Innovative Land Use Techniques

A Handbook for Sustainable Development

- Eric Williams, Assistant Administrator, NHDES
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- Cliff Sinnott, Executive Director, RPC
- Jill Robinson, Senior Planner, RPC

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Rockingham Planning Commission

REPP

(Regional Environmental Planning Program)

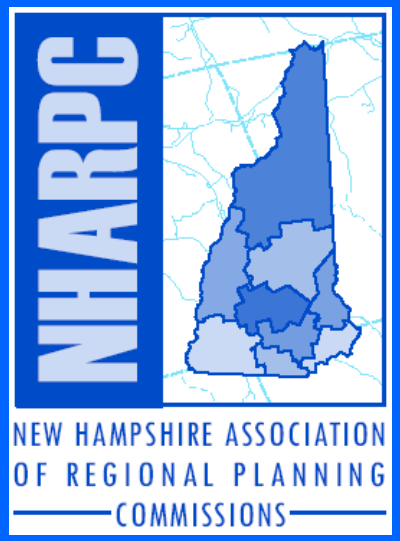
- A brief history
- The 2-Year Plan for the ILU Guide
- Focus on direct assistance to Towns

Photo Credit: Dan Habib/The Concord Monitor

Innovative Land Use Techniques:

A Handbook for Sustainable Development

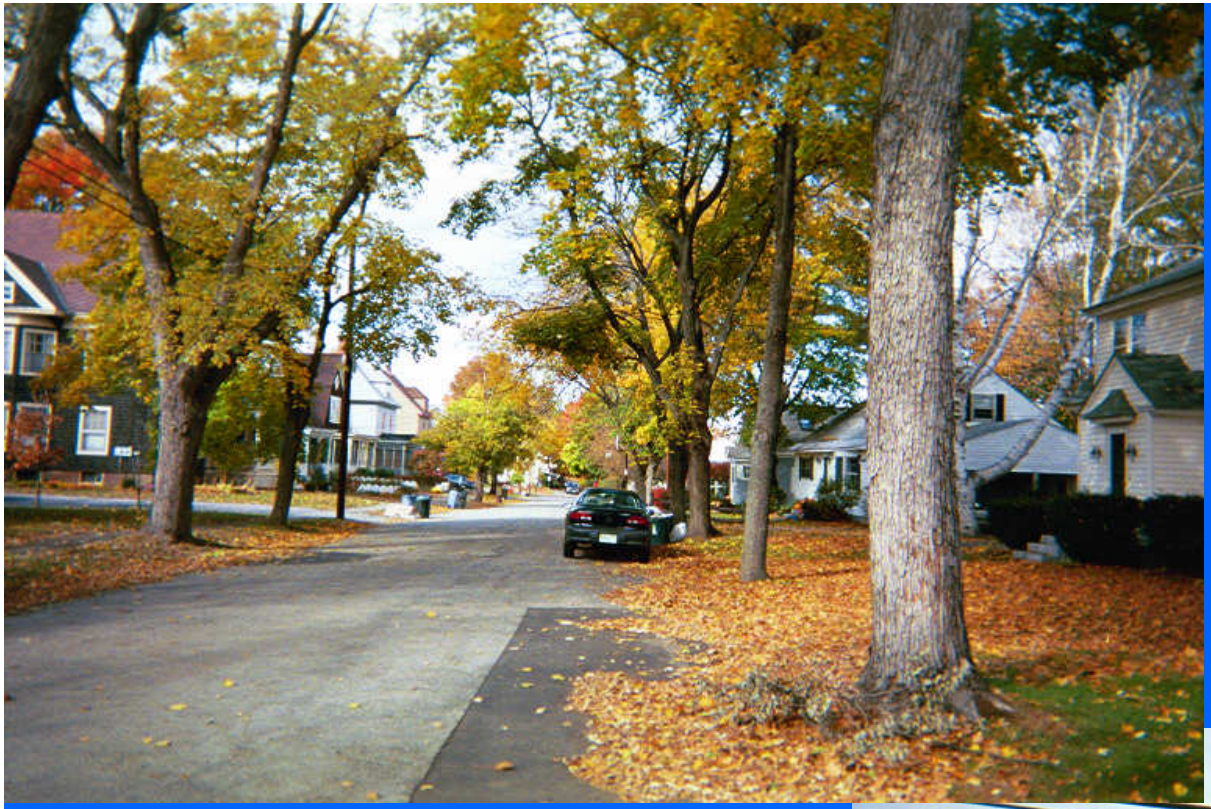
- Concept – Provide guidance and on 674:21
- Handbook – reference tool
- Collaborative Effort



NEW HAMPSHIRE
OEP
OFFICE OF ENERGY AND PLANNING

LGC
NEW HAMPSHIRE
Local Government Center

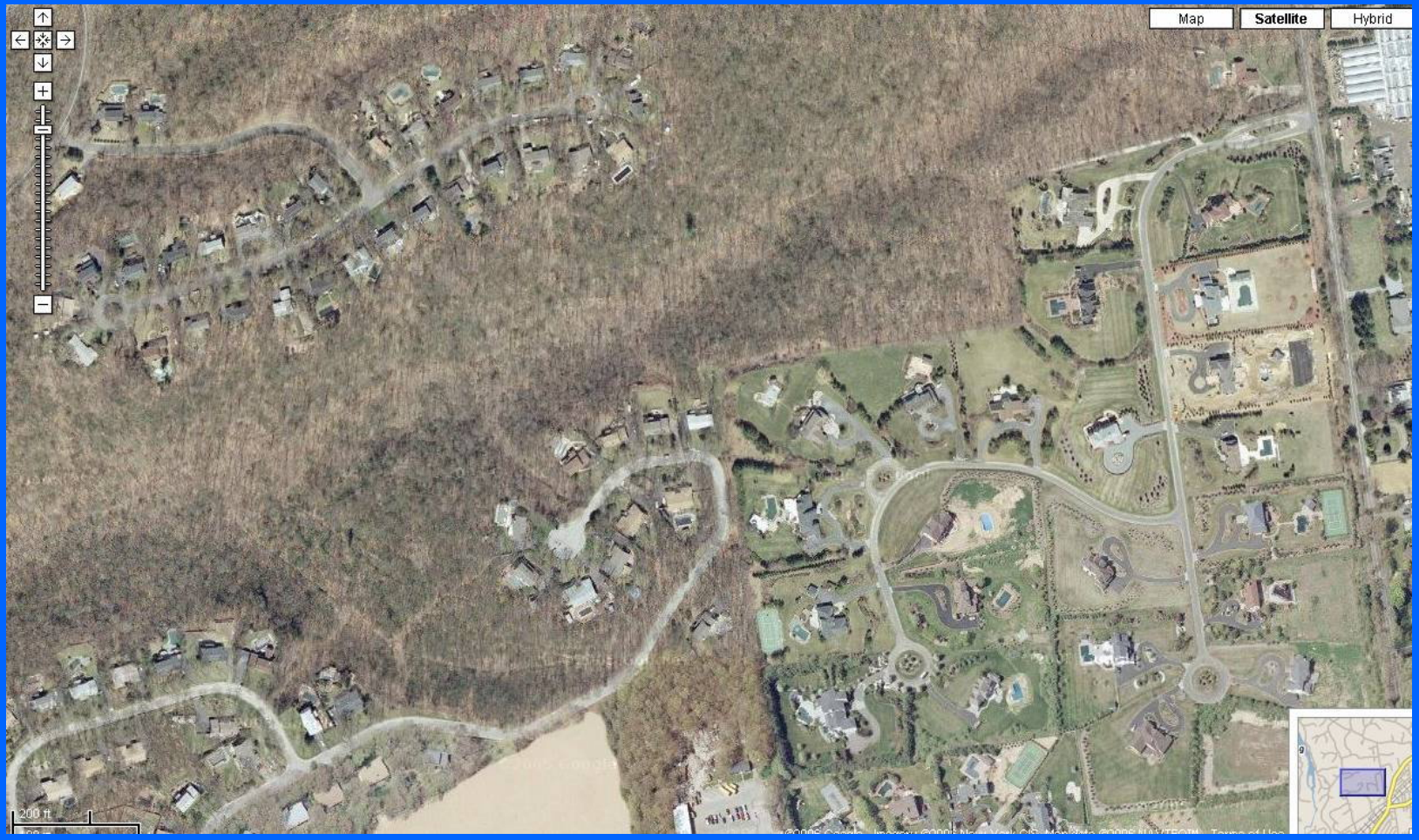
NEW HAMPSHIRE
DEPARTMENT OF
Environmental
Services



Dealing with growth

Why Develop the Innovative Land Use Guide?

Landscape Change



Water Quality

Changing Pattern of Development

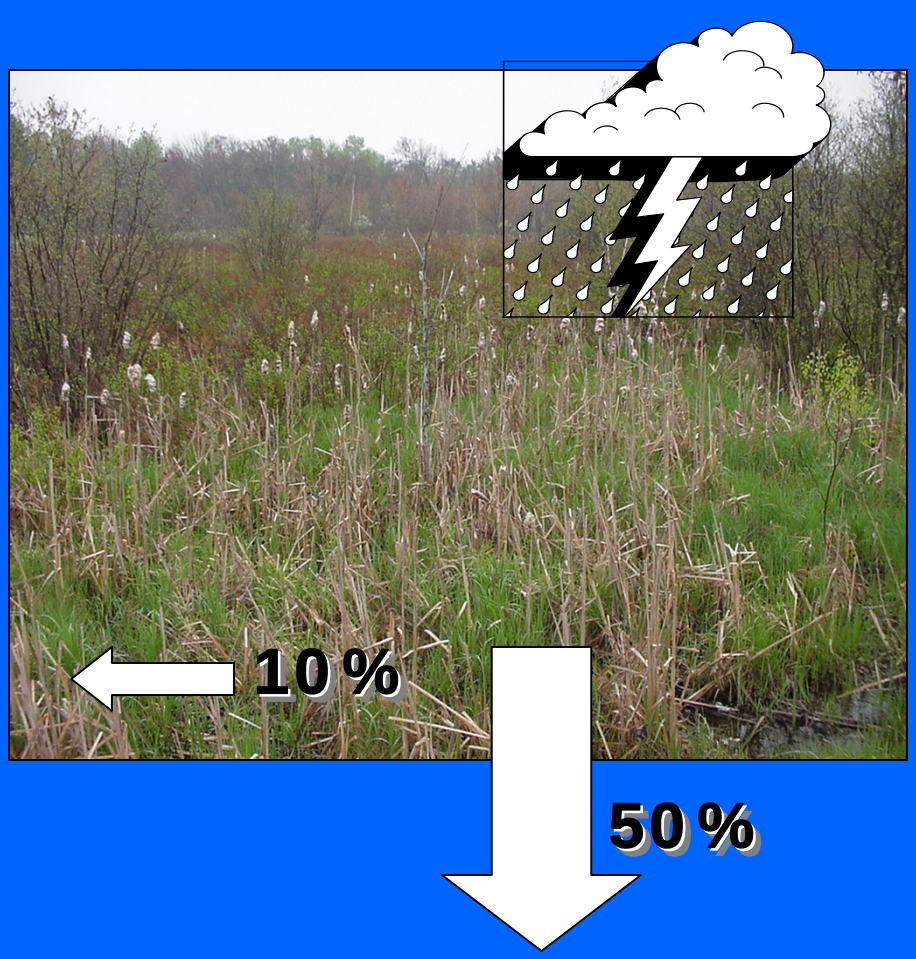
Pre-development

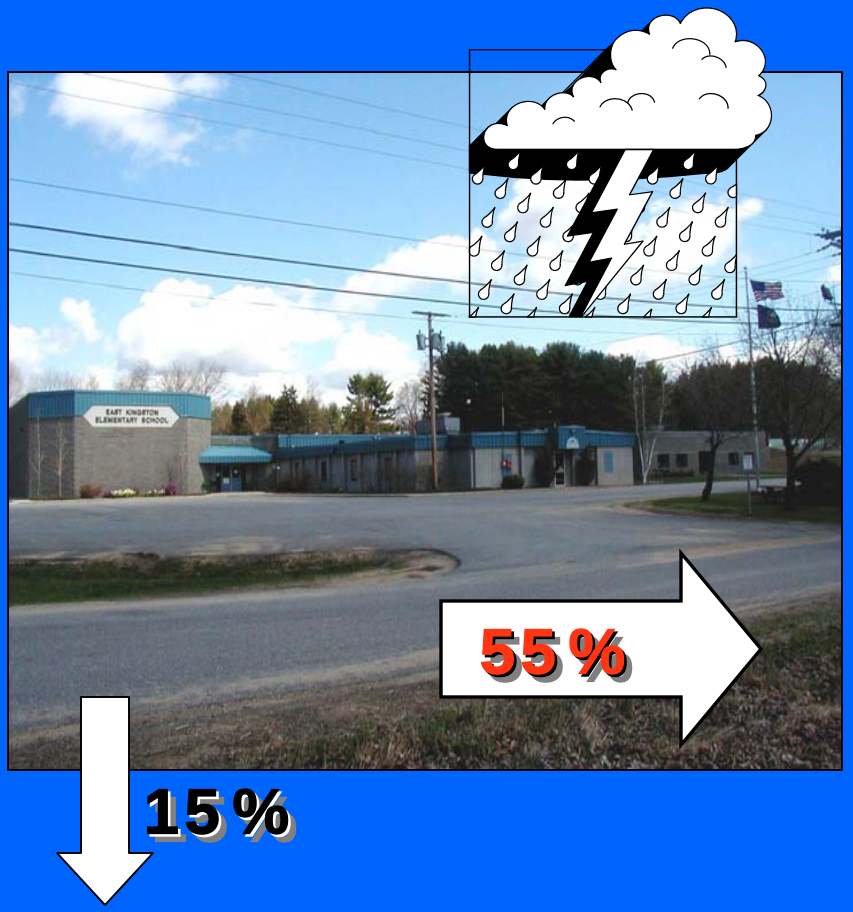
Suburban Development

Conventional Suburban Subdivision

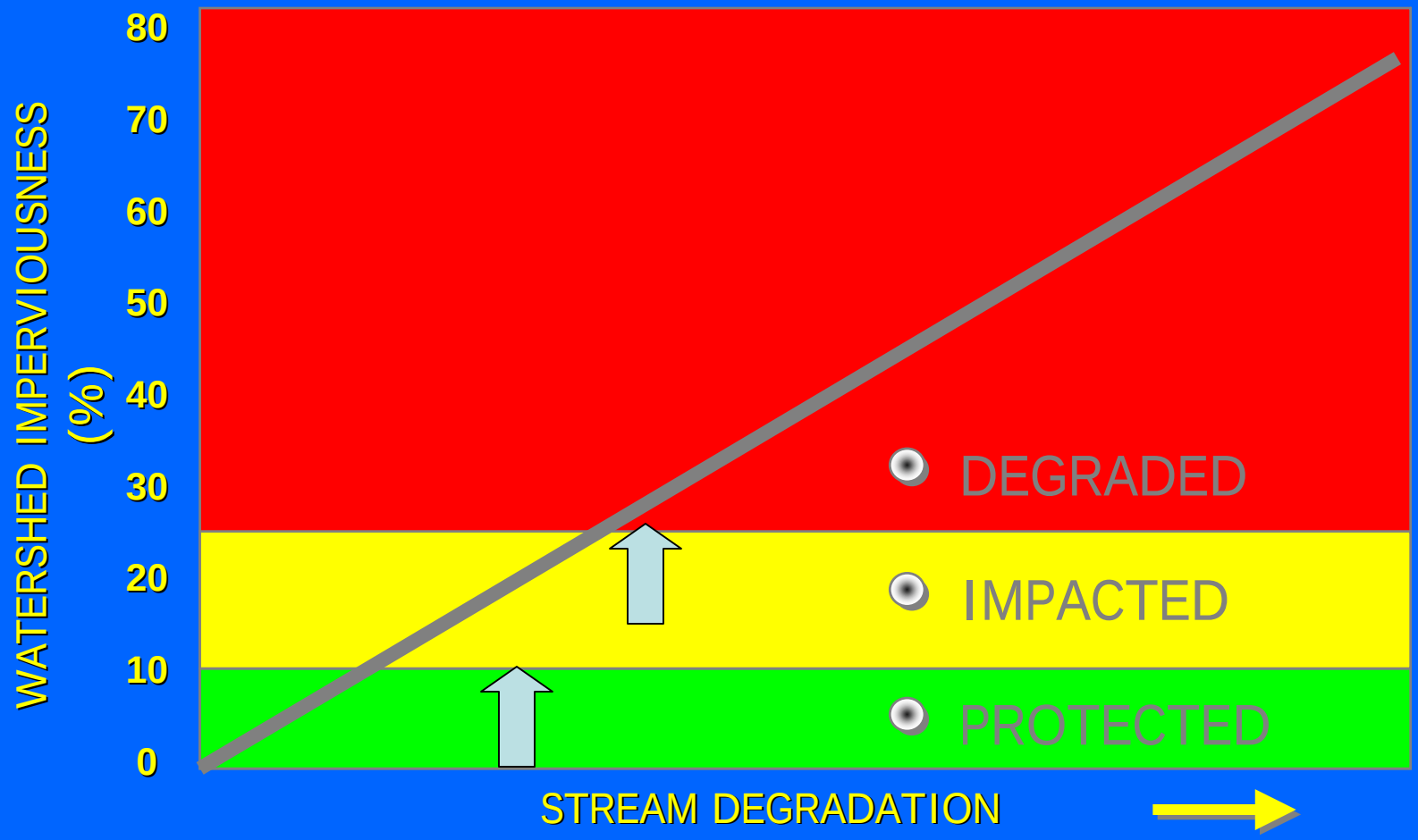
Post-Development

Paved Surfaces Change <u>Where</u> Water Flows





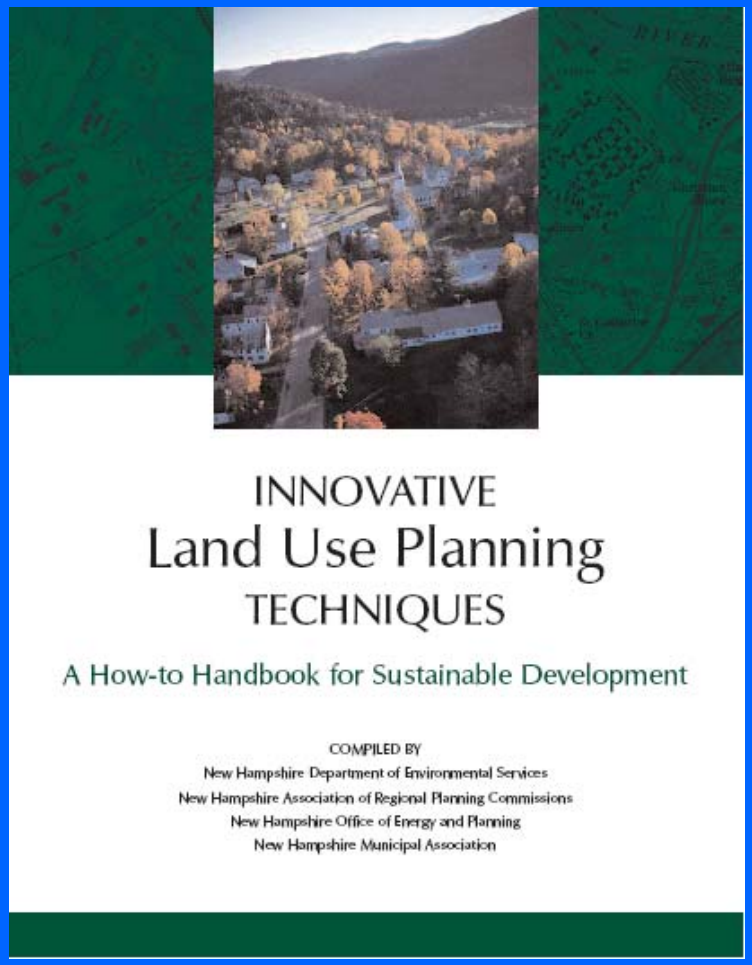
Waterway Health & Imperviousness



ADAPTED FROM SCHUELER, ET. AL., 1992

ILU Guide Contents

1. Multi-Density Zoning
2. Environmental Characteristics Zoning
3. Site-Level Design



ILU Guide Contents

1. Multi-Density Zoning

- Transfer of Development Rights
- Innovative Density Regulations
- Conservation Subdivision
- Village Plan Alternative
- Infill Development
- Inclusionary Housing
- Growth Boundaries

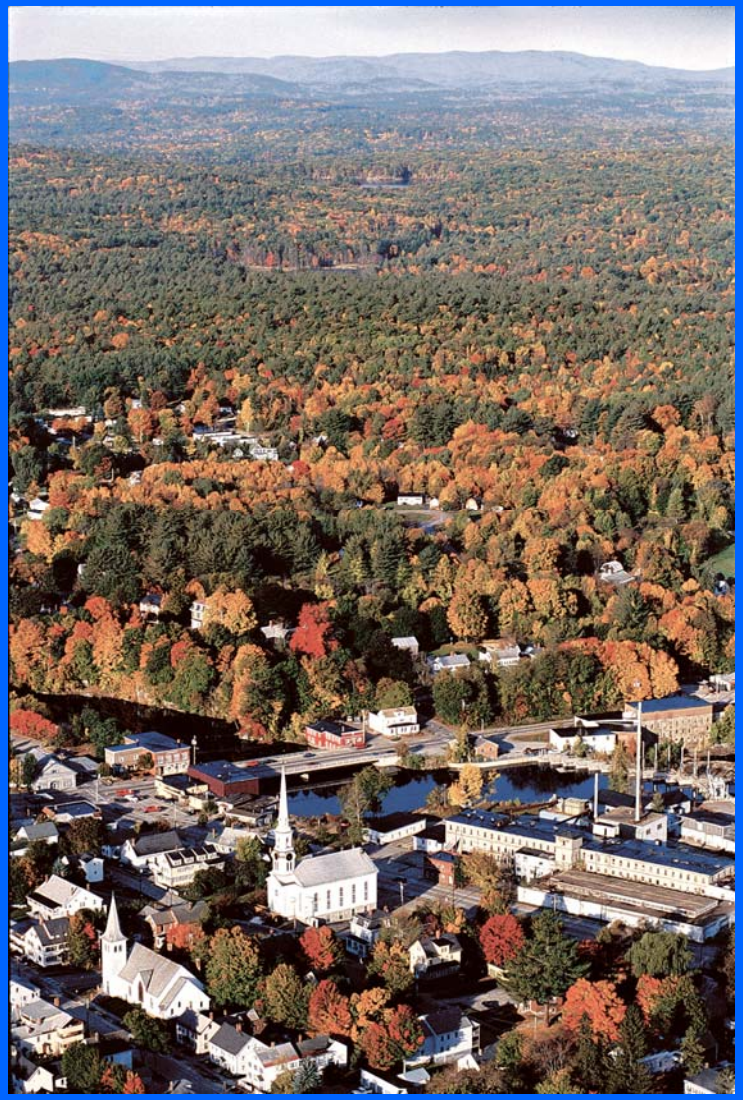


Photo Credit: Dan Habib/Concord Monitor

ILU Guide Contents

2. Environmental Characteristics Zoning

- Stormwater Management
- Ridgeline/Steep Slopes Development
- Wildlife Habitat Management
- Water Resources Protection:
  - Wetlands
  - Drinking water
  - Shoreline and riparian areas
  - Floodplains
  - Erosion and sediment control

ILU Guide Contents

3. Site-Level Design

- Transit-oriented Development
- Livable/Walkable Design
- Access Management
- Dark Skies Lighting
- Energy-efficient Development
- Landscaping Regulations

General Chapter Outline

I. Background and Purpose
II. Appropriate Circumstances and Context for Use
III. Legal Basis and Considerations
IV. Examples
V. Model Ordinance

Chapters for Today

- Steep Slopes and Ridgeline Protection
- Feature-based Density
- Lot Size Averaging
- Transfer of Density Rights
- Village Plan Alternative
- Conservation Subdivision

Steep Slopes and Ridgeline Protection

- **Steep Slopes – primarily addresses environmental concerns**

- **Ridgeline Overlay – primarily addresses view protection**

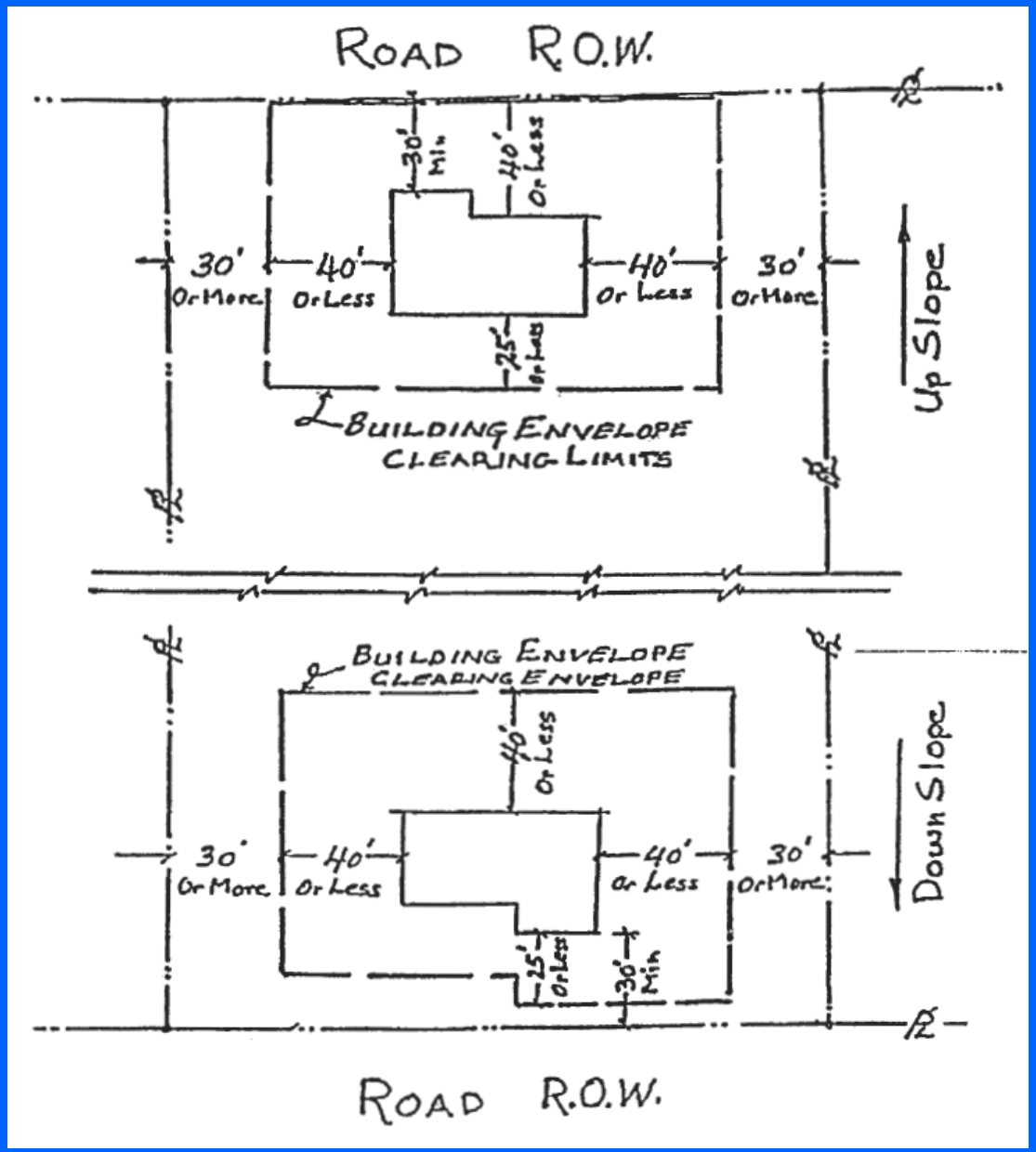
Steep Slopes Ordinance

- Applies to land > 15% slope
- Triggered by site disturbance
- Performance standards approach
  - Limit cut and fill to 2:1 ratio
  - Driveways limited to 10% max slope
  - No structures on > 25% slope
  - Detailed erosion control plans

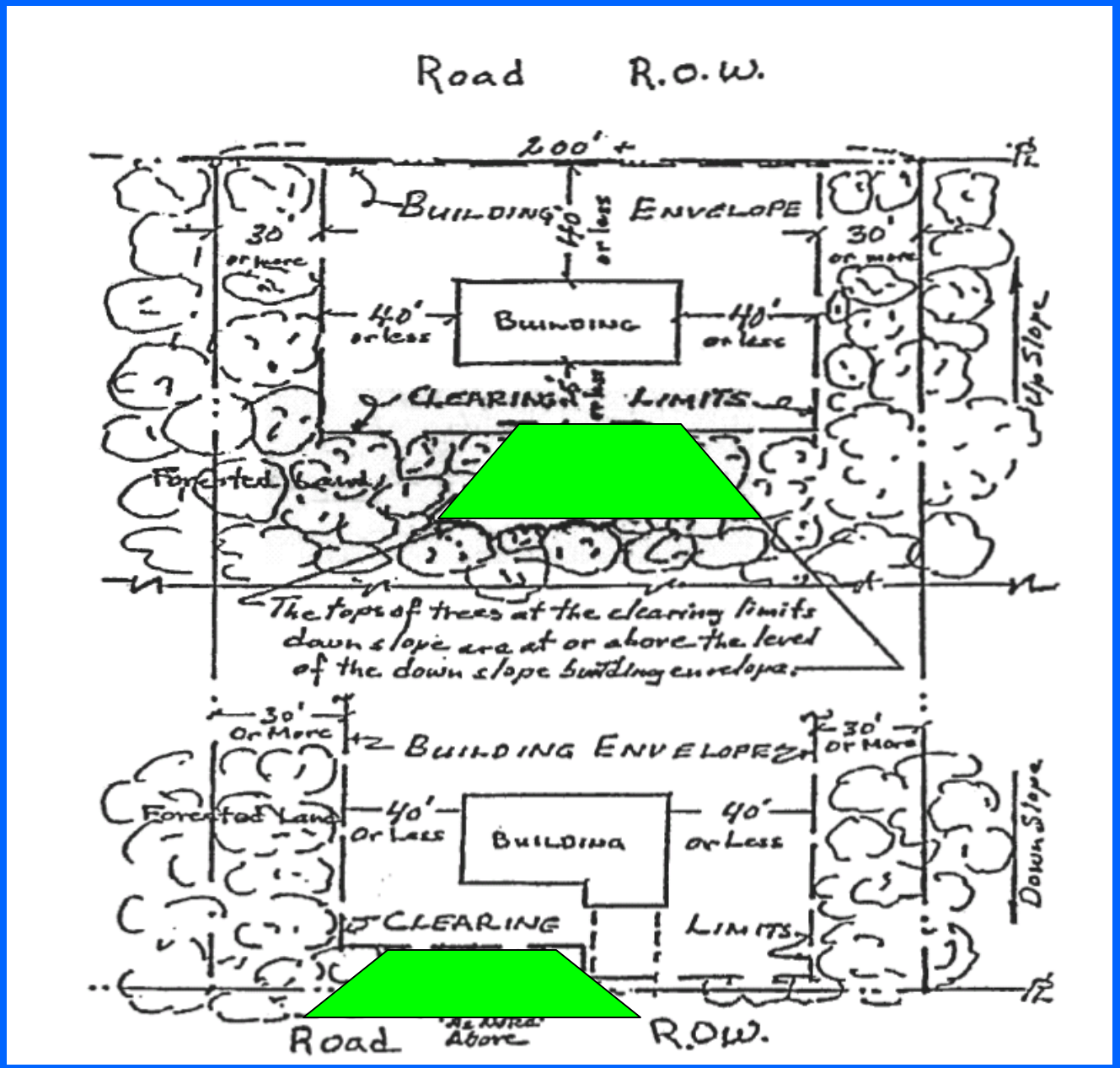
Ridgeline Protection

- Based on Visual Resource Inventory
- Overlay zones
- Triggered by site disturbance
- Building envelopes on plans
- Clearing limited to building envelopes

Building Envelope



Clearing Limits



Flexible Density

- **Feature-based Density**
- **Lot Size Averaging**

Feature-based Density

- Applies to new subdivisions
- Need to rely on overlay districts to protect features in existing lots
- Developable area and overall density determined by land characteristics

Determination of Developable Area

Physical Features on the Parcel	Developable Area Adjustment
Slopes in excess of 25%	deduct 100%
Slopes 15% - 24%	deduct 50%
100 Year Floodplain	deduct 100%
Wetlands and Surface Waters	deduct 100%
Wetland Buffers	no deduction
Shoreline Buffers	no deduction
Deer Wintering Areas	50% deduction
Insert your community's	
other priorities here.	
All Other Land	no deduction

Determination of Development Density

Parcel Location	Adjustment to Area Required for each Unit
A. Proposed driveway or development road will access:	
Paved State or Class V Highway	x 1
Gravel Class V Highway	x 2
Substandard** Class V Highway (as identified by the Town/City) or other private	x 4
B. Travel distance from the municipal building to the parcel	
Less than 1.5 miles	x 1
1.5 to 3 miles	x 3
3 to 5	x 5
5+	x 10
C. [Optional: Consider adding additional objectives, e.g. After adjusting for access and travel distance, the density shall be adjusted for proximity to the significant public lands listed below:]	
[e.g. state park land, Appalachian Trail corridor]	[e.g. x 2]

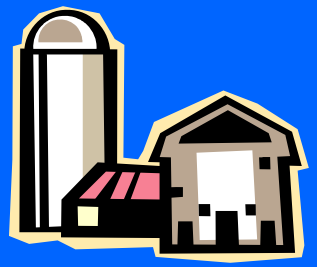
Lot Size Averaging

- Same approach as Conservation Subdivision
- Can be used for minor subdivisions
- Density determination for overall parcel
- Individual lots may vary
- Requires good town record-keeping

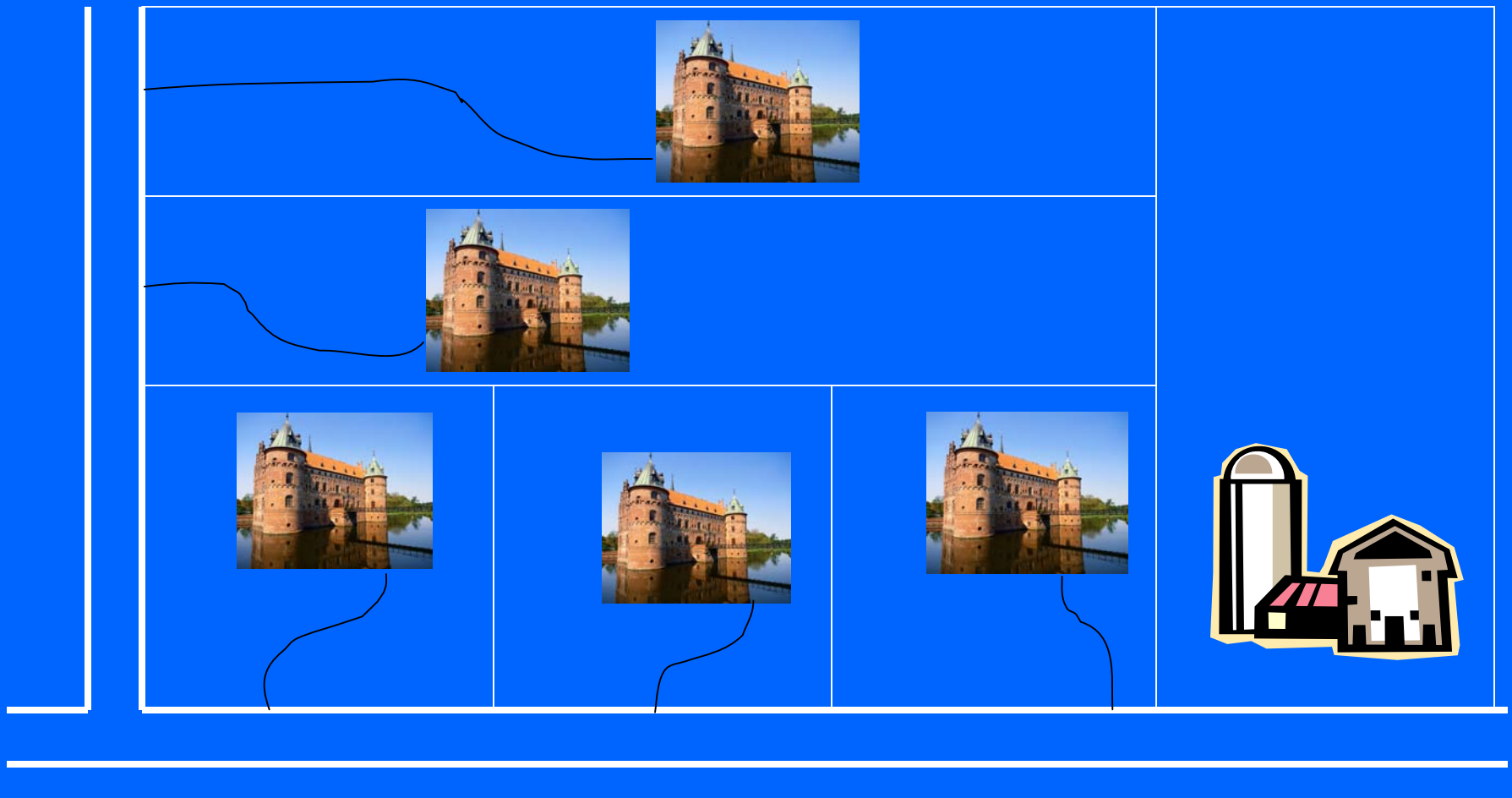
Density Determination

Zoning District Lot Size	% Deduction for roads and utilities
5-10 Acres	5%
1.5 – 4.5 Acres	10%
1 Acre or less	15%

LSA – before development



After Large Lot Zoning



After, with LSA

Density Transfer Credits

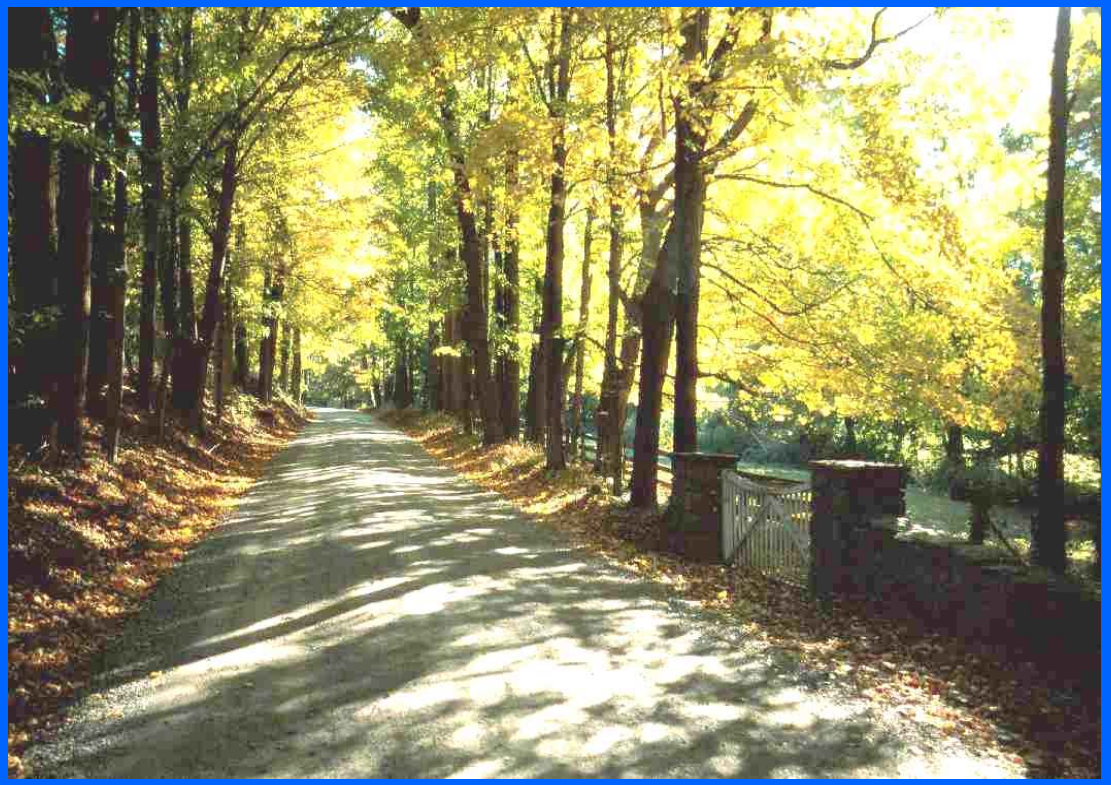
A workable approach to TDR for New Hampshire

Village Design

Jill Robinson, Ph.D.
Senior Planner
Rockingham Planning Commission

Roadmap

- **What it is**
- **How to do it**
- **Benefits**



Village Design: What is it?

A compatible mix of uses in a village that is:

- **Cost-efficient for a municipality,**
- **Walkable and small-scale,**
- **Protects natural resources**

Innovative Land Use Controls 674:21

Goals of Village Design

- Environmental**: control sprawl, protect resources, reduce automobile use**
- Civic**: create neighborhoods, give freedom and mobility to senior citizens and youth**
- Economic**: reduce infrastructure and maintenance costs**

Roadmap

- What it is
- **How to do it**
- Benefits

Village Design: Authority

674:21 (n) Innovative Land Use Controls

Village Plan Alternative Subdivision

- **Entire density must be located on 20 percent or less of the entire parcel**
- **Remaining land solely for agriculture, forestry, conservation or recreation**

Three Areas in the District

- **Village Residential Area:** mix of housing types
- **Village Conservancy Areas:** greens, playing fields, woodlots
- **Small-Scale Retail Area:** retail, civic, offices, second-story residential

Design elements: safety, mobility, human-scale

Photo courtesy of PBIC

- A walkable and safe neighborhood
- A mixed-use neighborhood for all ages
- Reduced setbacks, form-based code
- Recreation, conservation areas

Smaller houses, smaller lots

- For young families, single people, empty nesters, or retired couples
- Move up or downsize within same neighborhood as income and family size fluctuate

Roadmap

- What it is
- How to do it
- **Benefits**

Benefits of village design

- Safety
- Increases in social capital
- Lower municipal costs for services

Safety

- A sense of community is effective in reducing crime. Harvard School of Public Health study.

- Provide places and reasons for people to meet in their daily routines.

Social capital

“Respondents living in walkable neighborhoods were more likely to know their neighbors, participate politically, trust others, and be socially engaged.”

American J. of Public Health 2003, Kevin Leyden, Ph.D.

Good Design and Good Health

55 percent of Americans would like to walk more instead of driving, and 52 percent would like to bicycle more.

American Journal of Health Promotion, 2003.

Lower municipal costs

- Shorter streets, better layout, easier to provide town road services
- Lower infrastructure costs for developers and towns
- Better road network increases safety, decrease congestion

Summary

- Safety, mobility and choices
- Increases in social capital, recreation, conservation
- Lower municipal costs for services

Conservation Subdivision Design

Minimizing the Impact of Subdivisions

Carolyn Russell, AICP
NH Department of Environmental Services

Definition:

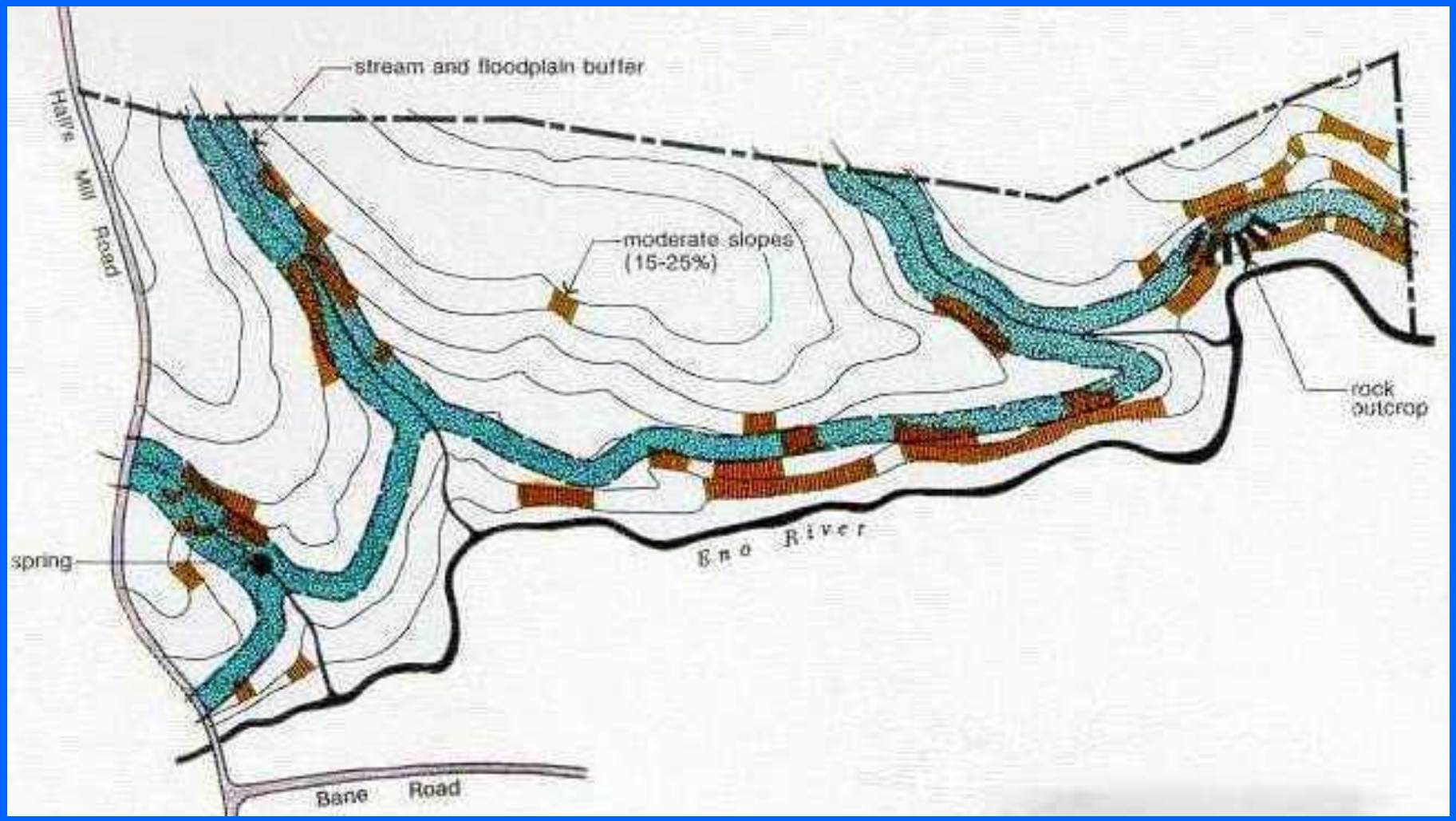
Conservation subdivision design goes beyond the simple goal of clustering buildings together and preserving a portion of the parcel as open space

Conservation subdivision design is

- Based on the **natural and cultural resource attributes** of the property
- Reflects the **broader environmental and social goals** of the community
- Allows for greater **flexibility in design** to provide for greater natural resource protection

Conservation Subdivision Design

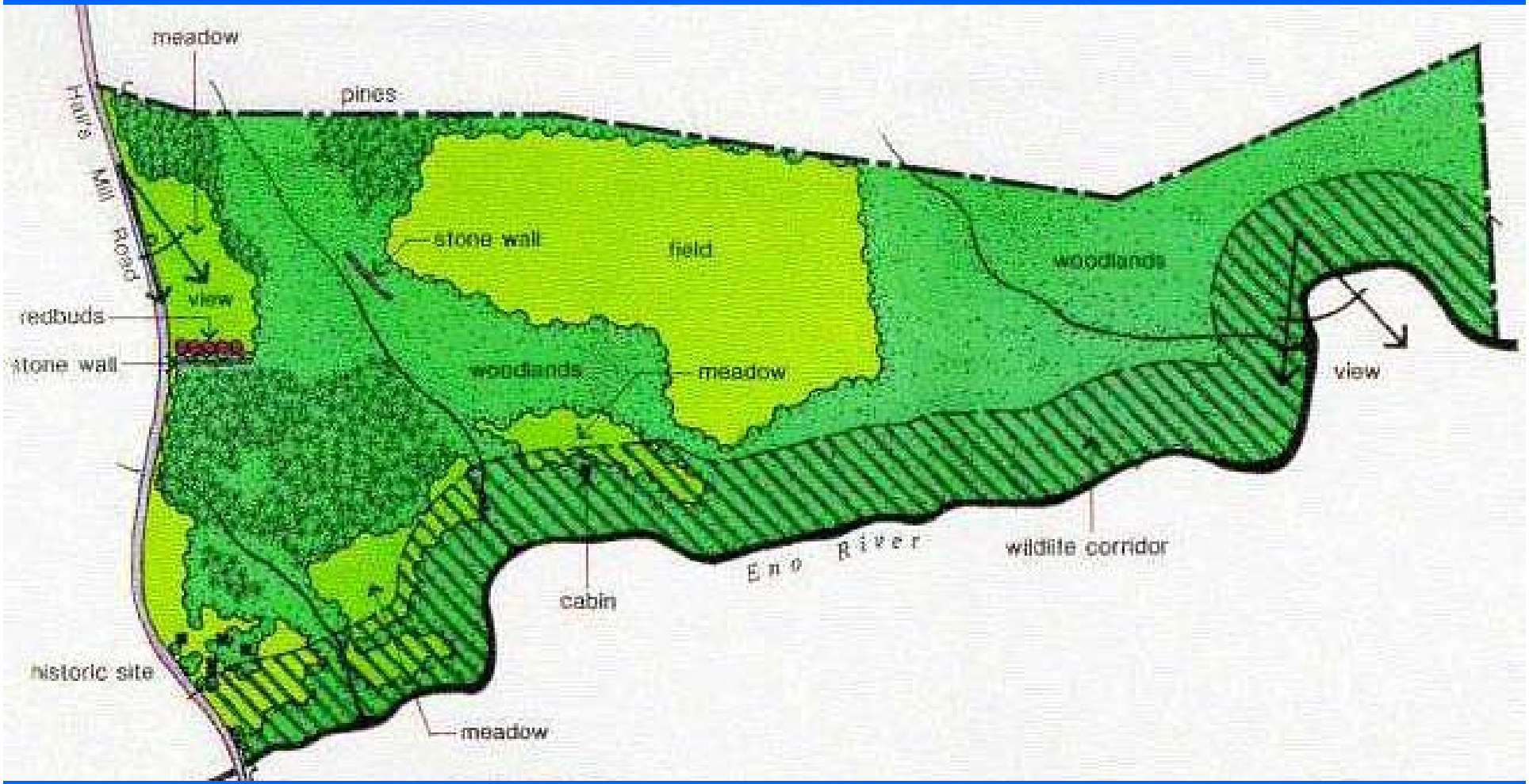
- **Step 1: Identify Primary Conservation Areas**



Source: Arendt et al: *Open Space Design Guidebook for the Albemarle-Pamlico Estuarine Region*, NC Assoc of County Commissioners, 1996.

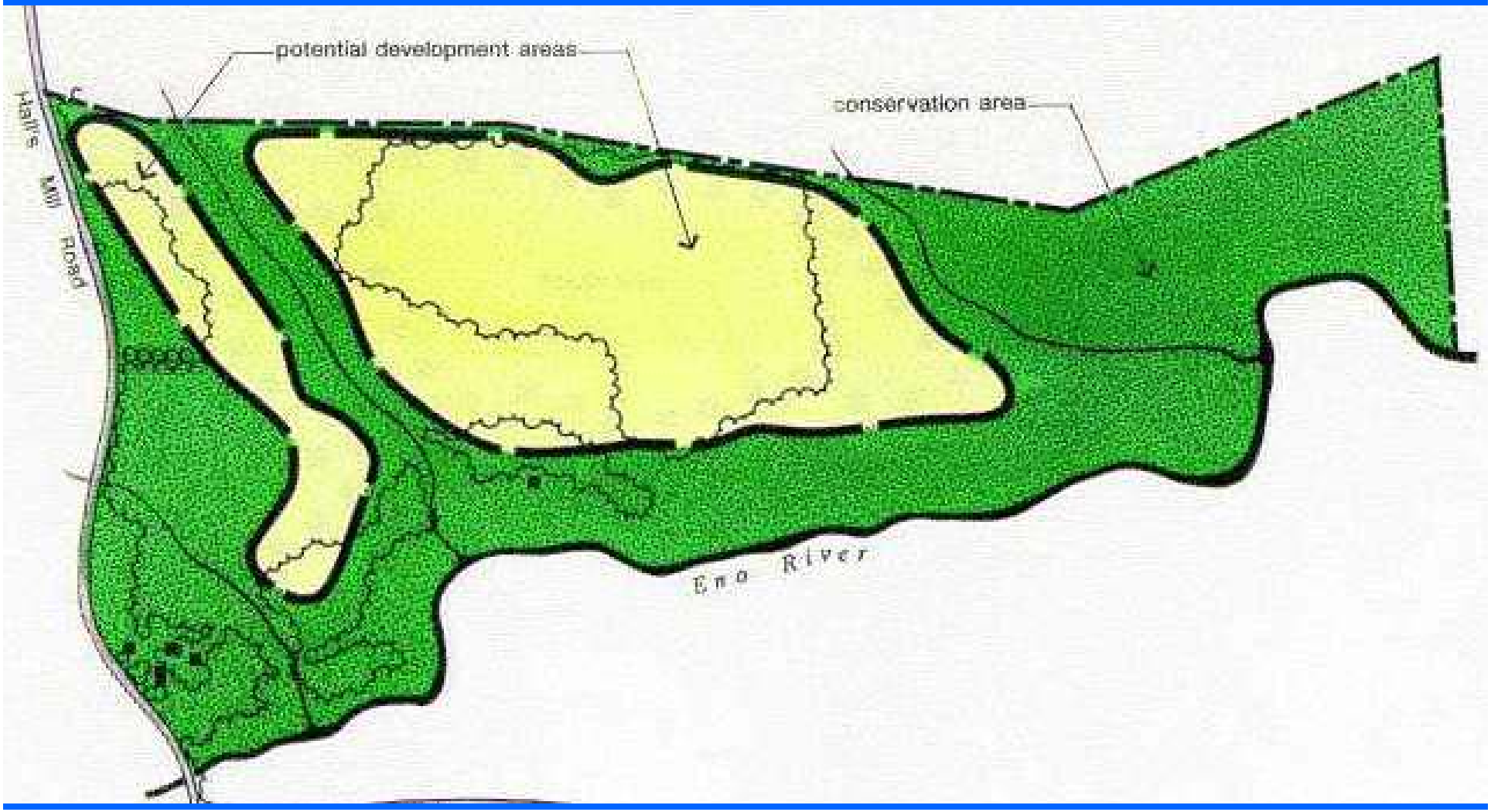
Conservation Subdivision Design

- **Step 2: Identify Secondary Conservation Areas**



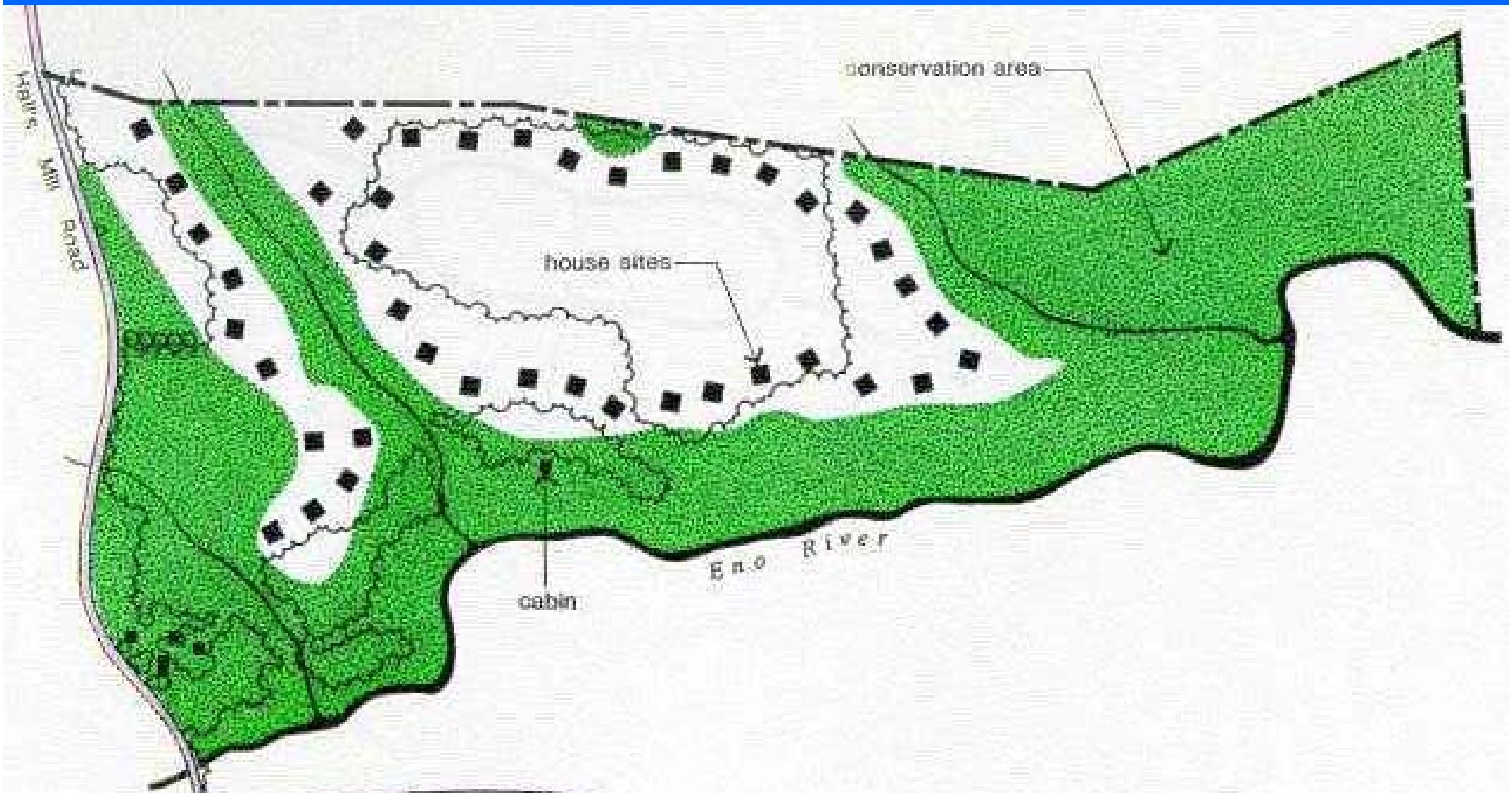
Conservation Subdivision Design

- **Step 3: Identify Potential Areas for Development**



Conservation Subdivision Design

- **Step 4: Locate Potential House Sites**

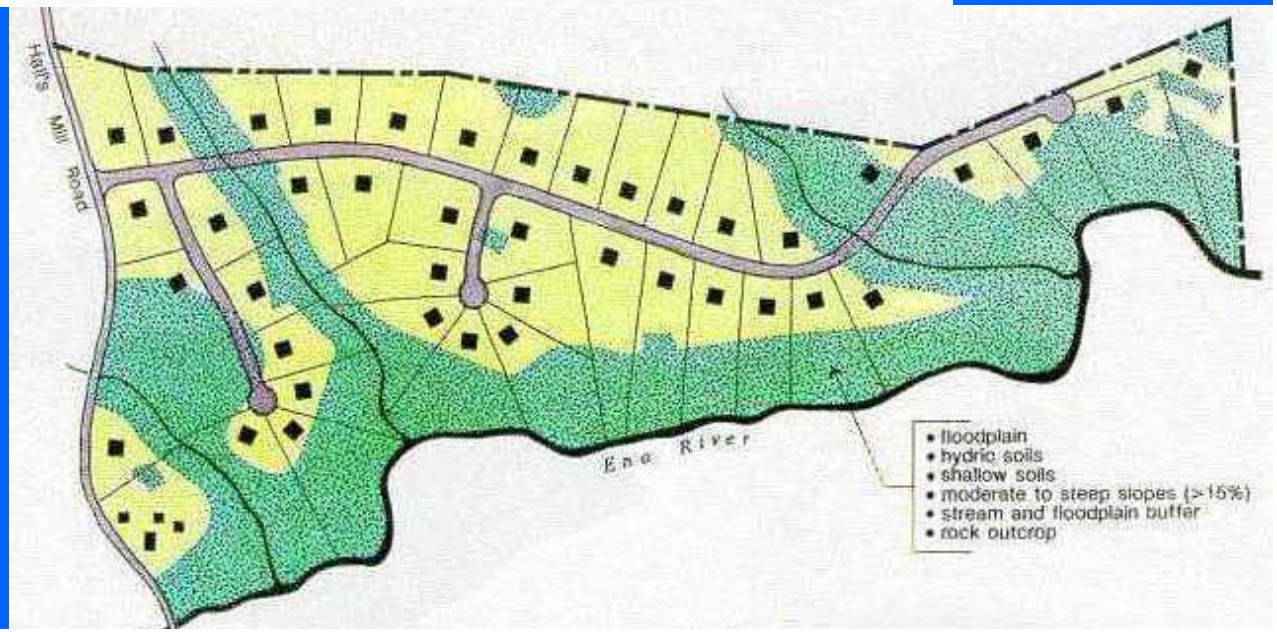


Conservation Subdivision Design

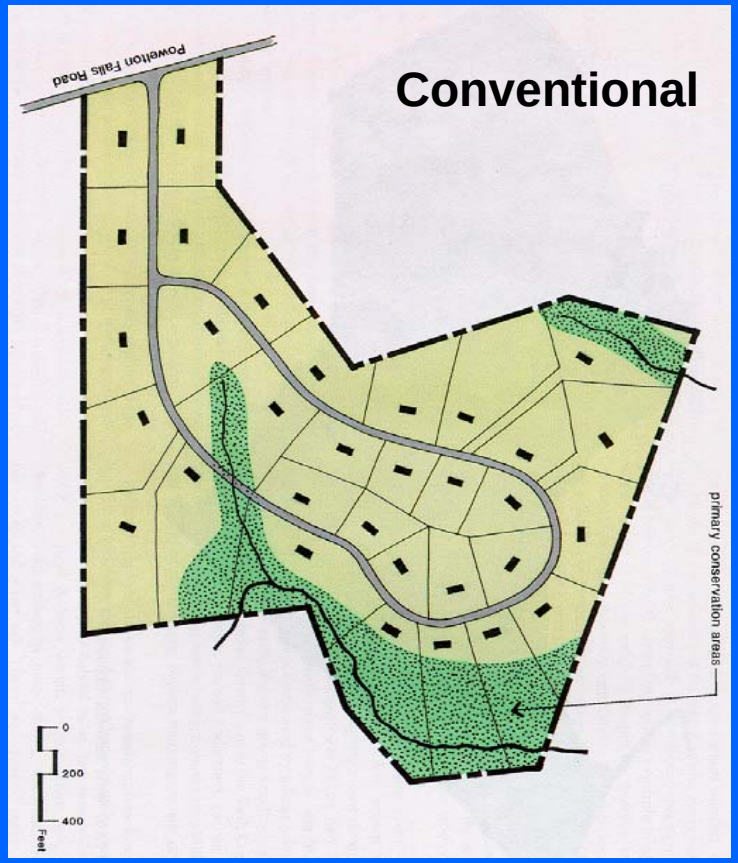
- **Step 5: Lot Lines, Roads and Trails**

Source: Arendt et al: *Open Space Design Guidebook for the Albemarle-Pamlico Estuarine Region*, NC Assoc of County Commissioners, 1996.

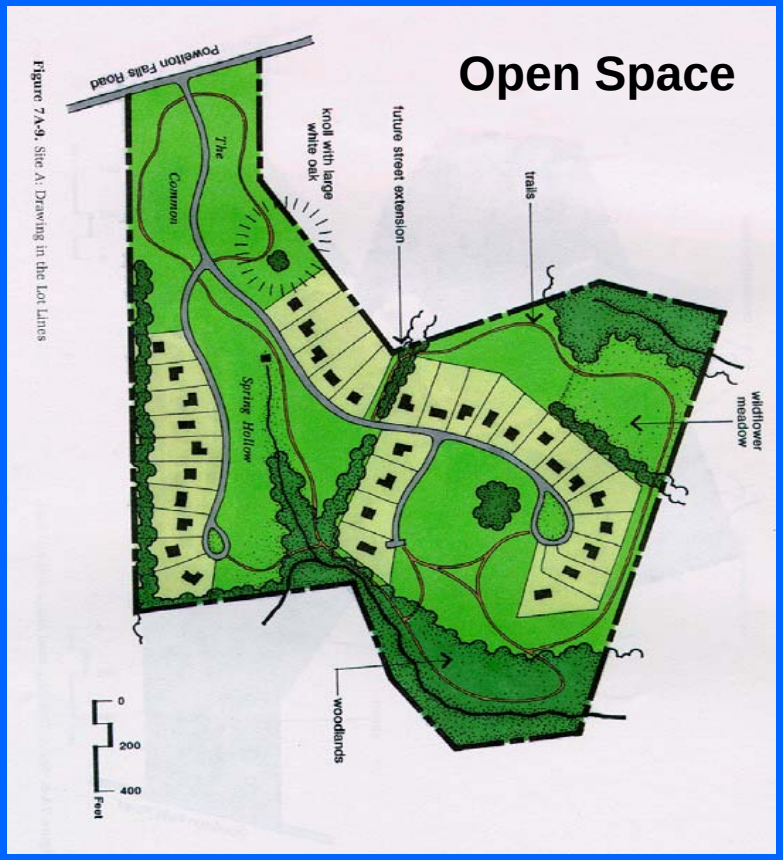

meadow
future road extension
trails
Hall's Mill Road
stone wall
meadow
redbuds
stone wall
rock outcrop
woodlands
Eno River
spring
cabin
meadows
historic site


Hall's Mill Road
Eno River
• floodplain
• hydric soils
• shallow soils
• moderate to steep slopes (>15%)
• stream and floodplain buffer
• rock outcrop

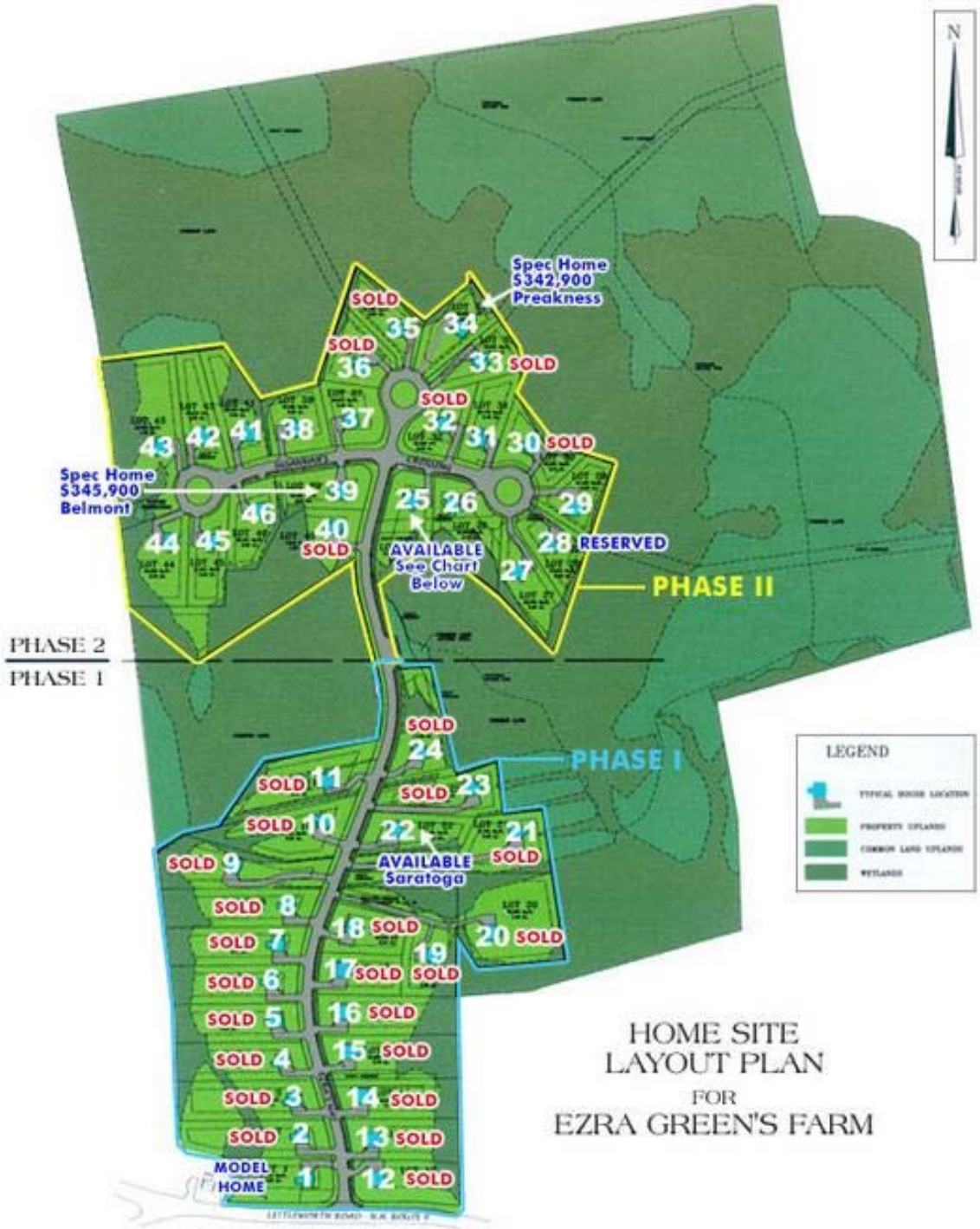
Conservation Subdivision Design – One Tool for MID



- Same number of housing units
- 10-50% less impervious surface
- Reduces amount of infrastructure



- Flexibility to tailor development to the land and preserve natural & cultural features



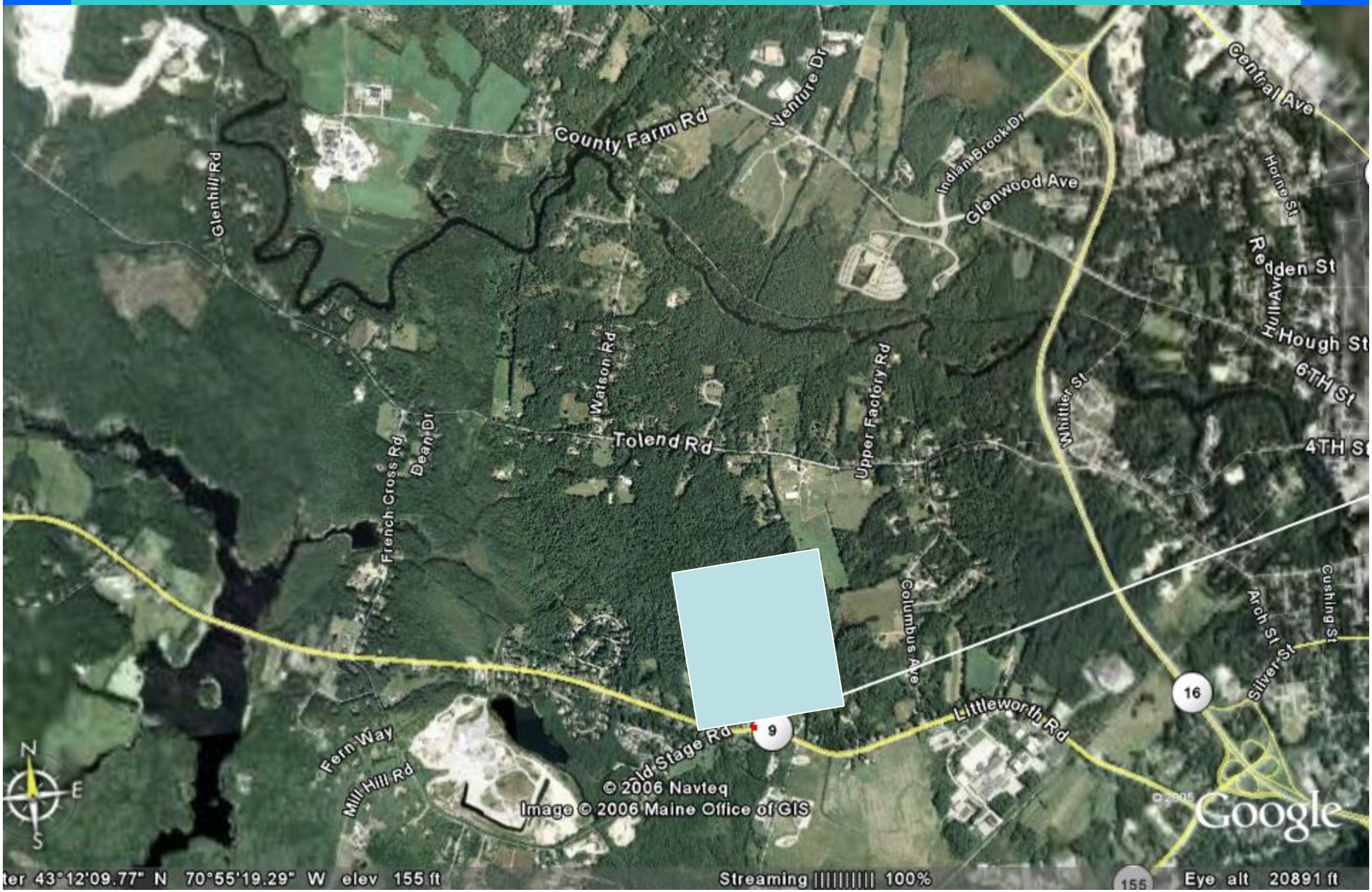
Examples

Ezra Green's Farm

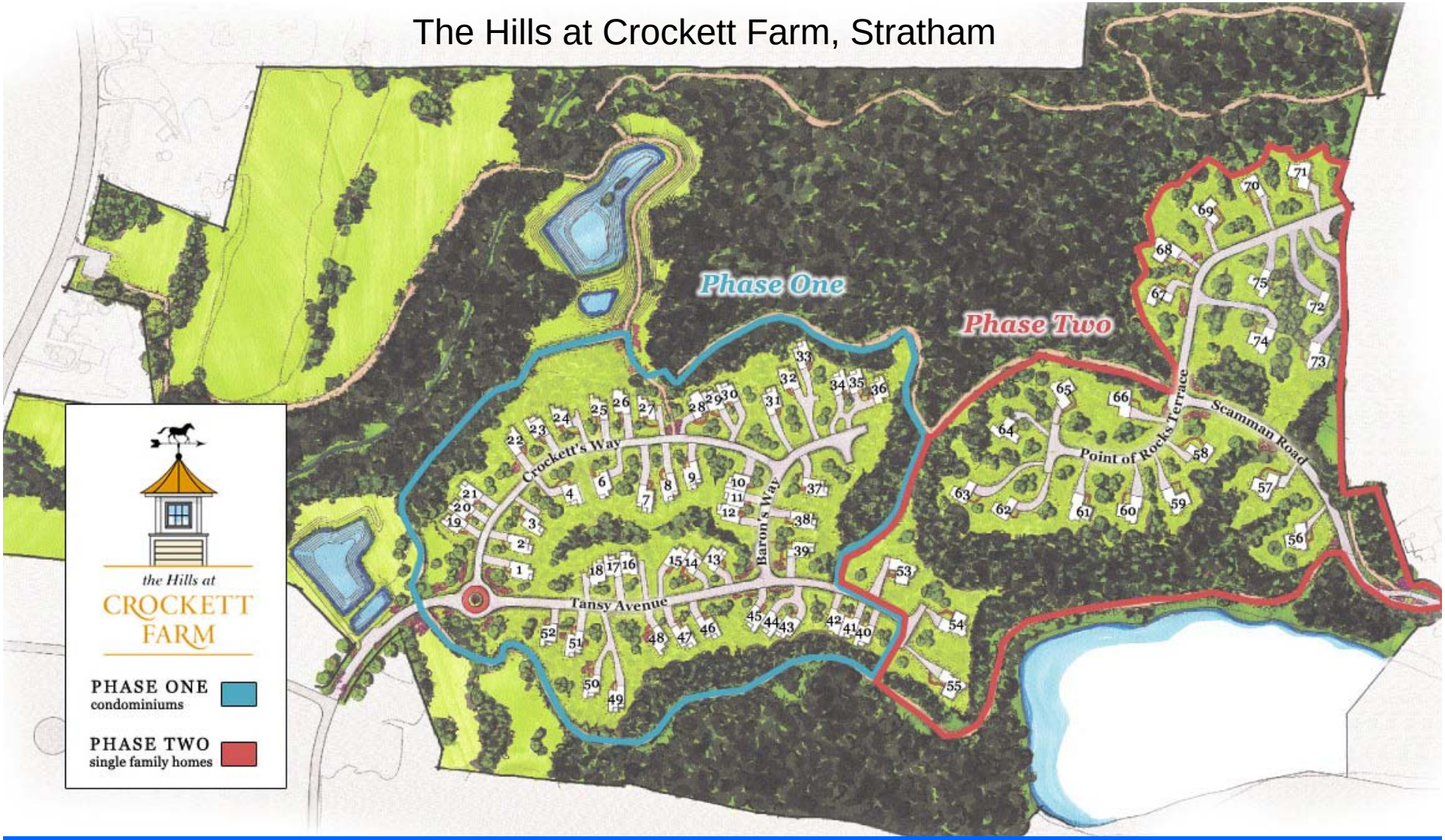
Dover, NH

- 46 homes grouped on 40% of property (60% conserved)
- Protects wetlands and adjacent uplands

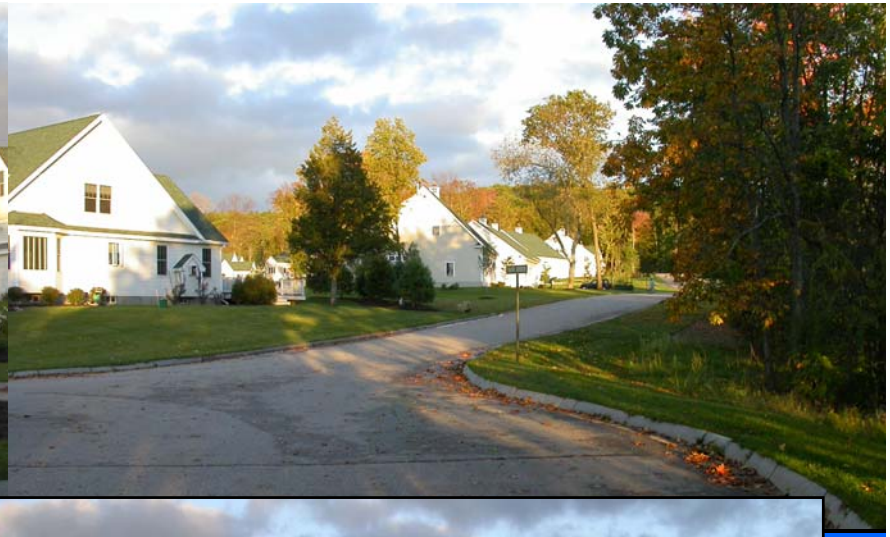
Ezra Green's Farm, Dover



The Hills at Crockett Farm, Stratham

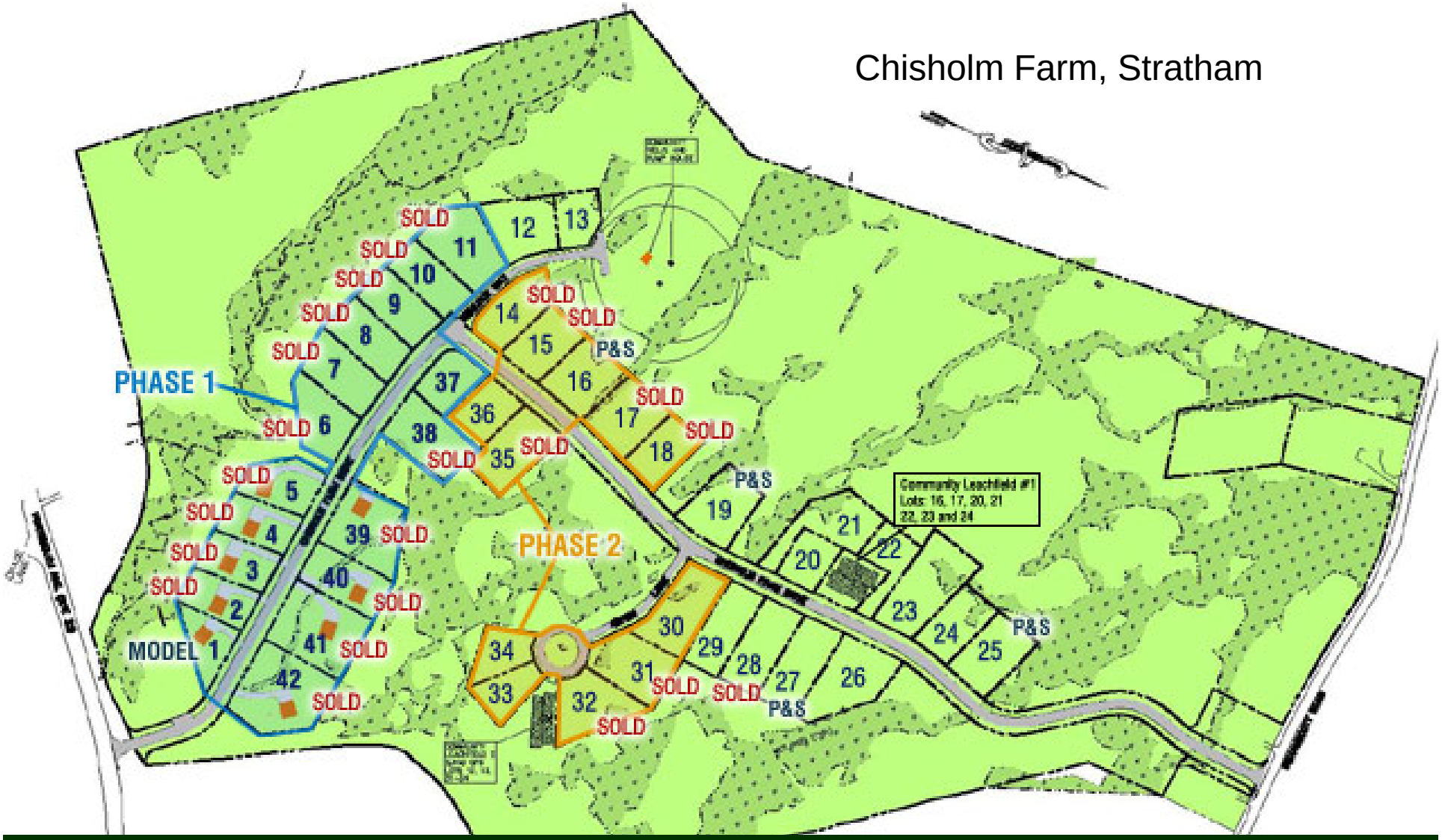


- **142 Acre Parcel – 105 acres preserved**
- **74% Land Conserved Open Space (60% of "buildable land")**
- **72 units (52 Condos, 20 SF) on 37 developed acres**

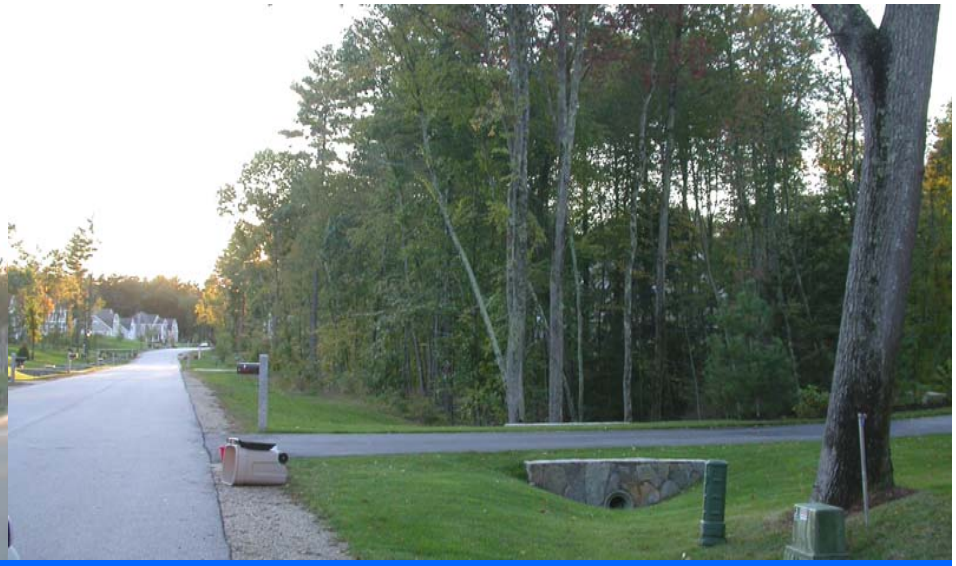


The Hills at Crockett Farm, Stratham

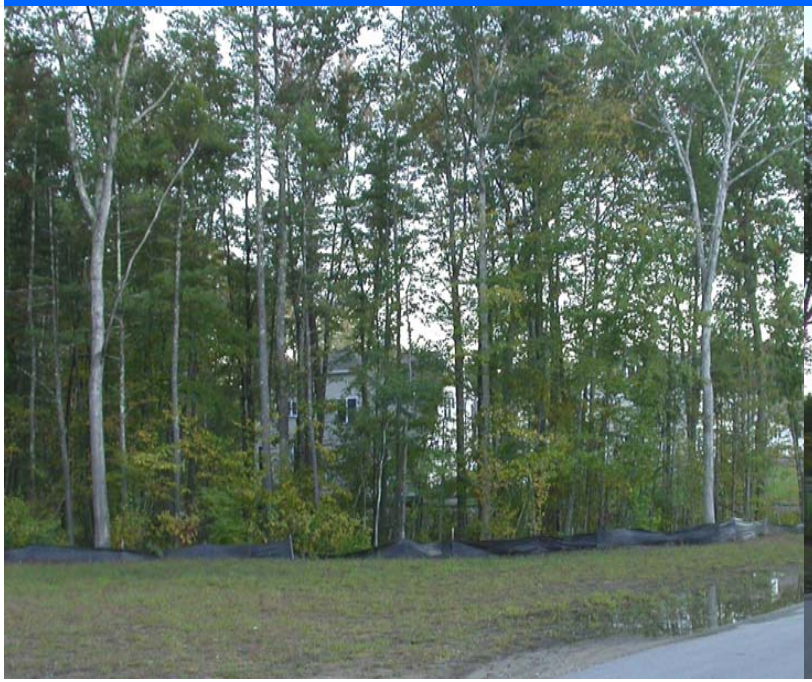
Chisholm Farm, Stratham

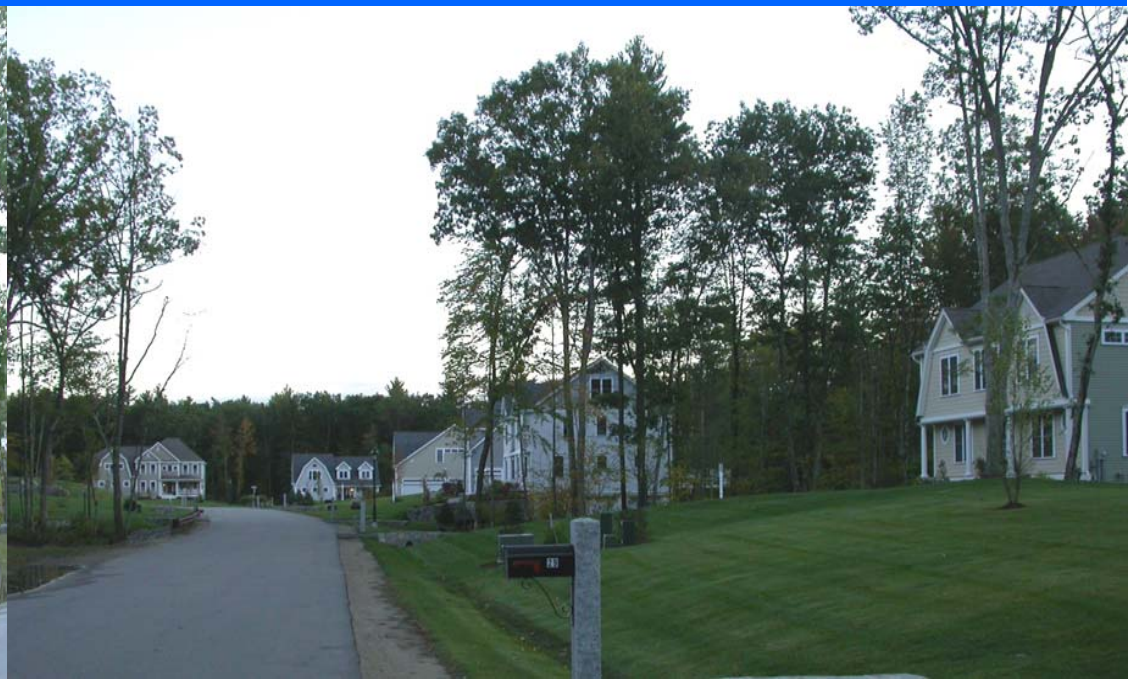


- **115 acres, 85 acres as open space (74%)**
- **42 house lots (1/3+ to just under 1 acre)**
- **Community Leachfield and Community Well**

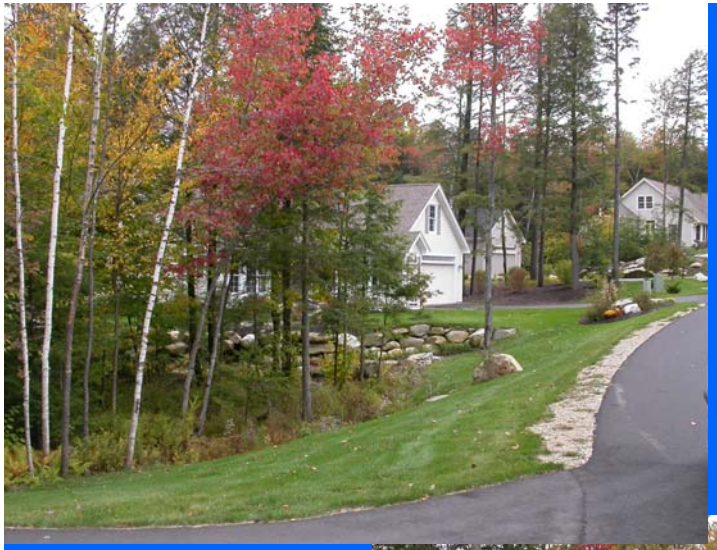


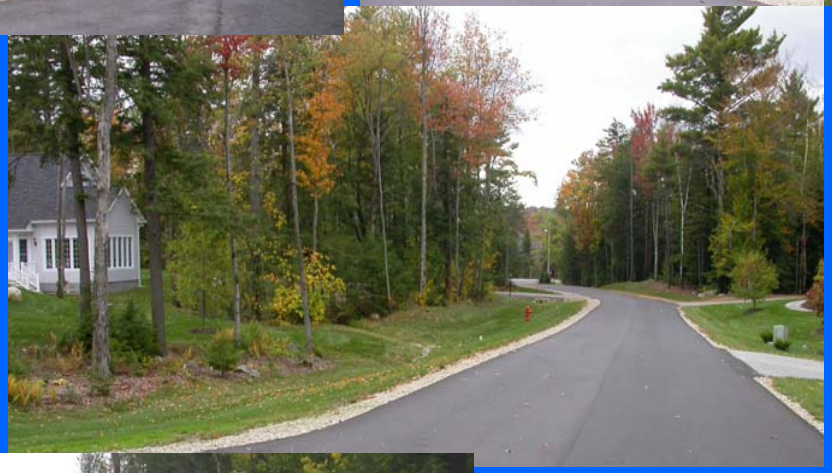
Chisholm Farm, Stratham



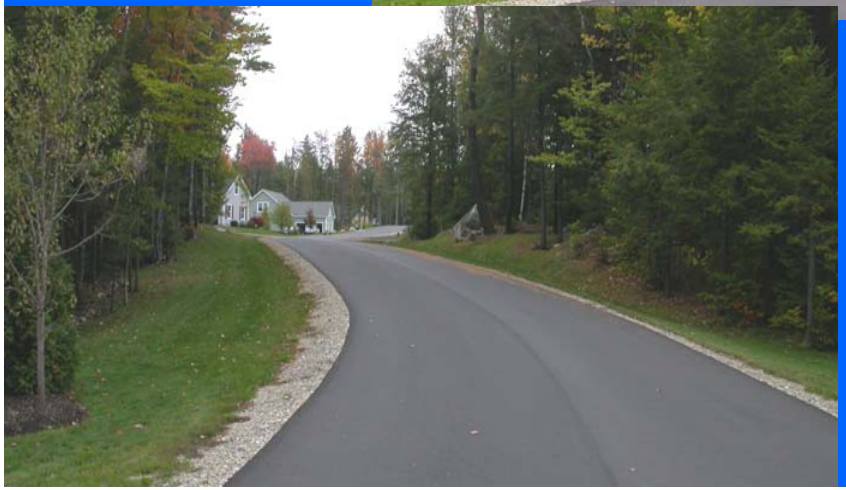


Great Pines, New London, New Hampshire





Great Pines, New London



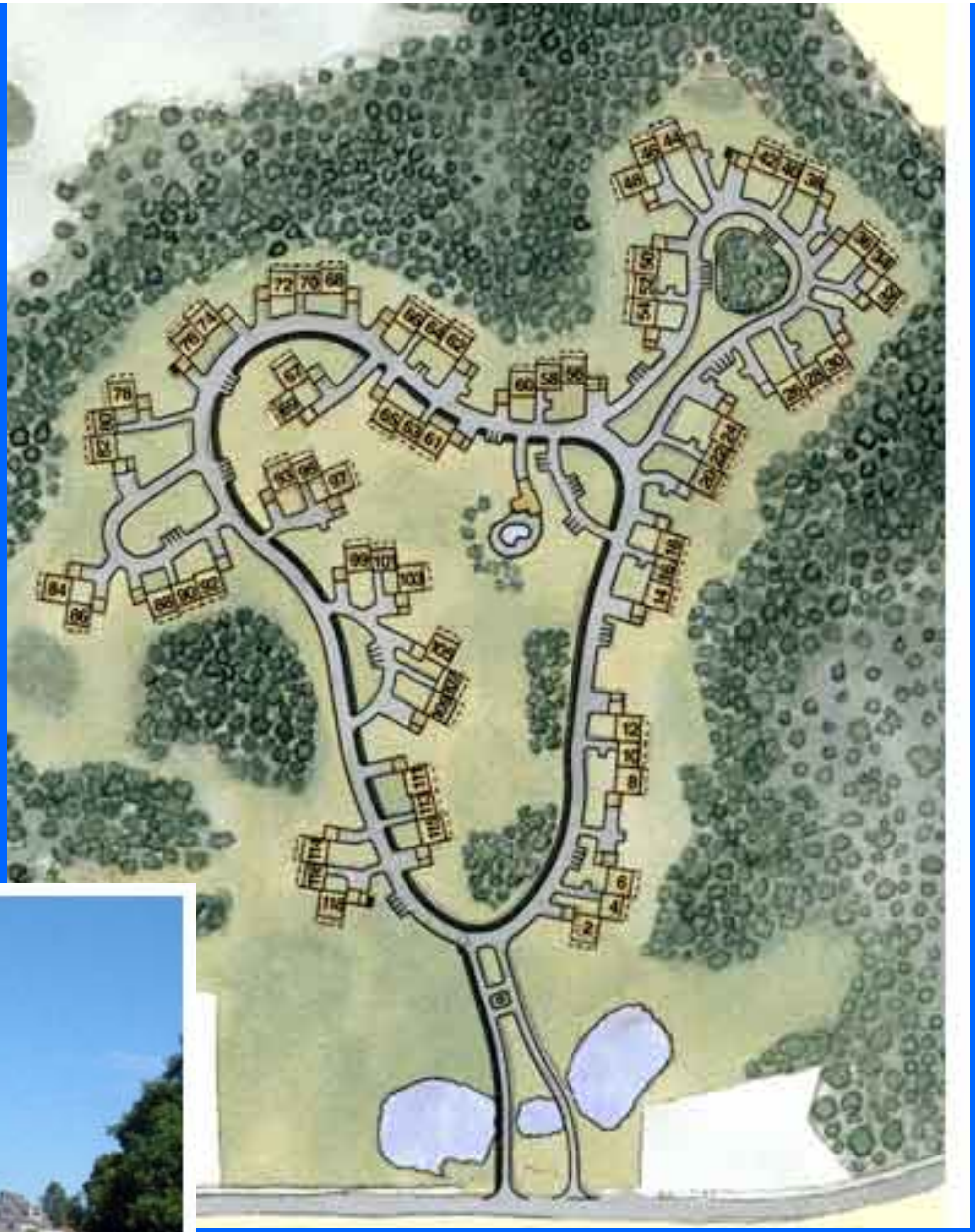
- **40 acre parcel, 12 acres conserved (30%)**
- **14 lots on 28 acres (1.4-2.5 acres/each)**

Brookwood, Hopkinton

Caldwell Farm
Newbury, MA

125 acre site, 100 acres conserved (80%)

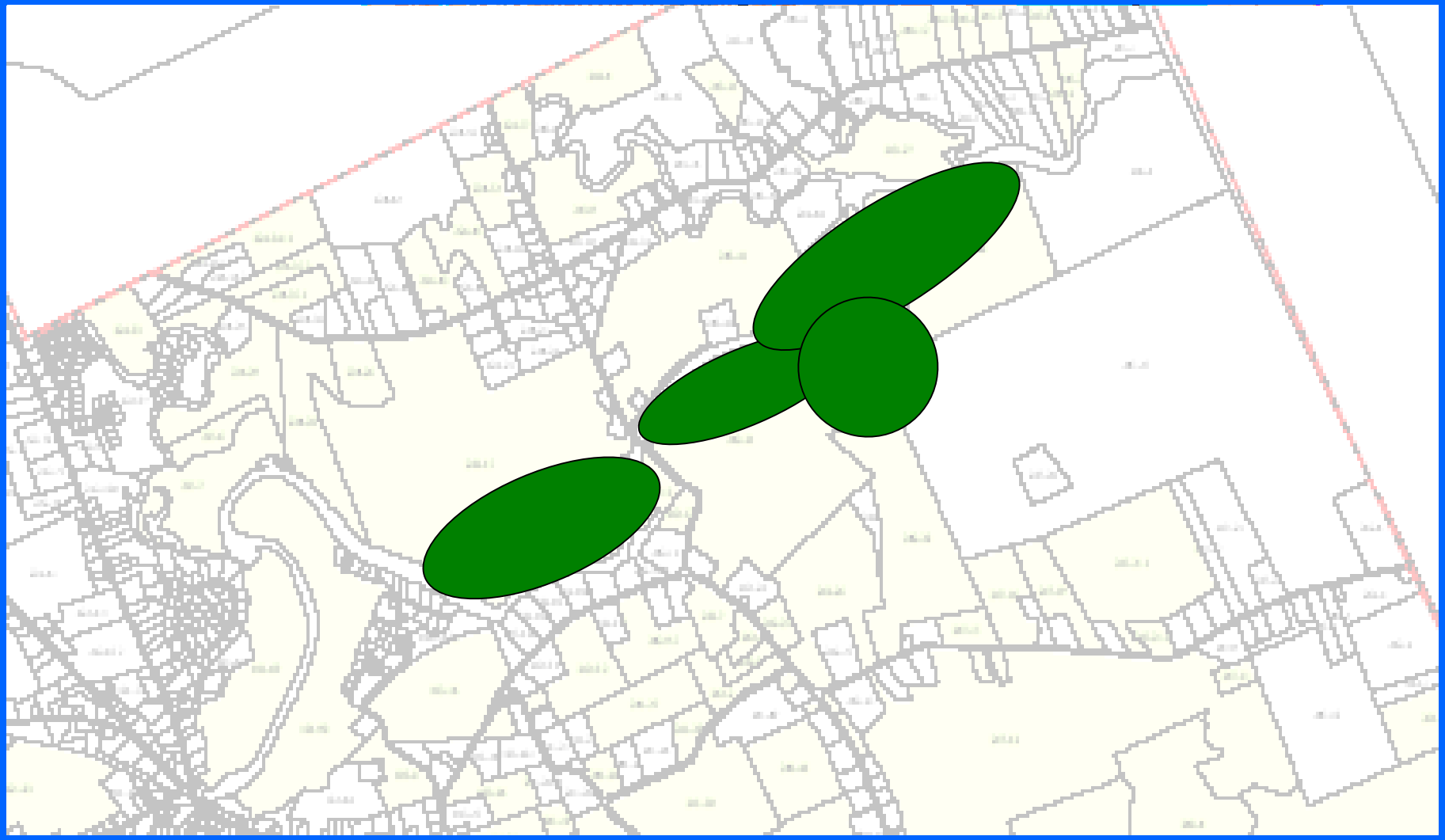
open space includes fields, forest, freshwater, and saltwater wetlands adjacent to the Parker River National Wildlife Refuge and an Area of Critical Environmental Concern (ACEC).



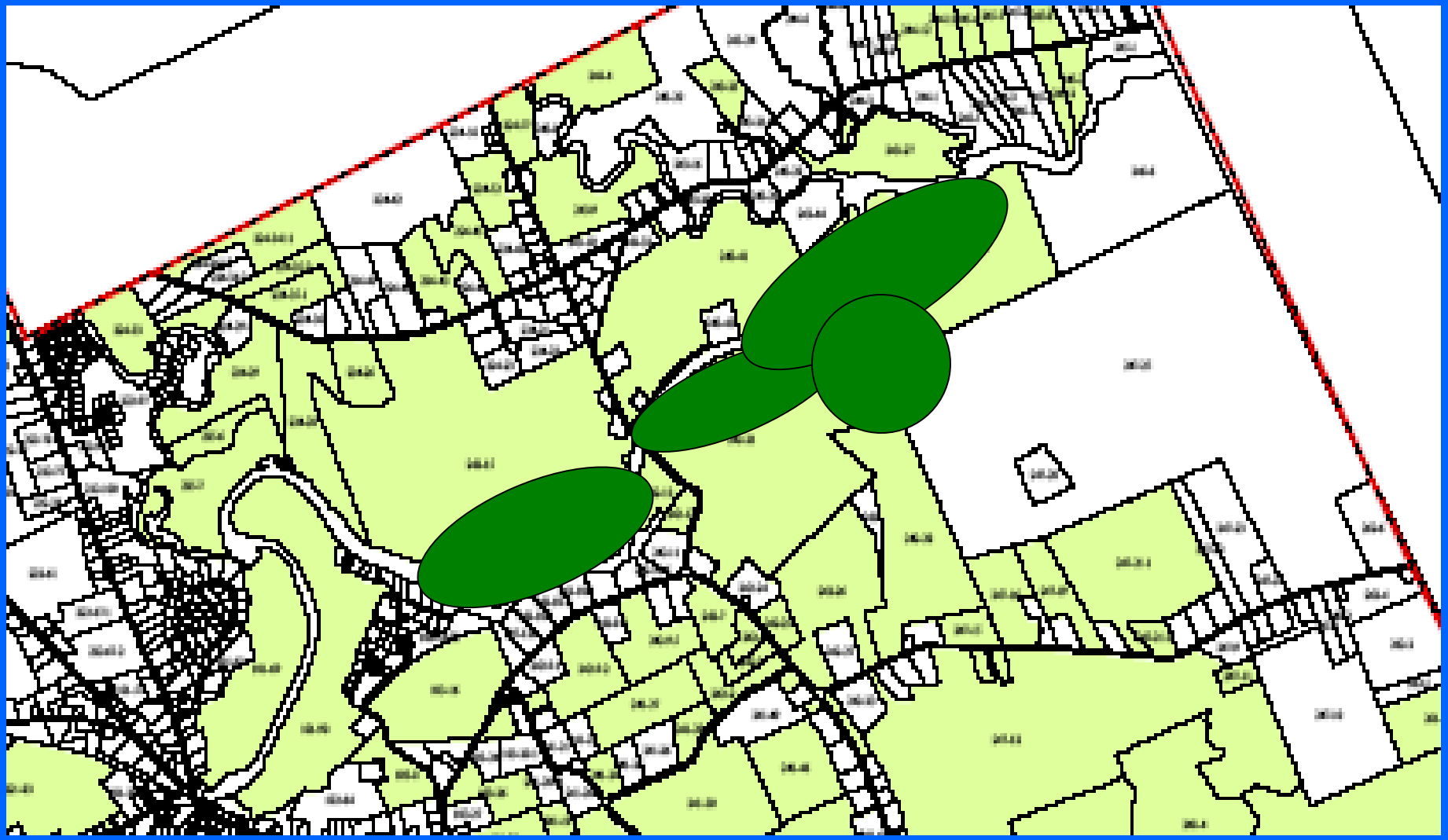
66 units (includes 4 bonus units)

Issue: Conservation Goals

- **Single or Variable Level**
  - **50% of Buildable Land**
  - **Increasing % for Larger Parcels or Properties in More Sensitive Areas**
- **What Features to Protect**
  - **Natural resources: habitat, streams, lakes, groundwater, etc**
  - **Cultural: stone walls, trails, etc**
  - **Aesthetic: views, mature trees, etc**



Using Conservation Subdivision Approach with Natural Resource Inventory



Using Conservation Subdivision Approach with Natural Resource Inventory

Issue: Uses of Conserved Land

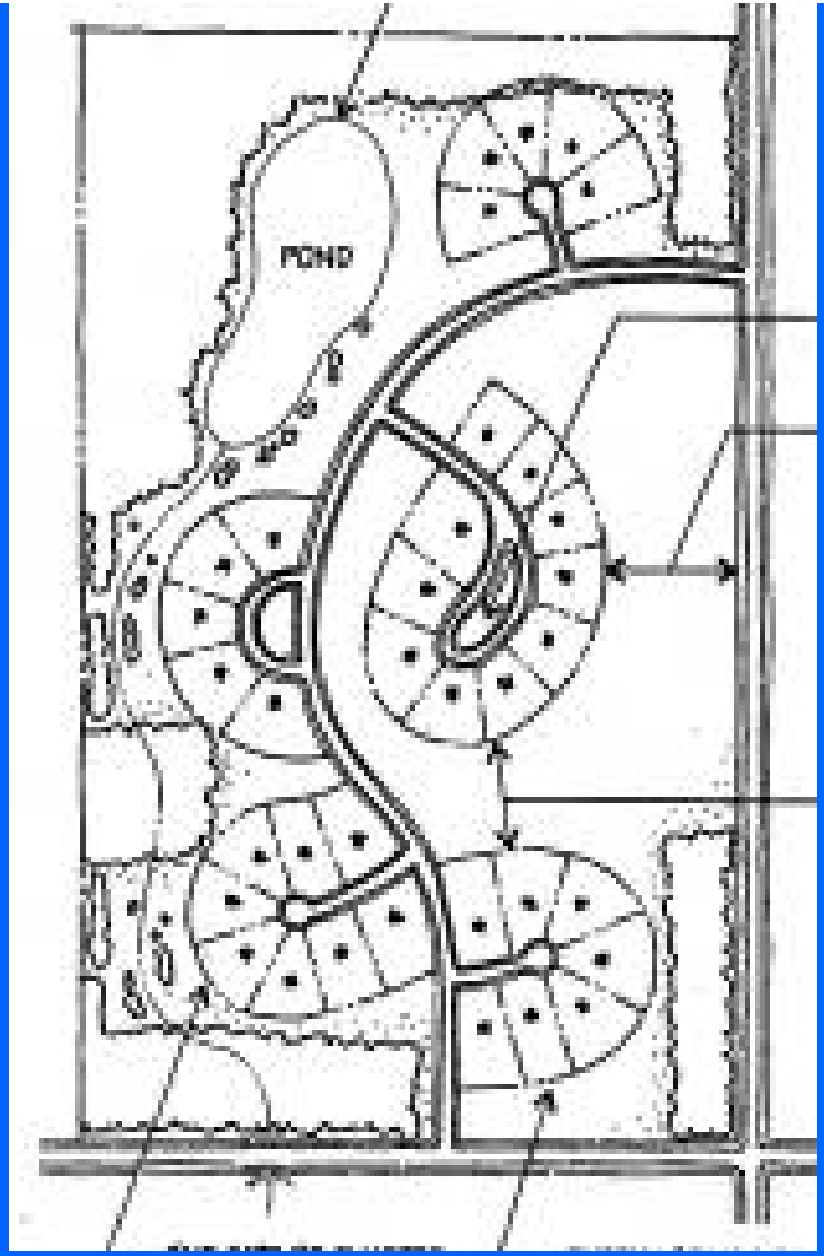
- What “uses” are allowed on conserved land?
    - Uses could vary depending on parcel features and/or location
    - Might establish limit on % of conserved land that can be “used”
- Require appropriate management and stewardship

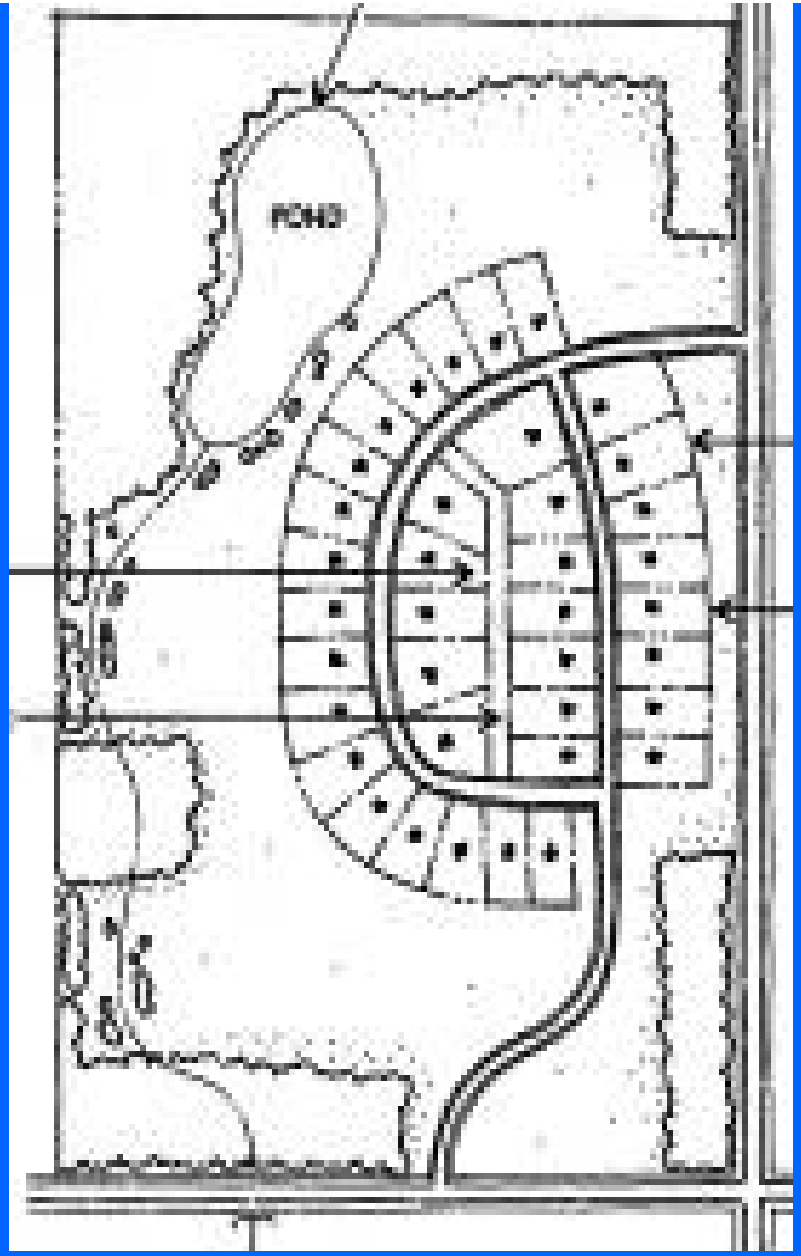
Issue: Design Features

- Connect open spaces to create networks and large, contiguous blocks
- Flexibility to “fit” development to landscape
- Provide performance standards for built areas aimed at maintaining “Rural Character” or creating “Traditional Village”

Site Development and Design Standards Are Important – Consider Applying to All Development

Examples: Clearing, Grading, Retention of Mature Vegetation, Architectural Design





Alternative Layouts

Getting the Most from Conservation Subdivision Design

- **Make Process Simple – Focus on Goal**
- **Flexibility in Lot Sizing and Dimensional Requirements but with Standards for Design**
- **Coordinate with Local/Regional Open Space or Natural Resource Conservation Plan**

The End