Innovations in Land Use Planning and Zoning:

Incentives, Guidelines and Regulations to promote Sustainable Development

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Devens Enterprise Commission
Devens Overview

- 4400 ac. Former military base
- Superfund Site
- MassDev. – Landowner
- DEC – Regulatory Authority
- 5.4 million sq.ft. of development & 2,500+/- jobs created Top eco. development site in region (national model)
- Sustainable redev. directive
Why Sustainable Redevelopment?

- Job loss and economic re-development
- 1993 BSA Planning Charette with Surrounding Towns
- Strong emphasis on cleaning up the site and ensuring environmentally responsible redevelopment
- Remediation, monitoring
- Focus on industrial ecology as a strategy – mimic ecological processes (system of industries)
- Environmental protection integrated from the beginning
Devens Overview

1994 Reuse Plan

- Focus: job creation
- Created large industrial/R&D districts (8.5 msf buildout)
- Emphasis on open space, conservation and sustainability
- Provided for up to 282 housing units (the “cap”)
- Basis for Devens Bylaws
Devens Today

Community Amenities:

• New and expanding town center amenities
• 1,100+ ac. Protected open space
• 18-hole Red Tail Golf Club
• Mirror Lake
• Parker Charter School
• Social Equity – Guild of St. Agnes, Transitions, Veterans Housing, Shriver Job Corps.
• 70 businesses, over 2,500 jobs
How we Fostered Innovation in LU Planning & Zoning:

- Education and awareness
- Build Community Vision (BSA)
- Communication/Partnerships
- Strong leadership (Gov., MD, DEC)
- Build on Progressive Strategy (education, incentives, guidelines, regulations)
Green Guidelines

Devens Eco-Efficiency Center

- **Mission:** assistance to *reduce environmental footprint and building operating costs through education, enabling collaboration and technical assistance*

  - EcoStar – Eco-Efficiency
  - Workshops
  - Roundtables
  - Dedicated support
  - Marketing/Value-added
  - Triple bottom line
Transportation Guidelines

• TDM – Devens EIR Goal: trip reduction of 15%
• Reduce peak traffic flows, SOV, increase options for alt. trans.
• MassDevelopment TMA – Devens Businesses Join

Strategies:
• Guaranteed Ride Home Program/Ride Sharing
• Employee Education on transportation options
• Flexible work hours/compress work weeks
• Devens Shuttle Bus
• Fitchburg Line Reverse Commute

Incentives: Expedited Permitting

- Massachusetts Chapter 43 D
- Modeled on DEC
- Comm./Ind. Priority Development Sites
- Community ID priority development sites (single or multiple lots)
- Community establishes joint hearing board to issue permits within 180 days of application for the site (Con Com, ZBA, Planning Board).
- State Funding and TA

Incentives

- Expedited Permitting (75 days) - combined board and more Stringent site plan Standards
- Relaxed frontage requirements for more EE dev.
- RE Building and Electrical Permit Fee Reductions
- Net Metering policy (municipal utility)
- Building Reuse (expedited permitting 30 days)
- GB Incentive Program (USGBC’s LEED Suite) LEED® certification = 15% fee refund
- Education: LID and ZNE case studies

Adaptive building re-use (Eglomise Designs)

Bio-filtration landscape Islands in New Parking Lot of Office Complex

Low-Impact Development (LID)
Devens Case Study: 27 Jackson Road

- Reduced site paving: -$32,000
- Reduced curbing: -$50,000
- Reduced stormwater piping: -$14,000
- Reduced stormwater structures: -$68,000
- Increased landscaping: +$12,000
- Increased site preparation: +$10,000
- Increased soil mix: +$18,000

Total Estimated Savings: -$124,000
MassDevelopment ZNEB Case Study:

- Development of zero net energy or near zero net energy homes that fit into the context of Devens.
- Smart location and linkages (reduced VMT)
- Showcase affordable energy efficient, sustainable construction ( $225,000 - $350,000)
- Healthy indoor & outdoor environments
- Replicable, share knowledge and expertise.
- Promote Green Jobs and Governor’s ZNE Task Force
What is Zero Net Energy?

A building that, over the course of a year, generates energy onsite, using clean renewable resources, in a quantity equal to or greater than the total amount of energy consumed onsite.

So:
1. Efficiency first – air sealing, insulate, insulate, insulate, windows, HVAC, appliances.
2. RE to supply the remaining energy requirements.
Key Features:
• east-west axis - maximize p. solar & nat. light.
• Super-insulated 12 inch thick walls
• 18-inches of attic insulation.
• Electric H/AC ductless
• Triple-pane glass windows
• Air sealing to reduce gaps and leakage
• Fresh air systems and heat exchangers
Key Features cont...

• LOW/NO VOC paints, sealants and coatings.
• Net-metering
• Optional PV upgrades ( -21 to -36 HERS)
• Enough excess to charge EV 30,000 m/y (building and transportation CO2 reductions)
• Water & Electric Saving Fixtures
• LID (reduced pavement widths, porous walkways, on-site roof runoff infiltration (no gutters) and bio-filtration rain gardens)
• Cluster/Open Space Protection (NRP Zoning)

USGBC MA 2012 Innovation in Green Design Award
ZNEB:

- More resilient buildings - Climate adaptation
- Durable/Longer lasting buildings
- Resource efficiency/carbon footprint reduction
- Devens example - more sustainable infrastructure
- Affordable (less $$ on utilities = more disposable income)
- Healthier natural and built environments
- Triple Bottom-Line benefits:

Economy    Environment    Equity

ZNEB’s global market: >$1 trillion by 2035

Environmental Design and Construction Magazine 2012
Regulations:

- **Site Plan**
  - Viewshed Requirements (Green Roof and Green Wall policy)
  - Steep Slope Overlay
  - EV & carpool parking (GHG/TDM)

- **General Regulations**
  - LEED Plus (lead by example)
  - Updated stormwater and low-impact development standards (DEP & UNH)
  - Renewable energy standards (Green Communities)
  - Greenhouse Gas mitigation standards (EcoStar, Stretch Code, Green Roofs)

- **Env./Public Health:**
  - DEP WPA requirements (water use restrictions, water efficiency)
  - Recycling/Reuse (waste ban)
  - Anti-idling updates in accordance with MA Anti-Idling Law
  - Trail connections
2008-2013 Open Space & Recreation Plan

- Public engagement – Regional input
- Priority Pres. & Cons. Areas
- Multi-Purpose Trail Plan (biking, walking, skiing, horseback riding, ADA accessibility, etc.)
- On and off-road routes/networks
- Internal circulation and connection to surrounding natural areas & communities
- Connecting businesses and residents with active and passive open space
- Active living, alt. transport., community health and env. education
Innovations in LU Planning and Zoning

Mass Audubon Working for the Green Conference 2012

Fragmented
Patch/Edge
Connected

Devens
Lancaster
Shirley
Ayer
Harvard

Data Layer Source: Office of Geographic and Environmental Information Services, Massachusetts Executive Office of Environmental Affairs and Development Engineering Services

Produced by the Development Engineering Services
Green Infrastructure: Zoning Tools for Reconnections

- Tree Preservation Requirements
- Limit Construction Impact Zones
- Penalty for removal of trees to be preserved
- Native Landscaping requirements to reconnect ecosystems
- Invasive species ID and Mgmt
- LID
- Green Roofs and Walls
Results:

- Triple Bottom-Line approach – Fulfilling Reuse Plan Objectives
- Compact, Low Impact Development
- Green Infrastructure: integrating dev. and natural env.
- Efficiency (quick payback, lower operating costs)
- Climate mitigation AND adaptation (GHG, resiliency)
- Healthier natural and built environments
- Connecting people with nature – fostering active living
- Development for people first
- Right mix/balance of education, Incentives, and Regulations
Resources

• DOER Green Communities Division
  www.mass.gov/eea/energy.utilities-clean-tech/green-communities

• MA Smart Growth/Smart Energy Toolkit
  www.mass.gov/envir/smart_growth_toolkit/

• Devens Enterprise Commission
  www.devensec.com

• LEED ND – www.usgbc.org/leed/nd
Thanks!

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