C2 Sustainability

PRESENTATION TO C2 ADVISORY COMMITTEE
OCTOBER 17, 2012
Sustainability Framework

- **STAR – Sustainability Tool for Communities**
  - The built environment
  - Climate and energy
  - Economy and jobs
  - Education, arts and community
  - Equity and empowerment
  - Health and safety
  - Natural systems

- **C2 discussion will focus primarily on Built Environment and Climate and Energy**

- **Barry Bluestone from Northeastern will discuss smart growth and housing next week**
Sustainability Framework: Built Environment

- Built environment framework:
  - Compact and complete communities
  - Affordable housing
  - Infill and redevelopment
  - Public spaces
  - Transportation choices
  - Ambient noise and light
Sustainability Framework: Climate and Energy

- Climate and Energy:
  - Climate adaptation
  - GHG mitigation
  - Greening the energy supply
  - Resource efficient infrastructure
  - Resource efficient buildings
  - Waste minimization
  - Industrial sector efficiency
Sustainability in Cambridge: Where are we at?

- **Dense, mixed use city:**
  - Smaller units, lower energy use/GHG emissions per unit
  - Short distances between home, work, retail and recreation

- **Multi-modal transportation network:**
  - Cambridge recognized as “America’s Most Walkable City”
  - 25% of residents take transit to work
  - Bicycling rates increased 350% in past decade

- **Green Buildings:**
  - Green building requirements (LEED, Stretch Code); Cambridge Energy Alliance

- **Green city:**
  - Tree canopy covers 20% of city area; parks and playgrounds
Sustainability in C2: Topics discussed

- Density
- Mixed use development
- Public and green spaces
- Transit-Oriented Development
- Transportation Demand Management (TDM)
- Multimodal infrastructure
- New topics: high performance buildings, urban heat island
Sustainability in C2: Goals

- Focus on buildings as 80% of Cambridge greenhouse gas emissions come from building energy consumption in existing buildings
- Reduced consumption of non-renewable energy is a key strategy: new and existing
- Temperatures are rising: reduce urban heat island effect
- Minimize traffic growth, better serve sustainable modes
Sustainability in C2: Objectives

- High performance buildings (energy, water)
- Increased use of renewable energy
- Low reliance on automobiles; increased use of alternative fuel vehicles
- Mitigation of urban heat island
- Reduced storm water runoff quantity and improved water quality
- Minimize waste generation
- Make sustainability visible
Sustainability in C2: Potential Strategies

- Potential strategies for BUILDINGS:
  - LEED Gold certifiability (current standard is LEED Silver certifiability; focuses on building construction)
  - LEED Existing Buildings Operations and Management (focuses on building performance)
  - Steam/district energy (Osborne Triangle)
  - Cool roofs (white/green); vegetated walls
  - On-site storm water retention/treatment
Sustainability in C2: Potential Strategies

- Potential strategies for HEAT ISLAND/OPEN SPACE:
  - Increase tree canopy coverage/shading
  - Paving/roofing materials with high reflectance
- Potential strategies for TRANSPORTATION:
  - Multimodal infrastructure
  - TDM (already incorporated)
  - Support for Hubway bikesharing program
  - Expansion of EV charging network
  - Increased use of alternative fuel vehicles (EV, biodiesel)