

A Time Like No Other: *Charting the Course of the Next Revolution*



A Summary of the Boston Indicators Report 2004 – 2006

www.bostonindicators.org

The Boston Indicators Project

Measuring what we value - a project of Boston's civic community

- Civic Vitality
- Cultural Life & the Arts
- Economy
- Education
- Environment & Energy
- Health
- Housing
- Public Safety
- Technology
- Transportation



SECTOR CROSSCUTS

Sustainable Development

GEOGRAPHY-AT-A-GLANCE

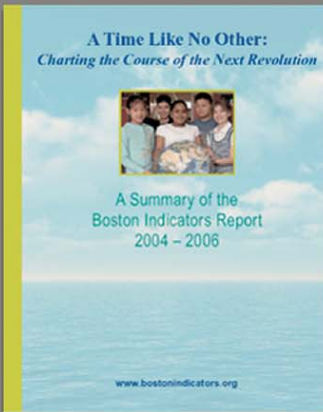
Boston Metro

SEARCH

Enter Search Term...

The Boston Indicators 2004-2006 Report has been released

New @ Indicators:



The fourth biennial report of the Boston Indicators Project covers the years 2004-2006. It finds that Greater Boston's economy strengthened considerably but that the region faces persistent challenges in high costs, labor shortages, and growing income inequality. It also emphasizes Boston's innovative capacity and its potentially revolutionary role at a time of global economic and climatic change.

Visit the Boston Indicators Project website often to find the latest research, download data, and view charts and analysis tracking Boston's progress in a regional context across the 10 sectors above, with additional cross-cuts such as Sustainable Development, Race & Ethnicity and Children & Youth, interactive features, and links to numerous data-rich resources.

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[Download the PDF](#)

INDICATORS REPORTS

2006

Sector Crosscuts

Travel through the report and explore special topics across Indicator categories by:

Sustainable Development

Geography At-A-Glance

See statistical profiles for 10-year changes in:

Boston Metro

What's Next?

Seminars bringing together an intergenerational network of civic and community leaders.

Links & Resources

Excellent sources of information and ways to get involved by sector.

Data Portal

A door to the region's most comprehensive and data-rich websites.

The Hub of Innovation:

See the future now in breakthrough products, programs, and practices—local to international—in the 10 sectors tracked.



MetroBoston DataCommon is a new online mapping tool. A partnership between the Metropolitan Area Planning Council (MAPC) and the Boston Indicators Project, it makes available a wealth of data about 101 cities and towns in Eastern Massachusetts



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A Summary of the Boston Indicators Report 2004 – 2006

A PROJECT OF THE BOSTON FOUNDATION AND GREATER BOSTON'S CIVIC COMMUNITY

Co-sponsored by

The City of Boston and The Metropolitan Area Planning Council

In cooperation with

Many public agencies, civic and educational institutions,
research institutes, and community-based organizations

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June 2007

Cover photo by Richard Howard: Fourth graders, Josiah Quincy Elementary School



CITY OF BOSTON • MASSACHUSETTS

OFFICE OF THE MAYOR

Dear Friends:

Boston is a proud city, rich in diversity and skilled minds. Our talent for innovation and growth, combined with our concerted efforts to bridge the gaps of opportunity, help us to meet the responsibility we have to reach our full potential.

Our nationally recognized advancements in housing and sustainability have contributed greatly to the progress of our mission. Leading the Way I and II, my administration's pioneering housing strategy, succeeded in adding 18,000 units of housing in the City of Boston, the equivalent of adding a new neighborhood the size of Jamaica Plain or West Roxbury.

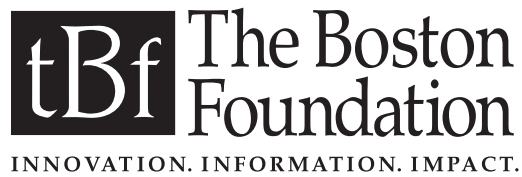
Our green agenda is focused on reducing our energy consumption in both buildings and vehicles, and increasing our use of renewable energy. Towards that end, in January 2007, Boston became the first major city in the nation to require a green building standard for private development. This spring we also committed to planting 100,000 new trees by 2020, increasing the city's tree canopy cover by 20%.

While we are proud of our accomplishments, we also recognize that there is more work to be done. Our future depends on the collaborations of our vast network of partnerships – among City agencies, businesses, institutions and non-profit organizations – in order make significant and lasting contributions to our city's future success.

The Boston Indicators Report remains a vital measurement of our progress while also assessing the growing needs of our city. In partnership with the Boston Foundation and the Metropolitan Area Planning Council, we will continue to utilize the knowledge and experience of the thousands of leaders and innovators who have shared their data and input for this report, in order to make our "City on a Hill" shine even brighter.

Sincerely,

Thomas M. Menino
Mayor of Boston



Dear Members of the Greater Boston Community:

The release of the 4th biennial Summary Report of the Boston Indicators Project is a good time to reflect on this remarkable civic effort, and on the generous contribution of time and expertise of thousands of Greater Bostonians that made it possible.

Spawned more than a decade ago in a conversation about measures of sustainability between then Vice President Al Gore and then Chief of Boston's Environmental Services Cabinet Cathleen Douglas Stone, the Boston Indicators Project today is an award-winning tool reshaping civic dialogue locally while informing similar efforts worldwide.

This report brings that founding conversation full circle. It highlights the global forces buffeting the region, of which the most pressing is climate change, emphasizes Greater Boston's extraordinary history as the birthplace of a revolution in every century, and calls on the region to make its revolutionary mark once again.

Looking back, I am struck by the degree to which these reports—by synthesizing local and regional data, research, and expertise—have lifted the quality of public discourse by creating a shared picture of current trends. In that sense, they have made a coordinated response more likely than seemed possible when the Citistates Group characterized the region as “lacking the collaborative gene” just a few years ago.

Looking ahead, the “revolution” called for in this report is underway. Boston and Massachusetts, under the forward-looking leadership of Mayor Thomas M. Menino and Governor Deval Patrick, are navigating the 21st century as global groundbreakers. And despite fiercely independent municipalities, the region boasts a new 25-year plan for the future, new “smart growth” zoning tools, new civic mechanisms, and younger, more diverse leaders bringing fresh ideas and vitality to the civic landscape.

The Boston Indicators Project is honored to have had the City of Boston and its Mayor Thomas M. Menino and the Metropolitan Area Planning Council and its staff as partners. And we are proud to have released its reports at dynamic Boston College Citizen Seminars, to have drawn together stakeholders and experts, and to have co-convened the John LaWare Leadership Forum as a way to foster a shared civic agenda.

This is a remarkable and challenging time, even for a city and region with a long and illustrious history. And yet, as this report illustrates, there is history yet to be made. I am hopeful that this report will help catalyze the region's vast capacity for leadership and innovation, and that in two year's time, we will look back on a list of achievements barely imaginable today.

Sincerely,

Paul S. Grogan
President and CEO
The Boston Foundation

About the Boston Indicators Project and the Boston Foundation

The Boston Foundation, Greater Boston's community foundation—grantmaker, partner in philanthropy, key convener, and civic leader—coordinates the Boston Indicators Project in partnership with the City of Boston and the Metropolitan Area Planning Council. The Project relies on the expertise of hundreds of stakeholders gathered in multiple convenings to frame its conclusions, and draws data from the wealth of information and research generated by the region's excellent public agencies, civic institutions, think tanks, and community-based organizations. The Boston Foundation will release a biennial report, with supplemental updates and outreach, through the year 2030, Boston's 400th anniversary.

The Boston Indicators Project offers new ways to understand Boston and its neighborhoods in a regional context. It aims to democratize access to information, foster informed public discourse, track progress on shared civic goals, and report on change in 10 sectors: Civic Vitality, Cultural Life and the Arts, the Economy, Education, the Environment, Health, Housing, Public Safety, Technology, and Transportation.

Through its ongoing interactions with the broad civic community, the Project also works to develop a shared Civic Agenda reflecting the perspectives of thousands of participants over the life the project—from school children and engaged residents to academic and community-based experts to public officials and policymakers. Expressed for the first time in the 2002-2004 Indicators Report, the Emerging Civic Agenda informed the development of the John LaWare Leadership Forum, launched in 2005, which convenes Greater Boston's business and civic leaders to focus on and respond to regional competitiveness issues. The Project also sponsors seminars to bring people together across the city and region, with an emphasis on new and emerging leaders.

The Project's first report, *The Wisdom of Our Choices*, was released in 2000. The second report, *Creativity and Innovation: A Bridge to the Future*, was released in early 2003, along with the launch of the Project's interactive website, which received the International Tech Museum Award that year for using technology to further equality. The third report, *Thinking Globally/ Acting Locally: A Regional Wake-Up Call*, was released in 2005, with an enhanced website. This report, *A Time Like No Other: Charting the Course of the Next Revolution*, marks the 10-year anniversary of the Project and introduces, in partnership with the Metropolitan Area Planning Council, a new data-rich online mapping website www.MetroBostonDataCommon.org

Each biennial Boston Indicators Report has been released at a Boston College Citizen Seminar. The Seminars, since their inception in 1954, continue to bring together leaders from academia, business, government, labor and nonprofits for the purpose of discussing and debating some of the pressing issues facing the City of Boston and the region in which it is located.

All Boston Indicators Project reports are available online at www.bostonindicators.org. The website provides sector highlights, indicators with data available for download, and exciting features such as the Hub of Innovation, a Cultural Resources Survey, Links & Resources and a Data Portal leading to other data-rich sites. New research from area and national sources is posted on a regular basis.

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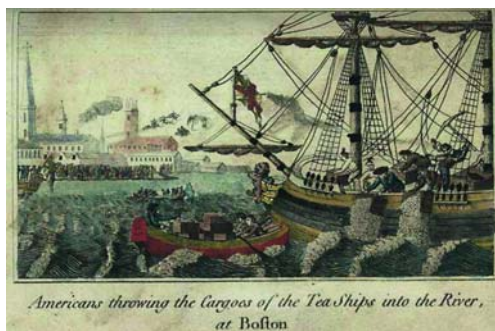
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Greater Boston: Birthplace of Revolutions



17th Century: A Revolutionary Vision

The founding identity of the Massachusetts colony in 1630 was, in the words of its first governor John Winthrop, “as a city on a hill... We shall be made a story and a by-word through the world...” The colonists claimed the land of the Massachusetts tribe, who had been decimated by disease following contact with traders. Their land extended from Plymouth to the Merrimack River, and included the Neponset, Charles, and Concord River basins. For almost four centuries, this region—Greater Boston—has fulfilled Winthrop’s prophetic vision for an outsized role in world events.



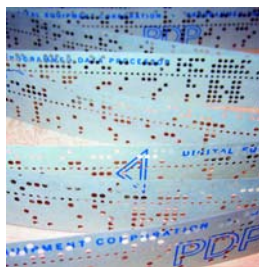
18th Century: The American Revolution

From 1760, when James Otis argued against the writs of assistance, and, later, against “taxation without representation,” to Sam Adams’ protests, which led to the 1773 Boston Tea Party, to the “shot heard around the world” in Lexington, and Charlestown’s Battle of Bunker Hill, Greater Boston was the heart of the American revolution. After the new nation’s founding, Quincy native John Adams wrote the Commonwealth of Massachusetts’s Constitution, the oldest Constitution still in use and a model for the nation’s.



19th Century: America’s Industrial Revolution

Britain’s Industrial Revolution leapfrogged the Atlantic in the person of Samuel Slater, an immigrant to Pawtucket, Rhode Island, who built a water-powered mill for spinning cotton yarn. Westboro native Eli Whitney then invented the cotton gin, automating the separation of cottonseeds from fiber (strengthening the hold of slavery in the South). By 1850, Boston merchant Francis Cabot Lowell established mills in Waltham, and founded the “mill city” of Lowell, where canals powered waterwheels in 40 buildings with 10,000 looms operated by waves of immigrants. By the end of the century, Boston factories turned out textiles, shoes, furniture, and clothing.



20th Century: The Information Age

Following the loss of its major industries to the low-cost South, Greater Boston transitioned to become, in the run up to and after World War II, a leader in high-tech defense systems based on early computers and the software to run them. America’s great science universities—MIT and Stanford—then spawned a new generation of innovators and a new knowledge economy, with high-tech clusters of research and development along Route 128 on the East Coast and in Silicon Valley on the West. The Internet and the World Wide Web boosted these regions into global leadership roles. Once again, immigrants augmented the region’s innovative capacity as well as its labor force.

Introduction

The Boston Indicators Project, initiated just over 10 years ago, issued its first report in 2000 with the goal of tracking incremental progress through 2030, Boston’s 400th anniversary. At the time, there was little sense that Boston was about to enter a tumultuous new century. The city was at a century highpoint—a global center of the red-hot high tech boom.

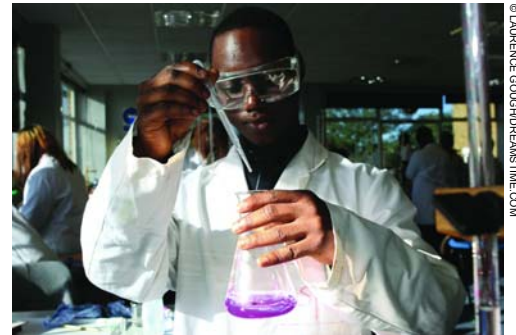
The first report, *The Wisdom of Our Choices: Measures of Progress, Change and Sustainability*, expressed a framework of indicators and measures identified through a rigorous process involving more than 300 experts and stakeholders. Among its findings, the report noted that the booming knowledge economy was separating the economic fates of those with and without a good education.

The second report, *Creativity and Innovation: A Bridge to the Future*, covered 2001 and 2002, the years following the dot com bust, 9/11 and the 2001 recession. It highlighted Boston’s institutional, physical and cultural assets, but noted as a trend to watch the shift of young people away from Boston, Greater Boston and Massachusetts to lower-cost and warmer US regions, even during the boom years of the late 1990s, due to high housing costs and other factors.

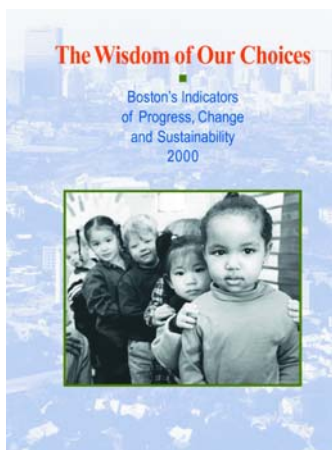
As change accelerated, the next biennial report, *Thinking Globally, Acting Locally: A Regional Wake Up-Call*, covering 2003 and 2004, noted that the region was suddenly competing for jobs and talent not only with other US regions, but with China, India, and other emerging economies. As workers, jobs, and even corporate headquarters exited the region for greater opportunity or lower costs, the report called for a coherent, collaborative response. To that end, it issued an Emerging Civic Agenda that reflected a building consensus and the confluence of local and regional research findings.

That report sparked a series of civic agenda setting conversations that, in turn, contributed to the creation of a new civic mechanism, the John LaWare Leadership Forum, named in honor of an exemplary civic leader. Co-convened by Federal Reserve Bank of Boston President and CEO Cathy Minehan, Boston Foundation President and CEO Paul S. Grogan, and Sovereign Bank New England Chair John Hamill, the Forum regularly brings together civic and business leaders to review key trends and challenges, identify major initiatives underway to address them, and fill gaps, with a focus on the region’s “pipeline” of jobs, talent and education, housing, and new leadership.

This fourth biennial report covers 2005 and 2006, during which the local and regional economy strengthened measurably, with remarkable progress on the civic agenda set forth in 2004, as detailed later.

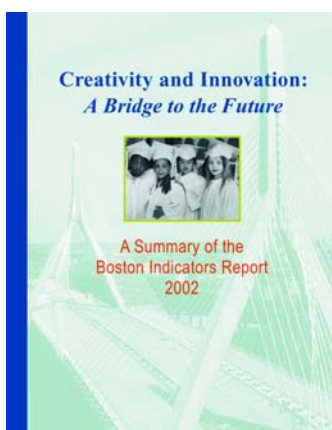


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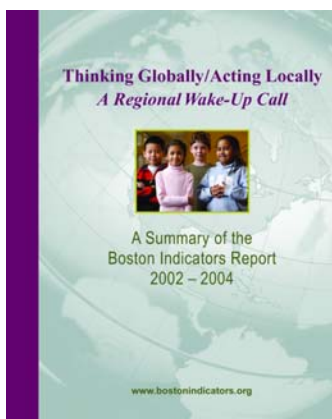
However, it has become clear over four biennial reporting periods that instead of tracking incremental progress, the Boston Indicators Project is measuring the local and regional impact of global transformation and chronicling change during one of the volatile periods in human history.

The early 21st century is characterized by the convergence of two enormous cycles of history. The first is the economic pattern of Western exploration and expansion, in place for 500 years, which now is shifting into a new global mosaic with the resurgence of China, India, Brazil, and other formerly colonized nations. The second is the beginning of the end of a 200-year cycle that began with industrialization and expanded rapidly with the extraction of fossil fuels, spurring unprecedented population growth and material consumption and reaching its environmental limit with documented global climate change.



Greater Boston finds itself at the vortex of global change as these two great cycles converge, with effects that are registering on the measures created by the Boston Indicators Project. A global center of innovation and education, a knowledge economy whose industries are squarely in the sights of global competitors, a coastal region at risk of inundation, and an ethnically diverse region growing only through immigration, the “City on a Hill” has as large a stake in the outcome of these global trends as any place on Earth—and as great a contribution to make in addressing them.

Indeed, with innovation a part of the region’s civic DNA, a “revolution” is already underway. MIT is innovating renewable sources of energy and energy-efficient products. Small businesses are developing breakthrough technologies in robotics, telecommunications, and ocean observation. Top educators are advancing a revolution in early education, science and math, flexible school structures, and teacher quality. Policy makers are grappling with the nation’s first universal health insurance mandate. Researchers are inventing the next wave of medicines and building materials. And artists and immigrants are reinventing local culture.



The good news in this report is that despite often daunting challenges, the “City on a Hill” has turned a difficult corner with greater consensus and cohesion than most observers would have imagined possible just two years ago. In confronting its own challenges by tapping its potential for collaboration, efficiency and innovation, Greater Boston is beginning to generate solutions to the world’s great challenges as well. If successful, these breakthroughs—both high *and* low tech—will spur a new wave of job growth and make the region a powerful magnet for the world’s most creative talent. However, in order to succeed, Bostonians must be vigilant to the huge global forces that face every region, and realize that in order to retain its historic role in the nation and the world, Greater Boston’s communities must work together as never before.

In this time like no other, Bostonians are being called once again to make their revolutionary mark.

Boston 2005–2006

Boston is molting. Known for its heritage but staking a claim on the future, the city today is a study in contrasts. With great and growing economic and cultural diversity and a range of physical voids waiting to be filled, Boston reflects a disjuncture between struggle and opportunity, old ways of living and working and new. At the same time, it is emerging as the even more dynamic capital of New England.

CELEBRATION

The Completion of Mega-Projects: The Big Dig finally opened, delineated at ground level by the Rose Fitzgerald Kennedy Greenway and construction on two of three parks. Logan Airport opened a new runway after 30 years of controversy with restrictions on its use.

Educational Achievement and Ferment: The Boston Public Schools received the prestigious national Broad Prize for exemplary performance among school systems in the US, reflecting major improvements in its infrastructure, recruiting and training of new teachers, new early education slots and Pilot Schools, and improved 10th grade MCAS scores, particularly for African American and Latino students.

Breakthroughs in Diverse Leadership: Sam Yoon was elected to the City Council in 2005—Boston’s first Asian American elected official. Deval Patrick was elected Governor of Massachusetts in 2006 to become the second African American governor in US history. Martha Coakley was elected to be Massachusetts Attorney General, the first woman. And both MIT and Harvard are now led by women.

Exceeding Housing Goals: Mayor Thomas M. Menino’s Leading the Way II campaign exceeded its production target of 10,000 new units in four years, with 7,900 private, market-rate units and permitting for 2,111 affordable units.

Population Growth: Challenged by the Boston officials, the US Census discovered a statistical error leading to a revision upward: Boston’s population did not decline by 5.1% between 2000 and 2005 but grew by 1.2%, or to 596,538, a difference of more than 37,000.

Cultural Revival: The new Institute of Contemporary Art overlooking Boston Harbor opened to broad acclaim. A major renovation of the Museum of Fine Arts, a host of ethnic film festivals, and the Legislature’s passage of the Act for Cultural Facilities Renovation are all enlivening Boston’s cultural scene.

Nonprofit Strength: The Massachusetts Nonprofit Network became the first umbrella for nonprofits statewide. Volunteer participation increased at Boston Cares and Citizen Schools, the venerable Women’s Union and Crittendon-Hastings House merged, Nuestra Comunidad kept its Culinary Ventures incubator open, and Adaptive Environments and Project Hope christened new facilities.





PETER VANDENMARKER

Facelift: Boston’s built environment is turning its face to the future with revitalization of Dudley Square’s historic buildings, new lofts in SOWA (South of Washington Street), renovation of Emerson’s downtown campus, new high rise condos and hotels dotting the skyline, and ancient T stations emerging from scaffolding to reveal sleek 21st century design.

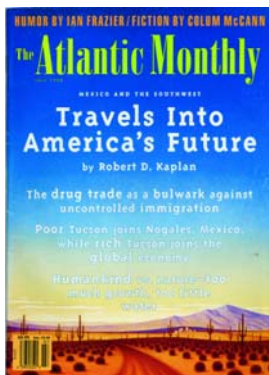
Green and Greener. Boston was the first major US city to adopt a “green” zoning code for large projects. The 500-unit Olmsted Green project plans “rain gardens” to allow rainwater to re-enter the ground. The Children’s Museum expansion features green roofs. The Boston Convention and Exhibition Center, Hynes Convention Center and World Trade Center added recycling programs. And the former Maverick Housing Development in East Boston is now the “green” Maverick Landing.



Waterfront Pleasures: A 120-acre park on Spectacle Island opened with a new pier, marina, visitor center, two public beaches and five miles of walking trails. Nearly 38 miles of the Harborwalk are completed. The Department of Conservation and Recreation opened a new park in Dorchester connecting the Pope John Paul II Park with the Neponset River Greenway. And the Big Dig mitigation agreement resulted in 40 acres of parkland along the Charles River and the 20-acre Bremen Street Park in East Boston.

Tackling Health Disparities. In response to the Mayor’s Task Force to Eliminate Health Disparities, a comprehensive 2005 analysis and blueprint, Partners HealthCare pledged \$3 million to launch the Disparities Solutions Center at MGH and the Bay State Banner launched a monthly supplement entitled Be Healthy. In the summer of 2006, more than 1,700 Bostonians participated in walking groups.

Tourism and Conventions in Full Bloom: The Boston Convention Center hosted events in 2006 that drew 369,907 attendees, up from 195,223 in 2005. The Center now generates more than \$300 million in economic impact.



LOSS

Youth Homicides. In 2006, 74 people died of homicide in Boston, one less than in 2005, a 10-year record. While this is half the loss in the early 1990s, it includes a disproportionate number of youth homicides concentrated in a relatively small area, with escalating fear and the loss of a sense of safety among residents.

Catholic Churches. While the original announcement of the closure of 83 Catholic parish churches in 2004 was met with fierce resistance, the final count of 62 parish closings, involving 41 church buildings upended many Bostonians’ sense of neighborhood connections and spiritual roots while creating opportunities for other churches and for new housing.

A Big Dig Tragedy occurred with a collapsed ceiling, a tragic death, and a loss of confidence in corporate and government oversight.

Out-Migration. Young workers and families continue to decamp in search of low-cost, high-opportunity regions. Between 2000 and 2005, Greater Boston is estimated by the Census Bureau to have declined by 89,500 residents between the ages of 24 and 35. Suffolk County is estimated to have lost 12,600 residents in that age group between just 2003 and 2005.



The End of an Era. Boston continued to lose corporate icons: Gillette; Filene's after a century as a retail giant; *The Atlantic Monthly*, which anchored Boston's literacy scene since 1857, moved to Washington DC; and Macomber Builders, the venerable construction company that built 20th century landmarks such as Faneuil Hall Marketplace.

Newspaper Advertising, Circulation, and News. The loss of commercial anchors, combined with the rise of web-based communications and media, led to a sharp decline in readership and ad revenues for the region's major newspapers and, in turn, to cuts and rumors of sales. Both the *Boston Globe* and *Boston Herald* decreased their news staff.

PROMISE

Campus Building Boom: Eight colleges and universities will add two dozen buildings to Boston. Harvard plans a decades-long 215-acre expansion in Allston. MIT plans a \$210 million cancer center. Northeastern, Suffolk, BU, Emerson and Berklee are planning new high rise dormitories, lab space, and theaters. UMass-Boston has a million dollars in state funding to plan the Columbia Point peninsula. Boston College has embarked on a planning process that will result in a major reconfiguration of its Brighton campus.

Re-Imagination: A new Kroc Community Center is rising on Dudley Street. The Boston Redevelopment Authority is re-imagining Boston's skyline, waterfront, and Downtown. The old Filene's building, phoenix-like, will rise as a 1.2 million square foot mixed-use high rise dwarfed by a planned 1,000-foot-high rise spire in Winthrop Square. BU and the Red Sox are teaming up with a developer to create a \$450 million mixed-use development over the Turnpike.

New transit-oriented development is underway. In Boston, the Center for Urban and Regional Policy at Northeastern University identified 46 planned housing and mixed-use development projects within a quarter mile of public transit. However, with MBTA funding headaches, plans are moving slowly on rail transit improvements, such as the Urban Ring. Enhancement of the Indigo Line continues.

Expanding the Port of Boston: MassPort is drawing up plans to expand Boston's cargo and cruise ship operations through 2025—with a 6-9% increase each of the past three years—growing from about 200,000 passengers in 2006 to a projected 500,000.

Amenities planned for the Greenway. The Boston Harbor Island Alliance and the National Park Service hope to build a harbor pavilion, and a new Boston Museum is planned, as well as an Arts and Culture Center, Public Market, and new YMCA.

Innovative WiFi infrastructure. Boston's WiFi network, dubbed Openairboston.net, has begun to raise the \$16-\$20 million required to create ubiquitous wireless Internet access, with vendors selling low-cost Internet on an innovative nonprofit platform. A pilot was launched in Grove Hall, Dorchester.



Symbol of Boston's 21st Century Rebirth: The Institute of Contemporary Art

Reaching over the waters of Boston Harbor like the mast-head of the region's voyage into the 21st Century, is the new ICA, opened in December 2006. It is also an avant garde precursor of the new neighborhood rising behind it in the South Boston Seaport District. Wisely, the ICA has left some of its walls blank for the contributions of a new generation of Greater Bostonians who have yet to make their mark on the city's psyche.

Rankings: Where do Boston, MetroBoston and the Commonwealth Stand?

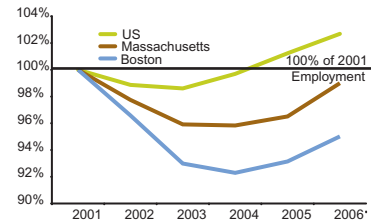
| Category | Index/Report | Year | Geography/Ranking |
|--|--|-------------|--|
| Innovation | Small Business Innovation State of Oregon Benchmarks | 2005 | Massachusetts ranks 2nd |
| Massachusetts ranks 2nd (behind California) in the number of Small Business Innovation Research and Small Business Technology Transfer awards, and 1st on a per capita basis. | | | |
| Quality of Life | Worldwide Quality of Life Rankings Mercer Consulting | 2006 | Boston ranks 36th worldwide, 3rd among US cities, up from 9th in 2004 |
| This global study assesses 39 quality-of-life determinants including consumer goods, economic environment, housing, medical and health considerations, natural environment, political and social environment, public services and transportation, recreation, schools and education, and social/cultural environment. | | | |
| Economic Climate | Best Places For Business <i>Forbes Magazine</i> | 2006 | MetroBoston ranks 39th among 62 large metro areas |
| Annual ranking by educational attainment, business costs, cost of living, crime rate, culture and leisure, income and job growth, and net migration. Massachusetts ranks low on measures of business costs and high on quality of life measures. Metro Boston ranks low on business costs, cost of living, and net migration, near the top in culture, leisure, and number of colleges. | | | |
| Economic Climate | Best Cities for Entrepreneurs <i>Entrepreneur</i> and The National Policy Research Council | 2006 | Massachusetts ranks 28th, Boston ranks 2nd in the Northeast |
| An annual ranking of states and large and small metro areas. Criteria include small business formation and growth. Among major northeastern metros, Boston ranked 2nd, behind Washington, DC. | | | |
| Overall Competitiveness | State Competitiveness Index Beacon Hill Institute | 2006 | Massachusetts ranks 1st, for 3rd year in a row |
| More than three dozen measures rank states in: government and fiscal policy; security (crime); infrastructure; human resources; technology; business incubation; openness to commerce; and environmental policy. Competitiveness is defined as “policies and conditions that ensure and sustain a higher level of per capital income and continued growth.” Massachusetts ranks 1st in human resources and technology, low (49th) in infrastructure. | | | |
| Environmental Sustainability | US City Sustainability Ranking SustainLane | 2006 | Boston ranks 7th |
| An index of cities’ ability to adapt to a limit on fossil fuels, including density, public transportation, local food, renewable energy, green buildings and urban greening. Boston scored high on land use and public transport, low in traffic congestion, water quality, and risk of natural disasters. | | | |
| Health | Healthiest States Report United Health Foundation | 2006 | Boston ranks 7th, up from 9th in 2005 |
| A 20-measures assessment of health and health systems. Massachusetts has seen most improvement in infant mortality since 1990, and from 2005-2006, in reduction in the uninsured. Among NE states, MA scored lower than VT, NH, and CT, higher than RI and ME. | | | |
| Climate for Workers | Work Environment Index UMass-Amherst Political Economy Institute | 2005 | Massachusetts ranks 18th |
| This index takes into account job opportunities, job quality and workplace fairness to measure the favorably of a state for workers. Massachusetts ranks 10th on workplace fairness, low on job opportunities (25th) and job quality (27th). MA ranked lower than other NE states, higher than NY. | | | |

Massachusetts 2005-2006: Turning the Corner

Following almost a half decade during which Massachusetts lagged the nation in recovery from the recession of 2001, the Bay State's economy began to strengthen in the second half of 2005, and by the third quarter of 2006, the rate of growth of the Massachusetts economy exceeded that of the nation.

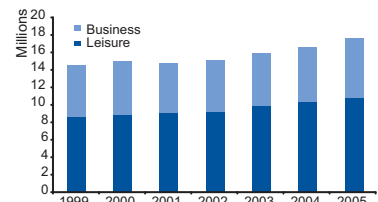
- Between 2004 and the end of 2006, Massachusetts added 57,728 jobs, and Boston added 15,727.
- Tourism rebounded, with visitors to Greater Boston increasing by 19% since 2001 overall and by 8% from 2004 to 2005. From 2004 to the 3rd quarter of 2006, jobs in the leisure and hospitality sector grew 5% in Boston and 11% in Massachusetts.
- State tax revenues increased by 7.1% in FY2005, and 8.2% FY2006.
- Vacant lab space dropped by almost 12% in the second two quarters of 2006 in Greater Boston, and particularly in Cambridge, the region's lab and research leader. Cambridge's vacancy rate fell to below 10% overall and in Kendall Square, lab vacancy rates fell to 6.3% from 17% in early 2006.
- Massachusetts' exports set a record of almost \$18 billion in the first three quarters of 2006, 9% higher than the same period in 2005, which had also set a record, according to the *Boston Globe*.
- Massachusetts' inventors erased a two-year decline in the number of patents, with a 29% increase—4,011—in new patents filed in 2006.
- Cargo volumes in the Port of Boston the first half of 2005 were 11% higher than the record set in 2004 record—with 91,000 standard containers moving through Boston in the first half of 2005.
- Massachusetts led the nation in venture capital investment in life sciences companies, particularly for medical device companies, in the first nine months of 2006. These investments totaled \$507 million, a 55% increase over the \$327 million invested in the comparable nine months a year before.
- The Commonwealth Housing Task Force forged and helped to pass consensus housing legislation to encourage smart growth development in city and town centers and near transit, resulting in passage of new 40R and 40S zoning overlay districts by 12 cities and towns, with 30 more under consideration.
- The Bay State successfully wooed a major firm to Fort Devens through the collaborative efforts of its Business Resources Team—a one-stop shop for business location, expansion and permitting—in partnership with the University of Massachusetts and MassDevelopment.
- UMass Lowell received a \$35 million investment in its nanotech research center to serve the region's 175 nanotech firms.

Change in Employment, US, Massachusetts and Boston 2001-2006



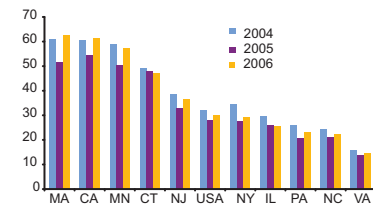
Source: Bureau of Labor Statistics and Mass. Dept. of Workforce Development. 2006 Boston data as of 3rd Quarter.

Number of Visitors to Boston, 1999-2005



Source: Greater Boston Convention & Visitors Bureau

Patents Issued per 100,000 Residents, Competitor States, 2004-2006



Source: Massachusetts Technology Collaborative and the US Patent and Trademark Office.

TRIM TAB

Buckminster ('Bucky') Fuller, the renowned 20th century inventor and futurist with deep roots in New England (his great aunt was the author and early feminist Margaret Fuller), is buried in Mount Auburn Cemetery. His tombstone reads simply: "Call me Trim Tab."



A trim tab is a small device on a ship's main rudder that must be turned before engaging the large rudder to change course safely. Fuller saw trim tabs as a symbol for the small but strategic acts that change the course of world events.

Boston and the Commonwealth of Massachusetts have acted as trim tabs to the world from the moment of their founding in 1630. Greater Boston's outsized influence on world events is incontrovertible.

Today, with the limits of fossil-fueled industrialization becoming apparent just as global population accelerates, Greater Boston is one of the few places with the capacity to shift direction swiftly enough to model changes that must

occur to avert the worst effects of global warming. With its innovative capacity, compact size, racial/ethnic and linguistic diversity, and dense networks of relationship, it has what it takes to chart the transition from fossil-fuel-dependency to a sustainable regional economy on a scale that would be akin to 'turning an ocean liner.'

A land-based version of this concept is found in the revelation of Archimedes, the greatest scientist and mathematician of antiquity, who said: "Give me a place to stand and a lever long enough and I can move the world." Greater Boston is an excellent place to stand to achieve the necessary understanding, collaboration, efficiency and innovation to jumpstart America's transition to a carbon-free economy.

Experts tell us that we have between 5 and 10 years in which to act.

If Greater Boston can fulfill its potential for collaboration, efficiency, and innovation and model a rapid transition to sustainable growth, it will become a world-class center and magnet for talent—growing and attracting the scientists, inventors, entrepreneurs, skilled workers, architects, artists, venture capitalists, and engaged residents necessary to function as a constructive trim tab in this period of global transformation—this time like no other.

No Ordinary Time

A “Bottleneck for Humanity”

“I’m not thinking about today, I’m thinking about the future for my grandkids and children of the future: how we can sustain ourselves during this change in our atmosphere.”

—Mayor Thomas M. Menino at the release of the City of Boston’s sweeping plan to reduce greenhouse gas emissions by 2050

“Once again, Boston is firing the shot heard round the world.”

—Massachusetts Congressman Edward Markey, Chair, House Select Committee on Climate Change

An assessment of change and progress in Boston—hub of the nation’s fifth largest metropolitan area and a world center of education and innovation—must take place in a global context. A long view of key global trends and major external forces will help to enhance the region’s capacity to plan, innovate, and compete.

These long-term trends are sobering. It appears that the world community has entered a rare time, referred to by evolutionary biologists as “punctuated disequilibrium,” when business as usual gives way to sudden disjuncture. Most scientists believe that the next half century will test humanity’s singular ingenuity and that current trends, if not abated, will negatively and irrevocably alter life on Earth as it has been lived for thousands of years. Harvard biologist E. O. Wilson calls the coming decades a “bottleneck for humanity.”

Humanity is growing at an unprecedented pace, particularly in less developed nations that are modernizing rapidly and shifting the center of economic gravity eastward for the first time in 500 years. Economic globalization is also intensifying the competition for talent, jobs, and natural resources. And after 150 years, fossil-fueled industrialization is reaching its environmental limit in documented global warming.

Whether expressed as a tightening bottleneck, a sudden collapse, or a successful transition to an environmentally sustainable global economy, the convergence of these trends is likely to be highly disruptive.

MIT president Susan Hockfield and other experts have said that the world community has less than a decade to put in place policies and practices that may forestall the most catastrophic effects of global climate change. Averting the worse-case scenario will require unprecedented levels of global collaboration, the efficient use of resources, and innovation.

In this extraordinary period of change, one thing is certain. With its unparalleled innovative capacity, Greater Boston will be pushed or pulled to embrace once again the region’s historic role as the “City on a Hill.” What follows are brief summaries of global trends that are already buffeting Greater Boston.



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GLOBAL POPULATION GROWTH

“The current rate of growth is unprecedented for humanity.”

—The United Nations

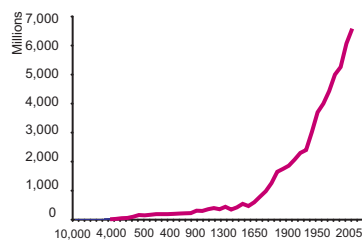
Since the 1980s, the populations of both Boston and Massachusetts have increased only due to an influx of foreign-born immigrants. In 1980, one in six Bostonians was foreign born. By 2005, that figure had increased to nearly one in three. Local immigration patterns reflect global trends, and today, with more than 140 languages spoken in the region, Bostonians come from every corner of the Earth.

Globally, the current pace of global population growth is unprecedented, and reflects the culmination of 200 years of industrialization. After about 40,000 years of incremental increase, humanity numbered just one billion in 1800. By 1900, it had swelled to 1.6 billion. Over the course of the 20th century, humanity quadrupled, reaching 6.5 billion in 2005. World population is expected to reach about 9 billion after 2050 and to hover at that level for the remainder of the 21st century. Today, however, humanity is increasing at the rate of 1.5 million people every week.

The United Nations projects that between 1950 and 2050:

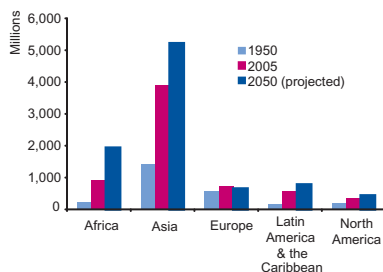
- Developing nations with low per capita wealth will grow rapidly. Africa’s population is projected to increase from 9% of global population in 1950 to 21% in 2050, while Europe and the Former Soviet Union are projected to shrink from 22% in 1950 to just 7% in 2050.
- Industrialized nations with high per capita wealth and low birth rates are projected to net only 350 million additional residents, with fewer young workers supporting more retirees.
- The US is alone among industrialized nations with moderate projected growth due to immigration, but its share will decline from 6% in 1950 to 4.5% in 2050, despite a projected increase to 420 million people.
- By 2050, Asia’s population is expected to total 5.3 billion, or 57% of global population. Japan is in negative growth, and China, with its one-child policy, is due to multiply only 2.5 times. In contrast, India is projected to quadruple between 1950 and 2050, and to overtake China as the world’s most populous nation by 2020.
- Muslims are expected to double their share of global population from less than 15% to almost 30%. Indonesians are expected to increase more than 4 times, Pakistanis 7 1/2 times, and Saudi Arabians nearly 13 times.
- North, Central, and South America are expected to increase to 1.2 billion by 2050, about the size of China or India today, and constitute 13% of global population.

World Population: 10,000 BCE to 2007



Source: US Census Bureau International Data Base

World Population 1950-2050



Source: US Census Bureau International Data Base

Global demographic forces are gathering strength, as evidenced in the intensifying scramble for talent, jobs, energy, and natural resources, increasing levels of migration, and mounting pressure on ecological systems.

GLOBAL ECONOMIC COMPETITIVENESS

The World Wide Web created a global telecommunications architecture that spawned a “spatial revolution” of decentralized business activity. Corporations doing business in one place and time zone just a few years ago are now transnational, with 24/7 technology-enabled supply and distribution networks that are dispersing jobs as well as innovative capacity.

Global economic patterns in place for centuries are beginning to shift eastward. *Boston Globe* columnist H.D.S. Greenaway returned from the 2007 Davos world economic forum reporting talk of an “Asian renaissance” and “Asian lands coming into their own for the first time since the 15th century, when one-half of the world’s industrial production came from the East.”

According to a 2006 report by the US Council on Competitiveness for the Department of Commerce, “great ideas are now more likely to be developed and commercialized in countries outside the US.”

- “Foreign-owned companies and foreign-born inventors account for nearly half of all US patents;
- “In 2004, China overtook the US to become the world’s leading exporter of information and communications technology;
- “Only six of the world’s 25 most competitive information technology companies are based in the US—14 are based in Asia;
- “Sweden, Finland, Israel, Japan, and South Korea each spend more on R&D as a share of GDP than the US.”

Asia is barreling into place as the giant of the 21st century. With 60% of the world’s population and the second and fourth largest economies, Asia’s resurgence is shifting the economic center of gravity. According to the China News Service, China’s economy was the world’s largest for 18 of the past 20 centuries, and is surging back. China doubled the size of its economy in five years to become the world’s fourth largest economy, after the US, Japan, and Germany, and is expected to move into third place in 2007. Meanwhile, Japan is increasing its share of the US automobile industry, while Boston’s early 20th century industries—shoes and textiles—have resurfaced in Vietnam, the world’s fastest growing economy.

The so-called “BRICs”—Brazil, Russia, India, and China—represent increasingly integrated new engines of global growth. Brazil, which is becoming energy independent through biofuel production, is the world’s largest agricultural exporter. Russia is the largest exporter of natural gas. India is ramping up its high-tech sectors. China and Brazil are collaborating on the development of information infrastructure, while China and India are partners in securing energy. All of the BRICs are running a trade surplus with the US.

With growing external competition and mounting fiscal challenges at home, the ground of the economic landscape is shifting, with uncertain results for Greater Boston.

THE US ECONOMY FACES TOUGH COMPETITIVE CHALLENGES:

■ **The US trade imbalance reached nearly 7% of GDP in 2006**, about one quarter due to an imbalance with China and one-third accounted for by energy imports.

■ **Public and private health care costs in the US totaled 15% of GDP in 2003 in contrast to 7.7% in Great Britain, which covers all of its citizens with health insurance and achieves better health status.** US health care costs are projected to be 20% of GDP by 2015.

■ **All US Baby Boomers will reach age 65 between 2010 and 2030, with Social Security and especially Medicare costs expected to rise dramatically.** The GAO has concluded that the federal budget as currently structured is “unsustainable.”

■ **The US ranks 7th among developed nations in the proportion of 25-34 year olds with a college degree, and among the lower half in current college completion rates** (according to *Measuring Up 2006: The National Report Card on Higher Education*).

SIGNS OF THE TIMES: THE ASIAN CONNECTION



■ Korean American Sam Yoon was elected to an at-large seat on the Boston City Council in November 2005. Until then, Greater Boston's leadership structures showed almost no outward sign that Asians are the fastest growing ethnic group in Massachusetts, that Bostonians reflect a great variety of Asian ethnicities, or that China is the world's fastest growing economic powerhouse of increasing importance to the Commonwealth.

■ South Korean and graduate of the John F. Kennedy School of Government at Harvard University Ban Ki-Moon became the United Nations' first Asian Secretary General.

■ The iconic Ritz-Carlton Hotel announced that it would be called the Taj Boston Hotel, reflecting new Indian ownership.

■ UMass announced its new Confucius Institute sponsored by the Chinese Ministry of Education to promote Chinese language, history and culture. An annual conference, the US-China Business Forum, will bring together prominent business and political leaders from Massachusetts and China. The first was held in partnership with Tsinghua University and the Massachusetts Biotechnology Council.

■ Harvard's Kennedy School of Government set up an Executive Program for Indian Civil Servants for the Government of India.

■ In October of 2006, Harvard launched the Harvard China Fund to complement its Yenching Institute.

The new fund is a university-wide initiative to support research and teaching about China, "with the potential for a physical presence." Its director explained that China is "perhaps the most dynamically changing place on Earth..." and that Harvard has a special responsibility to support research that "advances our collective understanding of China...and its distinctive contributions to the world that we will cohabit in the 21st century."

■ Global Massachusetts 2015 took a delegation to China in 2006 and Boston's City-to-City Exchange Program has made plans to visit China in 2007.



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GLOBAL ENERGY CONSUMPTION

“The only way we can ensure that America reduces its dependence on imports is by exploiting technology to make ourselves more energy efficient and to start moving away from fossil fuels.”

—Massachusetts Congressman Edward Markey, Chair,
House Select Committee on Climate Change

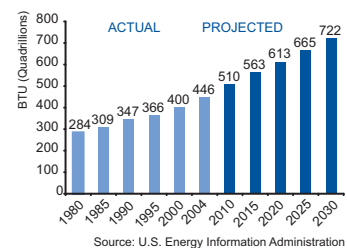
Massachusetts’ great 19th century mill cities were water-powered. Later, the invention of steam engines, electricity, and diesel- and gas-powered combustion engines increased the world’s appetite for mobile, condensed energy such as coal, natural gas, and oil. Since 1950, petroleum, or oil, has been the fuel of choice for modern economies. With increased competition for fossil fuels dovetailing with concerns about global warming, however, a major energy reckoning seems close at hand.

- **With just 5% of the world’s population, the US consumes 25% of world energy resources—and depends increasingly on imports.** In 1975, the US was 35% dependent on foreign energy, but by 2005, that figure had increased to 60%. On a per capita basis, Americans consume energy at twice the rate of the Japanese and Germans—the next two largest economies. (California, however, has held per capita energy use constant for three decades while the US rate increased by 40%.)
- **US consumption and increased demand from China and India are projected to double global energy demand by 2030.** Asia, with 60% of the world’s population, consumes about 29% of energy resources today but is developing rapidly. China, the world’s largest nation, is due to surpass the US as the world’s largest energy consumer by 2009, but with more than four times the US population, the Chinese, per person, will consume about one-fourth the energy used by each American.
- **A spatial mismatch between energy sources and consumption is changing global economic patterns.** Imported oil alone accounted for 38%—\$266 billion—of the US trade deficit, while *The Financial Times* reports that “petrodollars will probably provide all oil exporters with a...surplus of about \$450 billion in 2006.”
- **New discoveries of oil and gas reserves are located, by and large, in fragile locales**—deep water in the Gulf of Mexico, the Alaska wilderness, in shale and Canadian oil sands—requiring expensive and environmentally risky extraction methods that may gain traction as prices rise due to the peaking of readily available supplies.
- **Increased competition for oil and natural gas may increase the demand for coal, the most polluting energy source, and for nuclear power, for which plant security and waste disposal issues in the US remain unresolved.** China and the US contain vast reserves of coal, with both set to build new “dirty technology” coal-powered plants that will undermine efforts to forestall global warming.

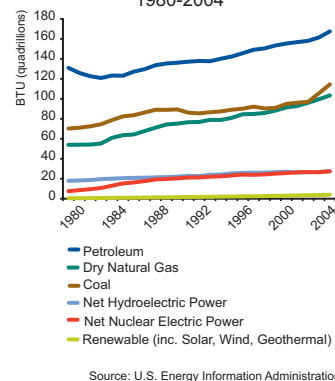
In light of these trends, New York Times columnist Thomas Friedman suggests that “green is the new red, white, and blue.”



World Energy Consumption, 1980-2030



World Energy Consumption by Type, 1980-2004



THE US LAGS IN ENERGY CONSERVATION & INNOVATION



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Most industrialized nations responded to the 1973 OPEC Oil Embargo with higher fuel efficiency standards and renewable energy innovation. And by late 2006, 169 nations had signed the UN Kyoto Protocol, which then covered about 55% of global emissions. These commitments are beginning to pay off in energy independence and competitive advantage:

- **Japan's Toyota Motor Corporation passed General Motors Corporation as the world's No. 1 auto maker** in large part because of the popularity of its fuel efficient line of cars. Japan, the world's second largest economy, also consumes less energy per unit of output than any nation, and is the world leader in solar energy innovation.
- **Brazil, 80% dependent on foreign energy in 1976, imports less than 10% of its energy today** by producing biodiesel and ethanol, and using flexible-fuel vehicles.
- **France is close to independence in electric power**, generating 76% of its energy from highly efficient nuclear plants that utilize state-of-the-art safety and waste-disposal technology, and 12% from hydro-electric power.
- **Denmark produces 20% of its electricity from wind power** and is taking a lead on sophisticated biomass fuel and fuel cell technology research.
- **Germany, Japan, and India are the world's largest producers of solar cells.** California ranks third in the world in solar energy production, behind Japan and Germany. Switzerland is the world's highest per capita user of solar energy, followed by Japan, Australia, Norway, Germany and Holland. In 2005, Japan set a target of 70,000 solar roofs to stimulate a mass market for solar technology.
- **China, which has not signed the Kyoto Accord, committed in 2006 to generating 10% of all of its energy from renewable sources by 2020.** It has built an Eco City of entirely self-contained ecological systems to innovate and test green energy technologies.
- **By 2010, 21% of the EU's electricity generation will come from renewable sources**, according to policies established in 2004.



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GLOBAL WARMING

“...The time for initiating meaningful steps to curb climate-threatening carbon dioxide emissions is short...

We are probably only decades away, at best, from the point of no return.”

—Susan Hockfield, President of MIT

In 2005, Tufts and Boston University released the results of an EPA-funded study of the potential effects of global warming on Boston and 100 surrounding communities designed to inform national preparedness. The study projected that by 2100, heavy storms will drive seawater into downtown Boston and Cambridge, with coastal flooding from Rockport to Duxbury, while sickness and death from heat stroke will rise.

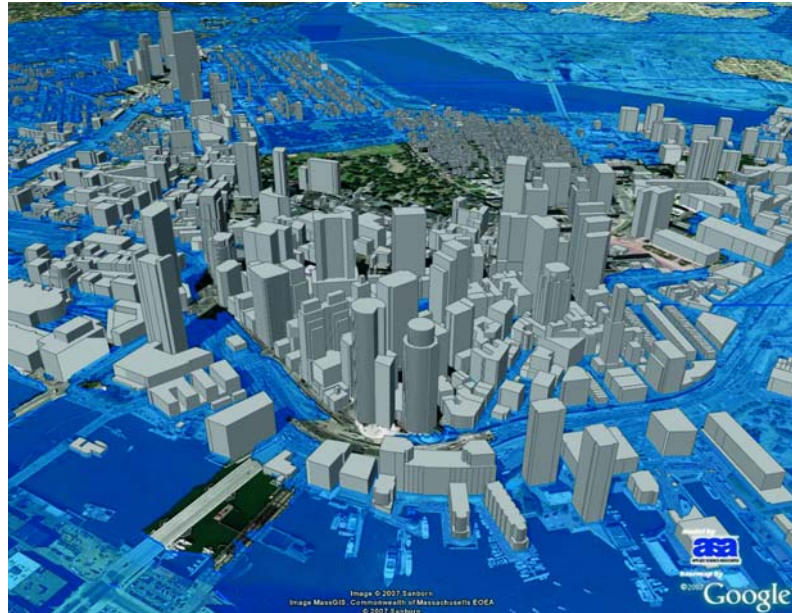
Since then, world scientists on the Intergovernmental Panel on Climate Change declared with 90% certainty that global warming is occurring and that it stems from human action. They projected global temperature increases between 3.5 and 7 degrees Fahrenheit and a sea level rise between 7 and 23 inches over the century, with severe storms and drought, the extinction of species and worldwide coastal flooding.

In a shift from the 2005 Boston study’s findings, however, scientists are concluding that the effects of global warming are not linear—getting progressively worse—but presage unpredictable feedback loops such as disruptions in the seasonal rhythms of flowers and their insect pollinators, the dissolving of tiny marine creatures’ shells due to ocean acidification, and the thawing of Arctic tundra containing millions of tons of trapped greenhouse gases.

Most scientists believe that keeping carbon dioxide in the atmosphere below its historic rate of 280 parts per million will avert the most catastrophic effects of global warming—a tipping point at which the Earth could become a different kind of planet within the theoretical lifetimes of all children alive today. The rate is about 380 parts per million today.

Limiting greenhouse gases will require unprecedented global and regional collaboration and innovation. The good news is that in 2006 several collaborative efforts on the global climate change front were announced:

- **The EU, the US, China, India, Russia, Japan, and South Korea launched a partnership to explore the feasibility of commercializing fusion energy** as a way to combat global warming. The \$12.8 billion partnership, the ITER Project, is located in Southern France.
- **The CEOs of some of America’s largest companies called on President Bush and Congress to prepare for a new cap-and-trade market in carbon emissions**, and to issue consistent energy and emissions policies in preference to the current state-by-state, city-by-city approach.
- **With Massachusetts a member, the Northeast’s Regional Greenhouse Gas Initiative will create the first US carbon cap-and-trade system.**

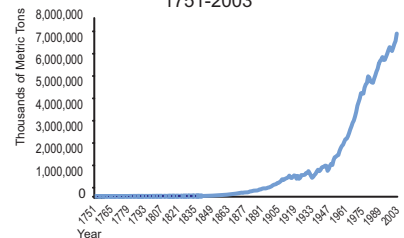


Inundation Model of Boston

A computer simulation of Boston in 2100 shows the projected combined effects of natural subsidence over the century, a sea level rise of 15” inches due to global warming, a high tide, and storm surge. However, with accelerating deterioration and melting of the Antarctica and Greenland ice sheets, this scenario could occur much sooner, according to leading US glaciologists.

MODEL BY APPLIED SCIENCE ASSOCIATES, INC.

Global CO₂ Emissions from Fossil Fuels 1751-2003



Source: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory

Global Innovation

“Innovation emerges from a network of open-ended conversations across disciplines that are unpredictable and open to new ideas... Most innovation comes not from invention but from borrowing.”

—Richard K. Lester, Director, MIT Industrial Performance Center, Regional Innovation Summit



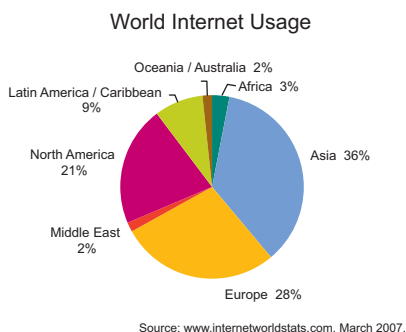
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Technological innovation is both driving global economic restructuring and offering hope to efforts to address the world’s great challenges. However, there are trends that promise to be as important as any other in setting the pace of change and in shaping Greater Boston’s future:

■ **Leapfrogging:** In a form of progress that benefited Massachusetts in the early Industrial Revolution, innovation today is “leapfrogging” from more to less developed regions that have less resistance from entrenched interests and less old infrastructure to be disposed of. For example, cell phone technology is more reliable in many Third World cities that never had sufficient land lines than in Boston, New York, or DC. Developing nations are also leapfrogging over centralized electric grids with appliances and systems that run on decentralized “micropower” such as free-standing solar energy. And because young people are more likely to diffuse innovations than older residents and make up a large percentage of developing nations’ populations, breakthroughs are increasingly likely to emerge from and take root in emerging economies.

■ **Technology-Enabled Mass Collaboration:** With access to the World Wide Web invented by Tim Berners-Lee, now at MIT working on its sequel, colleagues, friends and family do not have to be physically present to contribute to a joint effort. Similarly, Wikipedia and the open source operating system Linux reflect technology-enabled mass collaboration. “Wiki” corporate models are also changing companies’ relationship to the concepts of location and employees, allowing Greater Boston to become a center of new “micro-headquarters.” By tapping diverse perspectives and enabling broad participation, mass collaboration also facilitates global problem-solving.

■ **Systems Transformation and Innovation Eco-Systems:** Some argue that in the 21st century, innovation must transcend the invention of one new process or product and transform whole systems such as communications, transportation, and energy. This requires healthy eco-systems of relationship among people who—across projects and disciplines in corporations, universities, research institutes and government agencies—are able to create, adopt, adapt and diffuse new technologies. Such networks can be ad hoc, such as those in Kendall Square in Cambridge or Longwood Medical Center in Boston, or planned, such as the university-industry Centers of Excellence proposed by Global Massachusetts 2015. Similarly, China is building 150 “Science Cities,” each with a state-of-the-art university, 100,000 students and about 600,000 residents—the size of Boston. South Korea is building a world-class financial services hub. Spain is building a state-of-the-art biotech center for 1000 scientists in Barcelona.



Building the Infrastructure for Change: A New Spirit of Collaboration

“Every metropolitan area must periodically reinvent itself.”

—Barry Bluestone, *The Boston Renaissance*

The recession of 2001 and its aftermath marked the end of a long growth cycle described by Northeastern University economist and author Barry Bluestone as the “Boston Renaissance,” a 30-year cycle of growth that tracked Greater Boston’s rise from “veritable basket case” in 1970 to a world-class, high-tech powerhouse in 2000. That rise was powered by trends favorable to the region as it shifted from a manufacturing- to knowledge-based economy.

Along with the 2001 recession came widely bemoaned job loss, the sale or consolidation of iconic corporations, and the out-migration of talented young workers—a true reversal of fortune for a region that had generally had the wind at its back for decades, despite ups and downs.

Into 2005, Massachusetts lagged the rest of nation in recovery—with job and population losses that rivaled post-Katrina Louisiana and the collapse of the auto industry in Michigan. However, the prospect of a vicious economic cycle brought with it a sense of urgency and a rare openness to new ways of working. There are numerous signs that leaders labeled as “lacking the collaborative gene” just two years ago have begun to build a more resilient and muscular civic culture and economy to support what is arguably the region’s greatest asset: its capacity for reinvention.

The Federal Reserve Bank of Boston, the Boston Foundation, and the Chair of Sovereign Bank New England convened the **John LaWare Leadership Forum**, to present data on key trends to civic and business leaders, and identify initiatives to improve the “pipeline” of jobs, talent and education, housing, and new leadership. The **Boston College Citizen Seminars** continued to provide a venue for new civic initiatives. The Boston Chamber of Commerce collaborated with other business groups to develop a **Common Business Agenda** on key public policy issues—from education to housing. Mass Insight mobilized industry and academic leaders to create **Global Massachusetts 2015**, a comprehensive, sector-based approach to making Massachusetts a world leader in key sectors of the innovation economy.

The Massachusetts Business Roundtable, MIT, and the US Council on Competitiveness sponsored a **Regional Innovation Summit** to stimulate regional collaboration and Massachusetts created a one-stop-shop across its public agencies and external partners—the **Business Resource Team**—to respond rapidly to companies seeking to expand or do business in the Bay State. The Boston History and Innovation Collaborative initiated **Innovate Boston!** to strengthen Boston’s historic capacity for innovation and renewal.

Specific sectors created new collaborative mechanisms, such as the **Technology Leadership Council**, a merger of two former organizations that now boasts 500 technology companies. A coalition including the Boston



JOHN LAWARE
LEADERSHIP
FORUM





Foundation, UMass-Boston, Harvard University and the Massachusetts Technology Collaborative founded the **Life Sciences Collaborative** to strengthen the region's industry/research "super cluster." A new state **Cultural Facilities Fund** was created to boost investment in arts and cultural assets.

New zoning overlay districts—40R and 40S—encouraged by the ongoing work of the **Commonwealth Housing Task Force**, encouraged smart growth housing development. The Massachusetts Legislature passed **groundbreaking health care legislation** as industry representatives, advocates, public officials and business groups collaborated in an effort to cover all state residents with insurance. Boston Mayor Thomas M. Menino's **Task Force on Health Disparities** partnered with MGH and others to develop an action plan to improve health outcomes. The Mayor set forth a breakthrough **Green Building Code** based on recommendations from his **Green Building Roundtable** of environmentalists and developers. The Mayor's **Smart from the Start Initiative** for 0-5 year olds brought together experts and stakeholders from the worlds of education, health, and child development to develop strategies to boost the prospects of the city's youngest low-income children.

The Boston Municipal Research Bureau, the Metropolitan Area Planning Council, the Massachusetts Municipal Association, Sovereign Bank, Northeastern University's Center for Urban and Regional Policy, the Rappaport Institute at Harvard's Kennedy School of Government, and the Massachusetts Taxpayers Association worked together and separately on analyses that identified **municipal finances** as a major challenge to education, transportation and housing efforts. The Boston Foundation funded research leading to publication of *Boston Bound*, which called for the reform of **Home Rule**.

The Boston Foundation, City of Boston and many others partnered on the **SkillWorks** workforce initiative to create ladders of opportunity for incumbent workers through training partnerships with employers. A partnership led by *¿Oiste?*, MassVOTE and Suffolk University's Department of Government launched the **Diversity in Civic Leadership Initiative** to encourage and prepare leaders of color for more prominent roles in civic and public life. The nonprofit sector created an umbrella, the **Massachusetts Nonprofit Network** to strengthen the voice and impact of the sector. The United Way of Massachusetts Bay merged with Merrimack Valley's and launched the **Blueprint for Change** to respond to rising income inequality.

The **Black Ministerial Alliance** and **Ten Point Coalition** renewed their commitment, along with public safety officials and community groups, to address rising rates of youth violence. The **Leadership Exchange**, coordinated by LeadBoston, brought together leadership programs and alumni from such programs as UMass-Boston's Center of Collaborative Leadership's Emerging Leaders Program, the Partnership, and Boston Cares. And participants in MassInc's **Civic Roundtable** initiated plans for a **Civic Summit**.

And an unprecedented grassroots coalition came together to support the candidacy of now-Governor Deval Patrick.

These collaborative initiatives—and more—reflect a new awareness that the region's challenges are too great for any one institution, corporation, or level of government to tackle on its own.

Regions: The New Economic & Environmental Commons

Economists and environmentalists have come to the same conclusion: in this volatile century, regions are the ideal geographical unit from which to respond to intensifying global forces. Regions that anticipate change with resilience and innovation will be prepared to compete in the global economy's fast-lane—or survive for a time in its breakdown lane—while those less prepared are likely to suffer significant negative consequences.

As networks of knowledge and trust, they offer the nearness factor. In periods of shock—whether economic, environmental, epidemic, or terrorist—they offer rapid response and partial self-reliance. To global competitiveness, they offer their large scale. Indeed, the US Council on Competitiveness has concluded that “regions are the building blocks of national innovation capacity” and “the key to sustainable prosperity” for the entire nation:

“Paradoxically, even as innovation has globalized, the role of regions as the critical nexus where workers, companies, universities, research institutions and government interface most directly has increased... Regions—as opposed to individual cities and towns—offer the diversity of people, land types, and services to support a variety of businesses...specialized infrastructure, educational institutions, and workforce.”

However, the Competitiveness Council cites “a fundamental problem” that confronts many US regions. Namely: “They aren't acting as regions.” Indeed, Greater Boston is a famously fractious collection of fiercely independent municipalities whose boundaries were drawn almost 400 years ago.

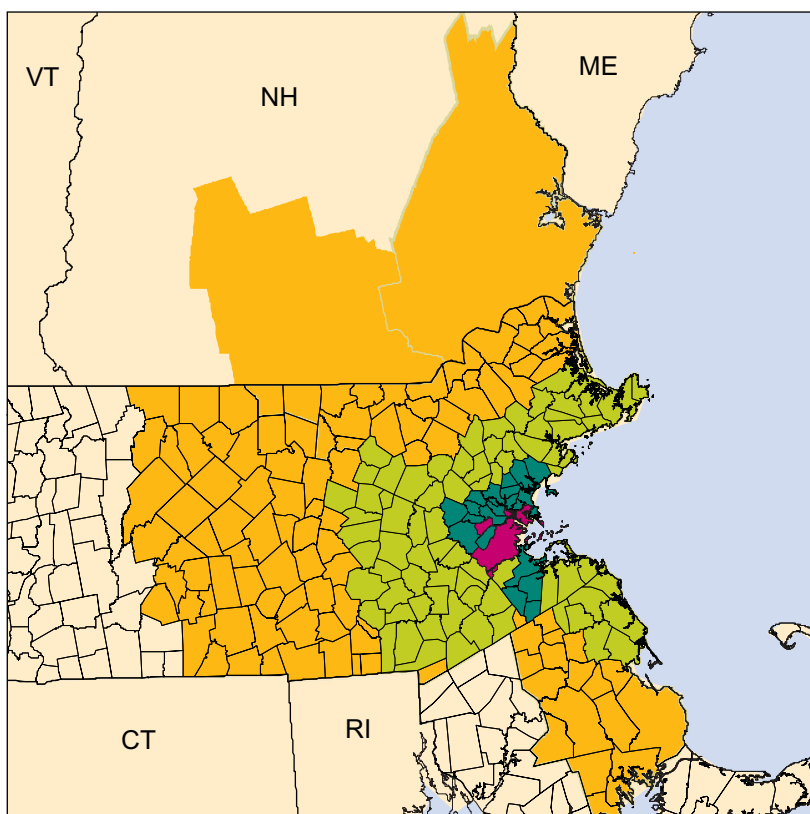
If ever there was a time for regional collaboration, it is now.

As the Earth warms and the global economy shifts from Industrial-Age centralization, standardization, and maximization to dispersed 24/7 supply and distribution networks, Greater Boston is increasingly reliant on cyberspace for its communications and on global sources of energy, workers, and manufacturing capacity. As a result, it is also increasingly vulnerable to external shocks.

Regionalism creates a countervailing weight to this dominant trend. A well functioning Greater Boston—strongly connected to the larger region—would support a wide variety of skills and a high level of innovative capacity, a breadth of diverse residents, efficient and redundant systems of transportation and communication, a range of housing options, local farms, fisheries and energy sources, environmental and health protections and greater stability in a disruptive age.



BOSTON'S NESTED REGIONAL IDENTITY



- City of Boston
- Inner Core Communities
- Metropolitan Area Planning Council Region
- Boston-Worcester-Manchester Combined Statistical Area

No longer simply the financial, governmental, and cultural capital of Massachusetts, Boston is also the:

■ **Hub of Greater Boston:** As the center of transportation, heritage, culture, and major institutions, Boston is the central node of a vibrant regional cluster of more affordable “second tier” cities such as Worcester, Lynn, Beverly, Lawrence, Lowell, Fitchburg, Brockton, and, it is hoped, New Bedford and Fall River, with job-growth clusters in Cambridge and along the Route 128 and 495 outer belts, and untapped capacity in the Blackstone and Pioneer Valleys.

■ **Capital of Massachusetts:** With less than 10% of the state’s population, Boston is the engine that drives the state’s economy, containing 16% of the Commonwealth’s jobs, generating 19% of state revenues, and accounting for nearly 25% of the gross state product (GSP).

■ **Hub of the Multi-State Boston Consolidated Metropolitan Area (CMSA)** stretching to New Hampshire, Maine, and Connecticut, the 5th largest metropolitan area in the United States. With the vigorous satellite cities of Worcester, Nashua, and Portsmouth (and Providence—outside the CMSA), each

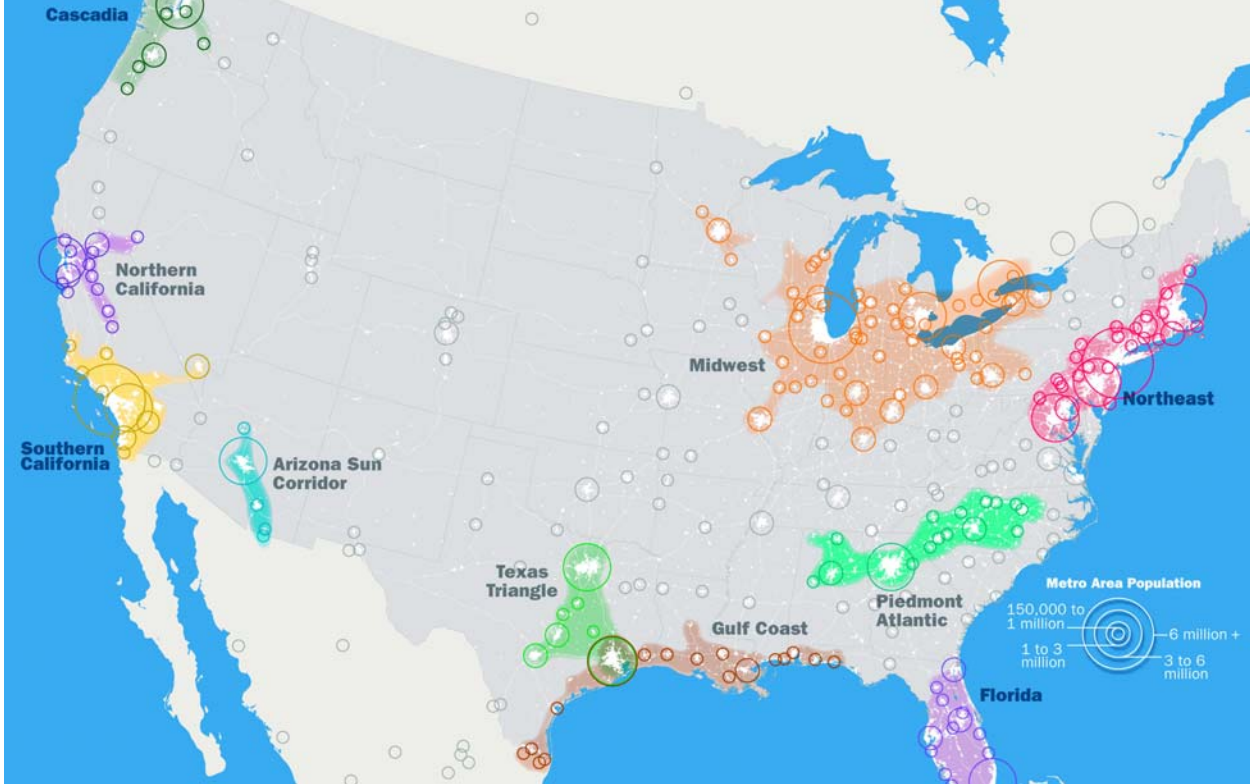
contributing its unique 21st century brand as the hub of its own micro-region to the region’s constellation of varied assets.

■ **Capital of New England:** Six of the oldest states in the nation, linked historically and economically for centuries, have had little recent connection aside from the New England Patriots and shared tourism. In the global economy, however, size matters. Together, New England’s six-state population adds up to about 14 million and enormous educational and innovative capacity.

■ **Northern Anchor of the Northeast Corridor:** Boston is the hub of the northernmost cluster of cities and towns in one of 10 US mega-regions. A global center of education and innovation stretching from Virginia to Maine, the Northeast Corridor contains just 2% of the nation’s land area and 18% of its population, but generates 20% of its GDP.

New or Newly Reinvigorated Regional Mechanisms:

- The New England Governors’ Conference
- The New England Board of Education
- The New England Council
- The New England Policy Center, Federal Reserve Bank of Boston
- The New England Economic Partnership
- The Northeast Energy Efficiency Partnership
- The New England Energy Alliance
- The New England Futures Project

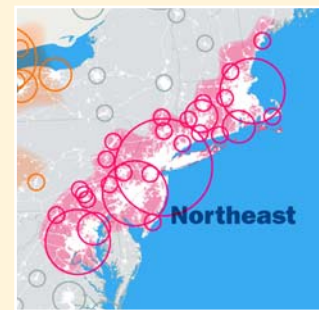


MEGAPOLITAN REGIONS

More than two-thirds of America's 300 million residents live in 10 megapolitan regions that are likely to add another 85 million people, and to generate \$33 trillion in construction spending, with all passing the 10 million mark by 2040, according to the 2006 report *America 2050* by experts convened by the Regional Plan Association:

- The Northeast Corridor—New England to Northern Virginia: 50 million;
- The Midwest—Pittsburgh-Detroit-Chicago: 40 million;
- The Southland—Los Angeles to Las Vegas: 22 million;
- The Piedmont—Charlotte to Atlanta: 19 million;
- The I-35 Corridor—San Antonio-Dallas-Kansas City: 15 million;
- The Florida Peninsula—Tampa-Orlando-Miami: 14 million;
- The Gulf Coast—New Orleans to Houston: 12 million;
- NorCal—San Francisco to the Central Valley: 12 million
- Cascadia—Seattle to Portland 7 million; and
- The Valley of the Sun—Greater Phoenix: 5 million.

With 50 million residents, the Northeast Corridor is the largest US megapolitan region by far, and one of the largest in the world, outmatching even California's 33 million residents. Regional planners believe that it would gain tremendous competitive advantage from a well planned network of high speed and secondary rail lines—linked to highway and air travel—to enhance speeds, relieve congested airports and roads, increase flexibility and resilience, and reduce the region's vulnerability to terrorist attacks, economic shocks, and environmental disasters. Neal Peirce of the Citistates Group reports that Europe has already developed a "global integration zone" connecting London, Hamburg, Munich, Milan, and Paris by high-speed rail, while Asia's "massive, strategic, mega-region-wide infrastructure investments are putting current US efforts to shame."



The Northeast is a powerhouse of density and economic output, producing 20% of the nation's Gross Domestic Product with 18% of the population and only two % of the nation's land area. Over the next generation, the Northeast will add 18 million new residents, requiring new green infrastructure investments and economic growth to create and sustain a high quality of life.

CRISIS | OPPORTUNITY



Despite recent strengthening and numerous bright spots, most experts agree that Greater Boston and Massachusetts are challenged by current trends, and that extraordinary collaborative efforts are needed to move the region into a sustainable cycle of growth. The good news is that the region contains great innovative capacity that has yet to be fully mobilized, and that a consensus view of key challenges and opportunities has emerged across the political spectrum.

Summarized in a 2005 study by A.T. Kearney for the New England Council, this view finds Greater Boston “out of alignment.” Instead of being “as strong as our core strength:” higher education and a skilled workforce,” the region is “as weak as our core weakness:” high infrastructure costs driven by housing and energy, as well as weakness in public higher education (in contrast to a strong private system), a weak brand, and weak networks of relationship.

Déjà Vu All Over Again: The Road Not Taken

Surprisingly, that view reprises conclusions reached two decades ago. In 1987, the New England Board of Higher Education conducted a major survey of leaders in business, higher education, government, governing boards and policy making bodies in each state. Published as *The Future of New England*, the survey revealed a remarkably prescient consensus across all groups in all six states:

The most important obstacles to future economic growth are:

- 1) the cost of housing; and 2) the shortage of skilled labor...
- Educating scientists and engineers is the best way to meet the challenge of global economic competitiveness... New England’s colleges and universities could prepare the workforce by designing an undergraduate curriculum that ensures understanding of a global economy and expanding the supply of scientifically and technically educated men and women... The most serious education challenges are educating and training high school dropouts and enhancing the problem-solving and analytical skills of the workforce... Colleges and universities could address the region’s environmental and other problems through scientific research, consulting with government and industry, better communication, and more partnerships...

Similarly, following the record-breaking heat wave and drought of 1988, NASA scientist James Hansen, who had studied global climate change for a decade, declared that he was “99% certain” that the cause was global warming. In 1989, Vermont writer Bill McKibben grabbed national head-

lines with his book, *The End of Nature*, predicting severe environmental consequences if “business as usual” trends continued.

In short, the region’s crystal ball worked well. The problem was a failure to act collaboratively on what was known. In contrast, North Carolina, in the face of similar insights 20 years ago, developed long-range collaborative strategies for economic development and a seamless system of public education and workforce training that are paying off today. Similarly, California held per capita energy consumption steady for decades and leads the nation in energy efficiency and ‘clean-tech’ venture funding.

It is increasingly apparent to residents, leaders, and experts alike that the solution to what ails Greater Boston lies in innovation—the region’s underlying and historic strength. Hundreds of experts and stakeholders reinforced that view in Boston Indicators Project sector convenings over the last year. The time is ripe, they said, for Greater Bostonians to engage in a period of “radical innovation”—both high and low tech—to tackle our own greatest challenges; and, in so doing, to develop solutions of import to all of humanity and the natural systems on which it depends, sparking local growth and creating a powerful generator of and magnet for talent.

The Chinese word for crisis shares a character with that for opportunity. The present crisis—and it will be that if current trends persist—harbors enormous opportunities. In that spirit, the following pages contain seven “crisis and opportunity pairs” that emerged from the Boston Indicators Project’s convenings, indicator updates, and reviews of recent research. In each case, the “crisis” section presents a very brief summary of data on trends and conditions that are indeed daunting.

However, Greater Boston contains within its boundaries and networks an untapped capacity for transformation that could tip each crisis into the realm of opportunity through greater collaboration, efficiency, and innovation—the foundations of sustainable prosperity.

The companion “opportunity” sections, then, begin to track some of the ways in which an “innovation revolution” in Greater Boston has begun to turn fragmentation into collaboration, inefficiency into cost-effectiveness, and “intractable” challenges into groundbreaking solutions. The transformation of crisis into opportunity is a powerful lever—or trim tab—for job growth, equitable human development and advancement, environmental sustainability, and a higher yet more affordable quality of life—not only locally but globally.

Greater Boston’s innovative capacity is arguably the greatest on Earth. This capacity, as many have pointed out, is in the region’s DNA. In this unfolding era of unprecedented change and challenge, Greater Boston is called on once again to make its revolutionary mark.



“Today’s Boston is a city that sees the future and applies a rare combination of innovation and experience to transform challenges into opportunities.”

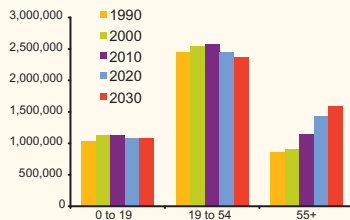
—Thomas M. Menino, Mayor,
City of Boston

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The Chinese word for crisis shares a character with the word for opportunity.

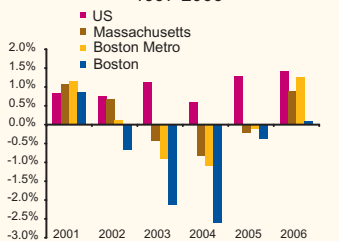
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MetroBoston Population by Age
MAPC Projections



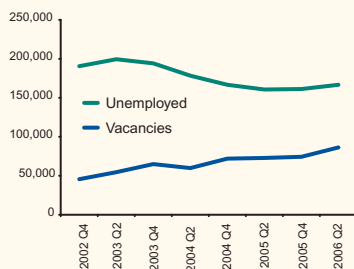
Source: US Census Bureau (1990 & 2000), Boston Metropolitan Area Planning Council (projections).

Labor Force Size: Annual Change,
1997-2006



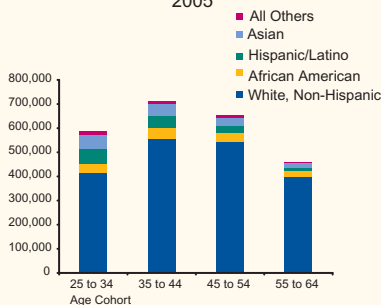
Source: U.S. Bureau of Labor Statistics

Job Vacancies & Unemployment
Massachusetts, 2002 to 2006



Source: MA Dept. of Workforce Development, Job Vacancy Survey and Average Quarterly Unemployment

Boston-Cambridge-Quincy MSA,
Working Age Population by Race/Ethnicity
2005



Source: US Census Bureau

危機 CRISIS: Labor Shortage

The Business Roundtable warns that as the US economy becomes “ever more reliant on workers with greater knowledge and technological expertise...all projections suggest that the discrepancy between the supply and demand of domestic talent will grow more pronounced.”

- Massachusetts’ workforce is declining.** A 2006 MassINC report, *Mass Economy: The Labor Supply and Our Economic Future*, found that between 2003 and 2005, Massachusetts “exported” 120,000 workers. In 2004 alone, the out-migration to other states resulted in a net loss of 29,033 people between the ages of 35 and 54, 14,370 children under 16, and 18,000 people with a B.A. or higher. Over the three years, the state’s workforce contracted by 1.7% while the nation’s increased by 3.1%.
- Labor shortages are appearing in every industry sector.** An October 2006 Conference Board report showed that Massachusetts, “with 170,100 advertised vacancies, posted 5.05 vacancies for every 100 persons in the state labor force, the highest rate of any state in the nation.”
- Baby Boomer retirements loom.** At 1.87 million, Bay State Boomers account for about 40% of residents in 10 municipalities and more than 30% in 263 others. A 2005 MassINC survey warned that 35%, or 650,000, “say that they want to leave the state for their retirement years.” A 2006 survey of local employers by AARP found fewer than 20% of companies preparing for this “stark demographic shift.”
- Despite more than a decade of school reform, the achievement gap between black and Latino students and white and Asian students widened**—from third grade reading to college completion. A Nellie Mae Foundation analysis projects that by 2020, about 48% of the state’s young workforce will be of color, and without a full court press in overcoming disparities, workers with a B.A. or higher will represent less than 40% of workers age 25 to 29 compared to 43% today, and the region will have lost its core competitive advantage. Meanwhile, the state lags the nation in community college graduation rates.
- Massachusetts’ net gain in students is declining, affecting the region’s rank in educational attainment.** A decade ago, Massachusetts ranked first in the nation for net student migration but fell to 6th in 2004. Massachusetts retains the nation’s highest share of residents with a B.A. or higher—about 30% of all workers compared with 23.4% nationally. However, competitors are gaining fast, particularly among younger workers. Already, Metro Boston has fallen to 5th, and Boston to 13th in national comparisons.
- The region’s high rank in science and engineering degrees includes foreign students who, with current H1B visa restrictions, cannot stay.** According to Northeastern University economist Paul Harrington, federal immigration policy allows entry to more less-skilled and fewer high-skilled immigrants. Among 32 industrialized nations, the US ranks 20th in undergraduate science degrees and 26th in undergraduate math degrees.

機會 OPPORTUNITY: The Talent and Education Imperative

COLLABORATION

A seamless education pipeline from pre K – 16: To connect the dots for policy makers, educators and families, Governor Patrick may place the Office of Early Education, Board of Education, and Board of Higher Education in one Education Cabinet. A new form of Pilot Schools—Co-Pilots—is helping to guide failing schools, while quality out-of-school enrich and alternative education programs provide effective options. College students learn and contribute to the life of the region through service learning programs, internships and coop programs, which help to root young adults in local communities.

EFFICIENCY

High-leverage workers—qualified, inspiring teachers: With new teacher attrition at about 40% in urban districts and Baby Boomer teachers about to exit, committed, well trained teachers are urgently needed at all levels, particularly in science and math. State government is also poised to roll out a universal Pre K program requiring high quality programs that advocates hope will strengthen career opportunities for early educators.

A workforce development system: The Commonwealth’s community colleges offer hope for a system of focused education-industry partnerships like those in North Carolina. SkillWorks, a multi-year initiative and coalition and of the City of Boston, foundations, labor, and employers, is creating ladders of opportunity for incumbent workers to advance in fields with vacancies such as allied health, human resources professionals propose a Talent Bank to match training to jobs, and others recommend expansion of H1B visas.

Baby boomers as prime timers: With regional growth projected only in over-55 cohorts, older workers are critical. MGH and MIT already offer flex-time, health care, and learning programs, which professionals say are essential to keeping prime timers working. The Boston Center for Adult Education and area colleges offer classes to those in transition.

INNOVATION

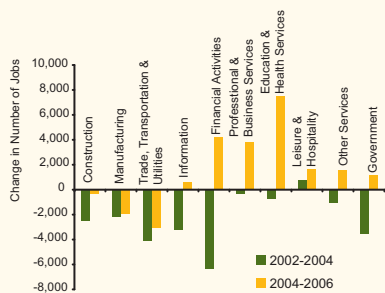
An education revolution: The 2006 report *Tough Choices or Tough Times* by the New Commission on the Skills of the American Workforce calls for a near-total revamping of American education. The report highlights early education, teacher quality, creativity, more rigorous testing, and accelerated entry into college or high quality technical training. Massachusetts is a natural place to start. The region’s Pilot, Charter, K-8, Small High Schools, Alternative and Turnaround Schools offer a Petri dish of best practices.

A science-based “Innovation Revolution” to inspire young people to stay in or come to Greater Boston: A period of “radical innovation” in schools, community colleges and four-year institutions focused on humanity’s greatest science challenges—green energy and conservation, cost-effective health, marine science, food security—would boost interest in STEM skills and make the region a talent generator and magnet. No age groups are more ready to solve problems than children and young adults, if asked.

Great Teachers Can Inspire Students to Contribute to Innovations in:

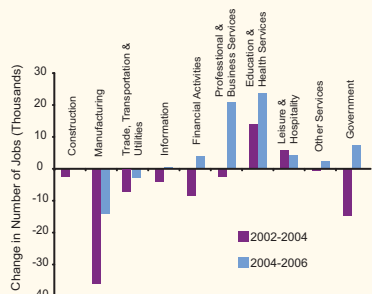
Geothermal Energy
Solar Energy
Carbon Sequestration
Wind Energy
Tidal-Hydro Energy
Nuclear Fusion Technology
Nuclear Energy Safety
Computer Science
Early Childhood Development
Marine Science
Life Sciences Breakthroughs
Advanced Building Materials
Eco-System Sustainability
Robotics
Cyberarts
Educational Excellence
Sensing, Optical and Electro-Mechanical Devices
Green Architecture
Healthcare Quality & Results
Signal Processing
Sustainable Aquaculture
Genomics and Proteomics
Knowledge Management
Wireless Technology
Web-Based Visualization
Advanced Materials
Biomedical Devices
Nanotechnology Fabrication
Sustainable Agriculture
Distance Learning
Water Conservation
Water Purification
Homeland Security
Disaster Mitigation
Low-Cost/High-Quality Housing
Mass Collaboration Software
Energy-Efficient Vehicles
High-Speed Rail
Healthy Aging
UN Millennium Goals

Boston Employment by Industry Net Change, 2002-2006



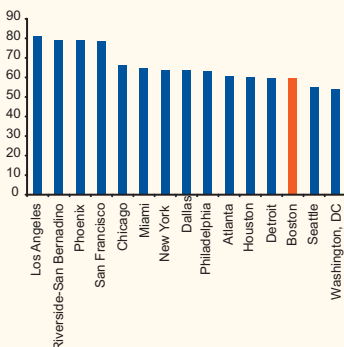
Source: Massachusetts Department of Workforce Development, Third quarter data for each year.

Massachusetts Employment by Industry Net Change, 2002-2006



Source: US Bureau of Labor Statistics

Small Business Lending Rate (Loans per 100 Firms), Largest 15 Metros 2005



Source: Massachusetts Community & Banking Council

危機 CRISIS: Uneven Job Growth

Greater Boston’s vaunted eco-system of job creation—dense clusters of higher education, medical, and research institutions, a high-skilled workforce powered by science talent, and venture capitalists eager to spin patents into new companies—is at risk. While the number of Bay State jobs are well above the employment trough of 2004—and more than 50,000 are in the pipeline—long-term trends require vigilance and action.

- **Massachusetts gained momentum in job growth through 2006 but was nevertheless down about 96,000 jobs from its 2001 average, while the US added 4,344,000 million jobs.** Boston, particularly hard hit by corporate closures, mergers and sales, was down about 28,849 jobs from its 2001 average through the 3rd quarter of 2006.
- **Bay State and Greater Boston business costs are among the nation’s highest.** A 2006 Pioneer Institute study, *Measuring Up? The Cost of Doing Business in Massachusetts*, found that in nine key industries, Massachusetts firms have costs 30%- 40% higher than counterparts in Texas, North Carolina, and New Hampshire, while high housing costs continue to undermine the state’s ability to attract and retain workers.
- **Greater Boston is gaining “R” but struggles to increase “D.”** A powerful magnet for research, the region is seeing local companies expand jobs resulting from research to lower-cost US regions or offshore. Local biotech firms planned to add about 2,000 jobs in 2006, but fewer than a third of them in the Bay State. While the region is attracting new “mini-headquarters” most company jobs are located elsewhere, and mature companies such as Fidelity are expanding into lower-cost regions.
- **Greater Boston ranked third lowest in entrepreneurial activity among the 15 largest Metropolitan Statistical Areas (MSAs) in the US,** according to a 2006 report by the Kauffman Foundation, a measure that reflects the region’s recent difficulty in turning innovations into new companies.
- **The “innovation eco-system” on which Greater Boston depends is fragile.** Venture capitalists are increasingly reluctant to invest in the seed-stage development critical to small businesses, while the federal research funding on which major institutions depend is declining. The Conference of Teaching Hospitals calculates that “level funding and actual reductions in appropriations since FY 2003 have reduced the purchasing power of the National Institutes of Health budget by 10% when medical research inflation is taken into account,” while federal physical sciences funding has been stagnant for a decade. At the same time, other states and nations are successfully vying for a larger share of research and venture capital funding.
- **Greater Boston ranked 13th in lending to small businesses and 14th in lending to small firms in low-to moderate-income neighborhoods among 15 metropolitan areas,** with comparatively lower rates to small firms in minority neighborhoods, according to a Massachusetts Community & Banking Council report *Patterns of Small Business Lending in Greater Boston 1998 - 2005*.

機會 OPPORTUNITY: Business Expansion

COLLABORATION

Toward a regional competitiveness agenda: The John LaWare Leadership Forum, convened in 2005 by the Federal Reserve Bank, the Boston Foundation and Sovereign Bank New England, informs civic and business leaders about regional trends. It meets quarterly to highlight initiatives underway, identify and fill strategic gaps, and report on “pipelines of progress.” In late 2006, the US Council on Competitiveness, the Massachusetts Business Roundtable, MIT and others co-sponsored a Regional Innovation Summit, with plans to accelerate innovation and global competitiveness.

A shared regional brand: Coordinated by the Federal Reserve Bank of Boston and the New England Council, plans are underway to rebrand the region and market its many assets. A shared brand will allow states and municipalities to align marketing strategies.

EFFICIENCY

Streamlined responsiveness: To successfully respond to business requests for information about locating or expanding to the Bay State—such as Bristol Meyers Squibb’s move to Fort Devens—the Business Resources Team of Massachusetts Department of Housing and Economic Development coordinates state agencies, colleges and universities, local trade associations, quasi-public development organizations, and marketing specialists. It also provides an online database of biotech-ready sites as well as streamlined permitting.

Small business/The new big business: With small businesses adding most news jobs, a third of Bay State workers—about 1 million—are now employed by firms with fewer than 100 employees. Matching grants through the Smaller Business Association of New England are strengthening small companies; real estate companies are building incubator space for small biotech firms; and tiny companies are innovating products. Inner City Entrepreneurs and the Initiative for a New Economy support diverse entrepreneurs; the Initiative for a Competitive Inner City helps mid-size companies; and the Massachusetts Manufacturing Extension Partnership assists small manufacturers.

INNOVATION

Expanding sector-based strengths: Mass Insight’s Global Massachusetts 2015 brings together businesses, government, and universities in a sector-based strategy for global competitiveness—a focus on talent and education, particularly science, technology, engineering and math (STEM), multi-disciplinary Global Challenge Centers at universities, and China/India partnerships. It also advocates for increased federal research funding, permanent R & D tax incentives, and an increase in risk-taking venture capital.

Investing in job-rich innovation: According to the Massachusetts Technology Collaborative, the state has already gained about 10,000 jobs involving clean tech energy and is growing fast—with many potential jobs in construction and manufacturing as well as research.

Bridging research and markets: MIT’s Deshpande Center is spurring innovation economy job growth by supporting leading-edge research that bridges the gap between MIT innovators and the marketplace.

Massachusetts Position in Core Focus Areas Across Industry and Talent Measures

| | Industry Presence | | Talent Generation |
|---|-------------------|--|----------------------------|
| | Number of Firms | Employment Controlled by Massachusetts Firms | Total Degrees Awarded 2001 |
| Advanced Materials | 6th ▶ | 12th ⊖ | 7th ▶ |
| Signal Processing | 2nd ● | 8th ▶ | 9th ▶ |
| Computer Sciences | 2nd ● | 9th ▶ | 8th ▶ |
| Sensing, Optical and Electro-mechanical Devices | 3rd ● | 11th ⊖ | 8th ▶ |
| Environmental Sciences | 3rd ● | 10th ▶ | 8th ▶ |
| Genomics and Proteomics | 2nd ● | 9th ▶ | 7th ▶ |
| Disease Research and Drug Discovery | 3rd ● | 9th ▶ | 6th ▶ |
| Biomedical Devices and Instrumentation | 2nd ● | 4th ● | 8th ▶ |
| Renewable Energy | 3rd ● | 16th ⊖ | 8th ▶ |

Key Ranking: 1-5 = ● Leader

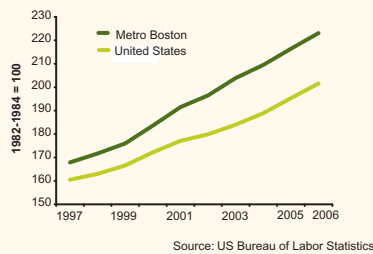
Ranking 6-10 = ▶ Challenger

Ranking 11-up = ⊖ Follower

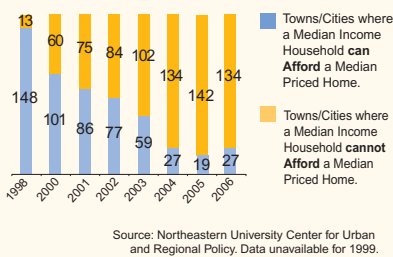
Source: 2004 Mass Insight Case Statement & Core Technology Audit.



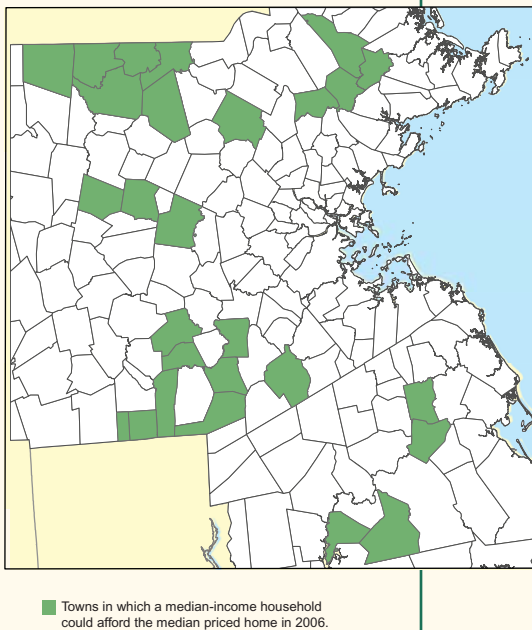
Consumer Price Index, Metro Boston and the US, 1997-2006



Housing Affordability in Greater Boston 1998-2006



Eastern Massachusetts Towns Where a Median-Income Household Could Afford a Median-Priced Home, 2006



Source: Northeastern University Center for Urban & Regional Policy

危機 CRISIS: Higher Costs

Greater Boston's competitive edge is suffering from a vicious cycle. A victim of its prior success, the region's high cost of living and doing business are driving out mature companies as well as young talent. Moody's Economy.com pegged Metropolitan Boston's business costs at 36% higher than the US average in 2003, while Northeastern University's Center for Urban and Regional Policy (CURP) found the region to be the nation's most expensive for a family of four in 2006.

- **The 2006 Pioneer Institute's study *Measuring Up? The Cost of Doing Business in Massachusetts* found that Massachusetts firms in nine key industries spend 30% - 40% more than similar companies in Texas, North Carolina, and New Hampshire.** High land costs were found to be the primary culprit.

- **Commercial development is crammed into Greater Boston while Central and Western Massachusetts starve for transit and jobs. At the same time, house prices in the core are driving house hunters to Greater Boston's fringes, with rising commutes and declining family and recreation time.** Despite this crunch, the Commonwealth faces a shortfall of almost \$20 billion just to maintain basic transportation over the next 20 years, inhibiting plans to facilitate access to the region's less expensive cities.

- **Harvard University's Rappaport Institute for Greater Boston concluded that large-lot zoning restrictions are driving up housing prices.** Nevertheless, a Massachusetts Housing Partnership study of homes built in 108 communities in Greater Boston between 1998 and 2003 found that the average lot size for a single-family home increased to 1.38 acres, and that only 9% of new homes were built on lots of less than one-quarter acre, with 75% on lots of more than one-half acre.

- **Despite recent moderation, housing costs are out of proportion to wage increases. In the first half of 2006, a median-income household could afford a median-priced single-family home in only 27 of 148 municipalities in Metro Boston.** And in Boston in 2005, the median household income of \$46,392 afforded just 54% of the median home sales price, according to the Boston Foundation funded *Greater Boston Housing Report Card 2005-2006*. Yet few starter homes affordable to young singles and families are being developed in the Commonwealth, which ranked 48th in new housing units between July 2004-July 2005, according to the US Census Bureau, and the New England Policy Center found that 20% of renters are spending 50% of their incomes on housing.

- **The region relies increasingly on imported energy and food—with likely price spikes or breaks in supply over time.** From Middle Eastern oil to fish farmed throughout the world, the region is sending jobs and treasure out of state while undermining its own sustainability and resilience.

機會 OPPORTUNITY: Smarter Growth

COLLABORATION

The path to competitiveness, resilience, and sustainability runs through regional collaboration: From the New England Governors' Council to the Regional Innovation Summit, a number of initiatives are advancing a regional agenda that includes collaboration on education, transportation, job creation, and energy innovation and independence.

EFFICIENCY

“Smart Growth” 40R/40S zoning overlay districts: These districts encourage efficient land use, vibrant, walkable city and town centers near public transit, cultural vitality, and energy conservation. Enhanced by bike and walking paths, Zip Car, Goloco ride sharing—smart growth broadens and enhances lifestyle choices.

Demographically smart development: Seismic demographic shifts are reshaping the housing market. With Baby Boomers moving into cities or elsewhere, single family homes will be freed up for new families, resulting in more efficient use of the region's existing housing stock.

Fast-tracking the revitalization of smaller cities: Massachusetts older utilities contain many redevelopment sites. A report by the National Association of Industrial and Office Properties and the Center for Urban and Regional Policy found that “most firms are willing to consider older industrial sites and abandoned commercial districts if municipal leaders and state agency personnel can work with them as a team.” In 2006 the state's Brownfields Redevelopment Fund was recapitalized with \$30 million.

INNOVATION

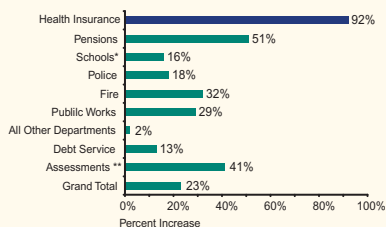
New forms of housing and urban design: With five schools of architecture in Greater Boston and local companies desperate to increase the supply of housing affordable for their workers, the time is ripe for a well publicized annual competition for high-quality, affordable, green, transit-oriented mixed use development and starter homes for families and graduating students—with serious prize money to stimulate participation.

New building materials: Companies are innovating new building materials, such as Cabot Corporation's light-penetrating, highly insulating Nanogel and Evergreen Solar's cost-effective ribbon technology. And elsewhere breakthroughs like Grancrete—lightweight sprayed concrete—hold great promise. The Boston Society of Architects plans a green international conference in 2008.

Regional self-reliance & energy and food security: With more than 6,000 farms, 424 farm stands, 126 farmers markets, and many pick-your-own operations, Massachusetts is the top state for direct cash sales to consumers, and colleges, restaurants, and supermarkets are buying local. The Massachusetts Farm-to-School Project links 90 farmers, 75 public school districts, and a dozen colleges. Local farms could also employ hydroponics technology to grow produce year-round. With the US importing 80% of its fish, the region's coastal location and marine science capacity could also foster sustainable aquaculture and protect and enhance wild fisheries.

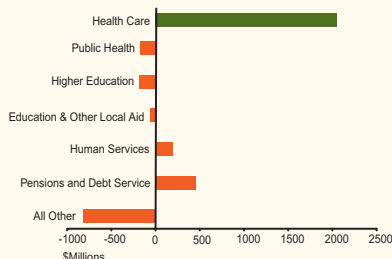


Cost Increases: City of Boston
FY2001-FY2007



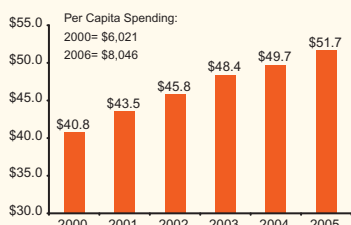
Source: Boston Municipal Research Bureau
* Excludes health care
** Includes MBTA & Charter Schools

Massachusetts State Spending,
Change, FY2001-FY2007



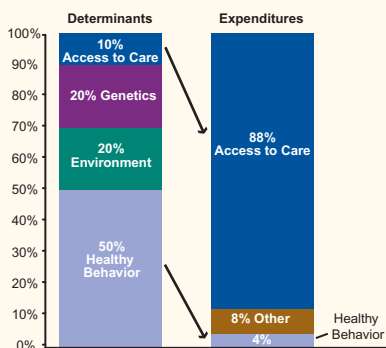
Source: TBF Analysis of Massachusetts Budget & Policy Center Budget Data, CPI Adjusted. FY07 Local Aid figures does not include two-time (FY06 & FY07) off budget transfers of funding for school building debt assistance.

All Health Spending on Persons
in Massachusetts,
2000-2006 (\$Billions)



Source: Alan Sager & Deborah Socolar, Boston University School of Public Health. All costs adjusted for inflation.

Mismatch:
Health Determinants vs. Expenditures



Source: New England Healthcare Institute. National Health Care Expenditures, 2005

危機 CRISIS: Health Care Behemoth

In Massachusetts, health care costs are increasing at three times the rate of inflation. Health care, critical to families and individuals and an important industry sector, is funded largely by taxpayers, consumers, and employers for whom its cost is crowding out investment in other priorities. Nationally, health care costs are projected to rise from 16.6% of GDP in 2006 to 20% in 2015, increasing competitive disadvantage. The US General Accountability Office (GAO) calls health care spending “unsustainable.”

- **Health care spending by state government increased by 49% in inflation-adjusted dollars between fiscal years 2001 -2007, while public health spending and state aid to cities and towns fell by 20%.** Health care accounts for 22% of the Massachusetts state budget, according to the New England Healthcare Institute (NEHI).
- **Boston’s \$25.1 million increase in health care spending for its public employees in fiscal 2007 absorbed almost half (48.6%) of its total budget increase and the entire increase in General Fund State Aid,** according to the Boston Municipal Research Bureau. Boston now spends \$235 million a year on employee health care—a 92% increase since 2001. The Bureau calculated that it takes the property taxes of five average Boston homeowners to cover the family premium of one city worker. State spending on public employees increased by 61% over the same period. The Commonwealth is also carrying a \$13 billion liability in public retiree health benefits.
- **The average total cost for individual health coverage in Massachusetts in 2006 was \$9,428**—an increase of 8.2% over 2005 compared to 6.1% nationally—according to a survey of employers by Mercer Health & Benefits. Associated Industries of Massachusetts (AIM) reports that health care costs are the number one concern of their members.
- **Obesity, a multiple risk factor, is increasing, with the prospect of a “rising tide of preventable chronic disease,”** according to NEHI. Data from the CDC show that obesity rates more than doubled in Massachusetts from 1986 to 2005—from fewer than 10% to 20% - 25%. Already, 25% of state residents report at least one incidence of chronic disease. Hypertension is at the highest rate in 15 years, and 6.4% of residents are estimated to have diabetes, a 39% increase since 1996, according to NEHI. Almost three-quarters of health care spending covers the treatment and management of chronic diseases, many of which are preventable.
- **Massachusetts faces a Catch 22 in implementing the new universal health care insurance mandate.** Unless monthly payments and deductibles are truly affordable to those required to purchase insurance, the mandate could drive away more young people, without whom costs will rise for older and sicker people. And as Baby Boomers age and draw benefits, public and private health care costs will soar unless the Commonwealth can boost the rate of healthy aging.

機會 OPPORTUNITY: Cost-Effective Health

COLLABORATION

The Massachusetts new universal health insurance mandate required unprecedented levels of collaboration among policy makers, advocates, the insurance industry, health care providers, and business groups:

Implementation now offers the opportunity to create better health care. The New England Healthcare Institute, Associated Industries of Massachusetts and others are seeking to balance access, quality, cost, and results.

EFFICIENCY

Aligning health spending with the determinants of health: According to a new study by NEHI, US health care costs are wildly out of alignment with the determinants of health. About 50% of health is determined by diet, exercise, smoking, stress, and safety, or lifestyle; 20% by exposure to environmental toxins; 20% by genetic predisposition; and 10% by access to health care. However, 88% of health dollars are spent on access to care, with just 4% on lifestyle options and choices, and 8% on environmental and genetic factors. Dartmouth Medical School's Center for the Clinical Evaluative Sciences finds that "perhaps a third of [US] medical spending is now devoted to services that don't appear to improve health or the quality of care—and may make things worse." US health spending exceeds \$2 trillion annually, and recouping one third equals about \$700 billion. In Massachusetts, health costs exceed \$50 billion a year, so one-third would equal about \$17 billion. Recouping even a fraction would free up resources for education, housing, recreation, nutrition, and other health determinants that now compete with health care, as well as for what Harvard Business School's Michael Porter dubs the "traded" part of the sector such as R & D and exports.

INNOVATION

Innovating ways to improve health and reduce costs: Greater Boston is a global hotbed of medical research, and in addition to biotech and universal health care coverage, the region could jumpstart a revolution in achieving better health. Michael Porter argues in *Redefining Healthcare* that "innovations in health care, including how care is organized and delivered, are the only way, over the long term, to achieve better care for more people at lower cost... More broadly, better health is less expensive than illness." Big bangs for the buck would include the prevention of preventable chronic disease and implementation of basic quality standards developed by the Institute for Health Care Improvement at Harvard's School of Public Health.

Room for Improvement:

Despite spending twice as much per capita as the other 21 wealthiest industrialized nations, on average, Americans live the shortest time in good health. A 2006 study in the *Journal of the American Medical Association* found middle-class insured Americans "much less healthy than their English counterparts." Less-educated middle-class British have lower rates of cancer, diabetes and heart disease than best-educated middle-class Americans, while Britain spends only 40% as much per capita.

Proven Opportunities for Cost-Effective Health:

Maternal Health & Prenatal Care

Nurturing in the Critical First Years

Consistent Primary Care

Healthy Foods & Phys Ed in Schools

School-Based Health Care

Consistent Dental Care

Quality Mental Health Services

Public Health Initiatives & Campaigns

Culturally Competent Care

Community & Personal Safety

Guidance/Coaching on Health Basics

Elimination of Toxins in Homes & Environment

Workplace Wellness Programs

Trans Fat & Smoking Restrictions

Provider Adherence to Basic Quality Standards

Transparent Research Data

Electronic Medical Records

Conflict-Free Clinical Guidelines

Smart Growth Housing & Walkable Communities

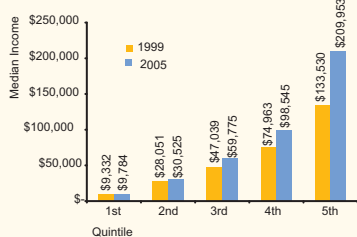
Recreational Amenities & Exercise Options

Healthy Aging Information & Activities

Excellent Geriatric Care

Clear End-of-Life Wishes & Plans

Boston Median Income by Quintiles, 1999 and 2005*



Source: US Census Bureau PUMS Data
 *2005 incomes are for 12 months previous to survey, not calendar year. All incomes adjusted for inflation.

危機 CRISIS: Widening Inequality

Widening income inequality has caused some to suggest that the US has entered a new Gilded Age. Post-War economic expansion and policies lifted many into the middle class, but current trends and policies are having the opposite effect. Between 1990 and 2004, the bottom 90% of US taxpayers saw their inflation-adjusted income increase by 2%, the top 1% by 57%, and the top 0.1% by 85%, according to a *New York Times* analysis.

- **Worker productivity in the Bay State increased by almost 50% between 1989 and 2005, but median annual household income, adjusted for inflation, rose by just 1.2%, or \$546,** decoupling the historic relationship between productivity and wages, according to a 2006 study by the Center for Labor Market Studies at Northeastern University.

- **Massachusetts' median household income was 24% above the national median and the nation's 5th highest, at \$57,184, in 2005.** However, households with incomes of less than \$12,388 saw a 3% decline in their inflation-adjusted income between 2000 and 2005, the New England Policy Center reports. And in Boston, sales of million-dollar-plus condominiums doubled from 2003 to 2006, while mortgage foreclosures rates increased fastest in low-income neighborhoods.

- **Project Bread reports growing food insecurity.** In 35 Bay State cities with high-poverty Census tracts, one in three children lives in a family that struggles to provide food.

- **Widening income inequality exacerbates racial/ethnic disparities.** A UMass-Boston study found that from 1990-2000, “shelter poor” renters in Massachusetts increased by 57% among minorities but only 3% among whites. Shelter-poor households use all of their income on housing with little left for food, clothing, medical expenses, and emergencies.

- **Drop out rates are rising among low-income students:** The National Center for Education Statistics found that students in the lowest-income quartile are more than six times as likely to drop out of high school as those in the highest-income quartile. In the Bay State, Northeastern University labor economists found that in 2006, almost 99% of 4-year cohorts graduated in high-income Weston and almost 80% statewide, but the rate was 50% for Boston and 41% for Lawrence. Moreover, Boston's job market is one of the toughest for dropouts, with just 20% employed in 2004-2005. Nationally, 75% of state prison and 59% of federal prison inmates dropped out of high school.

- **Fewer low- and middle-class families can afford college:** MassINC's 2006 report *Paying for College* found that while regional incomes are high, families spend a higher share of income on college. In 2003-04, families in New England spent, on average, 17% of their annual income for a student attending a community college, 21% for a public four-year college, and 33% for a private four-year college. Today, the maximum federal Pell Grant covers just 33% of the average national cost of a public four-year college, compared to 80% 30 years ago.

Income inequality in the US

In 2004, Americans in the top 20% controlled almost 85% of US wealth, while the bottom 80% controlled slightly more than 15%.



Fewer than 50% of US households hold stock, including mutual funds and 401(k) plans. Of those that do, only 35% had holdings greater than \$5,000. In 2004, the top 1% of stock-owners held 37% of the value of all stocks.



Approximately 30% of US households have a net worth of less than \$10,000. The median wealth of white households is 10 times that of black households.

2006 annual *State of Working America* report by the Economic Policy Institute

機會 OPPORTUNITY: Expanding Opportunity

COLLABORATION

An agenda for at-risk youth: The new High Risk Youth Policy Project brings together a robust network of youth-serving organizations and expertise in the field with researchers to develop and execute a shared advocacy and public policy agenda. Their goal is to advance positive educational, social, and workforce outcomes for teens and young adults ages 16-24 who are at risk of dropping out of school or already disengaged.

Clarifying the path to educational advancement: Alternative education programs encourage young people to stay in school. The Department of Education and Board of Higher Education sponsor a web-based “Think Again” campaign that targets young people who may not think that college is an option. The Bay State’s high schools, nonprofit organizations, such as the Private Industry Council, and public colleges and universities have begun to collaborate on strategies to improve college entry and completion.

EFFICIENCY

The power of a good start: A major longitudinal study by the Federal Reserve Bank of Minneapolis found preschool a 16% return on investment, with preschoolers 40% less likely to need special education or remediation. A Chicago Child and Parent Center showed preschoolers 30% more likely to graduate high school, twice as likely to go to college, less likely to be arrested, and with better reading and math skills than controls. Mayor Thomas M. Menino has initiated Smart from the Start—a comprehensive approach to boosting the life chances of the City’s lowest income children.

Think and do tanks: Exemplified by Northeastern University’s Center for Urban and Regional Policy, academic research is shifting from problem analysis to best practices research and strategies to take proven approaches to scale. This shift could transform Greater Boston—with its many institutions of higher education—into world-class fertile ground for research that leads to scaling up proven models to address inequality and disadvantage.

Adult education: Some programs encourage single parents and women to complete their education, and while the majority of prison inmates have learning disabilities or lack literacy and numeracy skills, there are few opportunities to improve, increasing the risk of recidivism on re-entry to communities.

INNOVATION

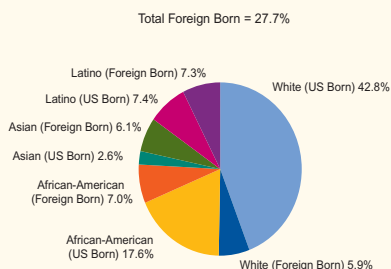
Individual development accounts: The report *Tough Times or Tough Choices* recommends that the government grant \$500 to each newborn and \$100 annually thereafter, to be supplemented by family and friends, toward future college and other essential costs.

Minority-owned business (MBO) expansion: The Initiative for a New Economy, a coalition of corporations, community organizations and the City of Boston initiated in 2005, seeks to expand opportunities for the region’s minority-owned businesses by identifying and strengthening supplier networks and building a shared commitment to take MBOs with local, regional, and national capabilities to scale.

Proven Approaches to Leveling the Playing Field:

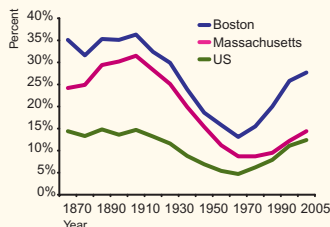
- Maternal health & adequate prenatal care
- Good nutrition, creative play
- Home & community safety
- High quality early education
 - Excellent schools
- Parental engagement in education
- After-school, summer & academic enrichment
- Well stocked & staffed libraries
 - Access to primary care & health insurance
 - WiFi access
- Quality mental health services
- Effective alternative education programs
 - College counseling & scholarships
- Financial literacy training
- Earned Income Tax Credit (EITC)
- Affordable rental housing
- First-time homebuyer programs
 - Minimum wage pegged to inflation
 - Literacy classes (Adult Basic Education)
 - English classes (ESOL)
- Small business capital access & marketing
- Excellent community colleges
 - Skills training opportunities
 - Treatment on demand for substance abuse
- In-prison educational services
- Homelessness prevention
- Cultural and recreational amenities
- Progressive tax policies

Boston Population by Race/Ethnicity & Foreign Born Status, 2005



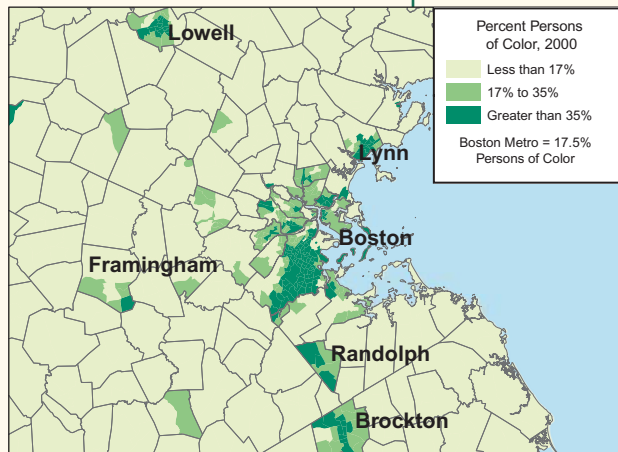
Source: US Census Bureau American Community Survey. Survey does not include residents of institutions, including dorms. Other racial categories (3.4% of population) not represented due to space constraints.

Foreign Born as Percent of Population, 1870 to 2005



Source: US Census Bureau, US Decennial Censuses and 2005 American Community Survey

Greater Boston, Racial/Ethnic Concentration, by Census Tract, 2000



Source: US Census, Boston Metro = Boston Consolidated Metro Statistical Area

危機 CRISIS: Racial/Ethnic Separation

MassINC, in its 2005 report titled *The Changing Face of Massachusetts*, concluded that: “Increasingly, our state’s future economic health is linked to immigrants.” In fact, newcomers are the growth tip for the Commonwealth’s future workers, civic leaders, and parents. For example, a report by the Nellie Mae Foundation projects that half of the state’s young workforce will be of color by 2020. Despite this high degree of reliance on people of color and immigrants for future growth, many face high hurdles to inclusion and advancement.

- **In Boston in 1980, 15.5% of Bostonians were foreign born. By 2005, that rate had increased to 28%.** Newcomers accounted for more than the total population increase during that period. In Boston in 2000, almost half of all children (48%) lived in a household headed by an immigrant.
- **The Metropolitan Area Planning Council projects that by 2030, the percentage of foreign-born immigrants in Greater Boston will reach 25%.**
- **Without foreign-born newcomers between 2000 and 2003, Massachusetts’ population would have declined by nearly 25,000,** according to the Center for Labor Market Studies at Northeastern University.
- **About one third of newcomer immigrants lack a high school diploma, more than twice the rate of native residents, while a third have a B.A. or higher,** based on analysis by the Center for Labor Market Studies.
- **Many newcomers are isolated by a lack of English fluency. In Massachusetts, waits for English classes are longer than in most other states—about two-years, with 16,000 on the waiting list, and many more than that in the wings.** In addition, qualifications for English as a Second Language teachers are uneven. Approximately 5%-10% of Massachusetts’ residents—up to about 650,000 people were deemed to be in need of English as a Second Language services in 2000.

- **Newcomers and people of color are concentrated in a subset of Massachusetts’ older industrial cities and neighborhoods.** A recent report by MassINC found that 11 “Gateway Cities” contain 15% of the state’s population but 30% of those living below the poverty line. In Boston in 2000, 94% of non-Hispanic blacks, 80% of Latinos, and almost 80% of Boston’s children lived in eight neighborhoods containing only about half the City’s population. The Mayor’s *Task Force Report on Health Disparities* points out that this concentration reinforces racial/ethnic disparities.

機會 OPPORTUNITY: Global Connectivity

COLLABORATION

Creating a more welcoming region: The City of Boston’s Mayor’s Office for New Bostonians coordinates and publicizes resources for newcomers, but no single office of the Commonwealth is charged with highlighting the state’s or region’s growing multicultural resources—from Boston’s Black Heritage Trail and ethnic film festivals to its Italian Saints Day festivals and Caribbean Festival. A collaborative effort to help locals and visitors alike find such things as Somerville’s venue for top Brazilian musicians, Brighton’s Russian restaurants, Lowell’s Cambodian shops and summer music festival, to name just a few, would make the region more welcoming to tourists and students alike while boosting multicultural exploration.

EFFICIENCY

Nurturing immigrant entrepreneurialism: Bay State immigrants make up 12.4% of the population but founded or helped to found almost 30% of engineering and technology businesses, the 4th highest rate nationally, reports Duke University. The Center for an Urban Future found that Boston’s Latino-owned firms increased by 97% and Asian firms by 41% between 1997 and 2002. Others report that 56% of businesses in Dorchester’s Fields Corner are Vietnamese, while 46% of Allston Village companies are immigrant-owned. Region-wide, immigrants own more than 7,000 small businesses, employ 37,000 people, contribute about \$304 million in state and local taxes, and pump \$9.5 billion into the state’s economy. Allowing all residents in-state tuition at public colleges and universities would also boost contributions.

140 languages — a treasure in the global economy: While native English speakers strain to learn new languages, newcomers in the region speak Mandarin, Vietnamese, Hindi, Urdu, Portuguese, Spanish, and Russian and more than 100 other languages, boosting the region’s prospects in the global economy, from the BRIC powerhouses (Brazil, Russia, India, and China) to the rapidly emerging markets of Africa, Asia, Eastern Europe, and Latin America.

Learning from the “Immigrant Health Paradox:” Research shows that newcomers generally arrive healthier than most Americans and gradually decline in health status, particularly in the second generation. Americans have much to learn from traditional cultures about healthy diets, lifestyles, and healthy aging. For example, elderly Chinese in Boston regularly walk, and many do tai chi, which is proven to improve both balance and strength.

INNOVATION

Cross-cultural understanding: The Ethnic Media Project at the Center for Media and Society at UMass-Boston brings to light important issues often overlooked by the mainstream media. The Children’s Museum specializes in exhibits that bridge and reveal cultural differences, while Bunker Hill Community College features art exhibits, such as Haitian Art Now, showcasing the region’s new talent. University-centered study tours and programs such as MIT’s Aga Khan Program for the study of Islamic architecture enrich the region, with new programs being developed at Northeastern, Wheaton, Harvard and other area colleges and universities.

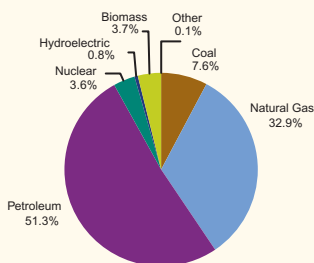


CYNTHIA SUAREZ/BAY STATE BANNER

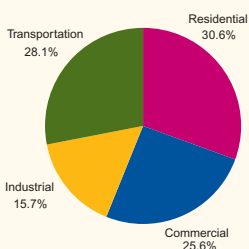


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Massachusetts Energy Sources, 2003

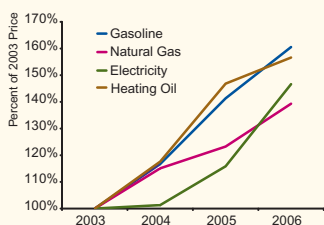


Massachusetts Energy Consumption, 2003



Source: US Energy Information Administration

Change in Massachusetts Energy Prices 2003-2006



Source: US Energy Information Administration

危機 CRISIS: Energy Dependence

The New England Council calls the region “the end of the energy pipeline,” with the highest electricity prices in the nation. And with the Bay State almost 90% dependent on imported fossil fuel (compared to the US at about 60%), Boston is particularly vulnerable to price spikes and geopolitical instability. Experts suggest that no US region would benefit more from diversifying its energy supply with local sources.

■ **Massachusetts depends almost entirely on imported, polluting fossil fuels.** Overall, the spread is 53% oil; 27% natural gas; 9% coal; 5% local nuclear; and 6% clean renewables. For electricity generation as of 2004, natural gas accounted for 44%; coal for 22%; oil for 16%; local nuclear for 12%; hydroelectric for 2%; and other renewables, including wind and solar energy, for 4%. The Bay State’s “energy trade deficit” in 2005 was \$6.1 billion for oil and \$3.8 billion for natural gas.

■ **Regional energy costs are high, rising and taking a toll.** New England’s spending on natural gas and oil soared from \$9 billion in 2004 to \$17 billion in 2006, according to Environment Northeast, while electricity prices have increased 50% since 2002, and in Massachusetts, the average annual oil bill more than doubled from 2003 to 2006. Experts calculate that 14% of a low-income household’s budget is used for home energy costs compared to 3% for wealthier households.

■ **Electricity use is rising disproportionate to job and population growth.** Eastern Massachusetts’ electricity use increased by 20% between 2000 and 2005, according to NStar, and in New England peak electricity use is growing at about 2% annually. At that rate, the region will need to add approximately one new power plant a year or enact measures such as rolling blackouts. ISO New England estimates that electricity demand in the Northeast will increase 23% by 2020, requiring more than 8,500 megawatts of new power plants supply, with carbon dioxide emissions rising by 37 metric tons per year. Of that, the US Department of Energy projects that 85% would be generated by fossil fuels.

■ **New England’s use of imported natural gas increased by 70% between 1993 and 2003.** According to the New England Energy Alliance, liquified natural gas (LNG) comprises nearly 20% of the natural gas supply—and 30% on peak winter days. Even with two new environmentally sensitive terminals planned offshore near Gloucester to augment the Everett terminal—the only one in the Northeast—experts project that demand may outstrip supply by 2010.

■ **Massachusetts’ greenhouse gas emissions total about 21.7 million metric tons per year.** According to the Massachusetts Technology Collaborative, electricity generation accounts for about 30%. This adds to worse-than-average air quality respiratory problems, heart disease, and nervous system damage. Emissions from vehicles are also increasing as vehicle ownership and miles driven outstrip population growth in Boston and the Commonwealth.

機會 OPPORTUNITY: Green Innovation

COLLABORATION

Public officials are advancing progress at every level: Mayor Thomas M. Menino established Boston as the first major US city to mandate LEED (Leadership in Energy and Environmental Design) standards for large development projects and committed the City government to an 80% reduction in greenhouse gas emissions by 2050. Massachusetts, under Governor Patrick, rejoined the Regional Greenhouse Gas Initiative to create the nation's first mandatory cap-and-trade CO2 emissions program. Congressman Edward Markey leads a new Select Committee on Climate Change, and House Speaker Salvatore DiMasi introduced the Green Communities Act.

EFFICIENCY

Cost savings through conservation: According to the US EPA, American households spend about \$1,900 on energy and New Englanders 25% more, but roughly a third is wasted, and a typical home can cut 30% or more with basic upgrades. Boston is increasing energy efficiency in its libraries, street lights, and schools, *Take Charge New England*sm works regionwide, and Cambridge is advancing world-class conservation strategies.

INNOVATION

Green on campuses: MIT is taking a national lead with an energy undergraduate degree, an Energy Council, electro-chemical storage, biofuels, nuclear fusion and hydrogen fuel cells, and an Energy Innovation Collaborative with venture capital firms. UMass-Lowell offers degrees in solar engineering and green chemistry, while Southern Massachusetts University focuses on innovation in marine science. Mount Wachusett Community College and Wheaton College are pacesetters in green campus infrastructure. And Boston's Second Nature launched an initiative leading to carbon-neutral campuses.

Regional synergies: The Massachusetts Renewable Energy Trust invests \$25 – \$30 million annually in “green” companies, products, and development. To catalyze green design and renewable energy use, it created a \$25 million Green Affordable Housing Initiative. The Merrimack Valley, with UMass-Lowell, is becoming a national center of hydrogen fuel cell, solar, and geothermal research and innovation. Local companies are innovating products such as Evergreen Solar's ribbon technology and Tech Network's Earth PC, which uses 25% less energy than standard computers.

Business & nonprofit leadership: Boston is a global center of “green” venture capital and financial services investment and the Cambridge-based Union of Concerned Scientists exerts global leadership on climate change issues. Boston sports the nation's first Green Building and Resource Center, NeXus, a one-stop, full immersion resource for green building information, while the “green” Saunders Hotel Group consults with hotels worldwide. The Boston Building Trades Union is exploring a green manufactured housing system. Boston Green Tourism showcases green hotels, restaurants, and conference centers. The Boston Housing Authority is a model for green renovation. Boston-Based CERES compels companies and capital markets worldwide to incorporate environmental challenges into their decision-making. Locally headquartered Staples is a global leader in energy efficient business.



Boston's growing inventory of green architecture:

The Massachusetts Transportation Building
Trinity Church
Genzyme Headquarters
The Audubon Nature Center
Olmsted Green
Macallen Building Condos
Artists for Humanity
Manulife Building
Maverick Landing
Institute of Contemporary Art
Monarch on the Merrimack
Adaptive Environments
The Stata Center

“How can New England, with virtually no energy resources, become a global energy capital? Surprisingly, the most important resource in tomorrow's energy industry will be human brainpower.”

—Richard Lester, Director, MIT's Industrial Performance Center

REVISITING SCENARIOS FOR BOSTON 2030

In a Scenario Planning Workshop and a series of follow-up sessions, scenarios for Boston in the year 2030 were created by dozens of Greater Boston stakeholders and experts. These diverse visions of Boston's future first appeared in the *2002-2004 Boston Indicators Report*. Each emphasizes real trends that, should they persist, would dominate Boston's identity by 2030. In 2005 and 2006, some of these key trends accelerated while others weakened, leaving Boston's future fate wide open.

A BOSTON THAT WORKS FOR EVERYONE: In this ideal future, a job-rich economic hub with one of the most diverse populations in the US, Boston is a model of expanding opportunity for all. The City of Boston's receipt of the prestigious Eli Broad prize in public school system excellence, its focus on health disparities and technology access, busy neighborhood business districts, upgraded public housing developments, new waterfront and Greenway parkland, revitalized cultural facilities, and leadership in "green" building policies show it to be one of America's most livable and dynamic cities. Mayor Menino's *Smart from the Start Initiative* promises to create breakthroughs in early child development, leveling the playing field for Boston's low-income children.

BOUTIQUE BOSTON. Colleges and universities are in building-boom mode, developers are adding slim residential high rises, upscale hotel/condo complexes, and a 1,000-foot icon to Boston's skyline, while the Convention Center and Black Falcon Cruises are attracting record numbers of visitors. When the dust settles, however, if young people and City workers continue to be priced out, Boston will resemble an upscale college town, heritage theme park, and active retirement community for wealthy "prime timers" rather than a critical node in the global innovation economy.

BALKANIZED BOSTON: Highlighting the national trend of widening income inequality, Boston continues to risk becoming a "tale of two cities:" Some residents are living safely in an upscale 24-hour 21st century global city; others are hunkered down and struggling to make ends meet in neighborhoods with high rates of family poverty, rising rates of youth violence, and persistent health and educational disparities.

BUST AND BOOM BOSTON: Housing prices are moderating, but the real estate market seems unlikely to fall fast and hard, hurting many but creating a foothold for young people and newcomer immigrants priced out of Boston's housing market. Recent trends suggest more incremental-growth than a bust, but in the disruptive 21st century, an energy, health, economic or terrorist shock could change the picture.

BACK-OFFICE BOSTON: Even with declining numbers of Fortune 500 companies, Boston is an important satellite city for corporations and is not at risk of becoming a back-office town any time soon. Boston's dense cluster of colleges and universities, research institutes, teaching hospitals, and cultural facilities are attracting new mini-headquarters—executive teams that can afford the high cost of living. However, as China, India and other economies develop their own innovative capacity and high-skilled services, Boston's competitive edge could dull.

Emerging Civic Agenda: Report of Progress 2005-2006

The *Boston Indicators Report 2002-2004* contained an Emerging Civic Agenda in four areas that had presented themselves as themes during hundreds of convenings across the 10 sectors tracked. Each contains several milestones against which progress can be measured. The goals listed were identified as critical levers of change, and most reflect strategies and initiatives already underway on the part of organizations and stakeholders. Together, they offer a coherent and high-leverage Civic Agenda. What follows is a report of progress in these four areas and milestones over the years 2005 and 2006.

1. AN OPEN, DYNAMIC CIVIC CULTURE

GOAL: Effective, inclusive, collaborative civic structures

MEASURABLE MILESTONE: **New collaborative mechanisms and institutions that work together to develop and execute coherent strategies**

Why is this important? Competitor “citistates” have created overarching regional organization and strategies—from Rhode Island’s Economic Policy Council to North Carolina’s Research Triangle. Historically, Greater Boston has lacked broad-based civic structures and alliances that bridge diverse sets of interests within and across sectors.

HOW WE LOOK TODAY: The Citistates Group’s regional scan, published as *Boston Unbound* in 2004, characterized Greater Boston’s civic leadership as “lacking the collaborative gene.” Since then, enormous progress has been made in creating mechanisms to develop and implement collaborative strategies and initiatives. (See column at right.)

MEASURABLE MILESTONE: **Leadership that reflects the full diversity of the city and region in the for-profit, nonprofit and public sectors**

Why is this important? Challenging times demand a range of perspectives and expertise, and diverse decision-making tables are needed to arrive at the best strategies and to engage broad-based constituencies in implementation. Boston—at the cutting edge of demographic change—is more than 50% of color, its children are more than 75% of color, and almost one in three of its residents is foreign born. Greater Boston is projected to be 25% foreign born by 2030, while Massachusetts’ young workforce is projected to be 48% of color by 2020.

HOW WE LOOK TODAY: Between 2004 and 2006, dramatic progress occurred at the highest levels of regional leadership. Deval Patrick became Massachusetts’ first African American Governor, Martha Coakley its

New Civic Mechanisms

Economic Competitiveness

John LaWare Leadership Forum
(www.johnlawareleadershipforums.org)
Global MA 2015 (www.massinsight.com)

Regional Innovation Summit
(www.maroundtable.com)

Business Resources Team (www.mass.gov)

Innovate Boston!
(www.bostonhistorycollaborative.org)

Life Sciences Collaborative
(www.masslsc.org)

Massachusetts Technology Leadership Council (www.masstlc.org)

Equity and Opportunity

Initiative for a New Economy
(www.bostonchamber.com)

SkillWorks
(www.skill-works.org)

Mayor Thomas M. Menino’s Smart from the Start 0-5 Initiative and Health Disparities Initiative
(www.cityofboston.gov/mayor)

Blueprint for Boston (www.uwmb.org)

City-Wide Dialogues on Boston’s Racial & Ethnic Diversity (www.bostondialogues.org)

Leadership Development

Diversity in Civic Leadership Initiative
(www.oiste.net)

Leadership Exchange (www.elpnet.org)

Nonprofit Sector Collaboration

Massachusetts Nonprofit Network
(www.massnonprofitnet.org)

High Risk Youth Policy Project (www.tbf.org)

Regional Planning

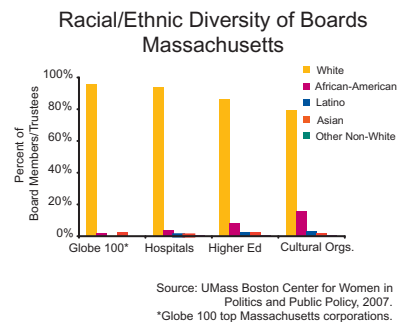
MetroFuture (www.metrofuture.org)

New England

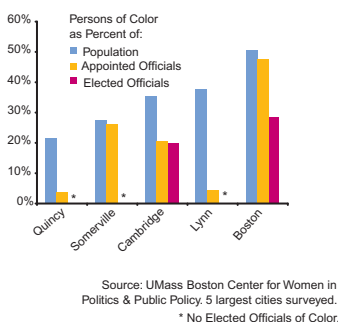
New England Futures Project
(www.newenglandfuture.org)

New England Energy Alliance
(www.newenglandenergyalliance.org)

New England Policy Center, Federal Reserve Bank of Boston (www.bos.frb.org)



Demographic Representation of Elected & Appointed Officials Selected Large Cities, 2006



first female Attorney General, and Therese Murray its first female Senate President. Susan Hockfield was tapped as the first woman to lead MIT and Drew Gilpin Faust as the first woman to lead Harvard University. Lebanese-American Joseph Aoun took the helm of Northeastern University, and African Americans Jackie Jenkins-Scott and Ronald Crutcher became Presidents of Wheelock College and Wheaton College, respectively. However, despite progress at the very top, the region’s leadership cadre remains overwhelmingly white and male.

- An analysis by University of Massachusetts-Boston’s McCormack Graduate School of Policy Studies, through its Center for Women in Politics & Public Policy, found that in 2006, among the 100 best-performing public companies in Massachusetts, 96% of board members were white and 87% were male. Among 491 board members for whom race was identified, 8 (or 1.6%) were African American, 11 (or 2.2%) were Asian and 2 (or 0.4%) were Latino.
- The Boston Club’s 2006 Census of Women Directors and Executive Officers found that women fill only 10.8% of the 844 board seats in the 100 largest public companies in Massachusetts, that 43% operate with all male boards, that 30% have no women at either the board level or in the executive suite, and that for the past 2 years, women of color held just 1.1 % of the board seats.
- The UMass analysis found that of the 10 cities and towns in Greater Boston with the highest percentage of residents of color—41% of color together—only 9% of elected leaders and 15.5% of appointed officials were of color.
- A Boston Indicators Project analysis of the academic sector showed that despite recent high-profile appointments, the sector made little progress overall. Between 2000 and 2006, the Bay State’s 50 largest colleges and universities netted no additional female presidents—with the total remaining at 19, Asian college presidents increased from 1 to 2, and African American presidents from 2 to 3, with no Latino presidents at any college. However, the UMass-Boston analysis showed that public higher education boards of trustees are quite representative: among 1,317 seats statewide, 1,184, 86%, are held by whites, 110, or 8%, by African Americans, 37, or 2.7%, by Latinos, and 34, or 2.5%, by Asians.

2. 21st CENTURY JOBS AND ECONOMIC STRATEGIES

GOAL: Economic strategies that build on the region’s core strengths, tackle its greatest challenges, and broaden economic opportunity for all

MEASURABLE MILESTONE: Job growth by sector in Boston and Massachusetts

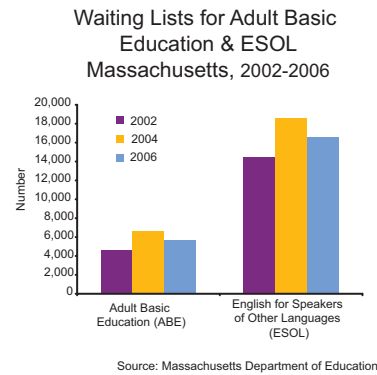
Why is this important? Greater Boston drives economic growth throughout the Commonwealth and region. Unless Boston and the region can grow and sustain an increase in good jobs, particularly in clusters with the potential to expand in the Commonwealth over decades, the region will lose its core asset—young educated workers—to areas with more dynamic economies, creating a downward economic spiral and a lower standard of living for all.

HOW WE LOOK TODAY: Payroll jobs stood at 3,243,300 as of December 2006—a gain of 176,400 since the trough of January 2004, but a loss of 124,500 since the high in December 2000. While Massachusetts and Boston lost about 9% of jobs from the 2001 recession through early 2004 and lagged the nation in recovery, by the third quarter of 2006, the region’s economy was growing at a higher rate than the national economy. However, growth is uneven across sectors, and the region faces intensifying competition for some of its most promising innovation economy clusters.

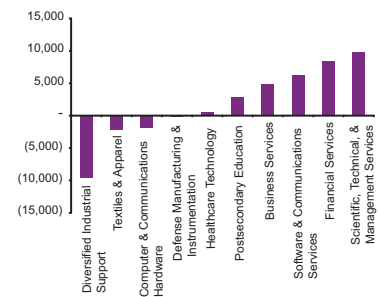
MEASURABLE MILESTONE: Massachusetts ESOL and Adult Basic Education waiting lists and waiting times.

Why is this important? In a 2000 report, MassINC found that one-third of the state’s workers lack the skills needed to compete in the 21st century economy, including 667,000 with a high school diploma but lacking in skills, 195,000 with severely limited English, and 280,000 without a high school degree. In Boston in 2000, almost half of all children lived in a household headed by an immigrant. English fluency and literacy open doors to economic and educational opportunity.

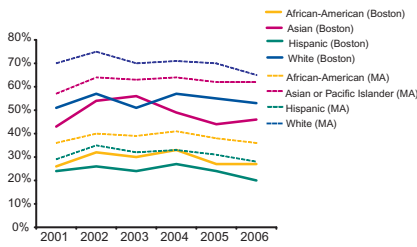
HOW WE LOOK TODAY: Between 2004 and 2006, Massachusetts reduced its waiting list for English classes from 25,000 to about 16,000. However, a 2006 survey by the National Association of Latino Elected and Appointed Officials found that Massachusetts had the longest waiting time for English classes: two-years. Clear criteria for teacher and program quality are also lacking. In Boston, where an estimated 26,000 households are linguistically isolated—with no adult who speaks English well—the wait is one to 24 months, reflecting a shortfall in state funding.



Net Change: Innovation Economy Jobs, Massachusetts, 2004- Q3 2006

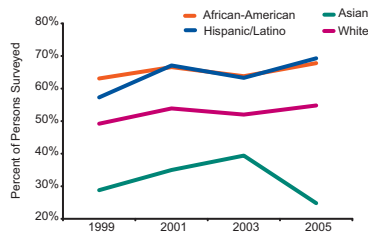


3rd Grade MCAS Reading, by Race, Percent of Students Testing Proficient or Advanced, Boston & Massachusetts, 2001-2006



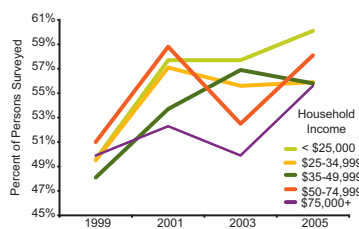
Source: Massachusetts Department of Education

Overweight & Obese Persons, Massachusetts by Race/Ethnicity, 1999-2005



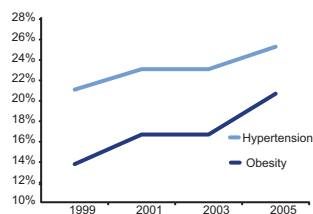
Source: Massachusetts Department of Public Health

Overweight & Obese Persons, Massachusetts by Income, 1999-2005



Source: Massachusetts Department of Public Health

Massachusetts Obesity and Hypertension Rates, 1999-2005



Source: Massachusetts Department of Public Health

3. WORLD CLASS HUMAN RESOURCES

GOAL: Breakthrough human development and education—from early childhood through healthy aging, pre-K through lifelong learning—to support a world-class workforce and a high quality of life for all

MEASURABLE MILESTONE: Educational excellence for all, as indicated by the percentage of third graders reading at the third grade level

Why is this important? Educators identify third grade reading as the key indicator of early educational quality as well as the platform for independent learning and future academic success. Moreover, in its report *Are They Ready for Work?* the Conference Board found “reading comprehension” first among the basic skills desired by employers of high school and two-year-college graduates, while “writing in English” ranked first in the skills sought by employers among college graduates.

HOW WE LOOK TODAY: Third grade reading MCAS scores for Boston and Massachusetts, viewed by race/ethnicity, show similarly persistent disparities and little overall improvement since 2001. While Massachusetts’ 4th grade readers achieved the highest state ranking in the National Assessment of Educational Progress (NAEP) in 2005 with an average score of 231 to the national public school average of 217, this compares with 226 in 1992 and 228 in 2003—showing little progress after more than a decade of dedicated school reform.

MEASURABLE MILESTONE: Low rates of preventable chronic disease, beginning with a reversal in risk factors such as the upward trend in childhood and adult obesity

Why is this important? Obesity is an indicator of poor health and a risk factor for multiple chronic diseases, a driver of health care costs, and a marker of racial/ethnic and income disparities. According to a report by the New England Healthcare Institute, only tobacco-related deaths exceed the death toll from poor diet and fitness, overweight and obesity, and the US Centers for Disease Control (CDC) estimated that obesity imposed net costs of \$1.8 billion on Massachusetts’ economy in 2003.

PROGRESS: In 2005, the Massachusetts Department of Public Health identified 20.7% of the Massachusetts population as obese—a 64% increase over 1996, with those age 45-54 having the highest rate of obesity, at 26%. Massachusetts residents with a high school diploma were more likely to be obese than college graduates (24% vs. 14.4%). Preventable chronic disease rates in the Bay State are rising: 25% of state residents report at least one incidence of hypertension, the highest rate in 15 years; 6.4% of residents are estimated to have diabetes, a 39% increase since 1996; and 9.6% of residents reported asthma in 2005, a 13% increase in five years.

4. 21st CENTURY INFRASTRUCTURE & SUSTAINABILITY

GOAL: Vibrant and sustainable communities with a high quality of life and housing choices across a range of incomes

MEASURABLE MILESTONE: Construction of at least 18,000 units annually in Greater Boston for 10 years: 14,000 market rate, 3,000 subsidized new construction, and 1,000 student housing—consistent with the goals of the Greater Boston Housing Report Card, with at least half in or near city and town centers or adjacent to public transit (i.e., eligible for new 40R/40S zoning overlay districts).

Why is this important? High housing costs are driving young workers and families out of the region and reducing the quality of life for residents who pay a high percentage of their income for housing—whether as homeowners or renters. Smart growth housing boosts walkability and energy efficiency, and supports commercial and cultural vitality in city and town centers.

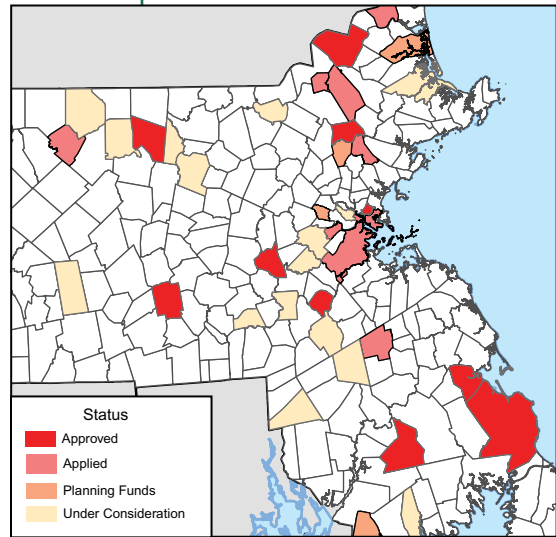
HOW WE LOOK TODAY: Greater Boston’s inventory rose by 16,468 in 2005 (13,422 market, 2,523 subsidized, and 523 student housing). By early 2007, 12 communities had passed 40R/40S zoning, creating more than 4,000 new units, with more than twice as many towns in the pipeline (see map). The Center for Regional and Urban Policy identified 46 planned developments less than a mile from a transit node in Boston, as well as in: Assembly Square, Somerville; North Point, Cambridge; the South Weymouth Air Station; Plymouth; Westwood; and Beverly. Prices moderated in 2006 for the first time since 1992 but remained comparatively high.

MEASURABLE MILESTONE: Adoption of a dynamic, collaborative plan for the future of Metropolitan Boston

Why is this important? Achieving and sustaining a high quality of life for all while preserving the region’s natural resources and addressing the challenge of energy independence and the transition to a low-carbon economy will require well crafted and broadly supported plans to guide the actions of cities and towns as well as the region as a whole over the next decades.

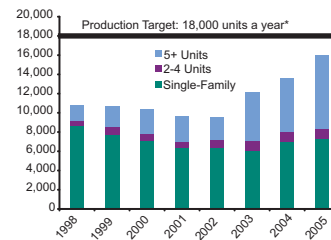
HOW WE LOOK TODAY: In May 2007, 94% of participants at a Boston College Citizen Seminar chose a “smart growth” scenario, “Winds of Change,” that directs most of about 307,000 new housing units to urban areas and older suburbs to accommodate some 465,000 new residents, while prioritizing the preservation of undeveloped land and increasing renewable energy and transit use. For details, go to www.mapc.org.

Eastern Massachusetts
40R Zoning Districts



Source: Commonwealth Housing Task Force, 3/2007.

Housing Units Produced,
Greater Boston, 1998 to 2005



Source: Northeastern University Center for Urban and Regional Policy.
*Targets as outlined in the 2000 *New Paradigm* Report.

Selected MetroFuture Goals for 2030:

60% of new housing units will be created by redeveloping previously developed land;

61% of new jobs and homes will be located near existing transit services, and transit ridership will double;

New conservation technologies and incentives will reduce water consumption by 20%; and

140,000 additional acres of farms, wildlife habitat and trail corridors will be permanently protected.

The American College and University Presidents Climate Commitment

The presidents of the following Massachusetts colleges and universities have signed the American College and University Presidents Climate Commitment, coordinated by Boston-based Second Nature—along with presidents in other states—and have pledged “to exercise leadership in their communities and throughout society by modeling ways to eliminate global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality.”

Berkshire Community College
Bridgewater State College
Bristol Community College
Bunker Hill Community College
Cape Cod Community College
Greenfield Community College
Holyoke Community College
Lesley University
Massachusetts College of Art
Massachusetts College of Liberal Arts
Massachusetts Maritime Academy
Massasoit Community College
MassBay Community College
Middlesex Community College
Mount Wachusett Community College
National Graduate School
North Shore Community College
Northeastern University
Northern Essex Community College
Quinsigamond Community College
Roxbury Community College
Springfield Technical Community College
University of Massachusetts
University of Massachusetts Boston
University of Massachusetts Dartmouth
University of Massachusetts Lowell
Westfield State College
Wheelock College

NEW MEASURABLE MILESTONE: Collaborate as a region to assist the world community in meeting the goal of holding atmospheric concentrations of carbon dioxide to less than double their historic levels, requiring an 80% reduction in carbon dioxide emissions by 2050

Why is this important? Greater Boston has a large stake and potentially powerful role in leading the global transition to a carbon-free economy because: a) it is at the “end of the energy pipeline” and highly vulnerable to price spikes and breaks in supply; b) clean tech energy generation and conservation is an increasingly important and competitive industry sector with a large number of potential jobs across a variety of skills sets; and c) the Greater Boston region has the innovative capacity necessary to make major contributions to the global response to climate change

HOW WE LOOK TODAY: Both Mayor Thomas M. Menino and Governor Deval Patrick have issued Executive Orders setting targets for each of three important aspects of addressing climate change: production of electricity from renewable energy; energy conservation; and greenhouse gas reductions.

- With respect to renewable energy, the City and Commonwealth set a target of 15% of electricity from renewable sources by 2012, which is far more aggressive than the Commonwealth’s current renewable portfolio standard of 9% by 2014.
- To reduce greenhouse gas emissions, Mayor Menino’s Executive Order calls for reducing the City’s carbon dioxide emissions by 7% below 1990 levels by 2012 and 80% below 1990 levels by 2050. Governor Patrick set a statewide target of reducing carbon dioxide emissions by 25% in 5 years, 40% by 2020 and 80% by 2050 as measured from a Fiscal Year 2002 baseline (although reduction targets are usually based on 1990 levels, the baseline year for the UN’s Kyoto Protocol on Climate Change.) As an important first step toward meeting these targets, Massachusetts joined other Northeast states in the Regional Greenhouse Gas Initiative (RGGI) “cap and trade” program targeting emissions from power plants.
- In energy efficiency, Massachusetts’ target is to reduce total energy consumption 20% by 2012 and 35% by 2020 (as measured from Fiscal Year 2004). Boston is the first major US city to impose standards modeled on the US Green Building Council’s Leadership in Energy and Environmental Design or LEED standards for all new development projects over 50,000 square feet in size.

Conclusion

In response to global warming, many are calling for a revolution in green energy innovation and a transition to a carbon-free global economy. Others, such as the authors of *Tough Choices or Tough Times*, call for a revolution in American education to respond to a more competitive world. Still others are searching for a revolutionary approach to improving health. Boston reflects these challenges, compounded by high and rising costs that are putting the region out of the reach of many—squeezing many households while driving young companies and talent away. But unlike most places on Earth, Greater Boston has what it takes to tackle these and other challenges to become the “city on a hill” for a new century—a broadly inclusive and generative place where residents are defined by their talents and aspirations, and helped to unleash their resourcefulness and creativity on behalf of their own well being and the common good.

In taking on the challenges of a new century on behalf of residents today and the greater good, the region can tap deep roots. Massachusetts’ first governor John Winthrop called on his compatriots not only to create a “city on a hill” but “to abridge ourselves of our superfluities, for the supply of others’ necessities.” John Adams, the nation’s second president and author of Massachusetts’ Constitution, defined the Commonwealth as “a social compact by which the whole people covenants with each Citizen and each Citizen with the whole people...” And in his inaugural remarks, Governor Deval Patrick reinforced the special role of the Commonwealth of Massachusetts: “This Commonwealth—and the nation modeled on it—is at its best when we show...a faith in what’s possible, and the willingness to work for it.” And Boston Mayor Thomas M. Menino reminds us that “Bostonians can do anything if we work together.”

What is possible—what we can do—is to act as a whole that is greater than the sum of our parts. We can create breakthrough solutions to what ails our communities and the global community. We can value, above all, our most fragile resources—our children. We can fulfill our capacity to create good schools, jobs and health. We can strengthen the social capital that binds residents to one another, and can engage in informed civic discourse and cross-cultural understanding. We can create a sustainable environment.

Indicators are a tool to express these values, to track change, and to measure progress. With this summary report and its companion websites, the Boston Indicators Project—to which thousands of experts, stakeholders and leaders have contributed time and knowledge for more than a decade—offers this collaborative tool as one way to drive change. Now is the moment to use this and other vehicles to respond to the great challenges and opportunities of our time.



Innovate Boston!

In a 2005 report, the Boston History and Innovation Collaborative identified five drivers of innovation across four centuries at the core of Boston’s history of reinvention and renewal:

■
A driving entrepreneur or team

■
A local network sharing information and working across silos

■
Local funders

■
Local demand

■
National or global demand



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More than virtually any other metropolitan area in the world, Greater Boston contains all the ingredients necessary to begin to create a low-carbon economy on behalf of today’s communities, future generations, and Planet Earth. At this critical juncture in human and planetary history, it is time for Greater Bostonians to join together in revolution once again. And if we succeed, we will grow and attract all of the talent, ideas, public and private capital, and jobs that any region could want or need.

Charting the Course of the Next Revolution

“... World market conditions have rapidly changed... We can only win by emphasizing our creativity and inventiveness...”

—Secretary of State Bill Galvin

A REVOLUTION IN EDUCATION

Make Massachusetts the lead state in implementing the recommendations in the report *Tough Choices or Tough Times*, which calls for a totally new approach that radically changes the antiquated notion of education and replaces it with one that focuses on teacher quality, early education, creativity, critical thinking and STEM (science, technology, engineering, and math).

A REVOLUTION IN ENERGY

Make Greater Boston a world-class model of green innovation and conservation, with new jobs at all skill levels—from research in building materials, transportation and green chemistry, to product design and manufacturing, to building retrofits, energy generation, green tourism, and sustainable communities

A REVOLUTION IN HOUSING

Address Greater Boston’s housing crisis by mobilizing community development corporations, city planners, schools of architecture, policy makers and other experts to conceptualize and build innovative forms of energy-efficient, transit-oriented housing that is affordable to residents at all price levels in cities and towns throughout the region.

A REVOLUTION IN HEALTH

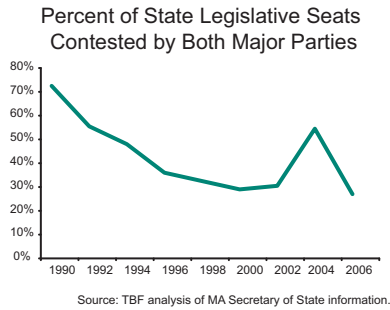
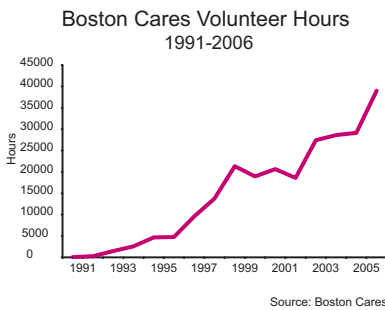
Buck the national trend of rising health care costs and declining relative health status by becoming the healthiest state in the nation across all racial/ethnic and income groups by preventing preventable chronic diseases, redirecting the billions saved to the priorities above.



Overview 2005-2006 Report: Indicator Sector Highlights

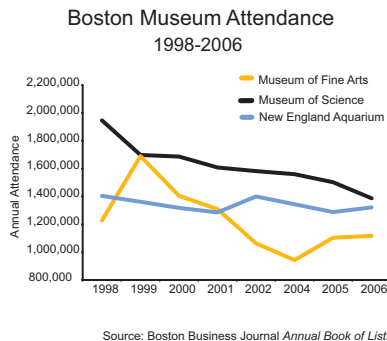
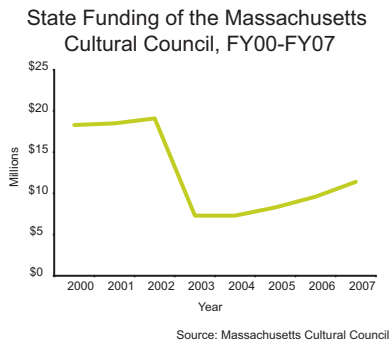
The following brief highlights in the 10 categories tracked by the Boston Indicators Report emphasize change since 2004. Greater detail may be found at www.bostonindicators.org.

CIVIC VITALITY



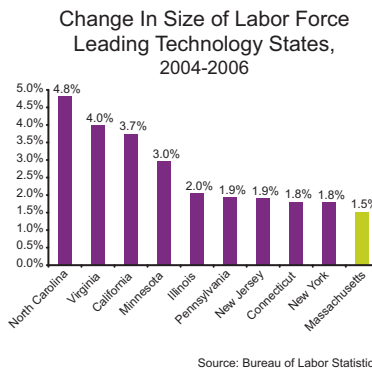
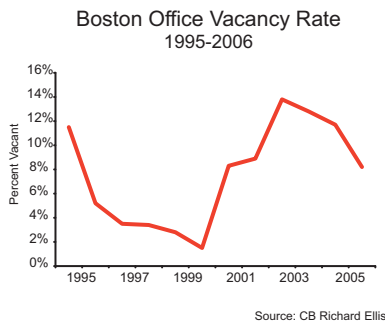
Greater Boston's civic landscape shifted with new collaborative civic mechanisms and breakthroughs in diverse new leadership and volunteerism. However, Boston's civic health is challenged by persistent disparities, a lack of competitive legislative elections, and declining newspapers.

CULTURAL LIFE AND THE ARTS



The new Institute of Contemporary Art symbolizes Boston's cultural revival, tourism is up, new legislation supports older venues, and Boston celebrates diversity. However, the sector struggles to secure funding, reverse a decline in attendance, and create opportunities for artists to thrive.

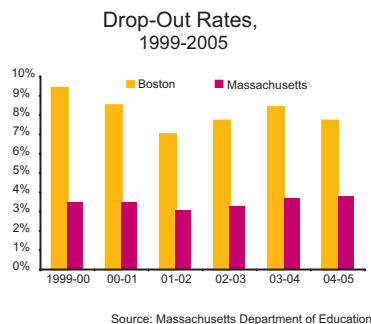
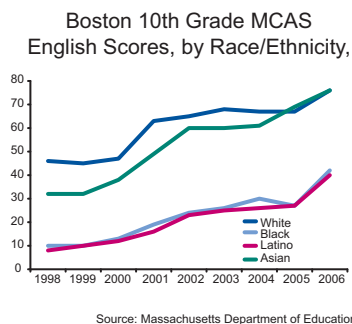
ECONOMY



The Commonwealth regained almost half the jobs lost in 2001, and exceeds the nation in growth. Recovery is apparent in Boston's office vacancies, major job sectors, and convention center bookings. However, the region faces a skills mismatch, high costs, and increasing income inequality.

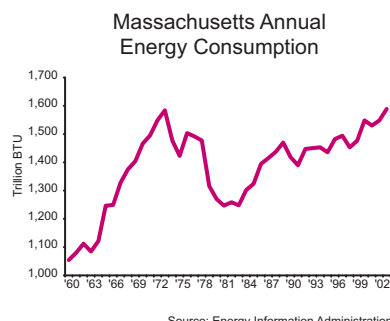
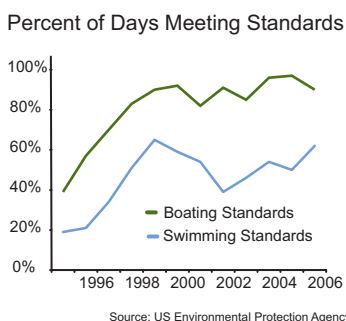
EDUCATION

The Boston Public Schools was awarded the prestigious Broad prize, gained in all racial/ethnic groups, and offered new Pilot Schools and preschool slots. The state ranked first in 4th grade reading nationwide. But, public higher education is underfunded and MCAS scores show persistent disparities.



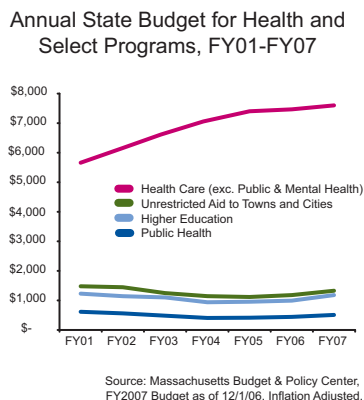
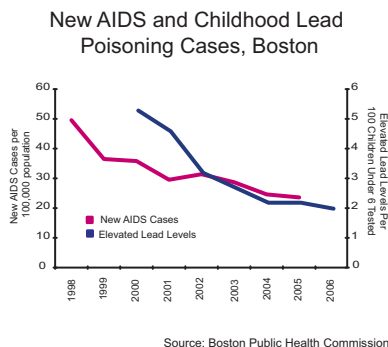
ENVIRONMENT & ENERGY

Boston opened the Greenway and Spectacle Island, water quality improved in the Charles and Harbor, and the region leads the nation on climate change, but state funding constrains park maintenance and programs, and residents are consuming more energy.



HEALTH

Boston boasts dramatic progress in childhood lead poisoning and HIV-AIDS, but state budget cuts constrain its capacity to address preventable diseases, risk factors such as obesity, and health disparities as health care costs crowd out other priorities.

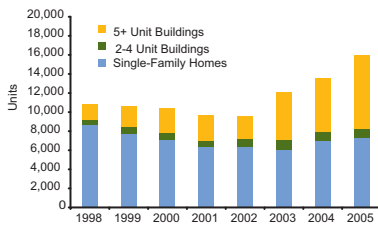


WWW.BOSTONINDICATORS.ORG

Visit the **Boston Indicators Project** website to find the latest data, charts and analysis tracking Greater Boston's progress across these 10 categories, as well as interactive features, including a **Hub of Innovation** and links to numerous data-rich resources.

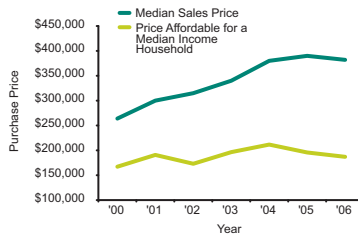
HOUSING

Housing Units Produced, Greater Boston, 1998-2005



Source: Northeastern U. Center for Urban & Regional Planning

Sales Price/Affordable Home Price Comparison, Boston

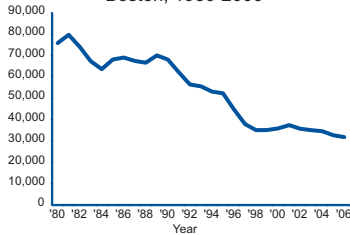


Source: TBF analysis of City of Boston data

Boston's Leading the Way II initiative surpassed its goal and new 40R/40S zoning districts gained traction. Despite market weakness and sub-prime loan foreclosures, home prices remain 46% higher than in 2000, and housing costs continue to be a primary reason for leaving the state.

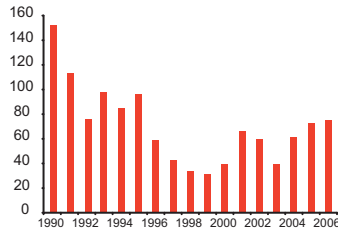
PUBLIC SAFETY

Total Violent and Property Crimes Boston, 1980-2006



Source: Boston Police Department

Boston Homicides, 1990-2006



Source: Boston Police Department

Violent crime is down in Boston, but a demographic spike in young people without more enrichment and job opportunities correlates with a resurgence of gang violence. New Police leadership, re-engaged churches, and summer activities are making a difference.

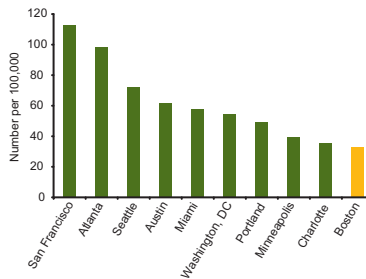
TECHNOLOGY

Engineering Degrees Awarded, Leading Technology States, 2005



Source: American Association of Engineering Societies & The Massachusetts Technology Collaborative

WiFi Hotspots Per 100,000 Population Boston & Competitor Cities 2006

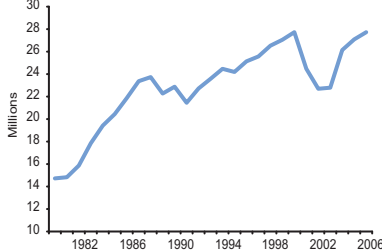


Source: JWire.com, Nov. 2006

The region excels in patents, skills, and venture funds, but faces increasing competition. An Emerging Technology Fund is laying the groundwork for competitiveness while Mayor Menino's Wireless Task Force creates a platform for ubiquitous access.

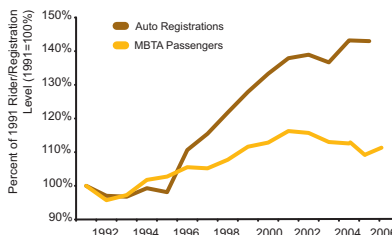
TRANSPORTATION

Logan Airport Annual Passengers, 1980-2006



Source: MassPort

Boston Auto Registrations and MBTA Ridership



Source: Massachusetts Registry of Motor Vehicles and the Metropolitan Boston Transit Authority

The Big Dig reduces travel time to Logan Airport, renovated T stations open, the Indigo Line is planned, and innovations such as Goloco are emerging. However, transit expansion is stalled due to the MBTA's shortfall as sprawl lengthens commutes and worsens congestion.

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Civic Vitality: *CoPlenary:* Sayra Pinto, Associate Vice President for Inclusion and Community Learning, Mount Wachusett Community College *Electoral Politics:* Gibrán Rivera, Organizer, The Public Policy Institute; *New Leadership:* Patricia Neilson, Associate Director, Center for Collaborative Leadership, UMass-Boston; Joel Barrera, Project Director, Commonwealth Legislative Seminar & Project Director, Metro Mayors' Coalition; *Race and Ethnicity:* Beverly Morgan-Welch, Executive Director, Museum of Afro-American History; Jeff Stone, Steering Committee Co-Chair, City-Wide Dialogues on Boston's Ethnic and Racial Diversity; *Social Capital:* David Crowley, President, Social Capital, Inc.; Sayra Pinto (see above); *Volunteerism:* Patrice Keegan, Executive Director, Boston Cares; Sharon Reilly, Director of Community Relations, The Food Project **Cultural Life & the Arts:** Candelaria Silva-Collins, Director, ACT Roxbury; Bill Nigreen, Principal, Facilitation for Social Change **Economy:** Gail Snowden, Chief Financial Officer and Treasurer, The Boston Foundation; Michael Goodman, Director of Economic & Public Policy Research, The Donahue Institute, UMass, and President, The New England Economic Partnership **Education:** Klare Shaw, Senior Associate, Barr Foundation; Bob Giannino Racine, Executive Director, ACCESS; *0-5/Early Education:* Amy O'Leary, Deputy Campaign Director, Strategies for Children/Early Education for All Campaign; Marchelle Raynor, Program Director, Head Start; Laurie Sherman, Mayoral Advisor – Education, Health, Human Services, City of Boston; *K-12:* Thabiti Brown, Academic Dean, Codman Academy Charter School; Suzanne Lee, Principal, Josiah Quincy School; *Out-of-School Time:* Mariel Gonzales, Vice President, Boston After School and Beyond; Mia Roberts, Chief Operating Officer, Big Sister Association of Greater Boston; *Community Colleges:* Sayra Pinto, Associate Vice President for Inclusion and Community Learning, Mount Wachusett College; Mary Lassen, former Executive Director, The Women's Union, Senior Fellow in Public Policy, The Boston Foundation; *Four-Year Higher Education:* Jackie Jenkins-Scott, President, Wheelock College; Robert V. Antonucci, former Commissioner of Education, Commonwealth of Massachusetts, President, Fitchburg State College **Environment:** Lois Adams, Chief of Pesticides, Toxics and Urban Programs, Environmental Protection Agency (EPA) New England; Valerie Burns, President, Boston Natural Areas Network; Vivien Li, Executive Director, The Boston Harbor Association **Health:** Debbie Klein Walker, Principal Associate, Abt Associates; Elmer Freeman, Executive Director of the Center for Community Health Education, Research and Service, Northeastern University **Housing:** *Plenary Co-Chairs:* Jeanne Pinado, Executive Director, Madison Park Community Development Center; Barry Bluestone, Dean, School of Social Science, Urban Affairs, and Public Policy, Northeastern University; *Affordable Housing: Development, Preservation, & Expiring Use:* Gail Latimore, Executive Director, Codman Square Neighborhood Development Center; Aaron Gornstein, Executive Director, Citizens' Housing and Planning Association; Michael Gondek, Executive Director, Massachusetts Community Economic Development Assistance Corporation *Market-Rate/Mixed-Income Housing:* Kirk Sykes, President, New Boston Urban Strategy America Fund; Robert C. Gehret, Deputy Director, Policy Development and Research Division, Department of Neighborhood Development, City of Boston; *Smart Growth/40R-40S:* Eleanor White, President, Housing Partners, Co-Chair, Commonwealth Housing Task Force; Ted Carman, President, Concord Square Development Corporation; Barry Bluestone (see above); *Homelessness:* Melinda Marble, Executive Director, Paul and Phyllis Fireman Charitable Foundation; Georgianna Meléndez, Executive Director, Casa Myrna Vazquez **Public Safety:** Jorge Martinez, Executive Director, Project RIGHT; Jack McDevitt, Associate Dean of Graduate Studies, Institute on Race and Justice, Northeastern University **Technology:** Patricia Toney, Programs & Development Specialist, The Timothy Smith Network; Steve Gag, Technology Advisor, Mayor Thomas M. Menino's Office **Transportation:** Stephanie Pollack, Senior Research Associate, Center for Urban and Regional Policy, Northeastern University; Richard Dimino, President & CEO, A Better City; Vineet Gupta, Director of Policy and Planning, Boston Transportation Department

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Please see www.bostonindicators.org for the Project's website content and production acknowledgments.



The Boston Indicators Project



Metropolitan Area Planning Council

MetroBoston

DataCommon



ABOUT THE PROJECT

WHAT'S NEW

SAMPLE MAPS

QUICK GUIDE

LINKS

CONTACT & TECH SUPPORT



Getting Started

Introduction to the website.

Community Snapshots

Choose a Community

Instant statistics and maps in PDF.



DataMap Tool

Go to the mapping tool.

Available Data

General Population Statistics

- By Municipality
- By Census Tract
- By Block Group

Data by Topic

- Arts and Culture
- Civic Vitality and Governance
- Economy
- Education
- Environment and Recreation
- Housing
- Public Health
- Public Safety
- Technology
- Transportation
- Zoning and Land Use

Imagery

- Available Imagery Maps

Geographic Map Layers

- Available Geographic Layers

Special Data Sets

- Available Special Data Sets

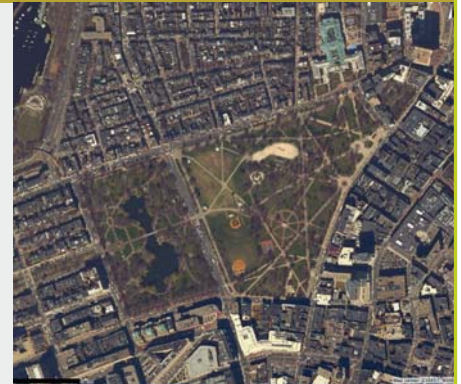


Regional Map Gallery

Sample maps with explanations.

Welcome to MetroBoston DataCommon

MetroBoston DataCommon is a new online mapping tool. A partnership between the Metropolitan Area Planning Council (MAPC) and the Boston Indicators Project, it makes available a wealth of data about 101 cities and towns in Eastern Massachusetts. Explore data, print out instant community snapshots or maps, and create your own datamaps.



Aerial Orthophotographs, 2005, Boston Common,
Data Source: MassGIS

What's New?

New Suburban Mobility/TDM Program Special Datasets

Upcoming Free Training Sessions:

May 15 - Roxbury

May 24 - Acton

June 4- East Boston

The Boston Indicators Project

The **Boston Indicators Project** is coordinated by the **Boston Foundation** in partnership with the **City of Boston** and **MAPC**. It measures and reports on change in Boston in ten sectors. The Boston Indicators Project links to recent research and other data-rich websites. It features a Hub of Innovation, At-A-Glance indicators and profiles, and a Civic Agenda.

Metropolitan Area Planning Council

The **Metropolitan Area Planning Council (MAPC)** is a regional planning agency representing 22 cities, 79 towns, and 3,067,000 people. Its area includes 1,422 square miles stretching west from Boston to Route 495. To enhance the region's quality of life and economic competitiveness, MAPC is engaging residents and planners in creating a new 25-year plan, **MetroFuture**.

