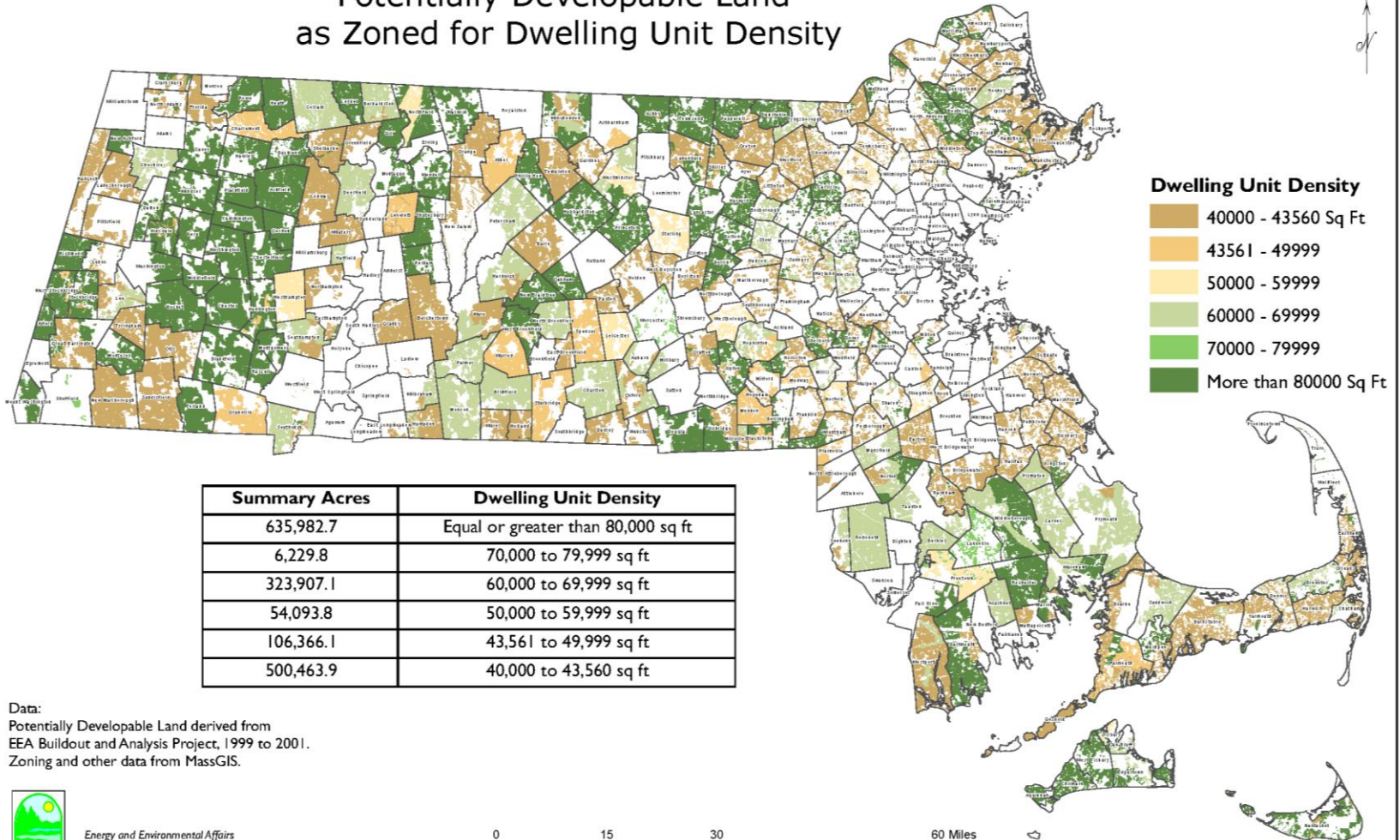


# **An Introduction to the State's the New Open Space Design / Natural Resource Protection Zoning Model Bylaw**

Kurt Gaertner

Massachusetts Executive Office of Energy and Environmental Affairs

## Potentially Developable Land as Zoned for Dwelling Unit Density

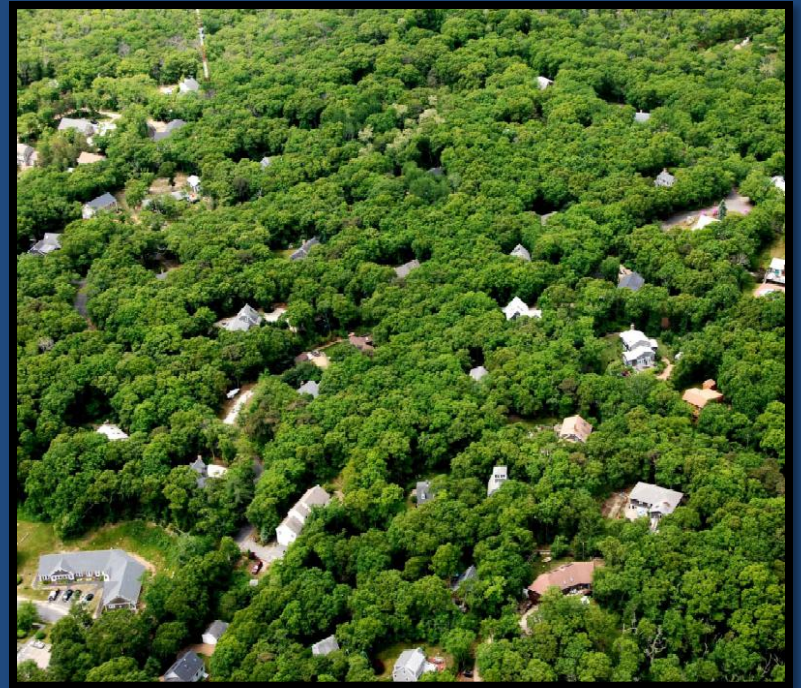


Data:  
Potentially Developable Land derived from  
EEA Buildout and Analysis Project, 1999 to 2001.  
Zoning and other data from MassGIS.



Energy and Environmental Affairs  
Map by JPfister, 4-8-09





# Sustainable Development Principles

1. Concentrate Development and Mix Uses
2. Advance Equity
3. Make Efficient Decisions
4. Protect Land and Ecosystems
5. Use Natural Resources Wisely
6. Expand Housing Opportunities
7. Provide Transportation Choice
8. Increase Job and Business Opportunities
9. Promote Clean Energy
10. Plan Regionally

**Sustainable Development Principles**

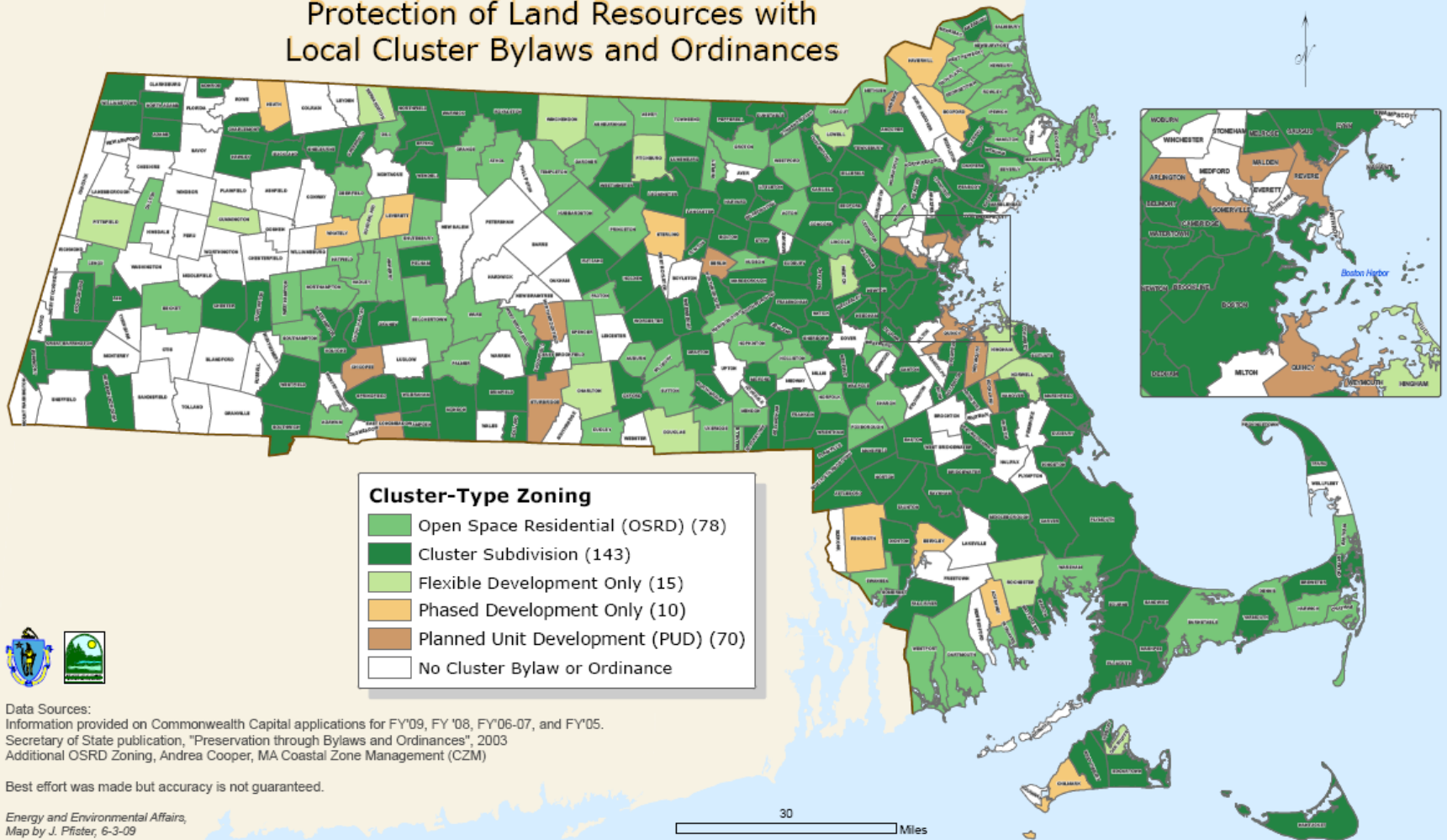
The Commonwealth of Massachusetts shall care for the built and natural environment by promoting sustainable development through integrated energy and environment, housing and economic development, transportation and other policies, programs, investments, and regulations. The Commonwealth will encourage the coordination and cooperation of all agencies, invest public funds wisely in smart growth and equitable development, give priority to investments that will deliver good jobs and good wages, transit access, housing, and open space, in accordance with the following sustainable development principles. Furthermore, the Commonwealth shall seek to advance these principles in partnership with regional and municipal governments, non-profit organizations, business, and other stakeholders.

- 1. Concentrate Development and Mix Uses**  
Support the revitalization of city and town centers and neighborhoods by promoting development that is compact, conserves land, protects historic resources, and integrates uses. Encourage remediation and reuse of existing sites, structures, and infrastructure rather than new construction in undeveloped areas. Create pedestrian friendly districts and neighborhoods that mix commercial, civic, cultural, educational, and recreational activities with open spaces and homes.
- 2. Advance Equity**  
Promote equitable sharing of the benefits and burdens of development. Provide technical and strategic support for inclusive community planning and decision making to ensure social, economic, and environmental justice. Ensure that the interests of future generations are not compromised by today's decisions.
- 3. Make Efficient Decisions**  
Make regulatory and permitting processes for development clear, predictable, coordinated, and timely in accordance with smart growth and environmental stewardship.
- 4. Protect Land and Ecosystems**  
Protect and restore environmentally sensitive lands, natural resources, agricultural lands, critical habitats, wetlands and water resources, and cultural and historic landscapes. Increase the quantity, quality and accessibility of open spaces and recreational opportunities.
- 5. Use Natural Resources Wisely**  
Construct and promote developments, buildings, and infrastructure that conserve natural resources by reducing waste and pollution through efficient use of land, energy, water, and materials.
- 6. Expand Housing Opportunities**  
Support the construction and rehabilitation of homes to meet the needs of people of all abilities, income levels, and household types. Build homes near jobs, transit, and where services are available. Foster the development of housing, particularly multifamily and smaller single-family homes, in a way that is compatible with a community's character and vision and with providing new housing choices for people of all means.
- 7. Provide Transportation Choice**  
Maintain and expand transportation options that maximize mobility, reduce congestion, conserve fuel and improve air quality. Prioritize rail, bus, boat, rapid and surface transit, shared-vehicle and shared-ride services, bicycling, and walking. Invest strategically in existing and new passenger and freight transportation infrastructure that supports sound economic development consistent with smart growth objectives.
- 8. Increase Job and Business Opportunities**  
Attract businesses and jobs to locations near housing, infrastructure, and transportation options. Promote economic development in industry clusters. Expand access to education, training, and entrepreneurial opportunities. Support the growth of local businesses, including sustainable natural resource-based businesses, such as agriculture, forestry, clean energy technology, and fisheries.
- 9. Promote Clean Energy**  
Maximize energy efficiency and renewable energy opportunities. Support energy conservation strategies, local clean power generation, distributed generation technologies, and innovative industries. Reduce greenhouse gas emissions and consumption of fossil fuels.
- 10. Plan Regionally**  
Support the development and implementation of local and regional, state and interstate plans that have broad public support and are consistent with these principles. Foster development projects, land and water conservation, transportation and housing that have a regional or multi-community benefit. Consider the long-term costs and benefits to the Commonwealth.

The Principles are intended to guide state & local actions



# Protection of Land Resources with Local Cluster Bylaws and Ordinances



Data Sources:  
Information provided on Commonwealth Capital applications for FY'09, FY '08, FY'06-07, and FY'05.  
Secretary of State publication, "Preservation through Bylaws and Ordinances", 2003  
Additional OSRD Zoning, Andrea Cooper, MA Coastal Zone Management (CZM)

Best effort was made but accuracy is not guaranteed.

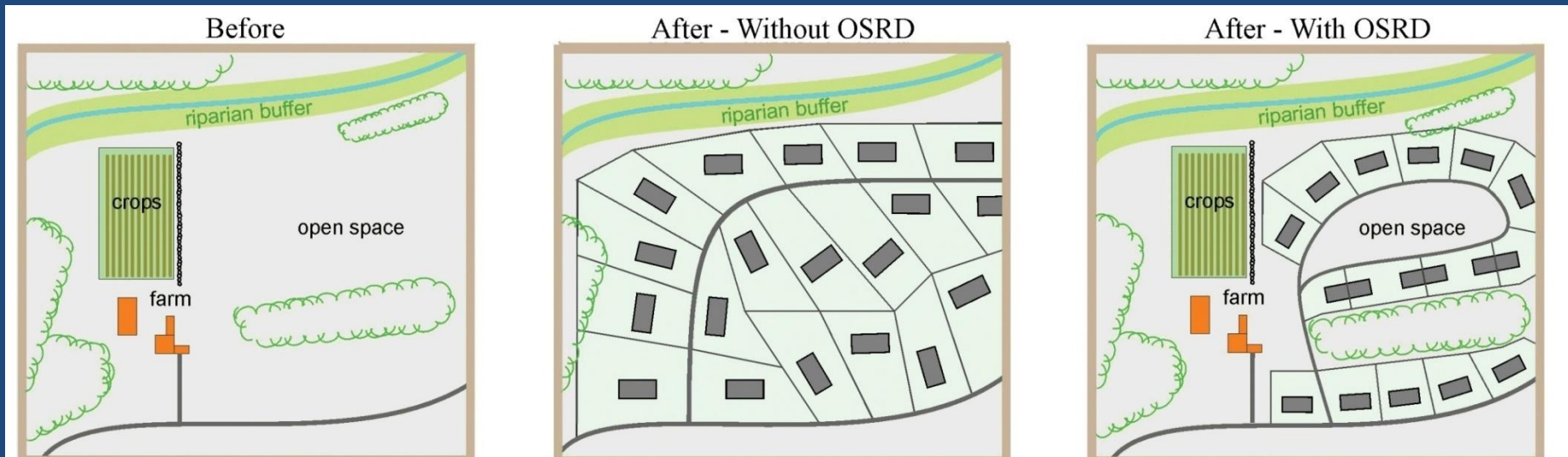
Energy and Environmental Affairs,  
Map by J. Pfister, 6-3-09

## Problems with current practice:

- Special Permit Required – Discretionary
- Process often cumbersome, long, & expensive
- Large parcel size requirements
- Insufficient amount of land protected
- Less than ideal land conservation
- Dimensional standards inhibit use

## Open Space Design

- By Right/Mandatory
- Formulaic and quick
- No minimum lot size
- [60%] of land area protected
- Strategic protection via Conservation Analysis & Findings
- Flexible Design Standards – lot size, frontage, setbacks, roads, etc.



# New Model Open Space Design Bylaw/Ordinance

- Based on Natural Resource Protection Zoning
- Accompanied by subdivision regulations & special permit regulations for density bonuses and shared driveways
- Will replace the current OSRD model in EEA's Smart Growth/Smart Energy Toolkit
- Addresses problems with application of Cluster, OSRD, Conservation Subdivision zoning
- Formatted to be easily customized, though municipal counsel should be consulted
- Interaction with other local regulations must be considered (esp. Board of Health)
- Addresses process questions raised by the Wall Street v. Westwood decision

## Natural Resource Protection Zoning

A Model for Massachusetts  
(and elsewhere)

## More Information on NRPZ

Contact:

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(413) 584-7228  
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# Smart Growth / Smart Energy



## Toolkit



HOW TO USE THIS TOOLKIT

INTRODUCTION

STATE POLICIES AND INITIATIVES

## Home

Modules

Case Studies

Slideshows

Model Bylaws

Links

## Traditional Neighborhood Development (TND)

**In Brief:** TND, also known as "new urbanism", "neo-traditional" or village-style development, includes a variety of housing types, a mix of land uses, an active center, a walkable design, and often a transit option within a compact neighborhood scale area either as infill in an existing developed area or as a district scale project.

### The Problem

**Traditional Neighborhood Development** seeks to remedy the most pressing problems associated with recent suburban expansion - low-density, auto-oriented development, single-use developments lacking in context and distinction as a unique community.

## Wastewater Alternatives

Achieving higher density development in areas without public water or sewer service presents unique challenges. However, there are a number of technological and regulatory opportunities to address these challenges including shared systems (multiple homes on one septic system), innovative and alternative septic systems, and small sewage treatment plants.



Typical Title 5 Septic System



Shared Wastewater System

Massachusetts Smart Growth Toolkit



## Low Impact Development (LID)

Two main principles of LID:  
**Better Site Design and  
Best Management Practices**



### What is better site design?

A Set of Tools Designed To:

- Reduce Impervious Cover
- Promote Conservation of Natural Areas
- Promote the Diffusion of Stormwater Runoff
- Encourage Effective Stormwater Management and Treatment

Massachusetts Smart Growth Toolkit



- [http://www.mass.gov/envir/smart\\_growth\\_toolkit/](http://www.mass.gov/envir/smart_growth_toolkit/)
- Website that is user friendly, comprehensive, and MA focused
- Integrated materials on each smart growth technique to promote understanding and local passage of new zoning bylaws
- Case studies show real world implementation, many in Massachusetts communities



## Why did EEA develop this bylaw and why does it want communities to adopt it?

- Reduced environmental and fiscal impact
  - Reduced costs to construct/maintain roads and infrastructure
  - Less impervious surface and runoff
  - Protection of water supplies, habitat, greenways, productive forest, agriculture, etc.
- Advances EEA objectives while providing housing and treating landowners equitably



*100 acre wooded site with field, stream, and trail before development*



*Two-acre zoning; conventional subdivision (34 lots, no preservation)*



*Natural Resource Protection Zoning (14 lots, >75% preservation)*

## Model Zoning Structure:

- Bracketed & highlighted text indicates a local choice
- Alternatives & guidance are provided in boxes and italicized

“Open Space Design” shall mean a process for the development of land that: (a) calculates the amount of development allowed up-front by formula; (b) requires a Conservation Analysis to identify the significant natural, cultural, and historic features of the land; (c) concentrates development, through design flexibility and reduced dimensional requirements, in order to preserve those features; and (d) permanently preserves at least [**sixty**] percent of the land in a natural, scenic or open condition or in agricultural, farming or forest use.

### Alternative: [50-90%]

Fifty percent is generally accepted as the minimum for Open Space Designs and similar zoning measures. Based on local circumstances - such as the nature of the natural resources to be conserved and the amount/pattern of existing development - communities should consider a range of [50-90%]. A percentage at the higher end of the range is often warranted to protect particularly sensitive natural resources or attain a prominent local conservation objective. The amount of open space applicants are required to protect can be varied by zoning district, as is done for required square footage per unit in the Unit Count Calculation section of this model zoning.

## Practical & Political Considerations:

- Equity should be a consideration for political if not legal reasons
  - Yield (# of houses) under OSD vs. prior yield should be understood
  - Alright to reduce yield; unreasonable to build current zoned units in some communities
  - Zoning may not be the critical factor; other regulations may result in reduced yield
    - OSD applied to  $\leq 1$  acre lots with individual lot well and septic a particular concern





## Yield: Allowable Residential Units

- Units calculated by dividing the net acreage by the allowed density
- Net acreage calculation accounts for site-specific development limitations

## Net Acreage Calculation

To determine net acreage, subtract the following from the total (gross) site acreage:

[*Half*] of the acreage of land with slopes of [*20%*] or greater;

[*The total acreage*] of land subject to easements or restrictions prohibiting development, lakes, ponds, vernal pools, 100-year floodplains as most recently delineated by FEMA, Zone I and A around public water supplies, and all wetlands as defined in Chapter 131, Section 40 of the General Laws and any state or local regulations adopted there under, as delineated by an accredited wetlands specialist and approved by the Conservation Commission; and

[*Ten*] percent of the remaining site acreage after the areas of A and B are removed to account for subdivision roads and infrastructure.

Note: Does not account for wastewater disposal

## Unit Count Calculation

- Divide the net acreage by the required acreage (allowed density) for a unit
- Allowed density can vary by zoning district

Example

Dwelling Units:

Gross Project Area	100
Minus constrained land	32
Equals Net Project Area	68
Divided by required acreage (1 per 2 acres)	
Equals: Base # of Units	34

Preserved Land

Land Area	100
Multiple by required percentage [60%]	60
Add additional land from bonuses (if any)	0
Equals: Minimum preserved land	60 acres



## Applicability:

- Allowed by right – permitted via subdivision or site plan review
- Required in designated districts, permitted elsewhere
- Local choice as to which districts and which housing types
- Conventional subdivisions are by special permit
- Does not apply to homes built on existing or ANR lots (could be done voluntarily)
- Could also be applied to non-residential development
- Rate of development cap on non-OSD lots included as an optional incentive

OSD is allowed by right under zoning, subject only to the requirements of the subdivision regulations or site plan review as applicable and any other generally applicable non-zoning land use regulations, and may be proposed anywhere in [CITY/TOWN]. Within the [list designated districts] [all single family housing developments (including residential subdivisions or residential developments where the property is held in condominium, cooperative ownership, or other form where the property is not subdivided)] and within [Districts as designated by the CITY/TOWN] [all housing developments] shall comply with the OSD provisions of this section...



## General Requirements:

### Housing Types:

- Affords flexibility in regard to housing types.

“Housing units within [Districts as designated by the CITY/TOWN] shall be single-family structures. Within [Districts as designated by the CITY/TOWN] all housing types allowed under the [CITY/TOWN] [bylaw/ordinance] are permitted.”

- Language allowing accessory dwelling units provided as an alternative

### Parking:

- [Two] off-street spaces required per unit



## Dimensional Requirements:

Goal: Make it as easy as possible to conserve land and natural resources by arranging units/lots in as unconstrained a manner as practicable

- No required minimum lot size, but water or wastewater needs or other regulations may limit
- No numerical frontage required, rather “legally and practically adequate vehicular access”
- [10] foot setback to property lines & [20] feet between principal structures

## Enforcement:

- Monumentation clearly delineating the open space required to ease enforcement



## Open Space:

- Permanently conserves [60%] of land area
- Required % may be reduced by up to [10%] for land devoted to common water or wastewater infrastructure; this land must be subject to a Restrictive Covenant
- Preserved open space required to be contiguous to the greatest extent practicable
- Protection under Article 97 or a permanent Chapter 184 type restriction required
  - Restrictive Covenant under Chapter 184 required if CR not accepted
  - CR must specify permitted and prohibited uses consistent with the zoning
- Allowable and Prohibited Uses addressed in detail
  - Alternate language provided to address active and motorized recreation
  - Small portion [5%] may be paved/built on consistent with open space use





## Open Space (continued):

- Ownership options specified; private owner, conservation non-profit or state agency, conservation commission, or homeowners association (HOA)
  - Provisions govern HOA ownership (including a conditional open space grant)
  - Unless held by the conservation commission a CR & access easement with inspection and enforcement provisions are required
- Maintenance standards established by Planning Board when approving the OSD
  - Has an enforcement provision, including the potential to place a property tax lien
- Submission requirements specify provision of a Conservation Analysis as per the Subdivision Regulations



# Subdivision Regulations:

## Design Process

Landscape architect must follow a prescriptive Conservation Analysis based process:

1. Informational meeting encouraged to discuss conservation & development priorities
2. Conservation Analysis delineates Primary and Secondary Conservation Areas
  - Contiguity requirement; can be waived
3. Written Conservation Findings specify areas to preserve and develop
4. Landscape architect lays out the subdivision within the Developable Area
5. Planning Board decision; incorporates Conservation Findings





# Open Space Plans should guide land conservation in subdivisions

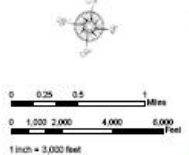
## Required Map 8 Seven-Year Action Plan



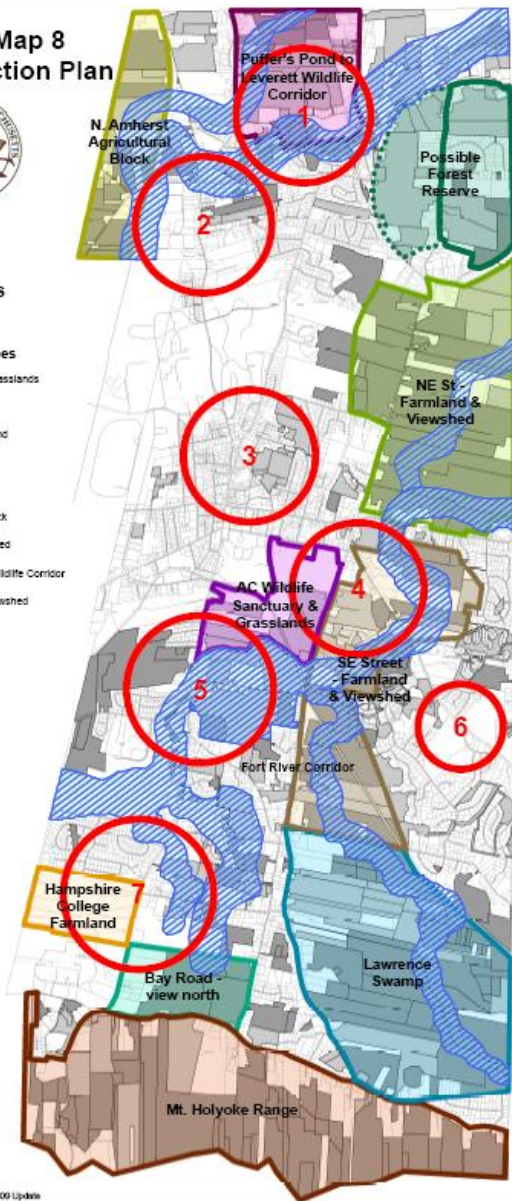
### Conservation & Recreation Priorities

- Recreation Focus Areas
- Unique & Scenic Landscapes**
- AC Wildlife Sanctuary & Grasslands
- Bay Road - view north
- Hampshire College Farmland
- Lawrence Swamp
- Mt. Holyoke Range
- N. Amherst Agricultural Block
- NE St. Farmland & Viewshed
- Puffer's Pond to Leverett Wildlife Corridor
- SE Street - Farmland & Viewshed
- Possible Forest Reserve
- Riparian Corridors
- Protected Lands**
- Permanently Protected
- Partially Protected

Land protection and land use status is current through July, 2008.

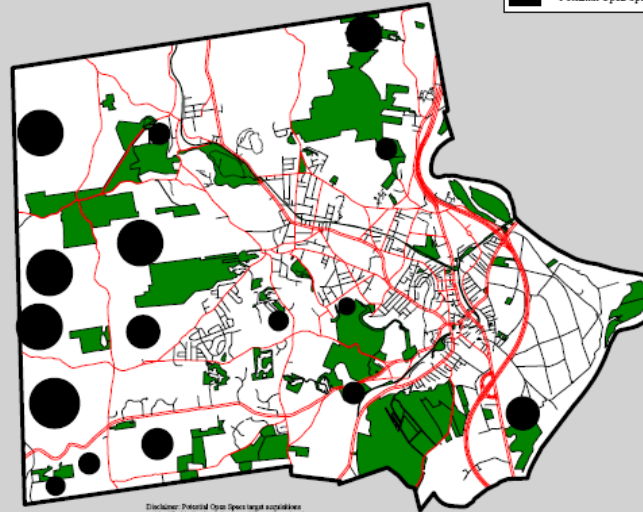


Amherst Open Space and Recreation Plan, 2008 Update

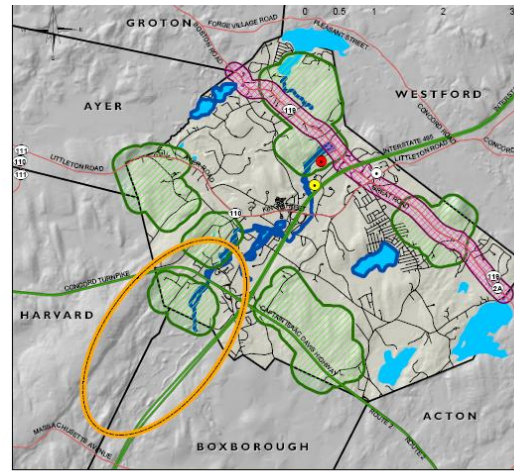


## Conceptual Priority Open Space Targets

- Permanently Protected Open Space
- Potential Open Space



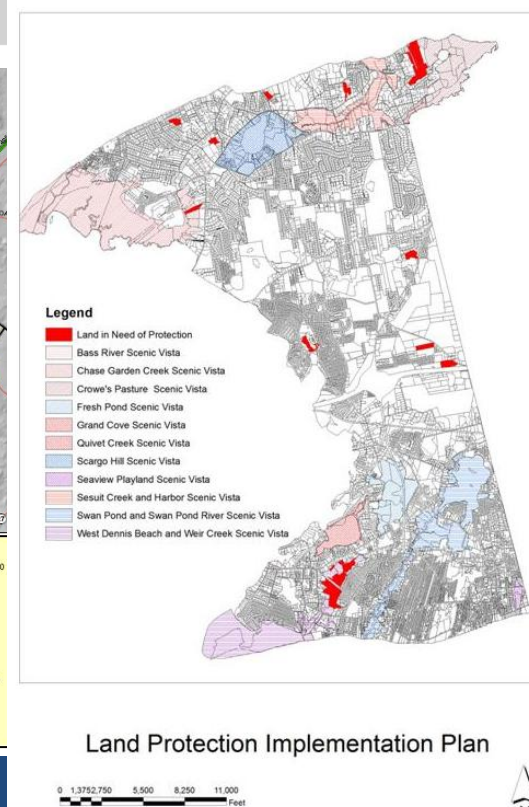
Disclaimer: Potential Open Space target areas are identified in the Open Space and Recreation Planning process to not represent the entire network of potential open space opportunities.



### Action Plan Map 10 Littleton Open Space and Recreation Plan

Data Source: MassGIS and Metropolitan Area Planning Council  
\*Data displayed based on best available information  
Map Produced by Littleton OS&RP Committee, June 2009; Scale 1:60,000

- Water Resources: conserve land in Beaver Brook watershed; support LWD aquifer and water quality protection efforts; support and promote lake restoration efforts
- 241/115 Corridor: conserve agricultural lands; develop "scenic roads" by-law; protect "gateways" to Littleton; permanently protect Littleton Common greens
- Land Protection: conserve large undeveloped parcels and agricultural lands through fee or restriction acquisition; educate landowners about conservation restrictions and agricultural preservation restrictions
- Unique & Important Natural Area: acquire lands that expand natural area and create linkages to other protected lands; revegetate and support riparian conservation program
- Town Governance: coordinate efforts between appropriate departments and committees to advance OS&RP goals and objectives, such as improved stewardship of existing lands, and development of recommended by-laws
- Recreation Facilities: improve and develop recreation programs and facilities; such as town track, wheelchair access, interpretive signage, benches and picnic tables, and youth environmental education
- Partnerships & Alternative Funding: explore and develop partnerships and grant opportunities with state agencies, private organizations and companies, such as Mass DCS, Sudbury Valley Trust, and ISW



## Land Protection Implementation Plan



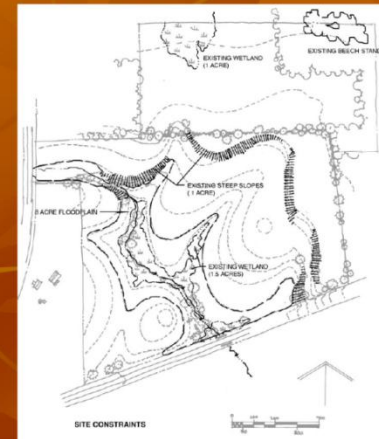


# Conservation Analysis and Findings

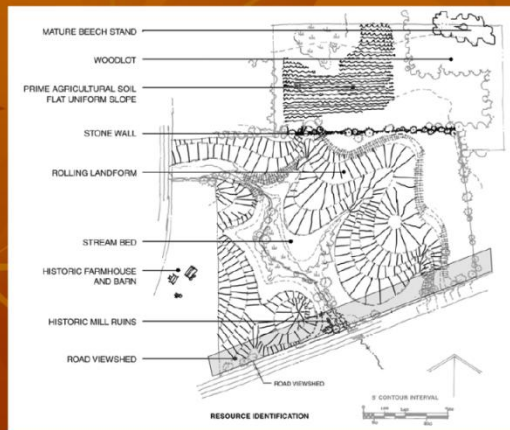
## Step 1: Existing Conditions



## Step 2: Site Constraints (unbuildable land)

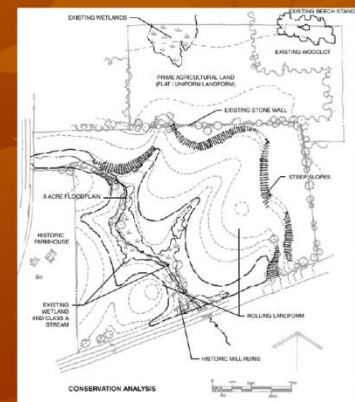


## Step 3: Identify Natural and Cultural Features



## Step 4: Conservation Findings

- Preserve prime agricultural land and beech stand
- Preserve stone walls
- Preserve historic mill ruins
- Preserve "Unbuildable Land" (10.5 acres of floodplain, wetlands, stream, steep slopes)
- Provide public access for bonus density
- Provide visual buffer from road



## Subdivision Regulations (continued):

### Grounds for Denial:

- Insufficient information;
- Open space not preserved as per the Conservation Findings; or
- Zoning requirements not met.

### Design Standards

- Projects must minimize site disturbance & manipulation by concentrating development & designing around site features
- Street standards may be modified to implement OSD
- Vistas and cultural resources to be preserved as practicable
- Low Impact Development (LID) stormwater measures required

### Wastewater Disposal

- Board of Health must be provided sufficient information on wastewater infrastructure

## Special Permit Provisions:

Language provided for measures that can't be readily included in by right zoning

### Density Bonuses

Additional units for voluntary:

- Provision of public access to the open space;
- Construction of permanently affordable housing;
- Conservation of open space beyond that required; or
- Preservation of historic structures.

### Shared Driveways

EEA encourages adoption and use to facilitate OSD





## Contact Information :

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