitors' experiences at state parks.

- Make connections between agencies to maximize the opportunities we have begun to identify in this report. Foster park partnerships with the Massachusetts Office of Travel and Tourism (MOTT), Department of Public Health, Executive Office of Housing and Economic Development, Department of Elders Affairs, etc.,. An example is work with MOTT to place a greater emphasis on nature and historic tourism in the Commonwealth's overall campaign.

In sum, the varied economic roles played by the Commonwealth's parks and public lands make them a valuable economic resource that will generate a healthy return on investment in quantitative as well as qualitative ways. Wise, farsighted stewardship investment will ensure that our parks fulfill their economic promise for today and tomorrow.

PARKS AND OPEN SPACE PROVIDE LOW-COST ECOSYSTEM SERVICES.

- **Buffering of air pollutants.** Trees reduce air pollution and filter particulates. The U.S. Forest Service calculates that over a 50-year lifetime, one tree generates \$31,250 worth of oxygen and provides \$62,000 worth of air pollution control.
- **Carbon Sequestration.** Current Massachusetts forest inventory data indicate that an average forested acre contains 21 tons of tree carbon, with an average annual increase of 0.35 tons per year. The U.S. Forest Service also estimates that urban forests in Massachusetts store 16 million metric tons of carbon, and capture an additional 523,000 metric tons per year, helping to mitigate global warming effects. That's a value of over \$300 million.
- **Soil and Water Conservation.** Streamside buffers, comprised of trees, shrubs, and grasses, filter out surface and shallow subsurface pollutants before they enter rivers and streams. Trees, by increasing water infiltration into the ground, decrease storm

water runoff loads on urban drainage systems, thus reducing costs for maintenance.

- **Storm Water Run-off.** Near Boston, officials protected over 8,000 acres of wetlands along the Charles River that are capable of containing over 50,000-acre-feet of water as an alternative to a \$100 million system of dams and levees. Loss of these wetlands would have caused an estimated \$18 million in flood damage annually.
- **Watershed Protection.** DCR's Division of Water Supply Protection and the Massachusetts Water Resources Authority (MWRA) prevailed in a lawsuit initiated by the EPA to force Massachusetts to use chemicals to treat our water. The active management of forests and wildlife are considered part of a approach to maintaining natural filtration, which reduces the cost of drinking water and amount of chemicals to MWRA consumers.



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Endnotes

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