



# DEVENS

## Eco-Industrial Park

[www.devensec.com](http://www.devensec.com)

[www.ecostardevens.com](http://www.ecostardevens.com)



# Devens Overview

- 35 miles outside Boston
- 4400 ac. former base
- Superfund Site
- 1993 Sustainable redev.







# Why Sustainable Redevelopment?

- Job loss and economic re-development
- 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
- 1993 BSA Planning Charette with Surrounding Towns

# Planning Charrette to Establish Vision for Devens Future



- sustainability as an integral part of the base redevelopment;
- focus on industrial ecology and a zero-emissions, no waste systems, similar to a biological community;
- protect aquifer, remediation, sustainable agriculture, comprehensive recycling strategy

Industrial ecology: one companies waste product becomes another's raw material



# Devens Overview

- 5.5mil. sq.ft. of dev.
- 5,500+/- jobs created
- 4,400 ac dev/1800 ac. OS
- Top economic development site
- 400 residents
- MassDevelopment - Landowner
- DEC – Regulatory Authority







## Devens Today

- ~95 businesses
  - 70% small-medium sized (< 300 employees)
  - Mostly light industrial – manufacturing, distribution
  - Pharmaceutical cluster, almost no retail



*BMS Lab-Office Building  
Commercial Center*



*Transitions Housing*



*Devens Common*



## ***Devens Today Cont.....***

- Significant infrastructure upgrades to support existing and future businesses
- LEED certified, green building projects
- Significant building re-use
- Low-Impact Development Techniques
- Additional housing
- More focus on eco-industrial park concepts as they occur



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



*Nypro*



*Adaptive building re-use (Eglomise Designs)*

## Bristol-Myers Squibb

- \$ 1 Billion investment
- Collaboration with MWCC (job training)
- Waste exchange: Microbial exchange with Veryfine
- Exploring mining phosphorous from waste water
- TDM



Parking Garage  
(2 additional stories)

Existing  
Lab/Office

Existing Manufacturing Bldg.

New BDB

New CMB

## BMS New \$250M expansion:

- 231,000 sf Biologics Development Building (BDB)
- 131,500 sf Clinical Man. Building (CMB)
- New space for developing and manufacturing biotechnology drugs for clinical trials.
- 350 to 380 new employees.



18 Independence Dr.

Instrumentation  
Lab. leased space  
(~111,460 sq.ft.)  
(& solar PV area)

SMC Ltd. Leased  
space  
(~210,000 sq.ft.)

## Adaptive Reuse:

- Former Gillette packaging facility.
- New tenants: SMC and Instrumentation Laboratory – Medical Device Man.
- New Loading Docks
- Owner installing over 2.5 MW solar PV on roof and adjacent roof of 66 Saratoga Blvd.

66 Saratoga solar PV panel  
area  
(~411,120 sq.ft.)



# Little Leaf Farms

- ~110,000 sq.ft. greenhouse (Phase 1)
- Hydroponic baby green lettuce production
- Rainwater harvesting (80% of water demand)
- Automated process, pesticide-free
- Locally sourced/farm to table same day.
- Exploring CHP



# Health Partners New England

- 78,000 sq.ft., 108 bed critical care facility.
- Serving critical care need in State
- Low Impact Parking Lot Design
- Open Space – critical sidewalk linkage to Mirror Lake





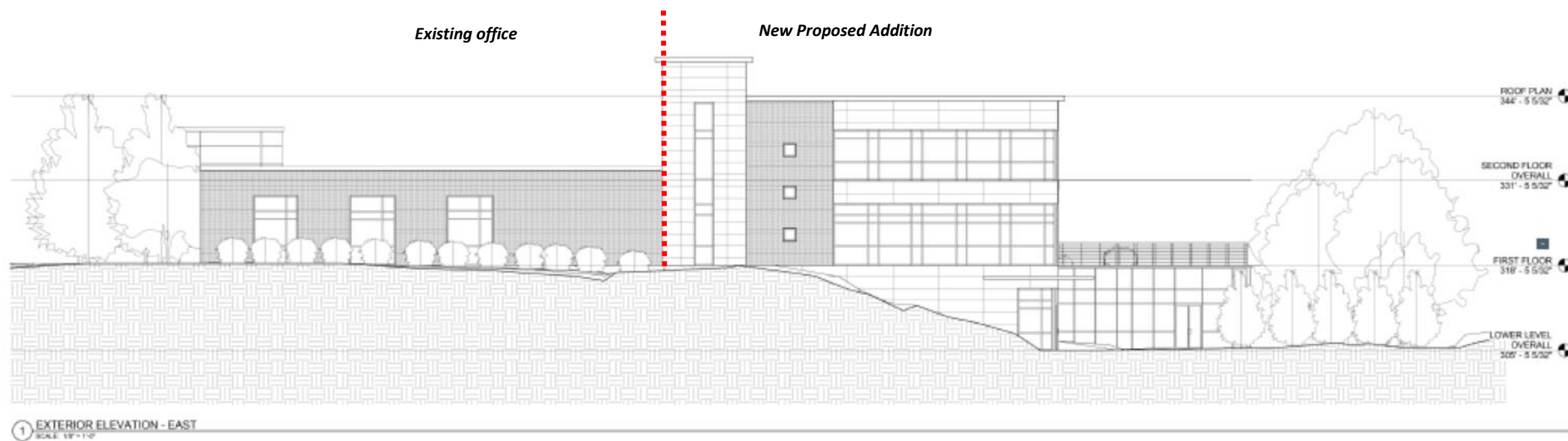
# Devens Recycling

- 2007 MA DEP Waste Ban
- C&D recycling
- Waste diversion
- On-site processing into new material/feedstocks
- Opportunities for synergistic co-location



# Laddawn:

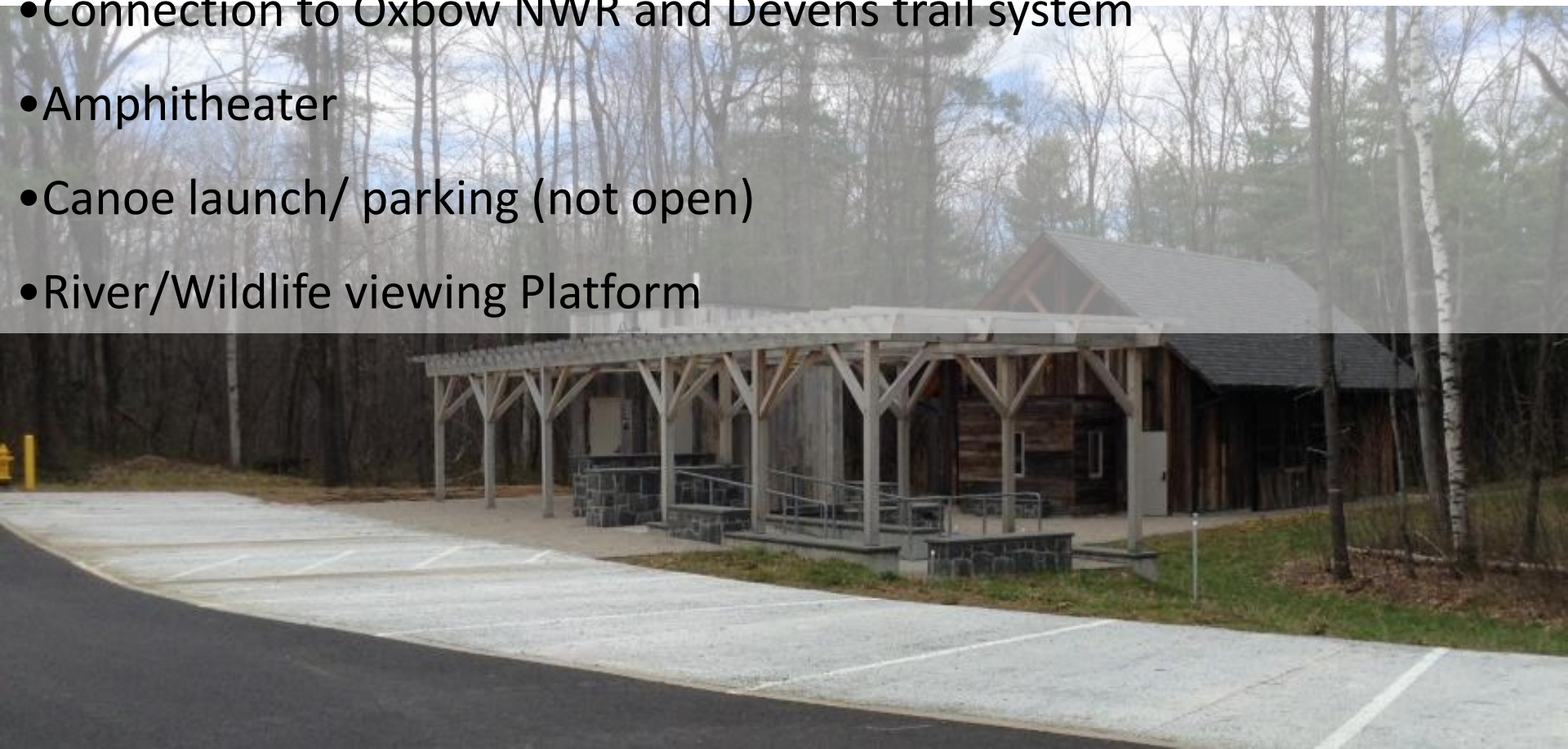
- Old Davis Library – adaptive reuse
- Plastics manufacturer (incl. biodegradable)
- 100% Renewable Energy
- Employee health and Wellness
- 22,467 sq.ft., two-story building expansion
- Maximize the use of the site, minimize potential impacts on nearby residences





# USFWS Visitor Contact Sta.

- Parking and meeting pavilion
- Outdoor Education
- Connection to Oxbow NWR and Devens trail system
- Amphitheater
- Canoe launch/ parking (not open)
- River/Wildlife viewing Platform





# Grant Road Neighborhood Redevelopment

- Former military housing neighborhood
- 124 unit mix of 1,2,3,4 unit NZE homes and townhomes & 2x20 apts
- Affordable (25% deed restricted low-moderate)
- Higher density (7-20 UPA)
- EE & WE in and out
- Connected/accessible, walkable
- Live, work, play community





# New Grant Road Neighborhood Redevelopment

- Neighborhood scale - designed for people first!
  - homes framing the street
  - Trail connections, dedicated bike lanes
- Healthy/active socially engaging neighborhood
  - sidewalks on both sides
  - community gardens and active parks
- Green Infrastructure
- Phase 1 underway





## Sustainable Infrastructure

- Redevelopment of WWTP and RIB's
- LID road drainage
- Bike lanes
- TDM
- Multi-purpose trails
- Renewable energy
- Over 9MW Solar PV, wind energy (10% of total energy)







## How we foster EID and SD?

- Right mix of education, incentives, guidelines & regulations



## Education:

- Fact Sheets - Composting, reuse & recycling guidance
  - Benefits of Street Trees
  - EPA LID Fact Sheets and MA Smart Growth Toolkit, UNH
- Case Studies - GI and ZNE (seeing is believing!)
- Devens Eco-Efficiency Center & Great Exchange



# Devens LID 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
<u>Increased soil mix</u>	<u>+\$18,000</u>
<b>Total Estimated Savings:</b>	<b>-\$124,000</b>



Apex bio-filtration landscape islands (Phase 1)



Apex bio-filtration landscape islands (Phase 2)



## Devens Sustainable Housing Pilot Case Study

- Showcase EE & WE, sustainable & affordable construction (\$225-\$350K)
- LID components (reduced pavement widths, porous walkways, on-site roof runoff infiltration (no gutters) and bio-filtration rain gardens)
- IAQ/GHG reduction
- Cluster/OS protection, smart loc.
- Climate adaptation - more resilient buildings & infrastructure

### ENERGY-POSITIVE HOMES IN DEVENS, MASS



*HERS -36 for single family, enough excess power an EV for 30,000 miles/yr.*







## Incentives:

- Green Building Incentive Program (USGBC's LEED Suite):
  - Sustainable Sites
  - Materials and Resources
  - Energy and Atmosphere
  - Indoor Environmental Quality
  - Water Efficiency
- Projects receiving LEED® certification - 15% fee refund
- LEED by Example: MassDevelopment build to LEED Plus
- Devens Eco-Efficiency Center



## Incentives cont...

- Expedited permitting (75 days new; 30 days reuse)
- SWM credit for LID and green roofs
- Relaxed frontage requirements for more EE & WE dev.
- RE Building and Electrical Permit Fee Reductions
- Net Metering & demand response (municipal utility)





# Regulations to facilitate SD & EID:

## Site Plan

- Green Roof & Green Wall Requirements (GHG)
- EV & carpool parking, parking maximums, anti-idling (UHI, GHG/TDM)
- Tree Protection/Planting and Steep Slope Overlay (ecological connectivity)

## Subdivision

- Complete Streets Standards (street trees, LID drainage, reduced pavement widths, ped scale design, bike lanes, traffic calming)
- Additional street types (neighborhood, parkway – more green, less grey)

## General Regulations

- LID stormwater standards (DEP & UNH)
- RE standards EE, water efficiency
- GHG mitigation standards (Stretch Code, green roofs, inventory)
- Waste management

<http://www.devensec.com/devserv.html>



## Devens – An Eco-Industrial Park

- Concept to achieve original reuse plan objectives
- Ecological Systems Approach (System of Industries – Circular Economy)
- Value Added for facilities locating to Devens
- Devens Eco-Efficiency Center and EcoStar Program as tools to facilitate eco-industrial development







- 501(c)3 non-profit, established in 2008
- Promoting Sustainable Practices
- Education – roundtables, workshops, tours
- Technical Assistance – waste reduction, energy efficiency, walk-through review
- Networking venues – enable partnerships
- Community projects – clean ups, collections
- Goal is to help firms take actions that conserve resources, provide triple bottom line benefits





## Economic Benefits

- Each year ~70 entities learn and pursue new strategies and technologies
- Efficiencies reduce operating expenses, strengthen bottom line, protect jobs
- More sustainable business practices provide competitive advantage in the marketplace

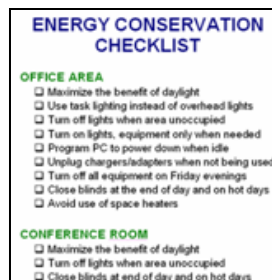






## Environmental Benefits

- Constant focus on opportunities for facilities to take action to decrease environmental footprint
  - Reduced consumption of materials, energy, water
- Raised awareness of environmental regulations
- Community activities promote local ecosystems





## Social Benefits

- Community spirit enables collaborations, creates a better place to do business
- Firms contribute to / participate in activities organized for locals in need
- Not-for-profit entities able to invest more in mission-focused community services







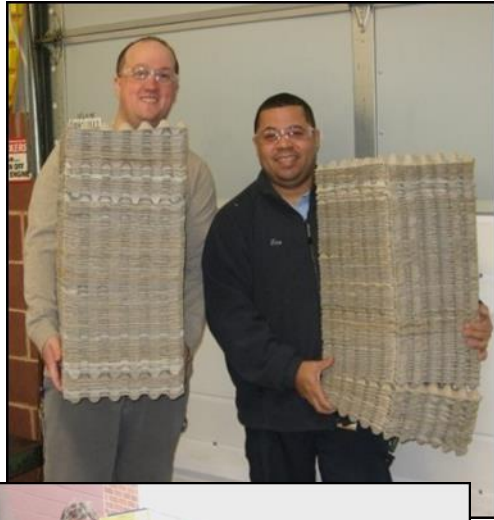
## THE GREAT EXCHANGE

- Started in 2007 as a one time, two-hour event to redirect excess inventory, reusable materials
- Over 200 firms, non-profits, and municipal entities in four states have achieved cost savings from 625,000+ pounds repurposed





Devens Overview 2016







## Key Accomplishments

- Providing cost-saving services for 10 years
- Awards from local, state and regional entities
- 125 educational programs delivered
- 75 waste reduction and energy efficiency programs implemented
- 625,000 pounds of excess materials repurposed
- Regional household hazardous waste collection center that benefits 11 towns, serves as model
- Nearly \$4,000,000 savings delivered



## Monitoring & Evaluation

- Can't manage what you don't measure
- Continuous improvement
- 5-year review required by law
- Case studies





## Devens Sustainable Indicators Report

- 2000 Report on progress toward SD Reuse Plan goal
- 2012 update DEC, MD, DEEC and UMASS
- Continue to further the goal of SD within DREZ
- Survey of Businesses
- Presentations to businesses, residents
- In-person interview with businesses (survey follow-up)

### DEVENS SUSTAINABILITY INDICATORS REPORT

# 2012

*An update of the year 2000 Devens sustainability indicators report evaluating the progress made in each of the seven sustainability areas towards Devens' vision for sustainable development*

Progress  
Report  
2000-2012



## Indicator Study Results

- ↑ % commuters using transit, biking, walking = 4% to 10%
- ↑ Use of rail – If of rail sidings serving businesses from 8000 lf to 14,300 lf
- ↑ % of RE generated within Devens from 0 to > 3+MW.
- ↑ % of green buildings within Devens from 0 to 14%. 80% of buildings built since 2008 are green buildings.
- ↑ Total chemical use per square foot
  - Results used to direct current and future programming efforts of agencies
  - Full Report at: <http://www.devensec.com/sustain.html>
  - 2017 scheduled update





## Summary

- Devens redevelopment modeled on Sustainability
- Not one size fits all - mix of Guidelines, Incentives, Regulations to foster SD
- Eco-Industrial park
- Devens Eco-Efficiency Center – value added
- Monitoring and evaluation for continuous improvement
- Live, work, learn and play community



## Thank You!

### Devens Enterprise Commission



[www.devensec.com](http://www.devensec.com)

### Devens Eco-Efficiency Center



[www.ecostardevens.com](http://www.ecostardevens.com)