

Boston GHG Reduction Goals and Potential Mitigation Measures

CAC Meeting, 9/1/09

Dr. Jonathan Raab

Raab Associates, Ltd. and MIT

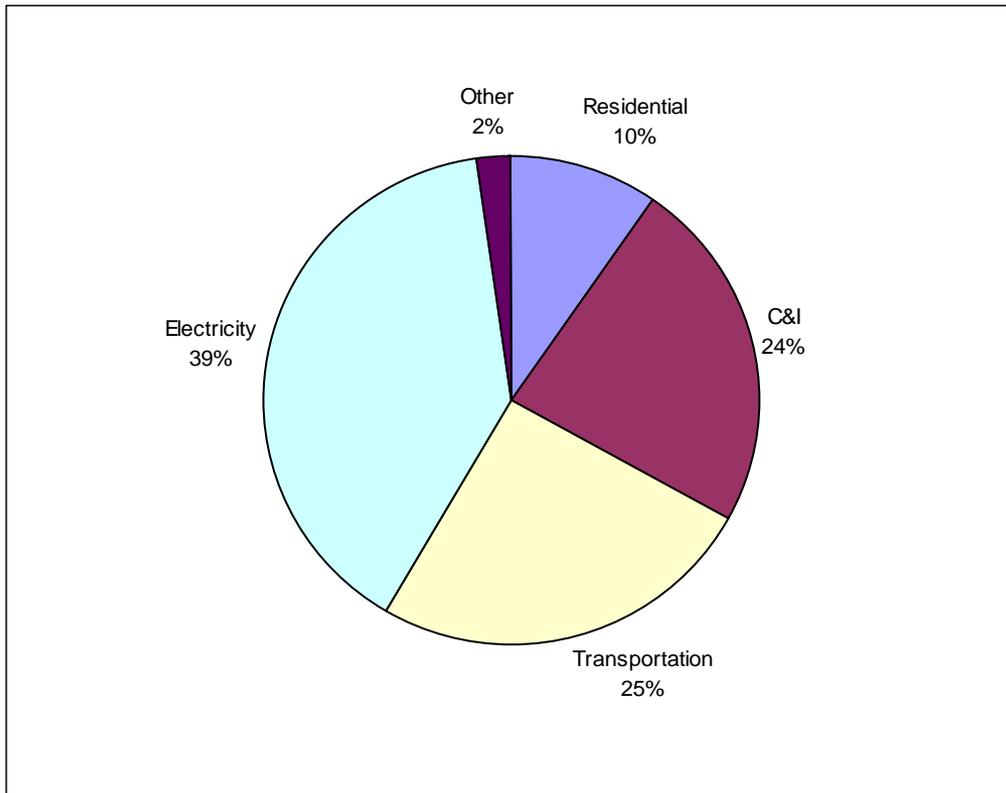
GHG Emissions per Capita Comparison

- U.S 24
- MA 15
- Boston 12
- NYC 7
- Chicago 12
- Copenhagen 5

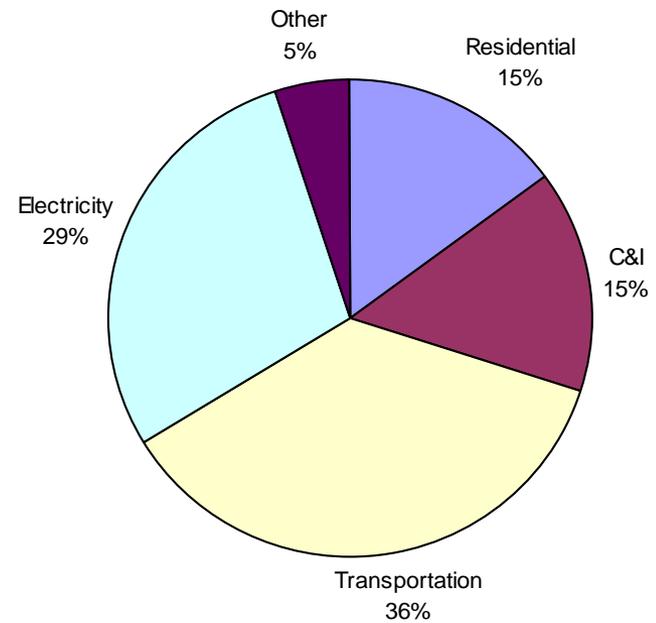


Boston vs. MA GHG Inventory

Boston 2005 GHG Emissions



Massachusetts 2005 GHG Emissions



MA: Baseline and Business as Usual (BAU) Projection of GHG emissions

Figure 1: Massachusetts Baseline and Business as Usual (BAU) Projection of GHG emissions 1990-2020

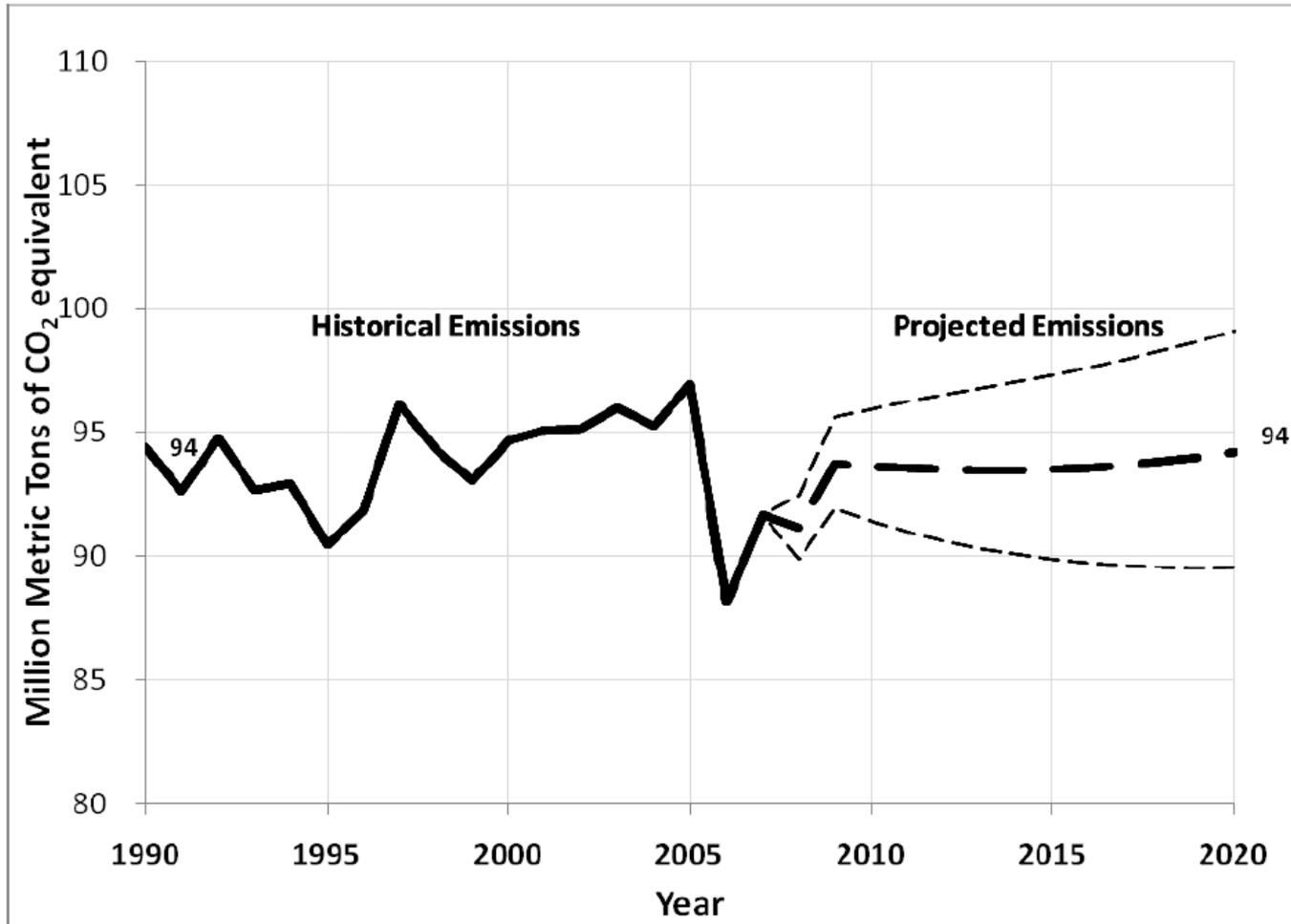
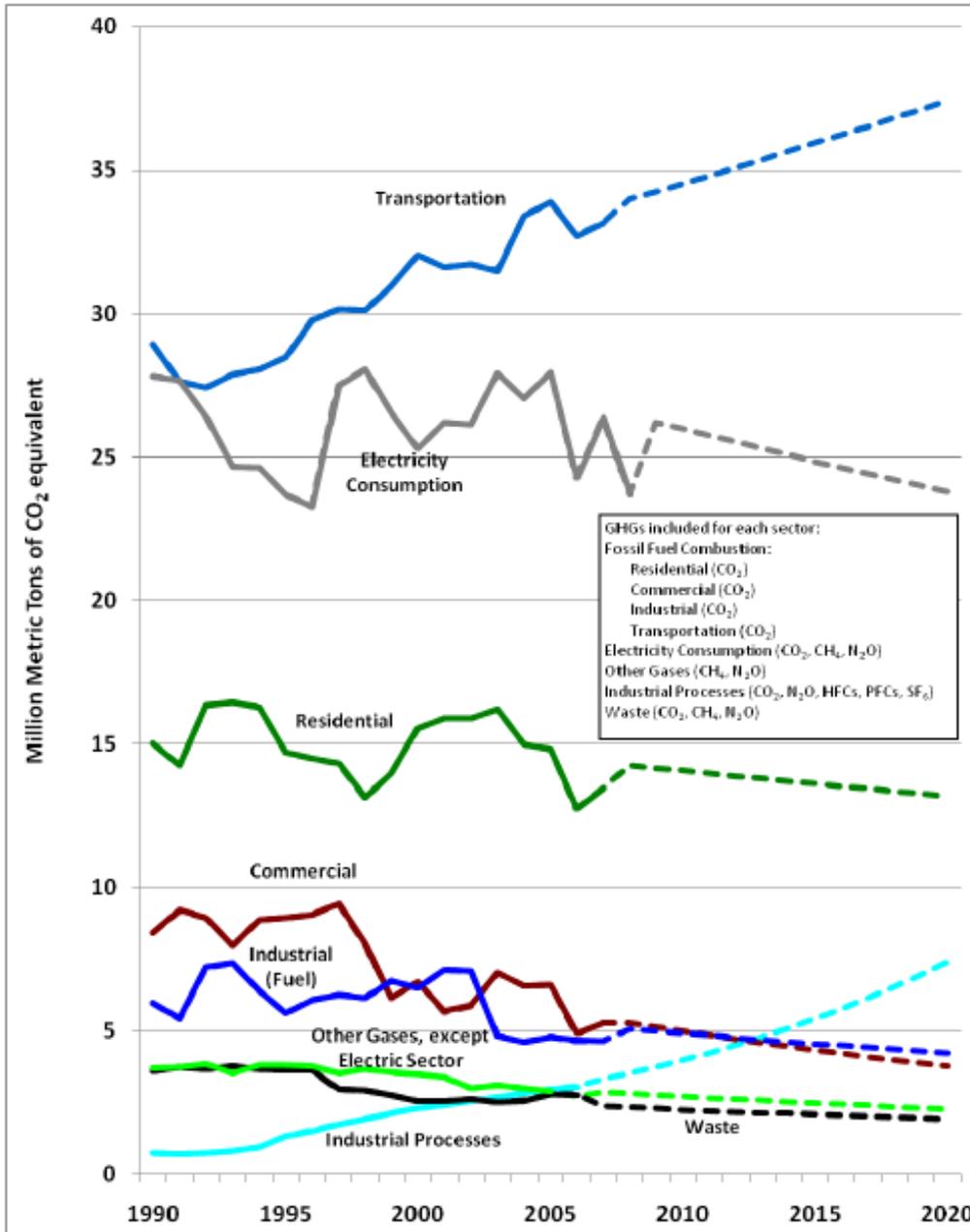
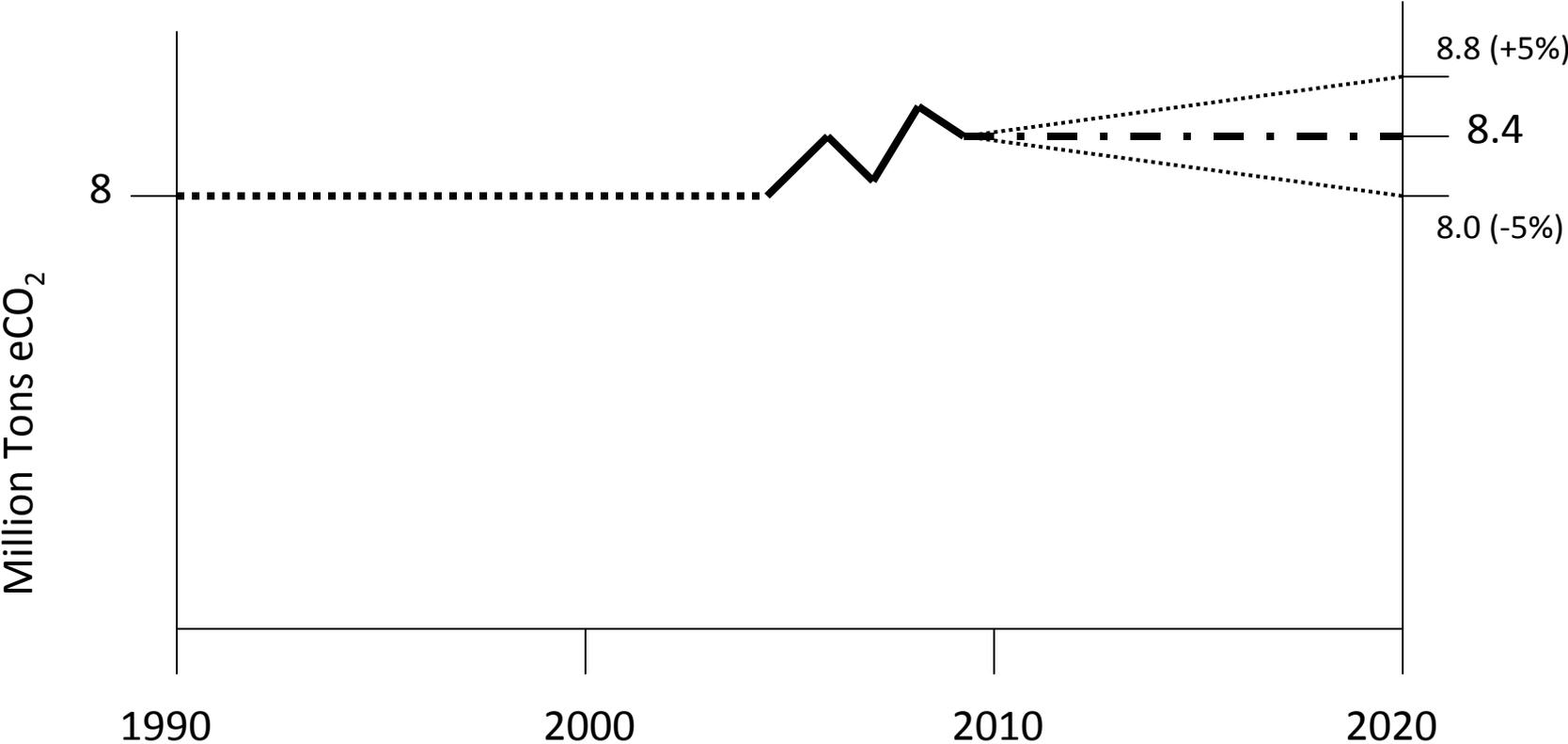


Figure 2: Massachusetts Baseline and BAU Projection of GHG emissions 1990-2020 by sector



MA Baseline Projections of GHG emissions by Sector

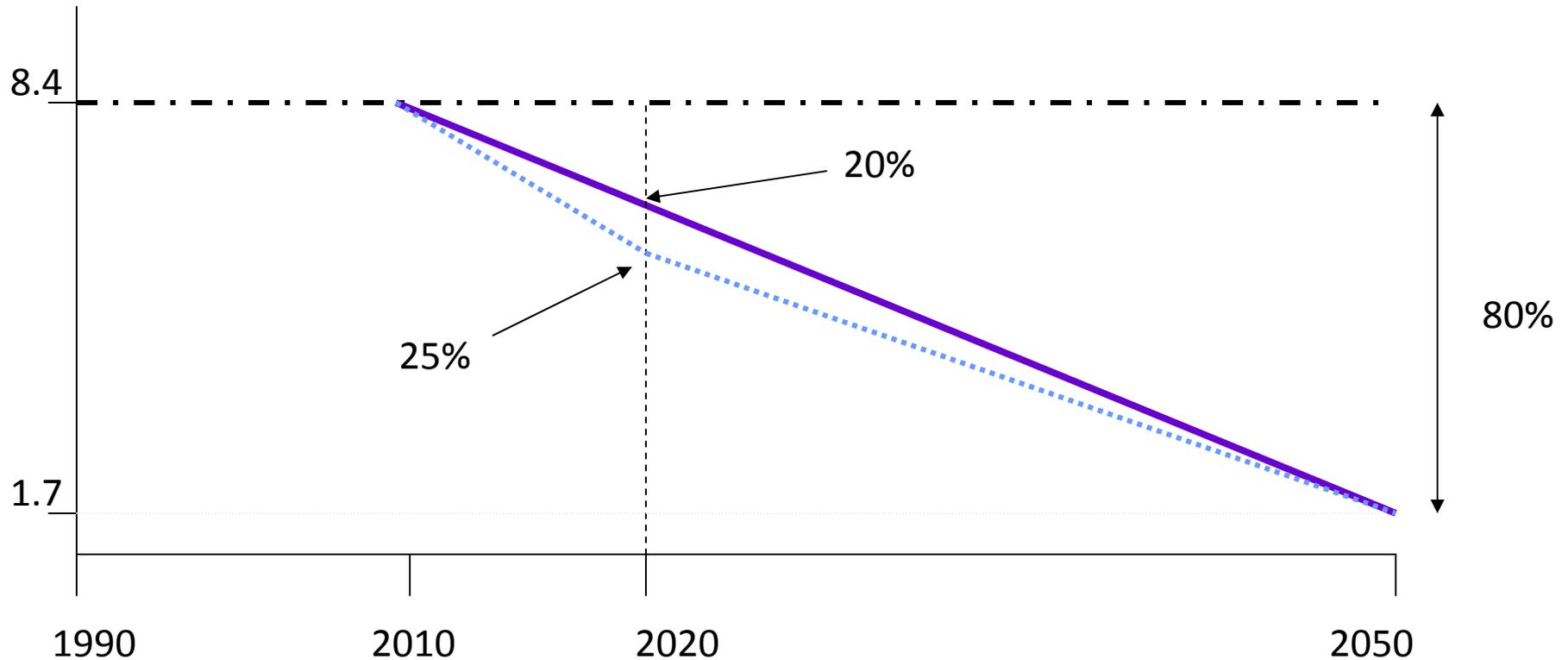
Boston Business As Usual to 2020



2020 Goals Proposed by Others

- Chicago: 25% below 1990 by 2020
- NYC: 30% below 2005 by 2030
- Denver: 20% below 2005 by 2020
- New England Governors: 10% below 1990 by 2020
- Copenhagen: carbon neutral by 2025
- **Massachusetts: 10% - 25% below 1990 by 2020**

Leadership Committee Goal Recommendations 2020 and 2050

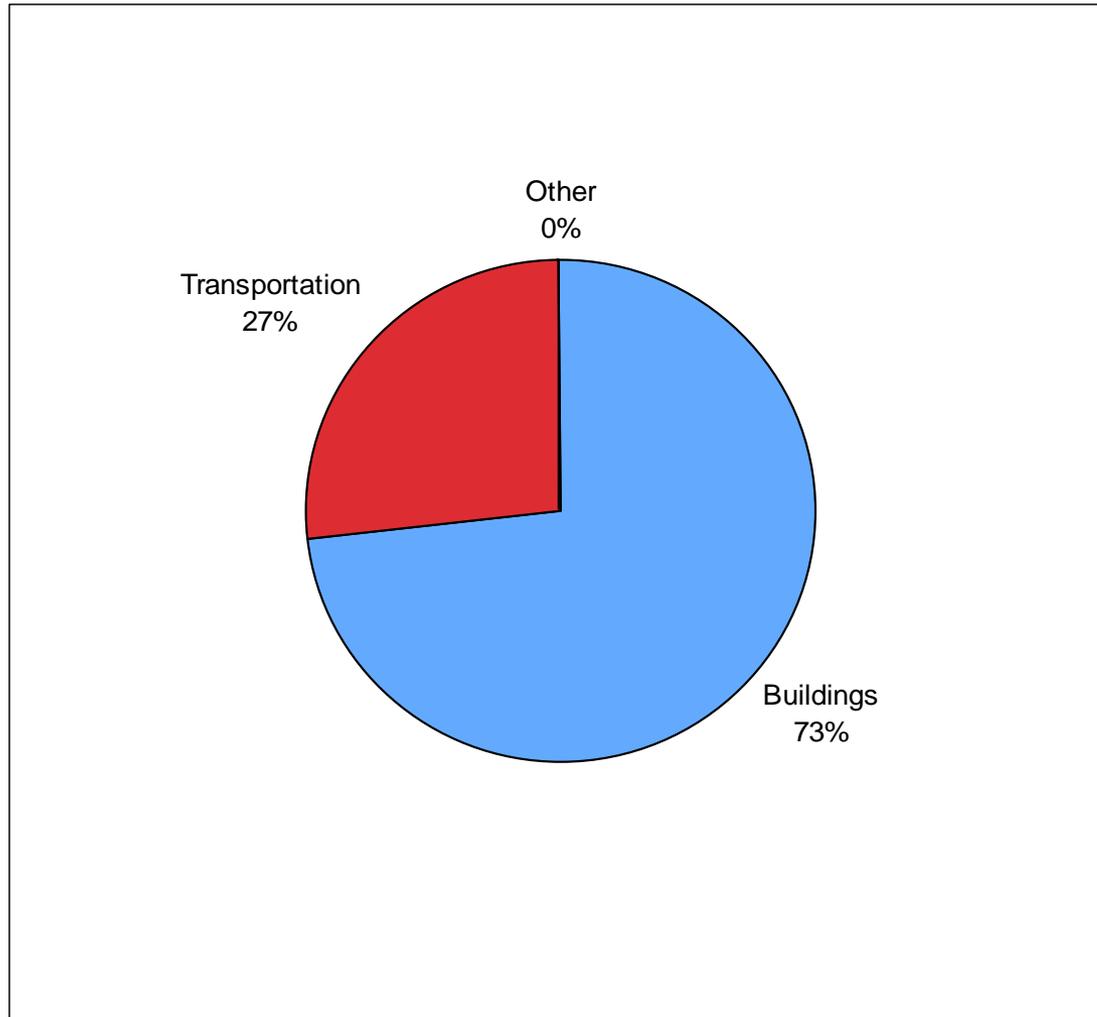


Mitigation Program Areas

- Buildings
- Cars, Transit, and Land use
- Energy Resources
- Other/Waste

Boston 2007 GHG Emissions:

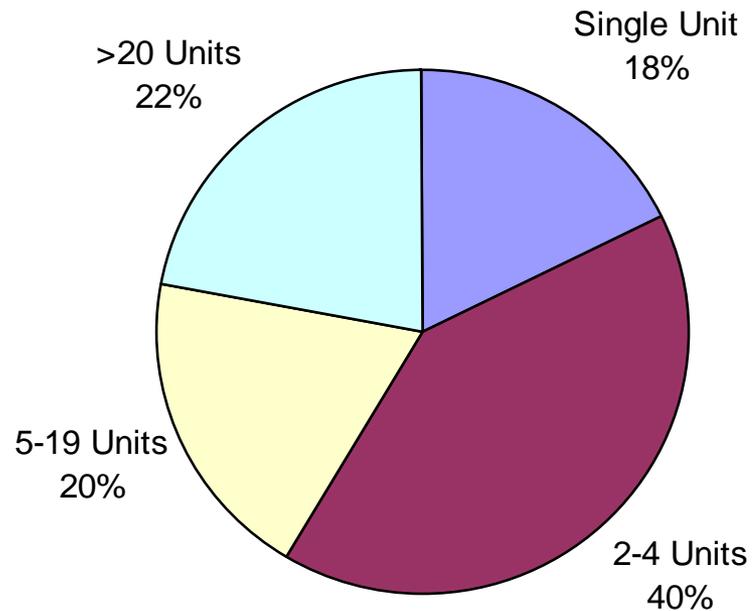
Buildings (Residential and C&I) relative to other sectors



Mitigation in Buildings

2007 Boston Housing Breakdown

Boston Housing Units (2007 Census)



Total Housing Units: 255,702

Boston Commercial/Industrial Buildings (2002-2003)

Type	Building (Ft. sq)	% of Total
Office	69,672,033	41%
Mixed Use	24,205,397	14%
Retail	12,537,826	7%
Auto	12,047,580	7%
Lodging	7,085,854	4%
Sci/Med	3,180,947	2%
Service	2,649,878	2%
Entertainment	2,065,440	1%
Undeveloped	1,051,790	1%
Industrial	35,925,070	21%
Total	170,421,815	100%

Source: 2003 BRA data

Existing/Planned Building Related Programs and Policies

Federal/Massachusetts

- Utility efficiency programs
- IECC Building Code: commercial and residential
- Federal and State appliance efficiency standards
- State Lead-by-Example in state buildings
- Renewable System Benefit Charge funds

Boston

- RENEW Boston
- Energy Efficiency Community Block Grants (Federal Stimulus)
- Boston Green Building (Article 37)
- LEED Silver for Municipal Buildings
- Green Affordable Housing Program

Leadership Committee: Buildings Work Group Focus Areas

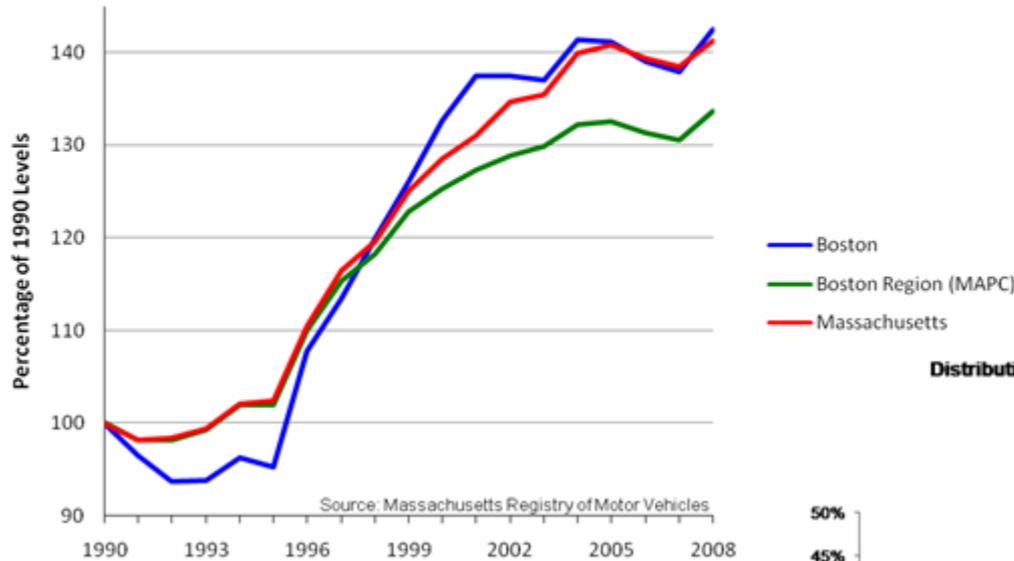
1. Implementing Utility Efficiency Programs
2. Green leases
3. Benchmarking Energy Performance of Buildings
4. Performance Based Incentives
5. Green Roofs (Photovoltaics, vegetative, light colored)
6. Building (stretch) Codes and Enforcement

Transportation

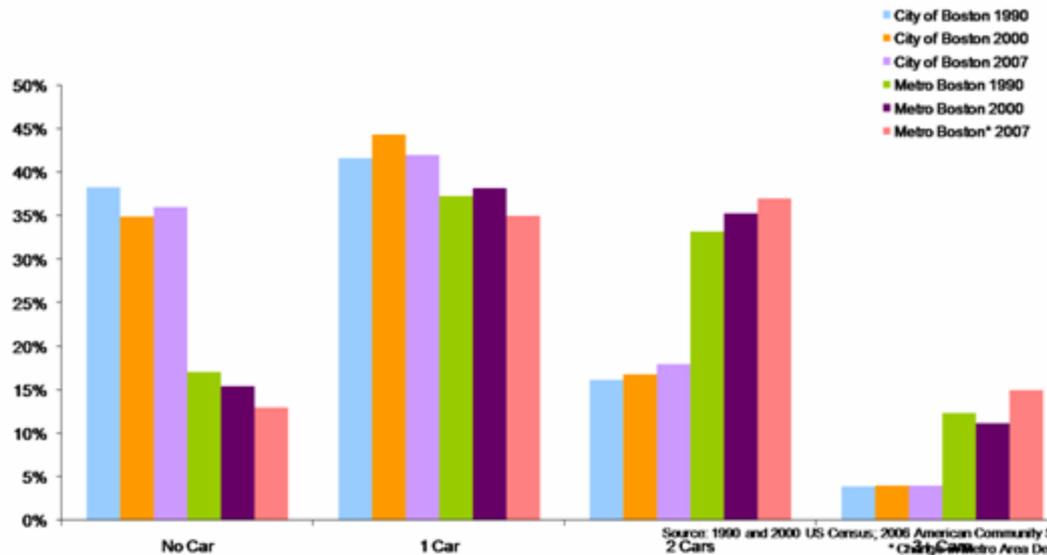
Making Boston the best city to live
and work in without a car?

Boston Transportation Trends: Car Ownership is Rising

Motor Vehicle Registrations: City of Boston, Boston Region, and Massachusetts

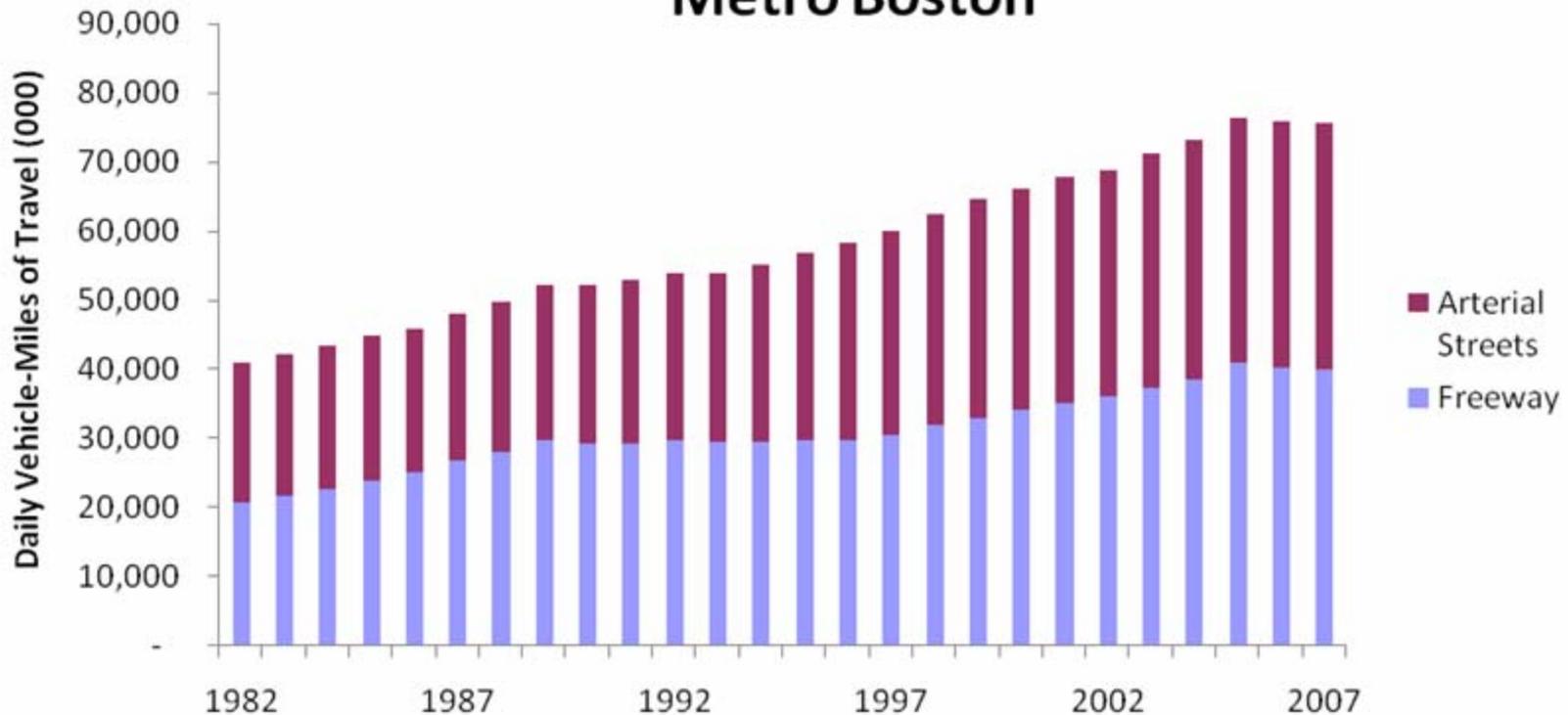


Distribution of Households by Car Availability, City of Boston & Metro Boston: 1990, 2000 & 2007



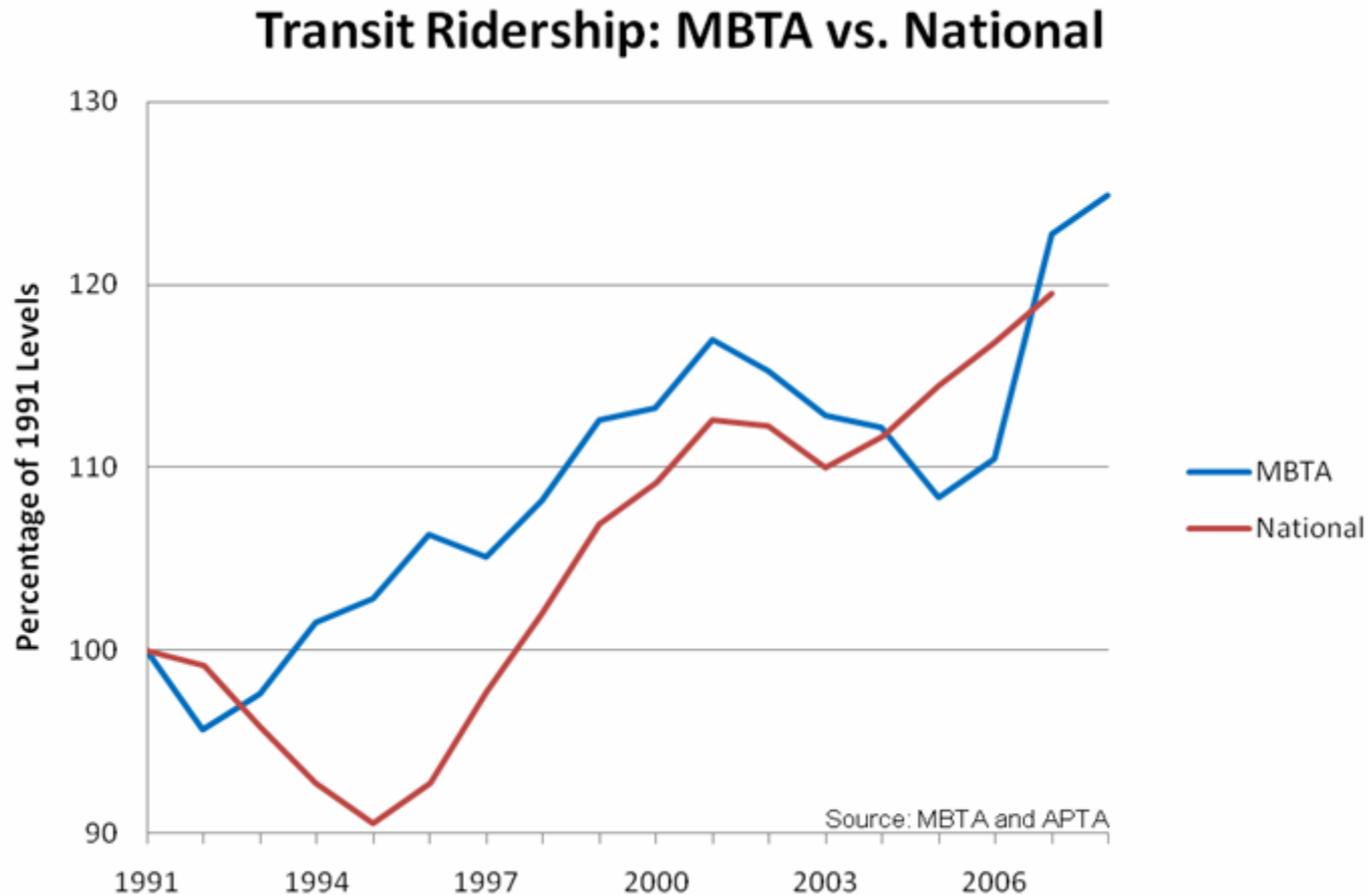
Boston Transportation Trends: Vehicle Miles Traveled is Rising

Vehicle Miles Traveled by Roadway Type, Metro Boston



Source: Texas Transportation Institute, Urban Mobility Study

Boston Transportation Trends: Transit Ridership is Rising



Major Federal and Massachusetts Transportation-related Laws and Programs Overview

- Obama/CAFÉ efficiency standard
 - CA Pavley vehicle emission standard
- Federal Renewable Fuel Standard (RFS)
- MA Chapter 40R, Smart Growth Zoning
- State anti-idling law (Chapter 90: Section 16A)

Existing Boston Programs

- Parking freeze
- Hybrid taxis mandate
- Efficient car purchase mandate for City
- Smart Growth Overlay (Article 87)
- Access Boston
- Anti-idling campaigns
- Expanded bicycle programs and City bike sharing/bike pool

Leadership Committee: Transportation Work Group Focus Areas

- 1) Scale up bike programs
- 2) Commuter mode reporting requirement for businesses over X employees
- 3) Enhance parking freeze policies and programs
- 4) Develop car/riding sharing, van pooling, and park and ride programs
- 5) Develop transit first strategy
- 6) Smart growth policies (e.g., TOD—transit oriented development)