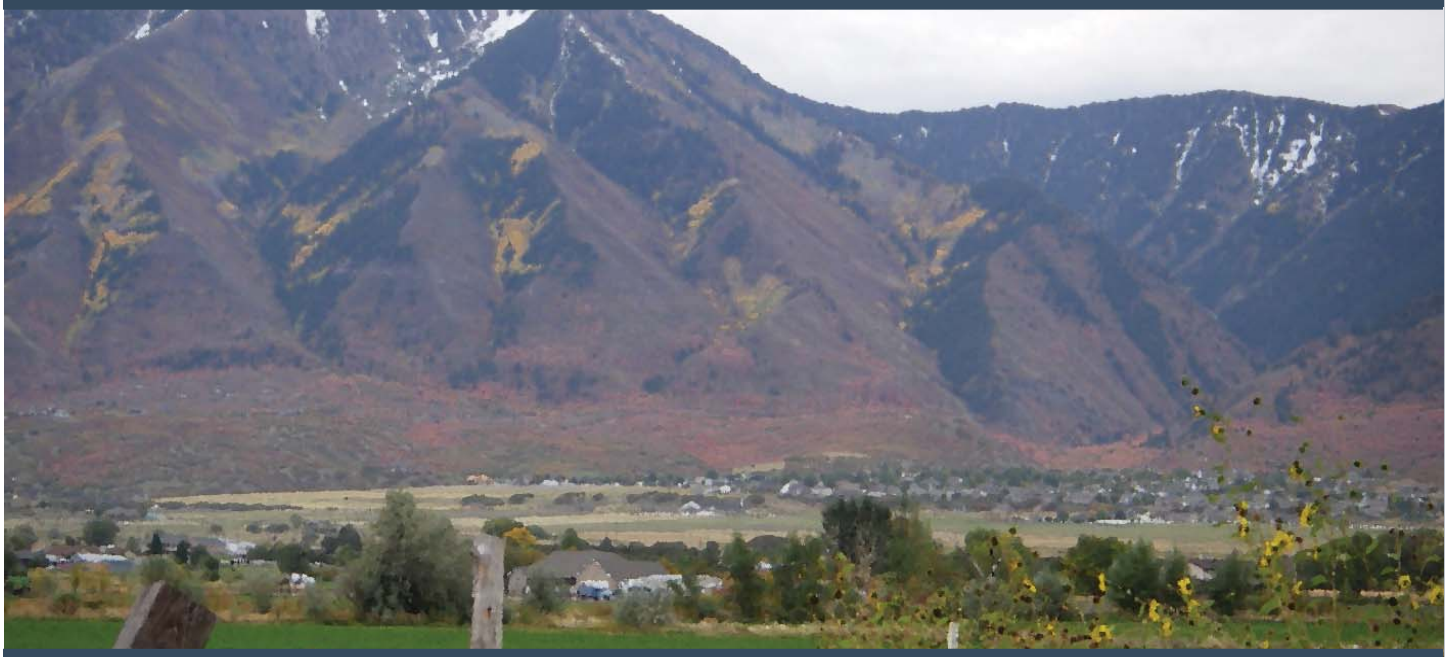

APPENDIX D - OPEN SPACE DEISGN DEVELOPMENT RESOURCES

Open Space Residential Development

Four Case Studies

A COMPONENT OF THE CONSERVATION SUBDIVISION DESIGN PROJECT

CONDUCTED BY THE METROPOLITAN AREA PLANNING COUNCIL

FUNDED BY THE EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

JULY 2000

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INTRODUCTION

Though there have been volumes of text written about *cluster* subdivision, and slightly more than half of the 351 communities in Massachusetts have some type of cluster provision in their zoning bylaws, this method of development has been largely underutilized and has come to evoke negative reactions from many residents. This does not have to be the fate of the cluster principle.

The continued subdivision of land affects how our built environment is defined and perceived. Historically, conventional approaches to subdivision development have ultimately produced little more than house lots and streets—a seamless blanket of wall-to-wall subdivisions with no open space. After several decades of this sprawling pattern of development, communities have begun to experience its ecological and economic consequences. Ironically, visionary conservationists and planners had foresight and drafted the first "cluster zoning" provisions nearly 30 years ago. However, although these provisions promoted improved residentially designed development, rarely were they realized. Communities continue to receive conventional "cookie-cutter" layouts or cluster developments that fall short of their promise.

As a response to the negative perception (and often failure) of cluster subdivision, the Metropolitan Area Planning Council (MAPC), funded by the Executive Office of Environmental Affairs, undertook this project to promote and enable the use of Conservation Subdivision Design (CSD), arguably the best reform made to traditional cluster-type zoning to date. By serving as an educational tool particularly for Town planners, planning boards, and developers this project is intended to elevate the use of this alternative land development technique to one that is commonly accepted and utilized.[1]

The three main components of the Conservation Subdivision Design Project are: 1) a detailed planning discussion/commentary of the basic elements for consideration within a cluster-type open space subdivision bylaw; 2) a Model Open Space Residential Design/CSD Bylaw[2] and Model Subdivision Regulations, and; 3) this Casebook of four existing open space/cluster subdivisions in Massachusetts. The first two components are included in a booklet that is available from MAPC.[3] This Casebook is the third component.

PURPOSE

The primary purpose of this Casebook is to show, by example, attractive and profitable residential subdivision developments that also achieved the preservation of resources of several Massachusetts' communities. This casebook presents local officials, developers, landowners, homebuyers, activists, and others with positive examples of cluster-type subdivision and the benefits of land development practices that consider environmental, cultural, and fiscal resources as equally important priorities.

Several myths and misperceptions about open space/cluster development in Massachusetts were brought to MAPC's attention during the course of this project. These myths include:

- **Myth #1**: Cluster/open space developments are not profitable for the developer.
- **Myth #2**: Cluster/open space developments are undesirable places to live and the homes cannot and will not sell for as much as homes in conventional subdivisions.
- **Myth #3**: The land left undeveloped as open space is not valuable land, rather it is nothing more than the left over, undevelopable land.
- **Myth #4**: The special permit requirement is an obstacle to the creation of cluster/open space subdivisions in Massachusetts and no developer will choose to build such a subdivision.

As a secondary purpose, it was our hope that this Casebook would dispel these general myths and misperceptions that pervade regarding cluster/open space developments.

1 Randall Arendt is the author of this development technique and has written extensively about it. For sources of information refer to the List of References at the back of this document.

2 MAPC has been working collaboratively with the Green Neighborhoods Alliance on the creation of the model bylaw. Green Neighborhoods Alliance is a group representing diverse land-use interests who have come together to promote CSD and to work for the preservation and protection of the North Shore region of Massachusetts. Contact Mass Audubon Society, North Shore Conservation Advocacy, for more information at (978) 927-1122.

3 Copies of *The Conservation Subdivision Design Project* are available from the Metropolitan Area Planning Council at (617) 451-2770, 60 Temple Place, 6th Floor, Boston, MA 02111.

THE CASES

Four examples are presented in this Casebook. Each utilizes photographs, site plans, and tables of statistics to present the built environment of each development. The development process, as guided by the special permit, is also discussed. Parties involved in these developments were asked specifically for an explanation of the real and perceived obstacles posed by the special permit requirement for cluster subdivisions in Massachusetts. As these cases explain, the special permit requirement did not stand out as an obstacle or hindrance to the development process.

Appendix A presents the Subdivision Information Form created and utilized during the selection and information gathering stages of this project. Based upon this questionnaire, several categories of information emerged and are discussed where information was available, including financing and developer profit, home value and appreciation, open space, and the special permit and development process. Additionally, there is a discussion of unique aspects, such as affordable housing in Amherst and wastewater in Acton.

The reader must keep in mind that while the cases presented here are indeed well-designed open space/cluster subdivisions, none of them explicitly utilized the Four-Step design process characteristic of Conservation Subdivision Design by Randall Arendt. However, each of the cases selected were truly representative of the cluster/open-space design model, where house lots are reduced from the requirements in the underlying zoning district, but without any significant increase or decrease in the overall housing density of the project.

This casebook simply presents four good examples of existing alternatives to conventional "cookie cutter" subdivision design in Massachusetts. MAPC does not claim that these four are the best open space or cluster subdivision examples in the state, only that they are noteworthy and present well as case studies. In other words, they each have a lesson to teach us.

Assabet Estates

Westborough, Massachusetts
Open Space Community

SUMMARY

This development achieved the following:

- preserved 74% of the parcel as open space; the majority as contiguous open space adjacent to the Assabet River and the SuAsCo Reservoir
- reduced the lot sizes from 50,000 to 15,000 square feet
- eliminated lots abutting the Assabet riverfront area
- preserved an old stone “cow chase”
- maximized view sheds from several parcels
- reduced roadway from 2,453 feet (conventional plan) to 1,679 feet (open space plan)
- the landowners who sold their farmland for this development retained two parcels on the northeastern edge; one was the existing farmhouse and barn which remain occupied

SUBDIVISION PROFILE

Original Concept Plan Engineer: Frances Zarette, P.E., Land Design, Inc., Shrewsbury, MA

Developer: Jon Delli Priscoli, Brigham Development Company, Marlborough, MA

An old stone cow chase, historically used by farmers to lead cattle to water, was preserved in this open space community design and remains a prominent aesthetic feature.

Total Parcel	Lots/Units allowed by Conventional Plan	Lots/Units allowed by Cluster Plan	Lots/Units built under Cluster Plan	Protected Open Space
32.6 acres	18 single family lots (50,000 sq. ft. each)	18 single family lots (8,000 sq. ft. min.; 15,000 sq. ft. max.)	18 single family lots (15,000 sq. ft. each)	24 acres (74%)

Zoning: This parcel lies in the Residential Zoning District and was developed as an Open Space Community (OSC). Under Westborough's Zoning Bylaw, Section 4300, any applicant with a proposal for the subdivision of land into a development with the potential to create more than six residential house lots on a property or set of contiguous properties in common ownership must prepare and file an OSC Concept Plan. The application procedure is as follows:

1) Applicants submit Concept Plans for both an OSC and conventional design. At the first of two public hearings, the Planning Board will review and shall decide which plan the developer will build. If they are to build an OSC, the Board will grant the developer a Special Permit with conditions.
2) Applicants then proceed under Subdivision Rules & Regulations where they will submit Preliminary and Definitive Subdivision Plans. A public hearing will be held at which the Definitive Plan will either be granted or denied.

Yield: Based on conventional yield—the total number of lots shall not exceed the number of lots which could reasonably be expected to be developed under a conventional plan in full conformance with zoning, subdivision regulations, and health codes. The formula yielded 21 lots, however the maximum number of buildable lots was 18.

Conservation tools: Open space will ultimately be owned and managed by a Homeowners Association. As a condition of Definitive Plan approval the open space had to be placed under a Conservation Restriction granted to the Town and approved by the state Executive Office of Environmental Affairs.

Incentives: There are many in Westborough including:

- OSC carries less rigorous requirements for roadways and lot sizes, which translate into reduced infrastructure. In other words, this developer was required to do less construction but could still build the same number of lots with the same size houses as those allowed in a conventional subdivision.
- Because the Special Permit is granted at the Concept Plan phase, developers are assured that they will be able to build and OSC before they invest significant time and money in hard engineering costs. This up-front permit process removes much of the uncertainty feared by many developers in other Special Permit processes.
- Because the Planning Board decides when an OSC will be built, incentives to entice a developer to choose OSC are not necessary. In this case, this developer found that because the Board favored this type of development it did work cooperatively with him throughout the process.

AFFECTS ON THE DEVELOPERS' PROFIT

According to Zarette, in Westborough and similarly priced communities, where the land values are high the cost to lay infrastructure becomes insignificant primarily because prices charged for the lot and house can be high enough to cover any infrastructure costs. Faced with this scenario, reduced infrastructure costs alone would not have been enough of an incentive for him to build a cluster (if profit was indeed the only motivation). The decision itself was not an issue however, as the OSC design was chosen by the Planning Board.

Developer Jon Delli Priscoli, who completed Zarette's design and was responsible for the permitting and building of this OSC, commented that the price of land is what really drives this and all development. Because this land was so expensive, every little bit of saving in infrastructure was certainly a help to his profit margin. Infrastructure savings did result from reduced road length and width, and reduced requirements for two-side sidewalks and street lighting. Because all lots are served by town water and sewer and the roadway to service the homes was shorter there were also savings in the associated shorter distances to run these pipes.

HOME VALUE AND APPRECIATION

According to the Westborough Assessors office lots in an OSC (at 15,000 sq. ft.) are assessed marginally the same as conventional size lots (at 50,000 sq. ft). The assessors believe this to be reasonable because the market does bear the smaller lots—the fact in Westborough is that people pay the same amount of money for a similarly sized home on a 15,000 as they would on a 50,000 sq. ft. lot. Simply put, one lot equals one

Square footage	Bought in 1996 (nearest 1,000) for:	Sold in 1998 (nearest 1,000) for:
2,954	$289,000	$378,000
2,938	$289,000	$365,000
2,745	$250,000	$366,000
3,397	$255,000	$359,000

lot, regardless of its size. The bottom line is that each is only one buildable lot on which the same one house could be built, and reduced lot sizes in an OSC do not significantly diminish the assessed value of the property.

While a 15,000 square foot lot (land only) is assessed at approximately $121,000 a comparable conventional subdivision lot will be assessed at approximately $126,000. There is an added value of 25% for lots with a water view, however the value of open space proximity is not something that the assessors factor into their valuation. According to Assistant Assessor Joseph Wisboro, open space value is hard to quantify, however, he believes that it is most likely a factor in the decision of the homebuyer.

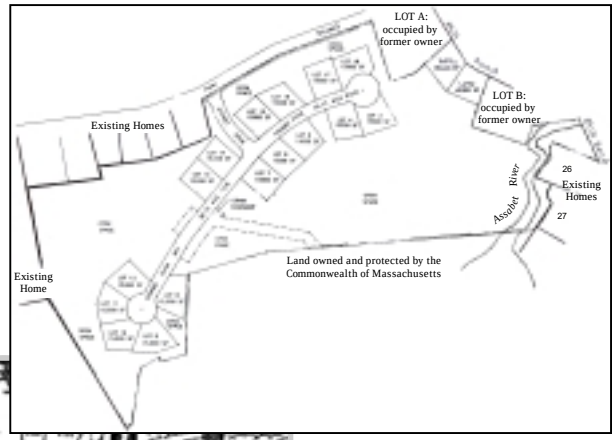
The median square footage of Assabet Estates' houses is around 3,200. Four of the eighteen homes were originally purchased in 1996 and then resold in 1998—all reaped reasonable resale values (see table above).

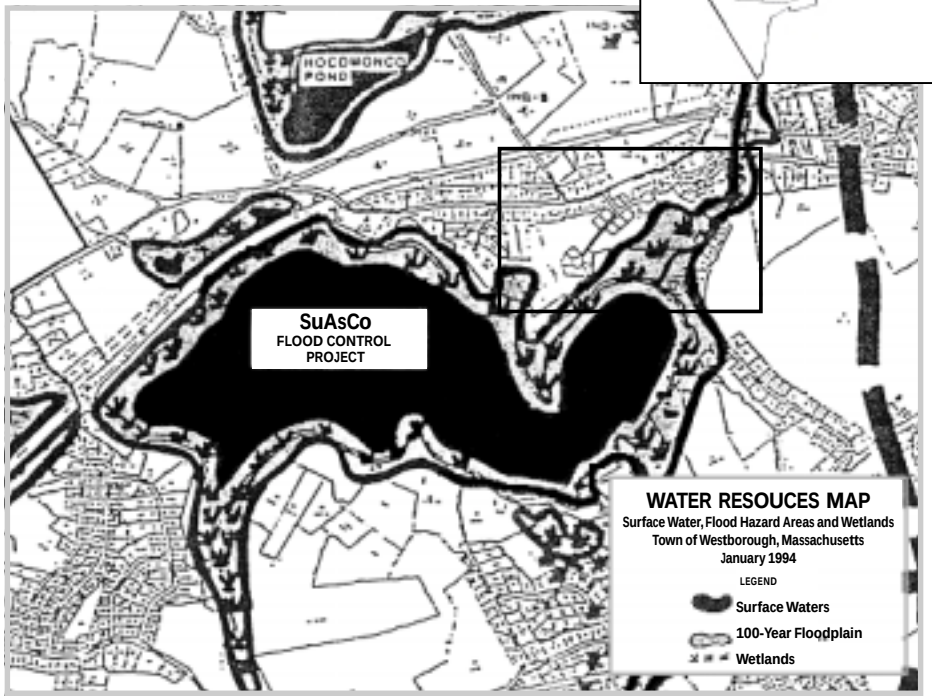
OPEN SPACE

Seventy-four percent (74%), or 24 acres, of this parcel is preserved in perpetuity as open space with the potential for passive recreation use only. Both the Special Permit decision and Definitive Subdivision approval specified that a Conservation Restriction shall be placed on the open space and granted to the town prior to the release of lots for building purposes. A Homeowners Association was formed to ultimately care for and maintain the open space. To date, it is still owned by the developer with plans to release the land when the Town accepts the roadways. According to the town, there is still roadwork that must be done prior to acceptance.

All of the open space lies adjacent or connects to the SuAsCo Flood Control Project, a lake known locally as Mill Pond (the headwaters of the Assabet River). The Assabet flows north from Mill Pond and along the eastern border of this parcel. Historically, the land adjacent to the Assabet Estates parcel was wetland. Ultimately, the River was dammed in the name of flood control and many historical parcels now lie under water.

The Planning Board's review of the OSC Concept Plan stated that the "six houses on the end of the





The Water Resources Map shows the location of this subdivision in relation to surrounding wetlands and waterbodies (parcel further detailed above). All of the houses in this OSC were sited outside of the river and ponds' 100-year flood plain. The assessors parcel map shows a closer look at the layout of the house lots within the parcel boundaries.

The open space has been left in its natural state, much of it as wild meadowland. Here the meadow abuts the road that separates the two cul-de-sacs and is home to a resident fox.

When entering Assabet Estates the dominant view is of the edge of the preserved meadow and the Mill Pond (SuAsCo Flood Control Project) beyond, not of the houses.

short cul-de-sac are set smack in the middle of the open field, in effect breaking up the continuity of the field and altering one of the property's prime open space attributes." As a response to this the developer drew the houses away from the center of the field and also moved two lots out of the open space to become as-of-right lots on the edge of the property. The result is not only visual retention, but actual integrity of the original field. The developer stated that it was his wish to leave the field "raw" and intact while still accommodating the allowed development potential of the parcel.

DEVELOPMENT PROCESS

Prior to development this parcel was a farm. The farmers who sold the land to become Assabet Estates remain today in the original farmhouse and barn. The developed land consisted of what was historically a hay field, meadows, and a forested area containing wetlands.

The farmers hired Frances Zarette, who designed the original Concept Plan and took care to preserve and respect the character of the parcel. It was not possible to preserve the entire field and meadow area from development because the forested area contained too much wetland. Zarette's process for creating this concept plan consisted of several steps. First, walking the land and creating an inventory of existing conditions. Second, locating pockets of land where houses would best fit. Finally, laying the roads to serve the "pockets of houses." Without his knowing it, Zarettes' steps are similar to those of the four-step conservation subdivision design process coined by Randall Arendt (See List of References).

Working off of Zarette's original design, Jon Delli Priscoli took over as project developer in the early stages and saw the project through the entire approval and permitting process. He completed all infrastructure and built 50% of the allowed homes, then sold the remaining finished lots to another builder.

APPROVAL TIME FRAME

- **January 1993:** Concept Plan submitted consisting of the Conventional and Open Space Community designs
- **March 1993:** Public Hearing initially held on Assabet Concept Plan (continued twice)
- **May 1993:** Special Permit for Assabet Es-

tates Open Space Community granted with conditions

- **October 1993:** Application for Preliminary Subdivision Plan received by Town
- **January 1994:** Submission of Definitive Subdivision Plan by developer

This OSC included two as-of-right lots on an existing public way. From the rear of one of these lots there is a clear view across the meadow to Mill Pond.

- **March 1994:** Public Hearing held (continued until later the same month) and Planning Board approved the Definitive Subdivision Plan with conditions

The view from the open space at the edge of Mill Pond looking toward the houses clustered on Edward Dunn Way (those located closest to the water's edge) does not reveal the houses themselves, rather the edge of the pre-existing forest.

SPECIAL PERMIT

It is mandatory in Westborough to file a Concept Plan upon which the Planning Board will decide whether a development will be built according to the conventional or open space design plan. In this case, the Board determined that Assabet Estates would be an Open Space Community and so granted a Special Permit. Approval language indicated that "the development of this property as an OSC would be more beneficial to the Town than would likely be the case under conventional subdivision." According to the Board, the conventional plan "layout unnecessarily impact[ed] wetland resources, particularly in light of the fact that there [were] other options available for lot design and routing roads more effectively."

The Special Permit was granted with several conditions, including:

- lot density, street layout, sewer, water, drainage, and other design details to all be deter-

SUBDIVISION AND BYLAW WAIVERS

Requirement:	Waiver granted:
Sidewalks installed on both sides of proposed roadways	installation of sidewalks on only one side of proposed roadway
Road width – 26 feet	24 feet allowed
Street lights at intersections, curves, and cul-de-sacs	installation of a street light only at the intersection of Fisher Street and Assabet Drive; a light base and hook-up provided in the west cul-de-sac

Roads are 24' wide; granite curbing was unnecessary and therefore not required. Several stone walls were preserved by this design. At the time this report was written, the developers' obligations to the roadways were not yet completed.

mined during the forthcoming Preliminary and Definitive Plan approvals;

- the open space parcel shall be placed under a Conservation Restriction.

After receiving a Special Permit Delli Priscoli then proceeded with the Preliminary and Definitive Subdivision Approval processes. The process took approximately six months from October 1993 to March 1994—not an unreasonable amount of time according to this developer. He also characterized Westborough as neither easy nor unreasonable to deal with, rather in his opinion the development process was "reasonable."

LESSONS LEARNED/FURTHER CONSIDERATIONS

Consider a cluster-type bylaw, such as Westboroughs' OSC, that allows the same yield as it would on the parcel developed under a conventional by-law (in other words, it precludes a density bonus). An important question becomes how alternative versus conventional development affects a developers' profit. There are a few scenarios under which a developer can achieve equivalent profit for either design:

1. the houses in the OSC must be comparable in selling price to those in a conventional devel opment;
2. if houses in the OSC command a lower price tag then they would if in conventional style development, then infrastructure reductions (and other cost savings) in the OSC must result in enough savings to cover that loss; or,
3. some combination of lower priced houses in the OSC with infrastructure savings can yield an equivalent profit.

It stands to reason that if, for example, homes in an OSC sell for the same amount as in a conventional and the developer saved money from infrastructure reductions, that the OSC will actually yield higher profits than could a conventional development. In this case study large, expensive homes were built on smaller, clustered lots and the developer saved money due to reduced infrastructure requirements. It was likely that this OSC was actually more profitable than a conventional development could have been. (The price paid for the land was a constant—the land was purchased prior to the decision of the Planning Board to chose either an OSC or conventional development plan.)

Evidence of developer cost savings can be found in a study that compared conventional subdivision with well-planned, cluster-type projects. In a study for the National Association of Homebuilders, Sanford Goodkin compared costs associated with site development (clearing, grading, paving, drainage, landscaping, etc.) for a conventional plan and a cluster plan and concluded that the cluster approach saved the developer money, costing 34% less (See List of References).

Cluster developments are often categorically criticized as resulting in lower-valued homes that will not yield a reasonable return of investment. Assabet Estates dispels this myth. Its homes have a comparable, if not higher, assessed value and sales price than similar homes in Westborough. In 1990, Jeff Lacy examined market appreciation rates in Amherst and Concord, Massachusetts, for conventional housing development versus clustered housing with permanently protected open space and showed that the latter resulted in a higher rate of return on investment (See List of References).

Bellows Farm

Acton, Massachusetts
Open Space and Landscape Preservation Development

SUMMARY

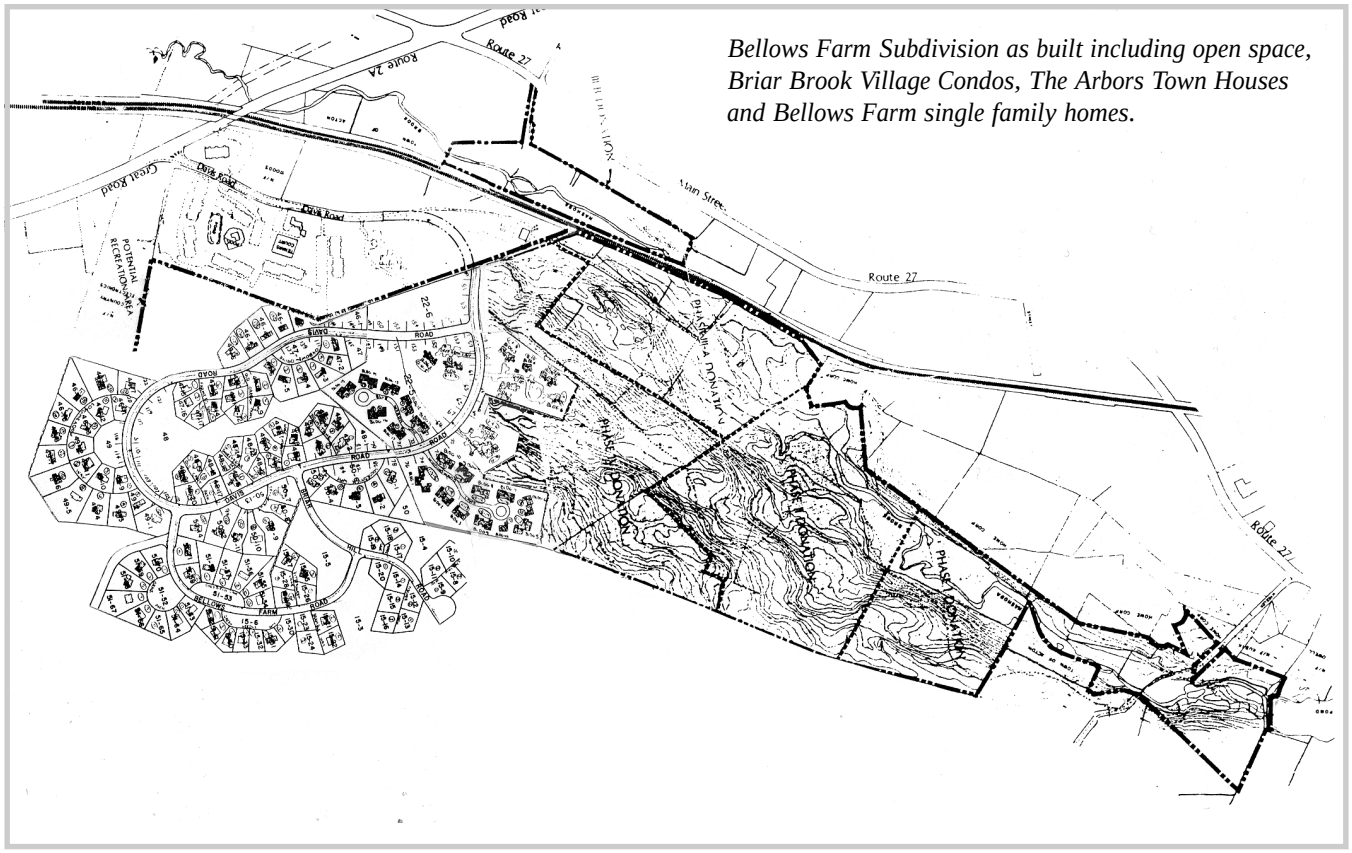
This development achieved the following:

- use of a central private waste water treatment plant
- incorporation of Exclusive Use Areas
- created affordable housing (four single-family homes)
- provided a variety of house lots sized from approximately ¼ to one acre
- added open space with trail connections to existing open space

SUBDIVISION PROFILE

Developer: Ronald Peabody, Northwest Development, Acton Massachusetts

Zoning: The Bellows Farm subdivision was approved as a Planned Conservation Residential Community (PCRC). Based upon final approvals (see Development Process), Phases I, II and III are located within the PCRC zoning district and in Zone 3 & 4 of the Groundwater Protection Overlay District. Phase IV, as revised, is located partially within the PCRC zoning district and within the



Bellows Farm Subdivision as built including open space, Briar Brook Village Condos, The Arbors Town Houses and Bellows Farm single family homes.

Total Parcel	Lots/Units allowed by Conventional Plan	Lots/Units allowed by Cluster Plan	Lots/Units built under Cluster Plan	Protected Open Space
235 acres	235 units	177 attached 2 bedroom Town Homes /354 total bedrooms	117 3-4 bedroom homes /351 total bedrooms	Minimum of 60% of total parcel required *Minimum = 141.51* *Provided = 154.07*

R-10/8 residential zoning district. The portion within the R-10/8 district is also located in Subdistrict A of the Affordable Housing Overlay District.

Yield: According to the 1982 PCRC bylaw, the maximum number of dwelling units permitted shall be the number obtained by dividing the total area of the tract including the open space by one acre.

Conservation tools: Approximately 154 acres were preserved as open space of which 130 were conveyed to the Town of Acton in the care of the Conservation Commission as open space. Approximately 24 acres are owned and managed by the Home Owners Association.

FINANCING

Bellows Farm is one cluster type development in a portfolio among others. Although the ability to obtain financing is not problematic due to Northwest Development's track record, Mr. Peabody stated that it was achieved with a significant time investment. Many of the concepts regarding cluster type developments such as reduced lot sizes, shared amenities and legal entities and structures are unique and due to their unconventional nature generally do not receive the same level of attention as conventional subdivision development. Mr. Peabody continued by stating that the real estate industry as a whole, including brokers, lenders and developers are generally not knowledgeable about the basic concepts of cluster type development; and therefore it is often perceived as risky.

AFFORDABLE UNITS

During the Phase II, III and IV Special permit and Definitive Subdivision Approval Process, the proponent proposed a voluntary affordable housing contribution consisting a four dwelling units with a maximum sales price of $94,500 and one dwelling unit with a maximum sales price of $120,000. These units were proposed to be smaller (1,500 to 1,800 sq. ft. and 2-3 bedrooms) than the market rate units (1,900 to 2,300 sq. ft. and 3 bedrooms). Ultimately, the developer purchased five existing homes for rehabilitation and constructed one new home. These units were provided off site according to the Local Initiative Program (LIP) guidelines.

HOME VALUE AND APPRECIATION

The Arbors, the Phase I town house component was built in 1988 and 1996. Based upon assessor databases units along Blue Heron Way and Winding Wood Lane, built between 1995-1996, had sale prices ranging from 232,000 to 388,153 between 1996-1997. The lowest sale price of 232,000 was Blue Heron Way #14. The two highest sale prices were #10 and #12 Blue Heron Way. Based upon similar locations at the end of a cul-de-sac and being corner or end units, the only reasonable explanation for the significant sale price difference may be related to the total square footage of Effective Floor Area (EFA), which is defined as all space, both finished and unfinished. #14 had 2,089 EFA while # 12 had 2,685 and # 10 had 3084.

The second and third lowest sale prices were located at #1 and #10 Winding Wood Lane. #1 had an EFA of 2,625 and #10 2,559, both of which comparable to higher priced units. An explanation for the price difference may be related to the specific location and lot size.

Within Bellows Farm Phase II, the single family homes were built in 1998. Along Longmeadow Way, sale prices ranged from 393,257 to 499,162. The lowest sale price of 393,257 was #22 with 2,906 sq .ft of living area, the first lot and located along the main interior road. The two highest were #7 at 471,335 with 2,937 sq. ft. of living space and #10 with 2,778 sq. ft. of living space. Again, it seems as though sale

Townhouses along Blue Heron Way.

Single family homes along Longmeadow Way.

price is somewhat influenced by location. However, it is interesting to point out that the specific size of a lot may not be as much of a determining factor. For example, unit #10, having the highest sale price of 499,162 is located on a 30,666 sq .ft. lot while #8 with a sale price of 452,380, 2,778 sq. ft. of living area is located on a 40,946 sq. ft. lot.

Mr. Peabody noted that cluster type developments are frequently appraised for less than conventional subdivision development, however this is often due to a comparison with condominium type development rather than single ownership. In the case of Bellows Farm, particularly it's incorporation of Exclusive Use Areas (EUA see below), Northwest Development felt as though this comparison was not appropriate and resulted in a diminished appraisal and ultimately a diminished value. Therefore, with the understanding that a comparison did not exist, Northwest Development proposed that the units be appraised and the value determined by comparison to units within the development. Northwest Development and the Assessor's office worked cooperatively to implement this work plan.

OPEN SPACE

The northern and northeastern boundary of the parcel lies adjacent to the Town of Acton's Nashoba Brook Conservation Area. According to the original Subdivision Master Plan approval in 1986, approximately 119 acres comprising the northern most portion of the parcel was conveyed to the Town of Acton in 1987 as Conservation /Open Space Donation. In addition, the original approval placed a condition that an access easement shall be provided from Davis Road to the conservation property.

According to the Phase II, III and IV revised approval in 1995, The Conservation / Open Space Donation did not alone comprise the minimum open space area of 60% as required in the Bylaw. Therefore, the record stated that Planning Board assumed that documentation was presented during the 1986 permit process, showing additional open space within the construction Phases II, III and IV to meet the 60% requirement. During the approval of the revised Phase IV, a condition requiring a second point of access to the Town conservation land and a 4 car gravel parking lot at the end of Briar Hill Road was included.

Although the 1982 PCRC bylaw did not regulate the quality of the common open space as it relates the % of wetlands, this issue was reevaluated as part of the Phase IV revised permit process in which the revised PCRC bylaw of 1997 contained a new provision stating "the minimum

The central community open space area consists of a club house, in-ground pool (on right), tennis courts (on left) and an open field as seen in the foreground.

required area of the Common land shall not contain a greater percentage of wetlands than the percentage of wetlands found in the overall tract of land on which the PCRC is located". Based upon this provision, it was calculated that the overall tract contained 31 acres of wetlands or 14.25%. Therefore, of the minimum 141 acres provided as common open space, 123.27 acres was upland resulting in a total of 17 acres or 12% classified as wetlands. The remaining 17 acres of wetlands was incorporated into the open space along with an additional voluntary increase of 13 acres within the residential development.

According to the Master Deed governing Bellows Farm, that open space shall be used for a combination of the following: passive recreation, drainage and utility easements, conservation purposes, storm water drainage and active recreation including a pool, tennis courts, sports complex and ancillary parking.

TREATMENT PLANT

The entire Bellows Farm development, both the Arbors town houses and Bellows Farm single family lots, in addition to the adjacent Briar Brook apartment complex all share one common waste water treatment plant. Massachusetts law requires that there be only one owner of a common treatment plant, however there were actually three distinct condominium associations involved. The Arbors, Bellows Farm and Briar Brook condo associations created a joint association, Farm Brook Trust which would, in name, be the owner of their common wastewater treatment plant.

The plant was originally constructed in the late 1970s to serve the Briar Brook apartments only; they generated over 10,000 gallons per day (gpd) of sub-surface discharge therefore requiring treatment according to 314 C.M.R. 5, (the Massachusetts Discharge Permit Program). Because the soils were not conducive for on-site septic systems, the developer of Bellows Farm proposed to connect to the Briar Brook treatment plant. The Arbors development was connected, and the capacity of the treatment plant was increased to 60,000 gpd. Recently the capacity was increased again to 120,000 gpd to serve the remainder of the single family homes.

The permit process involved both the local Board of Health and the Massachusetts Department of Environmental Protection. According to Doug Halley, Health Inspector, the treatment plant is maintained and operated by a private engineering firm. The operator is required to submit monthly reports to both the local Board of Health and the Department of Environmental Protection. The report includes water quality testing of the discharge and groundwater monitoring samples. The Town of Acton established an enterprise fund in which fees are charged for treatment plants that are then used for town personal for oversight of the individual plants rather than using local tax revenues.

EXCLUSIVE USE AREAS

Although all the units within Bellows Farm are served by a central sewer treatment plant and are part of a condominium, each dwelling unit is provided with an Exclusive Use Area (EUA). As defined in the Master Deed, a EUA has the same meaning as the word "lot." It is further defined as the exclusive right and easement for the use of so much of the condominium land being shown as a separate lot or parcel of land bearing the same number identical to the Unit. Each dwelling has the responsibility for the upkeep and maintenance of all entrances, patios, decks, walks, stairs, driveways, parking areas, lawns, plantings, shrubs, recreational facilities, conduits, ducts, pipes, wires, meter area and other installations and facilities of every kind being situated on the unit's lot including the roof. Mr. Peabody indi-

An example of an EUA including private recreational amenities and landscaping, being utilized by the condo owner in the same manner as a privately owned backyard.

cated that a major advantage of EUA's is that it eliminates liability for the condominium association of individual septic systems.

Mr. Peabody also stated that the incorporation of EUA's has been a helpful marketing tool. Marketing materials reference the EUA's as a means of enjoying the privacy of an individual lot with all of the benefits associated with community amenities.

DEVELOPMENT PROCESS

The development process for Bellows Farm consisted of two different developers. Keystone Associates, Inc., the original proponent, went bankrupt. Northwest Development purchased the property and submitted revised plans.

Approval Time Frame

- **May 1982:** Town Meeting approved rezoning of 237 acres as an R-4 District authorizing the Planning Board to hear an application for a Special Permit pursuant to "Planned Conservation Residential Community" bylaw.
- **July 1986:** Keystone Associates Inc. submitted Special Permit application and Definitive Subdivision Plan for the creation of Phase I and approval of a Master Plan for a 4 phase residential development.
- **December 1986:** Special Permit and Definitive Subdivision approval granted for Phase I consisting of 60 Town Houses with a maximum of 150 bedrooms and 177 Town Houses with a maximum of 354 bedrooms for the remaining Phases II, III, and IV.
- **May 1995:** Northwest Development submits revised Special permit application and Definitive Subdivision Plan for Phases II, III and IV.
- **May 1995:** Planning Board opens public hearings.
- **July 1995:** Planning Board closes public hearings.
- **August 1995:** Special Permit and Definitive Subdivision approval granted for revised Phase II, III and IV consisting of 117 single family units with a maximum of 351 bedrooms.
- **April 1997:** Northwest Development submits revised Special Permit application and Definitive Subdivision Plan for Phase IV.
- **July 1997:** Planning Board opens public hearing.
- **September 1997:** Planning Board closes public hearing.
- **October 1997:** Special permit and Definitive Subdivision approval granted for revised Phase IV consisting of a land swap of 24 acres between the Proponent and an adjacent property owner.

SPECIAL PERMIT

Although Northwest Development only gained approval for a revised Phase II,III and IV of Bellows Farm, Mr. Peabody did submit several general observations regarding the review and ap

SUBDIVISION AND BYLAW WAIVERS

Requirement:	Waiver granted:
PHASE I:	
■ Maximum 500' cul-de-sac	■ 3,100' long Bellows Farm Road approved.
■ Two access points be provided for every 60 units	■ Allowed a single access at Davis Road, a temporary cul-de-sac.
■ Standard paved width of 26'	■ Allowed 24' paved width
■ Display all existing vegetation to be preserved and limits of disturbance.	■ Waived due to large areas of undisturbed land (donation areas) and selective thinning would be determined in the field.
PHASE II, III AND IV (REVISED):	
■ 5.3 cfs peak runoff in watershed area	■ Waiver granted to increase peak runoff in water shed area to 7.1 cfs.
■ sub-drains	■ Waiver to allow for open drainage trenches and swales
■ Maximum l,500' length for a single access street	■ Longer single access street approved by the PB in 1987
■ Maximum of 40 units on a cul-de-sac	■ Greater number of units approved by PB in 1987.

Common driveway approximately 12-14 feet in width serving 5 homes.

proval process. Mr. Peabody acknowledged the inherent concerns with the special permit requirement such as vague and cumbersome regulations, discretionary nature and the potential for a lengthy public hearing process. In addition he stated extractions, essentially impact fees, from the developer are common under the special permit process. Furthermore, as the regulations become increasingly more restrictive and many Boards lack the same level of sophistication, Mr. Peabody believes it is essential that the local boards have professional staff for technical advice. With that stated, Mr. Peabody emphasized the need for the developer and the local Boards to enter a give-and-take negotiation in good faith.

Infrastructure savings resulted from the waivers granted to the PCRC Bylaw and the Subdivision Regulations as outlined above. Furthermore, as clarified in the revised Phases II, II and IV approval, the common drives serving the housing clusters off Davis, Bellows Farm and Briar Roads were deemed to be accessory to the single family uses and therefore were exempt from the Subdivision Regulations. The ways serve as private common driveways serving limited number of homes.

LESSONS LEARNED

Based upon experience, Mr. Peabody stated that local regulations have become increasingly more restrictive and cumbersome and extractions or "impact fees" are fairly common practice within the special permit process. Mr. Peabody, however, is quick to point out that although these two factors are significant disincentives compared to the conventional by-right process, developers who have committed to building cluster type developments, whether for personal or business reasons, understand the innate pros and cons of the process.

Mr. Peabody believes that professional developers aware of the pros and cons, who choose voluntarily to enter the special permit process, expect to participate in good faith give-and-take negotiations. Finally, Mr. Peabody strongly believes that local Permit Granting Authorities that have professional staff, such as planners, significantly improve the process and the quality of the final product.

This case study identified two unique elements that made Bellows Farm successful. The use of a common wastewater treatment plant can not only result in improved environmental protection, but it allows for increased design flexibility. As seen in this case study, there are certain legal issues that need to be addressed, but they are manageable. In addition, if the Department of Environmental Protection (DEP) oversees the monitoring of systems, it is seen as a means of reducing a local board's staff time and costs associated with inspecting individual septic systems.

For extensive information on Title 5 (including on-site shared systems and alternatives to Title 5 systems that are approved for use in Massachusetts) please refer to the DEP's web page at www.state.ma.us/dep/brp/wwm/t5pubs.htm, or contact:

Steven Corr, Environmental Engineer
Innovative Alternative Technologies Program
617.292.5920

This subdivision's establishment of Exclusive Use Areas is an innovative and unique method for providing individual lots with all of the amenities typically associated with a condominium. The promotion of the EUAs in marketing materials for this subdivision was beneficial to the developer.

Canterbury Farms

Amherst, Massachusetts
Cluster Subdivision

SUMMARY

This development achieved the following:

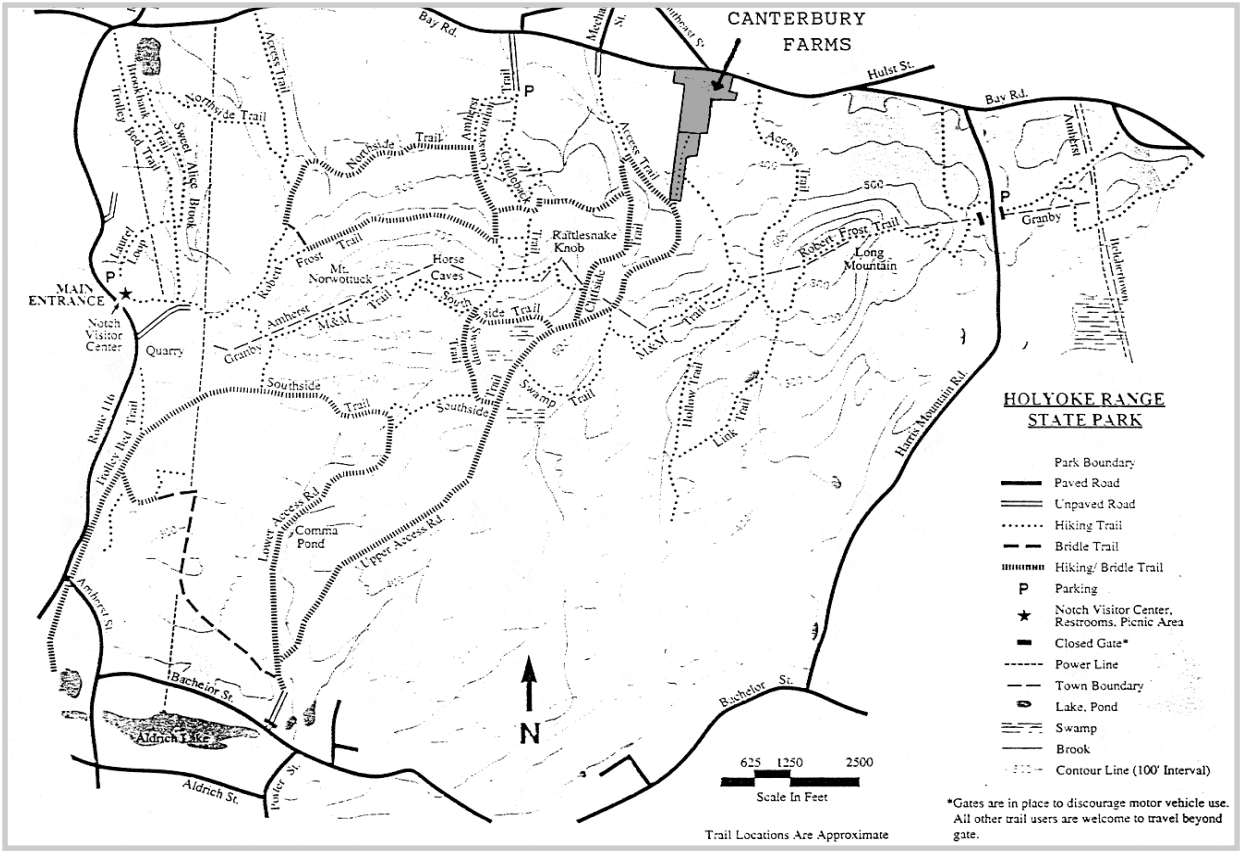
- preserved and restored an old farmhouse
- created affordable housing (4 single-family homes)
- provided a variety of house lots sized from approximately one-half to two acres
- minimized curb-cuts on a heavily traveled secondary road by utilizing common driveways
- maximized view-sheds from several parcels
- provided infiltrating catch basins to protect farmland at the bottom of the hill from unnecessary stormwater runoff
- enabled design creativity through reduced frontage and flag lots
- preserved contiguous open space and created trail connections from the subdivision to an existing network of trails

SUBDIVISION PROFILE

Developer: Ronald J. LaVerdiere, Amherst, Mass.

Zoning: The Canterbury Farms cluster subdivision was developed on 26.1-acre parcel of which approximately 23 acres are located within the Aquifer Recharge Protection overly district and 3.1 acres are within the Watershed Protection

Total Parcel	Protected Open Space	Lots/Units allowed by Conventional Plan	Lots/Units allowed by Cluster Plan	Lots/Units built under Cluster Plan
26.1 acres	9.2 acres (35.2%)	prohibited	13 lots/19 units	15 lots (ranging from ½ to 2 acre lots; four affordable)



The developer promoted the Holyoke Range State Park connection in his marketing materials which included this trail map showing the subdivisions' connection and access to the Park.

Reducing frontage enables a design that otherwise may not be possible. Seen above is the parcel with the smallest frontage in Canterbury Farms– it is for the largest lot. This reduction enabled the developer to "fit" another lot without extending the road and subtracting from the open space.

Gravel driveways are characteristic of the surrounding rural area and did not detract from the aesthetics of the development or the affordable housing (single family affordable unit shown here).

overlay district. Because the parcel lies within these Resource Protection Overlay Districts conventional subdivision is prohibited by the Amherst Zoning Bylaw. Residential development of this parcel was only allowed as a cluster design.

Yield: Because it is an affordable cluster, density of the parcel can exceed the allowed density for a standard subdivision. Density was calculated by a formula taking the parcel area, subtracting 10% of that area, and dividing that number by the minimum lot area of the zoning district in which that parcel is located. The developer was granted 13 lots and 19 units. However, because he wanted to build single family affordable homes (as opposed to duplexes) the Town and developer came to agreement over what resulted in 15 lots.

Conservation tools: Open space is owned and managed by a Homeowners Association.

Incentives: Provision of affordable housing in order to affect the Town's Rate of Development Bylaw—build units at a faster rate.

FINANCING & DEVELOPER PROFIT

Infrastructure savings for the developer resulted from the reduced road length and width (built at 24 feet), and the provision of a sidewalk only on one side of the road. Two common driveways were built. For two of the affordable units a common gravel driveway was used which helped enable the developer to increase the profitability of the affordable lots.

The developer benefited from the incorporation of affordable units into his plan because he was able to pre-sell the affordable units due to their high demand. These pre-sales leveraged help when the developer sought bank financing, a key at the time this subdivision was built. This is a good lesson for development in times of economic downturns however, in hot real estate markets presales are not necessary to get bank financing.

The decrease in lot sizes for the affordable homes decreased development costs and enabled the developer to turn a reasonable profit (therefore, not giving him a reason to abandon plans for affordable units).

Because the Town allowed a "pork chop" shaped lot, the developer was able to create a very large

lot on which he sited the second-most expensive home. The most expensive lot in Canterbury Farms was the one with the best view. Both lots whose rear lot lines abut the open space were the third and fourth most expensive homes. Had the developer not been allowed to build a pork chop shaped lot, he would have lost a significant amount of revenue and the subdivision may not have been profitable.

AFFORDABLE UNITS

In keeping with the surrounding rural neighborhood character, the developer wanted to provide single family affordable units as opposed to duplexes. Had this development been sited closer to downtown Amherst, multifamily units would have been in character.

The four single-family affordable units originally sold for $98,000 to $125,000. Affordable housing agreements were created to ensure that they remain "affordable" in perpetuity; they will re-sell for 19% less than their appraised market value. The advantages gained by the quick-selling affordable units made the project worth while for the developer. An increased number of units, in this case, would not have made for a more profitable subdivision.

Although the Amherst bylaw states that affordable units must be "geographically dispersed throughout the development" it was not practical to do so on this small, narrow parcel. The developer thought that the small acreage of the affordable lots and the size and character of the surrounding homes was such that to scatter them throughout this small development would not have resulted in an appealing design. He did ensure that the affordable units built were of high quality, and that the materials used were such that they blended with the surrounding homes and did not scream "affordable."

HOME VALUE AND APPRECIATION

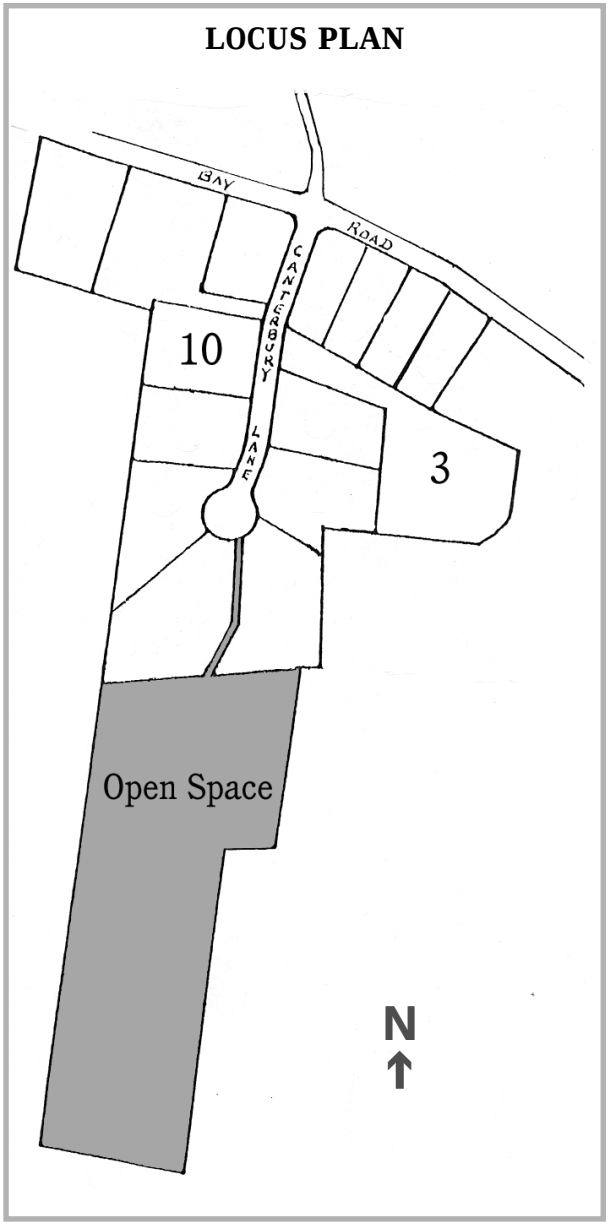
Today, all lots in Canterbury Farms have been sold. It is interesting to note the order in which they sold:

1. All four affordable lots sold first (selling prices ranged from $98–125,000).
2. The old restored farmhouse sold second ($165,000).
3. Moderate priced homes were the next to sell (ranging from $195–230,000).
4. The most expensive lots and houses were sold last.

The most expensive home (at $410,000) was not on a lot that abutted the open space, but rather it was the home with the best view—overlooking fields, farmland and mountains far to the north (Lot 10 on the plan to the right).

The largest lot (ironically with the smallest frontage) in the subdivision at 98,700 square feet originally sold for $395,000 (land and house). Today, the developer believes that if the owners were to sell, it would easily resell for $500,000 (Lot 3 on the plan to the right).

One of the two lots that abut the open space originally sold in 1996 for $365,000. In 1999 that lot resold for $449,900, yielding a rate of appreciation consistent with the market at that time.



This shows the lot lines of the 15 homes in Canterbury Farms and the undeveloped open space. The "pork chop" or "flag" lot 3 is easily recognized.

OPEN SPACE

The rear boundary of this long, narrow parcel lies adjacent to the 3000-acre Holyoke Range State Park. Therefore, the rear half of the parcel (farthest from the existing road) became the preserved open space. This shortened the distance of the proposed road and maximized the contiguous open space that could abut the State Park.

At the top of the cul de sac, between two lots, this access trail was created. It wanders through the open space and connects to the larger, abutting trail system of the Holyoke Range State Park.

After reviewing the preliminary cluster plan, Amherst asked the developer to negotiate with the Department of Environmental Management for the purpose of deeding the open space into their care to be added to the State Park. Ultimately however, the developer formed the Canterbury Farms Property Owners Trust (the Trust), a non-profit Massachusetts Trust organized for the purposes of conserving and maintaining open space in the subdivision (in effect, a Homeowner's Association). The land is currently not under a conservation restriction nor is it accessible to the public.

The developer marketed the Trust in the materials for Canterbury Farms, stressing each homeowners stake in and ownership of the 9.2 acres of undeveloped land set aside as common open space and available for their use. Although he saw this as a positive for marketing purposes, he warns other developers that the creation of the Trust and the associated Covenants of the subdivision were extremely costly and time consuming.

DEVELOPMENT PROCESS

Approval Time Frame

- **June 1989:** The Planning Board approved the preliminary cluster subdivision plan for a 14-lot (16-unit) cluster subdivision.
- **November 1989:** Public Hearing for the Special Permit and Definitive Cluster Subdivision Plan held; developer presented both 14 and 12-lot plan because the yield was still an outstanding issue. The Public Hearing was continued twice.
- **January 1990:** Special Permit approved for 13-lot (15 unit) cluster subdivision

Special Permit

Although mandatory in the underlying zoning district, the development process is by Special Permit approval. The developer did not express problems or discontent with the process and found the Planning Board willing to negotiate so that community and developer needs were met. Ultimately, the Special Permit approval language indicated that Canterbury Farms was a favorable development meeting the requirements and intent of the cluster bylaw. Generally, Special Permit findings state:

- development achieves the positive features of a cluster subdivision including, maintaining community character, retaining a large amount of undeveloped open space, providing efficient road layout (750') and affordable housing, and providing a design that works with the topography of the site and will create the effect of homes terraced on a hillside
- lot sizes larger than the minimum required by the bylaw were accepted because this helped Canterbury Farms fit with the character of the surrounding neighborhoods and farmland
- development adequately addresses protection of the watershed and aquifer recharge through good stormwater management and a

SUBDIVISION AND BYLAW WAIVERS	
Requirement:	**Waiver granted:**
Yield calculations granted 19 units on 13 lots. The Amherst cluster density bonus comes in the form of additional units, not lots.	Developer wanted to build 15 single-family units; received permission to divide two lots to create four single-family affordable lots, at three-eighths to one-half acre.
8% maximum slope grade	Slope of 10% on the internal road
Town water required for all lots	Three lots situated toward the rear of the property at the top of the hill are served by individual private wells. The remaining lots are all served by town water.
Town sewer for all lots	All lots served by private septic systems. No provisions were made for septic systems on the affordable lots; those home-owners bear the same responsibility for the maintenance and repair of their septic system. To extend sewer service to Canterbury Farms would have involved a one and one-half mile sewer line extension and new pumping station (approximate cost of $800,000.00) and would open much farmland to growth pressure. Because the development area was within the Aquifer Recharge Protection District, septic systems were a good choice.
Stormwater management	Abutting property owners were particularly concerned with runoff and drainage. Preliminary cluster plan called for a detention basin at the bottom of the hill; rejected in favor of a design providing for on-site recharge of roof runoff through dry wells and road runoff through leaching catch-basins with oil and grit traps within the road right-of-way.
Sidewalks on both sides of a new road	Allow sidewalks on only one side

reduction of lots from the number originally proposed, therefore minimizing the impact on the aquifer and watershed

LESSONS LEARNED/ FURTHER CONSIDERATIONS

Because the designated open space is not currently under a Conservation Restriction its protection in perpetuity is not ensured. Amherst has expressed interest in transferring open space ownership from the Homeowners Association to the local Holyoke Land Trust. There are clear advantages–having the land protected by a group whose main purpose is conservation makes sense. No one can buy a house in Canterbury Farms unless they agree to and sign the Covenants. This may mean that a homeowner is not particularly interested in the protection of the land, but yet becomes the steward of that land simply by buying a home in that subdivision. There is concern by the Town that this is not necessarily the best scenario for long-term land protection.

Developer Ron LaVerdiere believes that improvements to the Amherst bylaw could be in the form of incentives for affordable clusters that would grant a density bonus as an increase in the number of lots rather than an increase in units. Another incentive Amherst could utilize would be to increase lots in exchange for open space (i.e., for every three acres left undeveloped, the developer could be allowed to create one additional lot). The town may argue that where cluster is mandatory incentives for its use need not be given. However, to achieve other community goals, such as affordable housing, such incentives may be valuable.

It is perceived that proximity to designated affordable units will lower the property value of adjacent homes. In this case, the developer believed that single-family affordable units would help to maintain the value of the more expensive homes in this subdivision because their market values, though affordable, are higher than affordable duplex units. In most subdivisions, there is disparity in home values and striking a reasonable, marketable, balance between these values is a challenge to developers. In Canterbury Farms that disparity ranged from values of $90,000 to approximately $400,000, a level of disparity that this developer believed was not too great to threaten the marketability of the subdivision.

While perhaps a landscape architect could have created an even better design that consumed less of the parcel within lot lines, Canterbury Farms is a very good example of many benefits of open space design.

Old North Mill

Hopkinton, Massachusetts
Open Space and Landscape Preservation Development

SUMMARY

This development achieved the following:

- lot prices were scaled according to proximity to the open space therefore creating a clear example of a cluster development that quantified the value of open space
- reduced density in an area of town that would have suffered negative effects had the originally approved 43-lot conventional subdivision been built
- nine approved lots were not built, rather 20.24 acres of additional land were donated to a local land trust; tax benefits of this creative alternative enabled the developer to build fewer lots and still earn a reasonable profit
- placement of all wetlands within the protected open space
- public access with a small parking area for the open space
- creative process and trust between the Town and the developer resulted in a better design and a subdivision with less impact and greater community benefits

Frontage property that would have become a road to serve nine lots; instead this quiet road will retain its rural character.

SUBDIVISION PROFILE

Developer: Ronald Roux, Hallmark Properties, Inc., Hopkinton, Massachusetts

Landscape Architect: John Copley and Associates, Inc.

Zoning: The parcel lies within the agricultural zoning district, where both conventional and open space and landscape preservation developments (OSLPD) are allowed. Old North Mill was developed as an OSLPD.

Yield: The bylaw requires density calculations by three methods that are then used as a guide for the Planning Board. The density calculation formula in the bylaw permitted 59 lots. The submitted Concept Plan contained 43 lots. The submitted sketch of a Conventional Plan contained 43 lots. The Board granted a maximum of 43 building lots.

Conservation tools: Open space is owned and managed by the Hopkinton Area Land Trust.

Total Parcel	Lots/Units allowed by Conventional Plan	Lots/Units allowed by Cluster Plan	Lots/Units built under Cluster Plan	Protected Open Space
100.11 acres	59 lots (per density formula) 43 lots (per conventional plan)	43 lots	34 lots	*Permitted:* 31.75 acres (31.72%) *As built:* 51.99 acres (51.93%)

Incentives: use of dead end streets; reduction in roadway right-of-way and pavement width; reduction in intensity regulations; waiver of the perimeter buffer requirement.

FINANCING

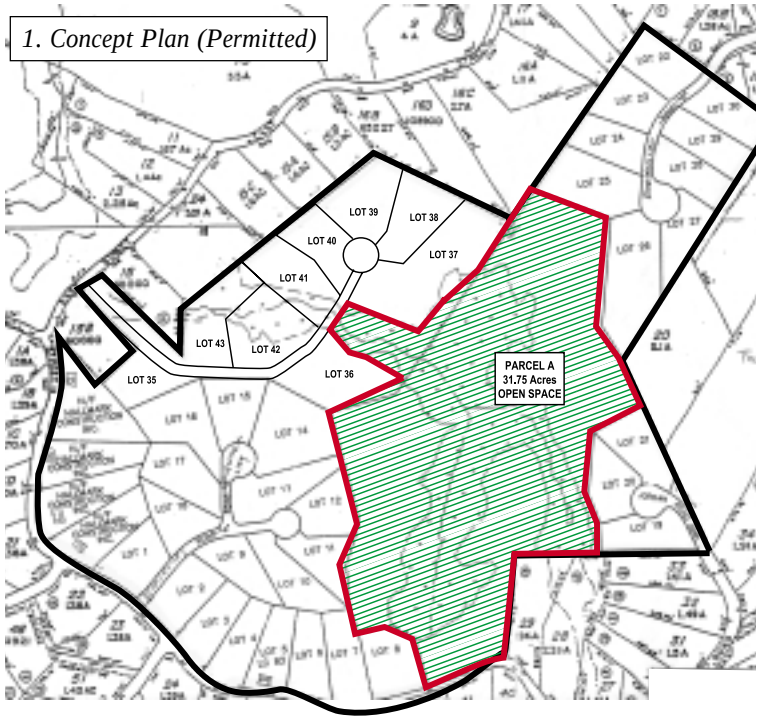
Flexibility by the town enabled good design principles and therefore infrastructure savings. For example, the Town allowed road width decreases (from 26 to 20 feet) and didn't require drainage structures on all roads. Rather, the roads were designed so the road shoulders could absorb the sheet flow. The design also enabled minimal grading, cutting, and filling by adapting the location and placement of structures and ways to the existing topography.

As seen in the plans below, the Concept Plan shows nine lots (numbers 35–43) that do not appear on the Modified Concept Plan, where these same lots have now been designated as Parcel B. What happened to those nine lots is an interesting story.

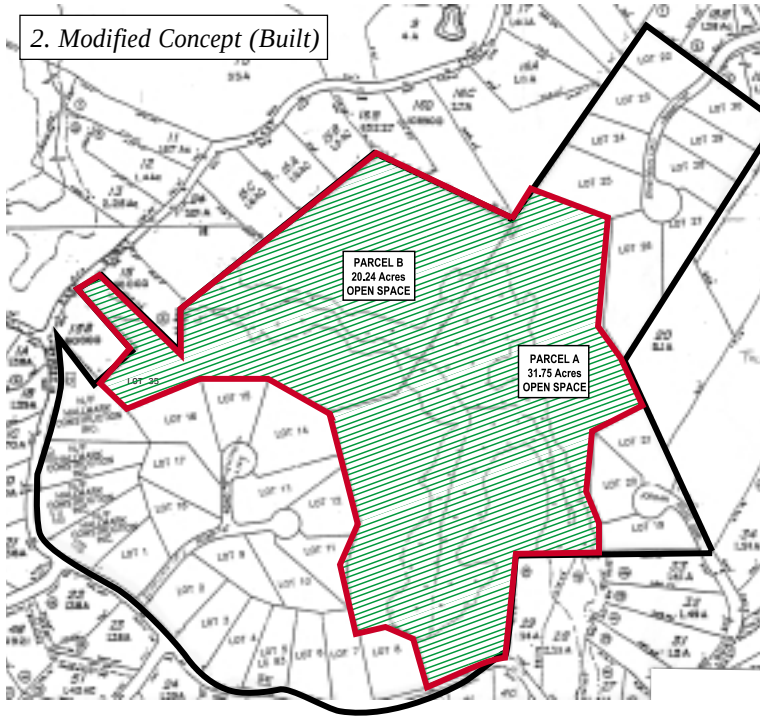
The developer determined that the greatest value of Parcel B lie in it remaining as open space. In this subdivision maximizing profit did not mean building the maximum number of lots permitted. Contributing factors included:

- parcel B contained wetlands, therefore, Conservation Commission filings would entail significant time and money;
- avoiding cost of building infrastructure for the nine lots;
- avoiding the carrying costs extended over the time it would take to permit and complete the building; and,
- because Old North Mill was marketed (and priced) as an open space subdivision, the value of three other homes (lots 14–16) rose significantly because they would now back onto open space rather than onto other house lots. (See pricing structure used and the added price of a home abutting the open space.)

1. Concept Plan (Permitted)



2. Modified Concept (Built)



The developer could realize greater financial benefits for only through a more creative approach—donating Parcel B to the local land trust and taking the tax credit. The value of the tax credit was determined by appraising the land or determining the expected value after the infrastructure (roads, sewers, public utilities) construction. The cost of the houses that could be built on the lots is not included. In this case, the tax credit could be spread over five years and such amount could not exceed 30% of the developers taxable income in any given year. (This credit was possible according to the tax laws at the time of this deal. Any developer wishing to explore a similar option needs to check the existing tax code.) Such a donation of land was clearly in the best financial interest of the developer at the time of this project.

HOME VALUE AND APPRECIATION

Hallmark Properties, Inc. is a design builder so all home prices vary. However, the prices of the lots themselves (for land and infrastructure but no house) are of the greatest importance for this case study. The developer sold and priced the lots on a scale that reflected the proximity of the lot to the open space.

There were three categories of lots available in Old North Mill: 1) those with frontage on the existing town road; 2) those fronting the internal subdivision road, abutting other house lots, and; 3) those fronting the internal subdivision road, abutting the open space. The developer placed a $25,000 differential between each category. In other words, a house lot adjacent to the open space commanded an up front payment of $50,000 more than other lots in the same development.

Homes with frontage on the existing town road. The developer saved as many trees as possible and did not disturb existing stone walls and outcroppings whenever practical.

Because of this differential, as a design builder it was profitable for Hallmark Properties, Inc. to require a more expensive home on those lots that commanded the higher open space prices. In other words, the most expensive homes in the subdivision abut the open space. Economically, it would not have been wise for the developer to build less expensive homes on the most expensive lots.

After completing the design and permitting of Old North Mill, Hallmark Properties, Inc. sold 12 of the 43 lots immediately after laying the required utilities. Homes on these 12 lots will be built by different developers and prices are unknown.

SUBDIVISION AND BYLAW WAIVERS

Requirement:	Waiver granted:
Road right of way – 50 feet	40 feet allowed
Road width – 26 feet	20 feet allowed
Dead end streets prohibited	allowed four dead end street because an OSLDP
Percolation testing	two percolation and deep hole tests on each lot is not required at the time of definitive plan submission
Perimeter buffer requirement – 100 feet	0 feet allowed

OPEN SPACE

While the main impetus for not building the nine lots on Parcel B may have been developer economics, the benefits to the community were also great. The amount of open space conserved in this subdivision increased from 31.75 acres to 51.99 acres, or from 31.72% to 51.93% of the total parcel. The entire open space parcel will be owned by the Hopkinton Area Land Trust, a public non-profit organization formed for the purposes of preserving, protecting, and managing land in Hopkinton.

View from the side yard of a home abutting the open space. This homeowner paid an additional $50,000 up front simply to have the open space as their backyard.

There were 16.15 acres of wetland on the property, all were included in the delineated open space. The developer believes that because the wetlands deserve the most protection, including them in the open space area will ensure they have the needed protection. If wetlands are included within the lot lines, a homeowner will, in effect, own the wetland. It is therefore subject to abuse, neglect, and destruction by actions, intentional or not, of the homeowner. Keeping them within the protected open space best ensures their long term protection.

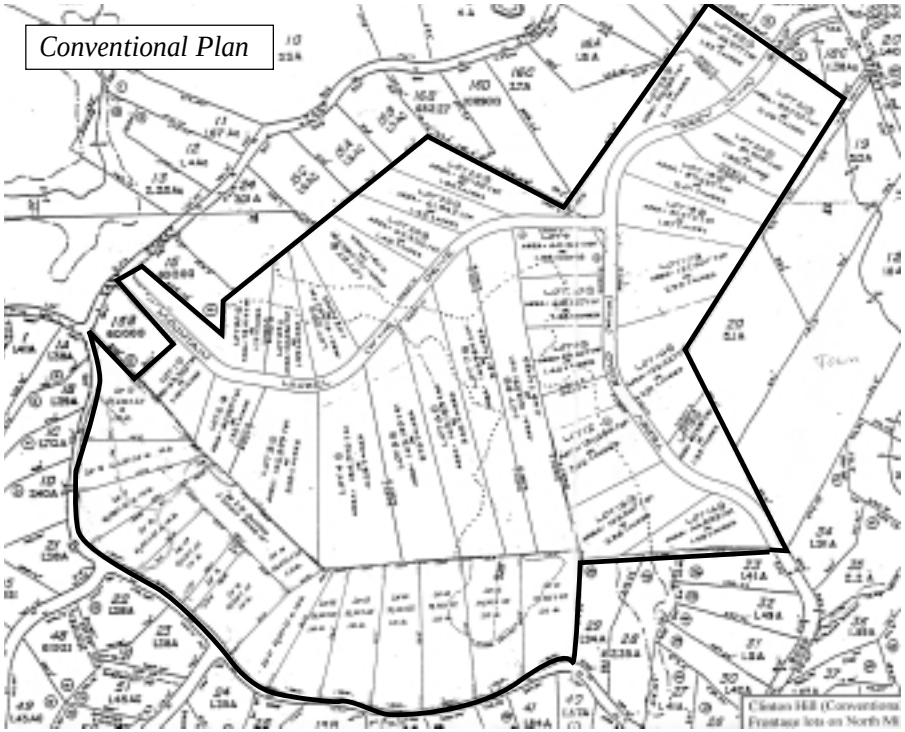
This open space is not connected to any other open space. But for a small parcel of Town owned land, Old North Mill is entirely surrounded by residential development. Instead, this project did the best it could to create some open space where none existed before. The 52-acre parcel will have a publicly accessible trail system and a small parking area will be provided.

DEVELOPMENT PROCESS

In 1988 a conventional subdivision plan was approved for property. Unhappy with this design and the change to flood plain levels, the town took the developer to court but lost their law suit. Luckily, no conventional development was ever built by the previous owner and eventually the parcel was purchased by Hallmark Properties, Inc. While they could have gone ahead and built according to the approved conventional plan, Hallmark decided to build an open space development according to the Open Space and Landscape Preservation bylaw of Hopkinton.

Approval Time Frame

- 1988: Conventional Subdivision Plan approved for previous owner



- May 1997: Concept Plan submitted to Town by Hallmark Properties, Inc.
- June 1997: Special Permit granted
- November 1997: Definitive Plan approved

Special Permit

If you go to the Town Hall today and look at the approved Concept Plan, the nine lots of Parcel B would appear as though they are going to be built. In fact, they could be built. However, based only on a good faith agreement

between the developer and the Town, it was determined that they would never be built. In order for the developer to apply for a tax credit those lots needed to appear as approved. Therefore, the Town approved the lots with the developers' promise that they would not be built.

Additionally, the developer was granted a reduction in the percentage of open space to permit 45,000 square foot minimum lots—again with the understanding that nine lots were not to be built, the percentage of open space would actually be greater than what was shown on the approved plans. This highlights the working relationship between the parties that was necessary to make this a successful subdivision—one that was profitable for the developers and met the town's goals.

LESSONS LEARNED/ FURTHER CONSIDERATIONS

All of Hopkintons' OSLPD's to date have been built with large homes on smaller lots. Some readers may consider this to be a shortfall of this particular case study. It is essential to note that this is not a failure of the Hopkinton bylaw itself, or of OSLPD principles, since it is not written to encourage variety in the housing stock or the creation of affordable (or even non-luxury) housing. In May of 1998 the Planning Board did attempt to pass a bylaw intended to address "alternative housing" however it was adamantly rejected by the majority at Town Meeting.

The cost of land in Hopkinton is extremely high and the market is currently extremely "hot." Because the bylaw does not allow any density bonus and is not mandatory, the question one may ask is why then would a developer chose to undertake the Special Permit process rather than simply building a conventional subdivision. Reduced cost of infrastructure is often a good answer, but in hot markets in desirable communities the developer can often pass those costs along to the homebuyer.

The answer in Hopkinton is simple—the Planning Board and town planner, other local boards and local officials, and a majority of town residents strongly support and advocate for the use of open space development. Conventional development is frowned upon and fought against in Hopkinton. Residents and local officials have chosen a higher standard for their community and work hard to achieve it - this includes working cooperatively with the development community through the Special Permit process to achieve a win-win development.

A perfectly functional 20 foot wide,single-sided sidewalk, dead end road in Old North Mill.

APPENDIX A: SUBDIVISION INFORMATION FORM

General Information

- Name and location of subdivision
- Name of designer, developer, landscape architect
- Has anyone involved built other clusters?

Subdivision Statistics

- development timeline
- total number of acres
- number of acres permanently protected
- how was the yield plan determined?
- number of homes:

1. allowed under conventional_____
2. allowed under the cluster plan_____
3. allowed vs. built in the cluster_____
   (in Hopkinton the developer deeded a few allowed parcels to the town—was financially better to get the tax break rather than building the homes. Has anyone else experienced something similar?)

- number of affordable units
- Size of lots:
  1. allowed for conventional _____
  2. allowed for cluster plan_____
- Street dimensions

1. Money saved by not building the full length of roads proposed under conventional design?
2. How much land area was saved from becoming impervious due to shorter roads?

Home Values and Appreciation

- Original selling price of homes
- Would the original selling price have been different if these homes were built in a conventional subdivision?
  (Note: If they are more expensive, than that is a big plus for cluster. If they sold for the same and the number built was the same, then the developer made more money by building a cluster—this will hold true if they saved money on infrastructure costs due to reduced requirements under the cluster bylaw.)
- Any resale values? Are there trends available yet that could show overall appreciation of the development?

Open Space

- Who manages the open space? land trust / homeowners association / city or town
- Is it under a conservation restriction (CR)?
- What was the basis for the decision to preserve the area that was preserved (i.e., was it because it was meadow, forest, view-shed, wildlife habitat, wetland, farmland, scenic, land that could not be developed anyway, land that would not perk if septic was required, created connections to other preserved areas)?
- What was the process that determined which part would be set aside as the open space (i.e., is there a design review by multiple parties, drafted by a landscape architect, soil tests to determine most valuable agricultural soils, connections to other open areas, communities of wildlife living there, or other)?
- Uses of protected open space (i.e., active, passive, impervious uses, trails)

Development Process

1. Explain the real and perceived obstacles posed by Special Permit requirement
2. Flexibility, benefits, and advantages to the builder and to the community of this alternative to conventional subdivision design
3. Did the developer take advantage of incentives in the bylaw (i.e., such as density bonuses for including affordable housing)?
4. Methods of wastewater treatment (any DEP-approved alternative systems to Title V or shared systems)
5. Process the developer and Planning Board went through—highlight keys to their success
6. Did you get a different result than you would have without using the cluster regulation?

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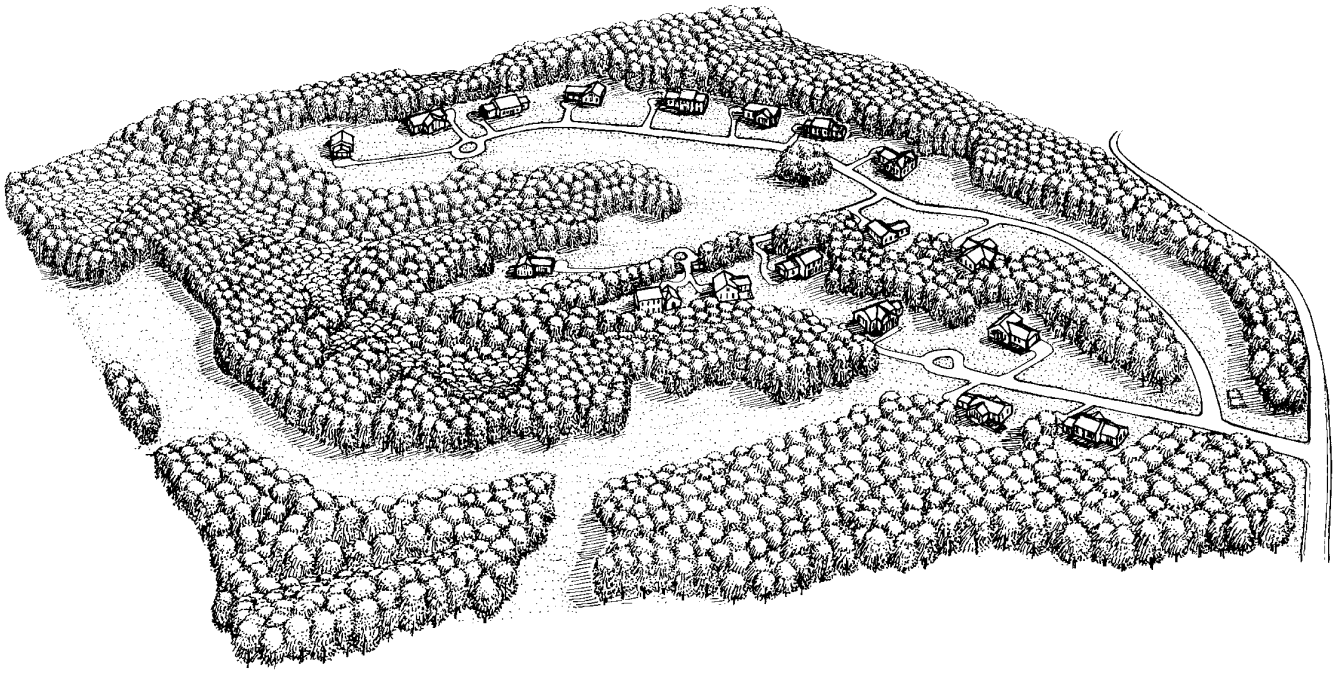
Growing Greener

PUTTING CONSERVATION INTO LOCAL CODES

Communities across Pennsylvania are realizing that they can conserve their special open spaces and natural resources *at the same time* they achieve their development objectives. The tools? Conservation zoning and conservation subdivision design, an approach we're calling *Growing Greener.*



These *Growing Greener* tools are illustrated in the above subdivision, where the developer builds the maximum number of homes permitted under the municipality's zoning, while at the same time permanently protecting over half of the property. The open space is then added to an interconnected network of community greenspaces.

If you want your community to take control of its destiny and ensure that new development creates more livable communities in the process, the *Growing Greener* approach might be right for you.

Introduction

This booklet summarizes how municipalities can use the development process to their advantage to protect interconnected networks of open space: natural areas, greenways, trails and recreational land. Communities *can* take control of their destinies so that their conservation goals are achieved in a manner fair to all parties concerned. All that is needed are some relatively straight-forward amendments to municipal comprehensive plans, zoning ordinances, and subdivision ordinances. These steps are described in the sections that follow.

Growing Greener is a collaborative effort of the Pennsylvania Department of Conservation and Natural Resources, Natural Lands Trust, Pennsylvania State University Cooperative Extension and an advisory committee comprised of officials from the Department of Community and Economic Development, Center for Rural Pennsylvania, Lycoming County Planning Commission, Pennsylvania Environmental Council, Pennsylvania Planning Association and Department of Environmental Protection.

During 1997, Natural Lands Trust conducted three *Growing Greener* pilot workshops hosted by the Centre County Planning Commission, Centre Region Planning Agency, Tri-County Regional Planning Commission and the Union County Planning Commission. Our focus during 1998 will be helping county planning agencies and other planning organizations build their capacity to help the communities they work with realize their conservation goals. In order to assist them, Natural Lands Trust has developed multi-media educational materials available for use by community planners across the state. We invite county planning agencies and interested planning consultants and conservancies to join us as *Growing Greener* partners.

How do I learn more?

For more information contact:

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The Conservation Design Concept

Each time a property is developed into a residential subdivision, an opportunity exists for adding land to a community-wide network of open space. Although such opportunities are seldom taken in many municipalities, this situation could be reversed fairly easily by making several small but significant changes to three basic local land-use documents—the comprehensive plan, the zoning ordinance and the subdivision and land development ordinance. Simply stated, Conservation Design rearranges the development on each parcel as it is being planned so that half (or more) of the buildable land is set aside as open space. Without controversial "down zoning," the same number of homes can be built in a less land-consumptive manner, allowing the balance of the property to be permanently protected and added to an interconnected network of community green spaces. This "density-neutral" approach provides a fair and equitable way to balance conservation and development objectives.

Four Keys to Conservation

Communities protect open space because it protects streams and water quality, provides habitat for plants and animals, preserves rural "atmosphere," provides recreational areas, protects home values and reduces costs of municipal services. In short, land conservation makes your community a better place to live. Four basic actions underlie the *Growing Greener* process:

1 ***Envision the Future: Performing "community audits."*** Successful communities have a realistic understanding of their future. The audit projects past and current development trends into the future so that officials and residents may easily see the long-term results of continuing with current ordinance provisions. Communities use this knowledge to periodically review and adjust their goals and strategies for conservation and development.

2 ***Protect Open Space Networks Through Conservation Planning.*** Successful communities have a good understanding of their natural and cultural resources. They establish reasonable goals for conservation and development—goals that reflect their special resources, existing land use patterns and anticipated growth. Their comprehensive plans document these resources, goals and policies. The plan contains language about the kinds of ordinance updating and conservation programs necessary for those goals to be realized. A key part of the Comprehensive Plan is a *Map of Potential Conservation Lands* that is intended to guide the location of open space in each new subdivision as it is being laid out.

3 ***Conservation Zoning: A "Menu of Choices."*** Successful communities have legally defensible, well-written zoning regulations that meet their "fair share" of future growth and provide for a logical balance between community goals and private landowner interests. They incorporate resource suitabilities, flexibility, and incentives to require the inclusion of permanent conservation lands into new subdivisions. The five zoning options summarized in this publication and described in detail in the *Growing Greener* manual respect the private property rights of developers without unduly impacting the remaining natural areas that make our communities such special places in which to live, work, recreate and invest in.

4 ***Conservation Subdivision Design: A Four-Step Process.*** Successful communities recognize that both design standards and the design process play an important part in conserving community resources. Such communities adopt subdivision codes which require detailed site surveys

and analyses identifying the special features of each property, and introduce a simple methodology showing how to lay out new development so that the majority of those special features will be permanently protected in designated conservation areas or preserves. To a considerable extent, those preserves within new subdivisions can be pre-identified in the Comprehensive Plan so that each such area will form an integral part of a community-wide network of protected open space, as noted above.

Figure 2
A matching pair of graphics, taken from an actual "build-out map," showing existing conditions (mostly undeveloped land) contrasted with the potential development pattern of "checkerboard suburbia" created through conventional zoning and subdivision regulations.

1 Envisioning the Future
Performing "Community Audits"

The "community audit" visioning process helps local officials and residents see the ultimate result of continuing to implement current land-use policies.

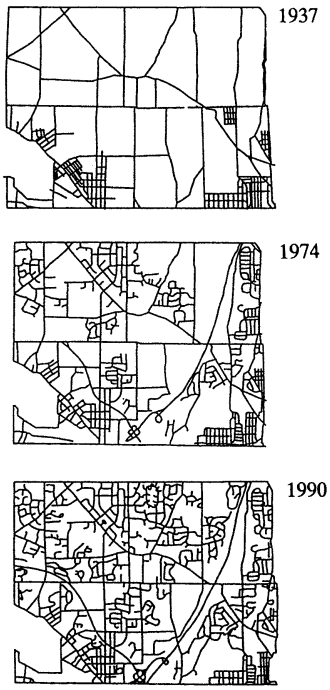


Figure 1
The pattern of "wall-to-wall subdivisions" that evolves over time with zoning and subdivision ordinances which require developers to provide nothing more than houselots and streets.

The process helps start discussions about how current trends can be modified so that a greener future is ensured.

Sad but true, the future that faces most communities with standard zoning and subdivision codes is to witness the systematic conversion of every unprotected acre of buildable land into developed uses.

Most local ordinances allow or encourage standardized layouts of "wall-to-wall houselots." Over a period of decades this process produces a broader pattern of "wall-to-wall subdivisions" (see Figure 1). No community actively plans to become a bland suburb without open space. However, most zoning codes program exactly this outcome.

Municipalities can perform audits to see the future before it happens, so that they will be able to judge whether a mid-course correction is needed. A community audit entails:

Numerical Analysis of Development Trends. The first step involves a numerical analysis of growth projections, both in terms of the number of dwelling units and the number of acres that will probably be converted into houselots and streets under present codes.

Regulatory Evaluation. The second step consists of an evaluation of the land-use regulations that are currently on the books, identifying their strengths and weaknesses and offering constructive recommendations about how they can incorporate the conservation techniques described in this booklet. It should also include a realistic appraisal of the extent to which private conservation efforts are likely to succeed in protecting lands from development through various nonregulatory approaches such as purchases or donations of easements or fee title interests.

"Build-Out" Maps. The third step entails mapping future development patterns on a map of the entire municipality (see Figure 2). Alternatively, the "build-out" map could focus only on selected areas in the municipality where development is of the greatest immediate concern, perhaps due to the presence of special features identified in the comprehensive plan or vulnerability due to development pressures.

The following parts of this booklet describe practical ways in which communities can take control of their destinies so that conservation goals will be achieved simultaneously with development objectives, in a manner that is fair to all parties concerned. Three interrelated documents—the Comprehensive Plan, Zoning Code and Subdivision and Land Development Code, stand together like a three-legged stool providing a balanced footing for achieving a municipality's conservation goals.

2 Protecting Open Space Networks Through Conservation Planning

Although many communities have adopted either Comprehensive Plans or Open Space Plans containing detailed inventories of their natural and historic resources, very few have taken the next logical step of pulling together all that information and creating a *Map of Potential Conservation Lands*.

Such a map is vitally important to any community interested in conserving an interconnected network of open space. The map serves as the tool which guides decisions regarding which land to protect in order for the network to eventually take form and have substance.

A *Map of Potential Conservation Lands* starts with information contained in the community's existing planning documents. The next task is to identify two kinds of resource areas. *Primary Conservation Areas* comprise only the most severely constrained lands, where development is typically restricted under current codes and laws (such as wetlands, floodplains, and slopes exceeding 25%). *Secondary Conservation Areas* include all other locally noteworthy or significant features of the natural or cultural landscape—such as mature woodlands, wildlife habitats and travel corridors, prime farmland, groundwater recharge areas, greenways and trails, river and stream corridors, historic sites and buildings, and scenic viewsheds. These Secondary Conservation Areas are often best understood by the local residents who may be directly involved in their identification. Usually these resource areas are totally unprotected and are simply zoned for one kind of development or another.

A base map is then prepared on which the Primary Conservation Areas have been added to an inventory of lands which are already protected (such as parks, land trust preserves, and properties under conservation easement). Clear acetate sheets showing each kind of Secondary Conservation Area are then laid on top of the base map in an order reflecting the community's preservation priorities (as determined through public discussion).

This overlay process will reveal certain situations where two or more conservation features appear together (such as woodlands and wildlife habitats, or farmland and scenic viewsheds). It will also reveal gaps where no features appear.

Although this exercise is not an exact science, it frequently helps local officials and residents visualize how various kinds of resource areas are connected to one another, and enables them to tentatively identify both broad swaths and narrow corridors of resource land that could be protected in a variety of ways.

Figure 3 shows a portion of a map prepared for one Chester County township which has followed this approach.

The planning techniques which can best implement the community-wide *Map of Potential Conservation Lands* are Conservation Zoning and Conservation Subdivision Design. These techniques which work hand in hand are described in detail below. Briefly stated, conservation zoning expands the range of development choices available to landowners and developers. Just as importantly, it also eliminates the option of creating full-density "checkerboard" layouts that convert all land within new subdivisions into houselots and streets.

The second technique, "conservation subdivision design," devotes half or

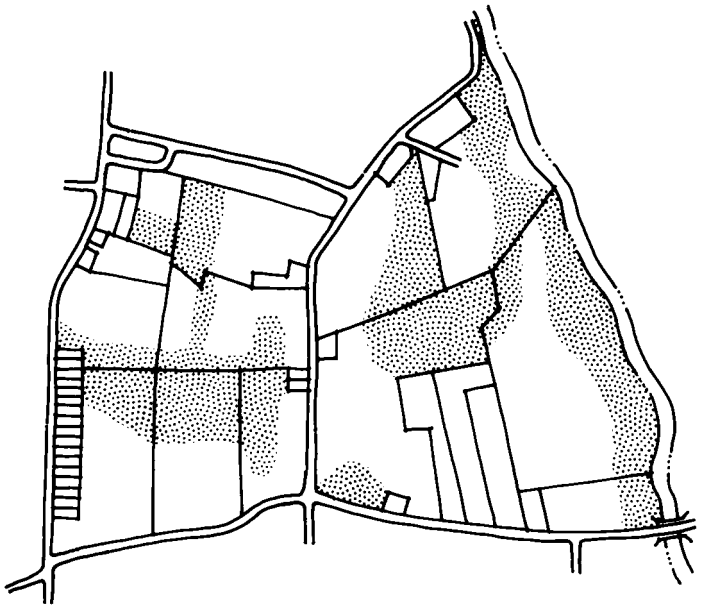


Figure 3
Part of a *Map of Potential Conservation Lands* for West Manchester Township, York County. West Manchester's map gives clear guidance to landowners and developers as to where new development is encouraged on their properties. Township officials engaged a consultant to draw, on the official tax parcel maps, boundaries of the new conservation lands network as it crossed various properties, showing how areas required to be preserved in each new development could be located so they would ultimately connect with each other. In this formerly agricultural municipality the hedgerows, woodland remnants, and the riparian buffer along the creek were identified as core elements of the conservation network.

more of the buildable land area within a residential development as undivided permanent open space. Not surprisingly, the most important step in designing a conservation subdivision is to identify the land that is to be preserved. By using the community-wide *Map of Potential Conservation Lands* as a template for the layout and design of conservation areas within new subdivisions, these developments help to create an interconnected network of open space spanning the entire municipality.

Figure 4 shows how the open space in three adjoining subdivisions has been designed to connect, and illustrates the way in which the *Map of Potential Conservation Lands* can become a reality.

Figure 5 provides a bird's-eye view of a landscape where an interconnected network of conservation lands has been gradually protected through the steady application of conservation zoning techniques and conservation subdivision design standards.

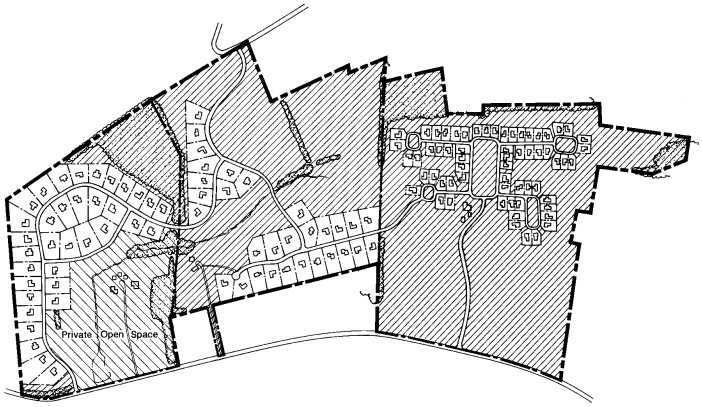


Figure 4
The conservation lands (shown in gray) were deliberately laid out to form part of an interconnected network of open space in these three adjoining subdivisions.

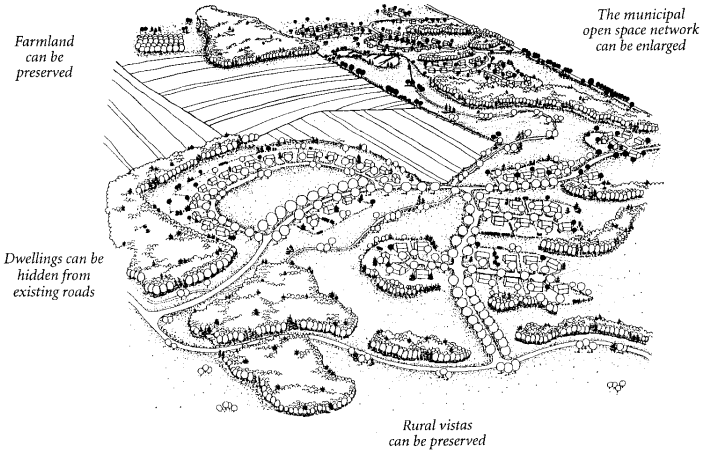


Figure 5
This sketch shows how you can apply the techniques described in this booklet to set aside open space which preserves rural character, expands community parkland and creates privacy for residences. (Source: Montgomery County Planning Commission)

3 Conservation Zoning
A "Menu" of Choices

The main reason subdivisions typically consist of nothing more than houselots and streets is that most local land-use ordinances ask little, if anything, with respect to conserving open space or providing neighborhood amenities (see Figure 6).

Communities wishing to break the cycle of "wall-to-wall houselots" need to consider modifying their zoning to actively and legally encourage subdivisions that set aside at least 50 percent of the land as permanently protected open space and to incorporate substantial density *dis*incentives for developers who do not conserve any significant percentage of land.

Following this approach, a municipality would first calculate a site's yield using traditional zoning. A developer would then be permitted full density *only* if at least 50 percent of the buildable land is maintained as undivided open space (illustrated in Figure 7: "Option 1"). Another full-density option could include a 25 percent density bonus for preserving 60 percent of the unconstrained land (Figure 8: "Option 2"). Municipalities might also consider offering as much as a 100 percent density bonus for protecting 70 percent of that land (Figure 11: "Option 5").

It is noteworthy that the 36 village-like lots in Option 5 occupy less land than the 18 lots in Option 1, and that Option 5 therefore contributes more significantly to the goal of creating community-wide networks of open space. The village-scale lots in Option 5 are particularly popular with empty-nesters, single-parent households, and couples with young children. Its traditional layout is based on that of historic hamlets and villages in the region, and new developments in this category could be controlled as Conditional

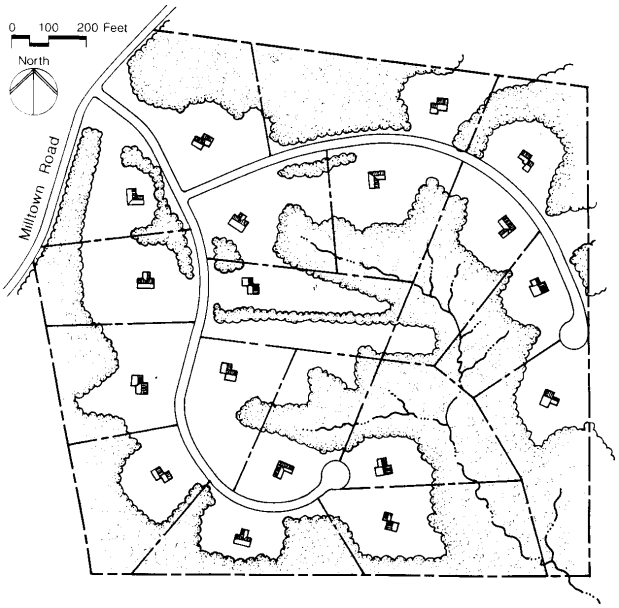


Figure 6 YIELD PLAN
The kind of subdivision most frequently created in Pennsylvania is the type which blankets the development parcel with houselots, and which pays little if any attention to designing around the special features of the property. In this example, the house placement avoids the primary conservation areas, but disregards the secondary conservation features. However, such a sketch can provide a useful estimate of a site's capacity to accommodate new houses at the base density allowed under zoning—and is therefore known as a "Yield Plan."

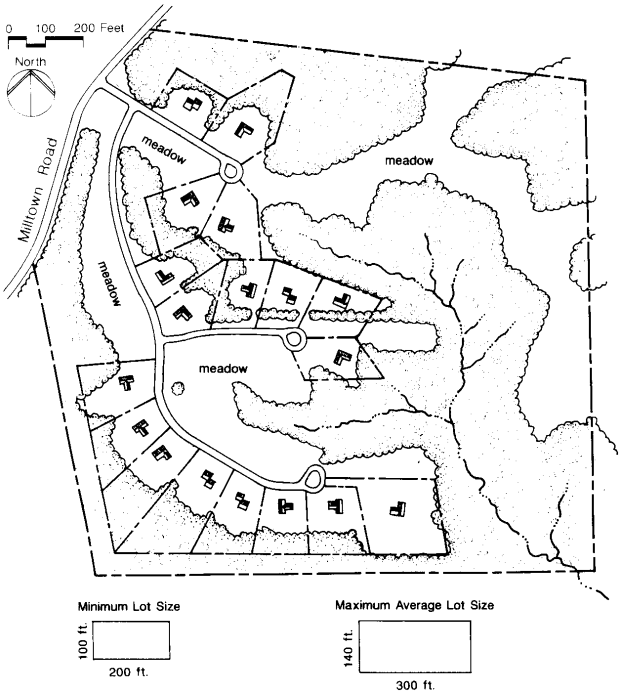


Figure 7 OPTION 1
Density-neutral with Pre-existing Zoning
18 lots
Lot Size Range: 20,000 to 40,000 sq. ft.
50% undivided open space

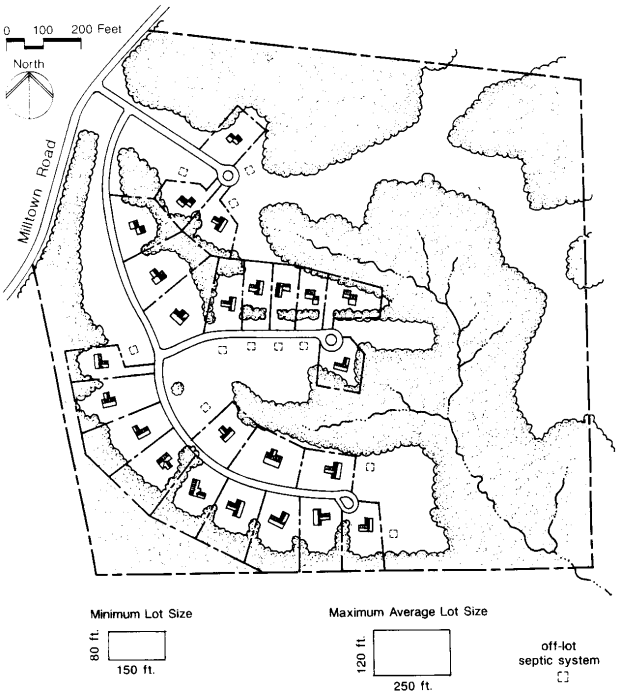


Figure 8 OPTION 2
Enhanced Conservation and Density
24 Lots
Lot Size Range: 12,000 to 24,000 sq. ft.
60% undivided open space

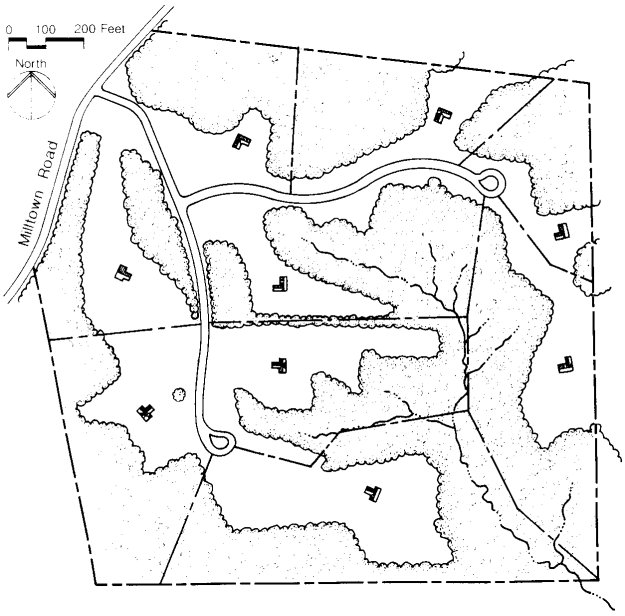


Figure 9 OPTION 3
50% Density Reduction
9 Lots
Typical Lot Size: 160,000 sq. ft. (4 acres)
Estate Lots

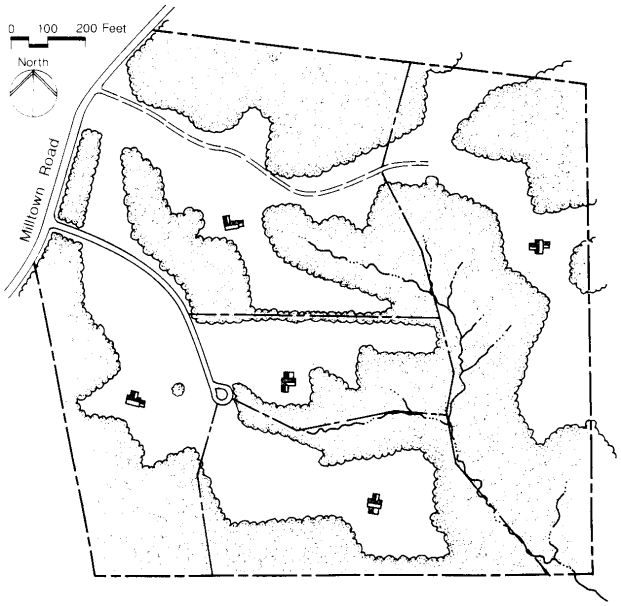


Figure 10 OPTION 4
Country Properties
5 Lots
Maximum Density: 10 acres per principal dwelling
70% density reduction

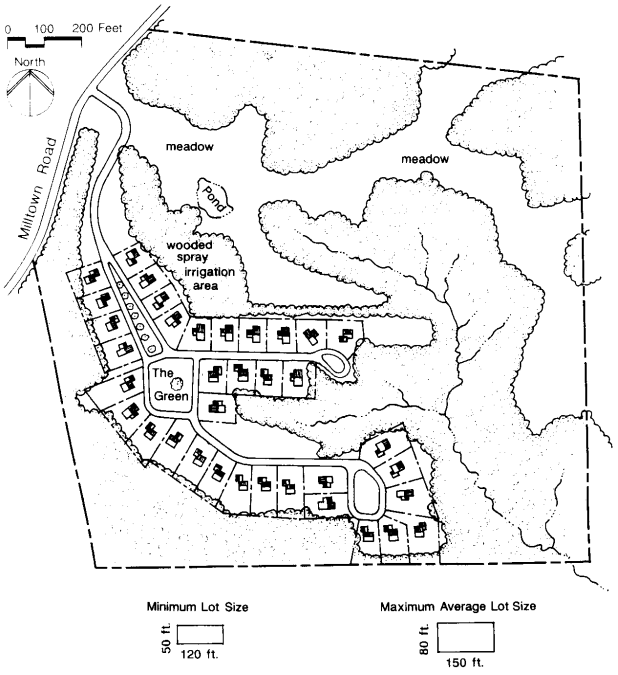


Figure 11 OPTION 5
Hamlet or Village
36 Lots
Lot Size Range: 6,000 to 12,000 sq. ft.
70% undivided open space

Uses subject to a set of extensively illustrated design standards.

Developers wishing to serve the "estate lot" market have two additional options. One involves lots containing at least four acres of unconstrained land (Figure 9: "Option 3"). The other is comprised of "country properties" of at least 10 acres, which may be accessed by gravel drives built to new township standards for very low-volume rural lanes (Figure 10: "Option 4"). An additional incentive to encourage developers to choose this fourth option would typically be permission to build up to two accessory dwellings on these properties. Those units would normally be limited in size, subject to architectural design standards to resemble traditional estate buildings, and restricted from further lot division.

Two or more of these options could be combined on a single large property. One logical approach would combine Options 4 and 5, with the Option 4 "country properties" comprising part of the required greenbelt open space around an Option 5 village (see Figure 12).

Conspicuously absent from this menu of choices is the conventional full-density subdivision providing no unfragmented open space (Figure 6). Because that kind of development causes the largest loss of resource land and poses the greatest obstacle to conservation efforts, it is not included as an option under this approach.

For illustrative purposes, this booklet uses a one dwelling unit per two acre density. However, conservation zoning is equally applicable to higher density zoning districts of three or four units per acre. Such densities typically occur in villages, boroughs, urban growth boundary areas and TDR receiving areas where open space setasides are critical to the residents' quality of life.

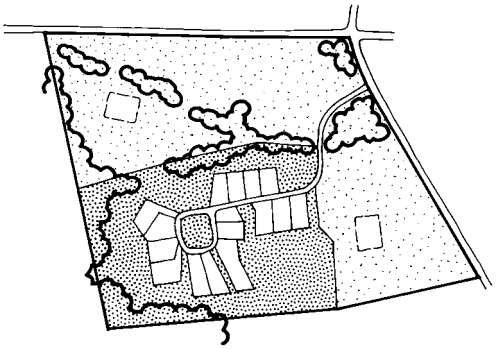


Figure 12
An Option 5 village surrounded by its own open space and buffered from the township road by two "country properties" (Option 4).

4 Conservation Subdivision Design

A Four-Step Process

Designing subdivisions around the central organizing principle of land conservation is not difficult. However, it is essential that ordinances contain clear standards to guide the conservation design process. The four-step approach described below has been proven to be effective in laying out new full-density developments where all the significant natural and cultural features have been preserved.

Step One consists of identifying the land that should be permanently protected. The developer incorporates areas pre-identified on the community-wide *Map of Potential Conservation Lands* and then performs a detailed site analysis in order to precisely locate features to be conserved. The developer first identifies all the constrained lands (wet, floodprone, and steep), called *Primary Conservation Areas* (Figure 13). He then identifies *Secondary Conservation Areas* (Figure 14) which comprise noteworthy features of the property that are typically unprotected under current codes: mature woodlands, greenways and trails, river and stream corridors, prime farmland, hedgerows and individual free-standing trees or tree groups, wildlife habitats and travel corridors, historic sites and structures, scenic viewsheds, etc. After "greenlining" these conservation elements, the remaining part of the property becomes the *Potential Development Area* (Figure 15).

Step Two involves locating sites of individual houses within the Potential Development Area so that their views of the open space are maximized (Figure 16). The number of houses is a function of the density permitted within the zoning district, as shown on a *Yield Plan* (Figure 6). (In unsewered areas officials should require a 10 percent sample of the most questionable lots—which they would select—to be tested for septic suitability. Any lots that fail would be deducted and the applicant would have to perform a second 10 percent sample, etc.)

Step Three simply involves "connecting the dots" with streets and informal trails (Figure 17), while **Step Four** consists of drawing in the lot lines (Figure 18).

This approach reverses the sequence of steps in laying out conventional subdivisions, where the

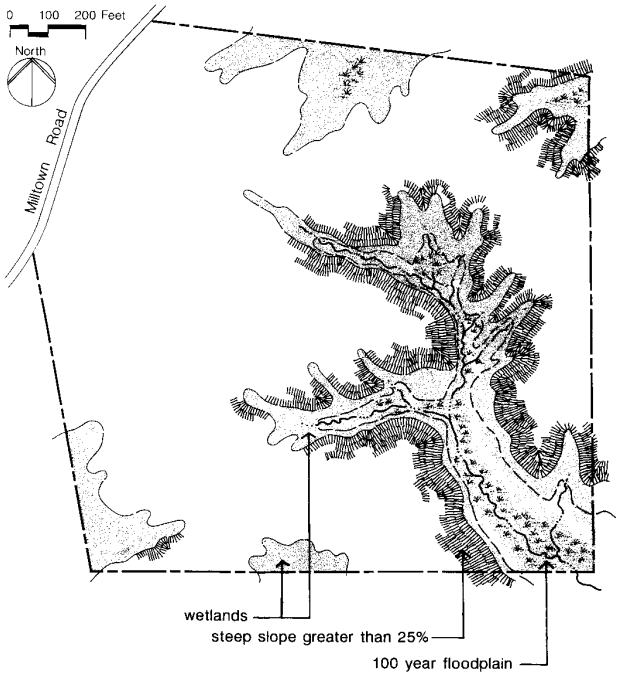


Figure 13 STEP ONE, *Part One*
Identifying Primary Conservation Areas

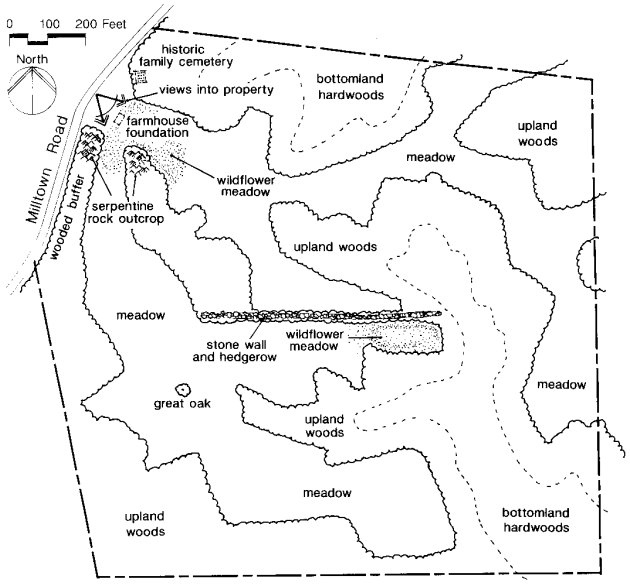


Figure 14 STEP ONE, *Part Two*
Identifying Secondary Conservation Areas

Typically unprotected under local codes, these special features constitute a significant asset to the property value and neighborhood character. Secondary conservation areas are the most vulnerable to change, but can easily be retained by following this simple four-step process.

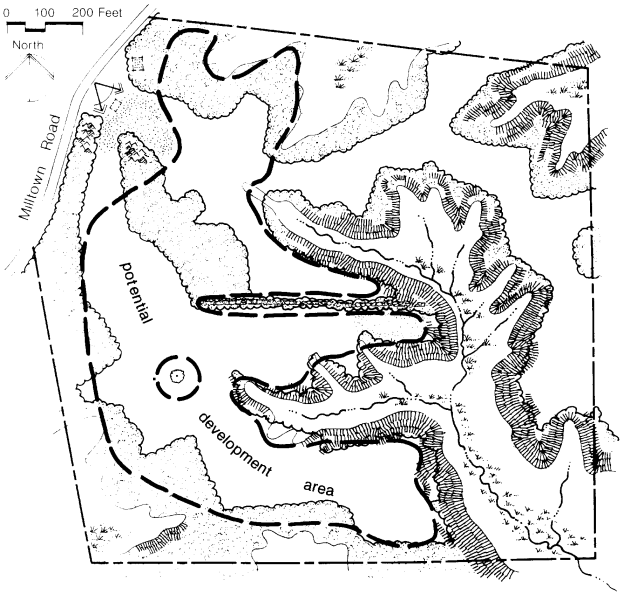


Figure 15 STEP ONE, *Part Three*
Potential Development Areas
for Options 1, 2, and 5

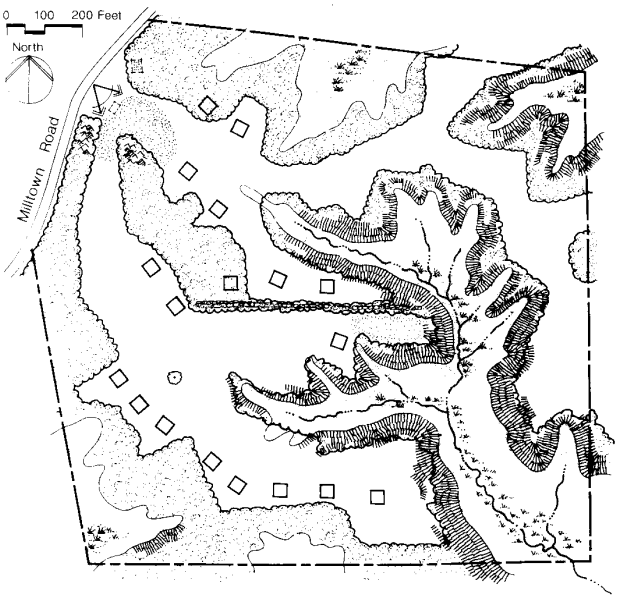


Figure 16 STEP TWO
Locating House Sites

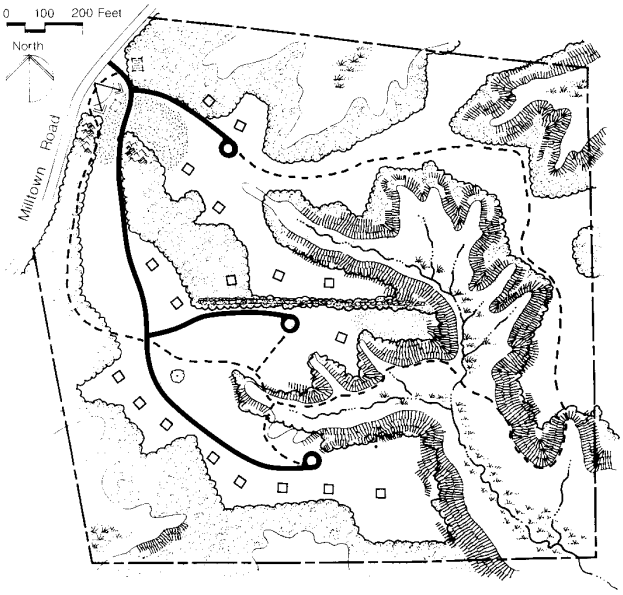


Figure 17 STEP THREE
Aligning Streets and Trails

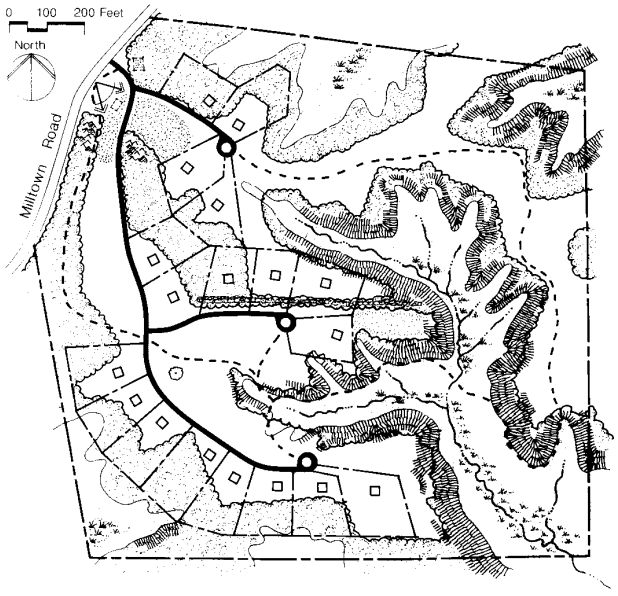


Figure 18 STEP FOUR
Drawing in the Lot Lines

street system is the first thing to be identified, followed by lot lines fanning out to encompass every square foot of ground into houselots. When municipalities require nothing more than "houselots and streets," that is all they receive. But by setting community standards higher and requiring 50 to 70 percent open space as a precondition for achieving full density, officials can effectively encourage conservation subdivision design. The protected land in each new subdivision would then become building blocks that add new acreage to community-wide networks of interconnected open space each time a property is developed.

Frequently Asked Questions About Conservation Subdivision Design

Does this conservation-based approach involve a "taking"?

No. People who do not fully understand this conservation-based approach to subdivision design may mistakenly believe that it constitutes "a taking of land without compensation." This misunderstanding may stem from the fact that conservation subdivisions, as described in this booklet, involve either large percentages of undivided open space or lower overall building densities.

There are two reasons why this approach does *not* constitute a "taking."

First, no density is taken away. Conservation zoning is fundamentally fair because it allows landowners and developers to achieve full density under the municipality's current zoning—and even to increase that density significantly—through several different "as-of-right" options. Of the five options permitted under conservation zoning, three provide for either full or enhanced densities. The other two options offer the developer the choice to lower densities and increase lot sizes. Although conservation zoning precludes full-density layouts that do not conserve open space, this is legal because there is no constitutional "right to sprawl."

Second, no land is taken for public use. None of the land which is required to be designated for conservation purposes becomes public (or even publicly accessible) unless the landowner or developer wants it to be. In the vast majority of situations, municipalities themselves have no desire to own and manage such conservation land, which they generally feel should be a neighborhood responsibility. In cases where local officials wish to provide township recreational facilities (such as ballfields or trails) within conservation subdivisions, the municipality must negotiate with the developer for the purchase of that land on a "willing seller/willing buyer" basis. To facilitate such negotiations, conservation zoning ordinances can be written to include density incentives to encourage developers to designate specific parts of their conservation land for public ownership or for public access and use.

A legal analysis of the *Growing Greener* workbook, by Harrisburg land use attorney Charles E. Zaleski, Esq., is reprinted on the last page of this booklet.

How can a community ensure permanent protection for conservation lands?

The most effective way to ensure that conservation land in a new subdivision will remain undeveloped forever is to place a permanent conservation easement on it. Such easements run with the chain of title, in perpetuity, and specify the various conservation uses that may occur on the property. These restrictions are separate from zoning ordinances and continue in force even if legal densities rise in future years. Easements are typically held by land trusts and units of government. Since political leadership can change over time, land trusts are the most reliable holder of easements, as their mission never varies. Deed restrictions and covenants are, by comparison, not as effective as easements, and are not recommended for this purpose. Easements can be modified only within the spirit of the original agreement, and only if the co-holders agree. In practice, while a proposal to erect another house or a country club building on the open space would typically be denied, permission to create a small ballfield or a single tennis court in a corner of a large conservation meadow or former field might well be granted.

What are the ownership, maintenance, tax and liability issues?

Among the most commonly expressed concerns about subdivisions which conserve open space are questions about who will

own and maintain the conservation land, and who will be responsible for the potential liability and payment of property taxes. The short answer is that whoever owns the conservation land is responsible for all of the above. But who owns this land?

Ownership Choices.

There are basically four options, which may be combined within the same subdivision where that makes the most sense.

• *Individual Landowner*

At its simplest level, the original landowner (a farmer, for example) can retain ownership to as much as 80 percent of the conservation land to keep it in the family. (At least 20 percent of the open space should be reserved for common neighborhood use by subdivision residents.) That landowner can also pass this property on to sons or daughters, or sell it to other individual landowners, with permanent conservation easements running with the land and protecting it from development under future owners. The open space should not, however, be divided among all of the individual subdivision lots as land management and access difficulties are likely to arise.

• *Homeowners' Associations*

Most conservation land within subdivisions is owned and managed by homeowners' associations (HOAs). A few basic ground rules encourage a good performance record. First, membership must be automatic, a precondition of property purchase in the development. Second, zoning should require that bylaws give such associations the legal right to place liens on properties of members who fail to pay their dues. Third, facilities should be minimal (ball fields and trails rather than clubhouses and swimming pools) to keep annual dues low. And fourth, detailed maintenance plans for conservation areas should be required by the municipality as a condition of approval. The municipality has enforcement rights and may place a lien on the property should the HOA fail to perform their obligations to maintain the conservation land.

• *Land Trusts*

Although homeowners' associations are generally the most logical recipients of conservation land within subdivisions, occasionally situations arise where such ownership most appropriately resides with a land trust (such as when a particularly rare or significant natural area is involved). Land trusts are private, charitable groups whose principal purpose is to protect land under its stewardship from inappropriate change. Their most common role is to hold easements or fee simple title on conservation lands within new developments and elsewhere in the community, to ensure that all restrictions are observed. To cover their costs in maintaining land they own or in monitoring land they hold easements on, land trusts typically require some endowment funding. When conservation zoning offers a density bonus, developers can donate the proceeds from the additional "endowment lots" to such trusts for maintenance or monitoring.

• *Municipality or Other Public Agency*

In special situations a local government might desire to own part of the conservation land within a new subdivision, such as when that land has been identified in a municipal open space plan as a good location for a neighborhood park or for a link in a community trail network. Developers can be encouraged to sell or donate certain acreage to municipalities through additional density incentives, although the final decision would remain the developer's.

• *Combinations of the Above*

As illustrated in Figure 19, the conservation land within new subdivisions could involve multiple ownerships, including (1) "non-common" open space such as cropland retained by the original farmer, (2) common open space such as ballfields owned by an HOA, and (3) a trail corridor owned by either a land trust or by the municipality.

Maintenance Issues.

Local officials should require conservation area management plans to be submitted and approved prior to granting final subdivision approval. In Lower Merion Township, Montgomery County, the community's "model" management plan is typically adopted by reference by each subdivision applicant. That document identifies a dozen different kinds of conservation areas (from woodlands and pastures to ballfields and abandoned farmland that is reforesting) and describes recommended management practices for each one. Farmland is typically leased by HOAs and land trusts to local farmers, who often agree to modify some of their agricultural practices

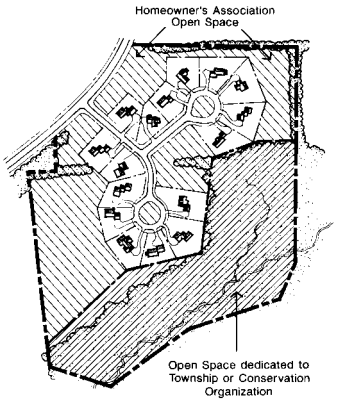


Figure 19
Various private and public entities can own different parts of the open space within conservation subdivisions, as illustrated above.

to minimize impacts on nearby residents. Although ballfields and village greens require weekly mowing, conservation meadows typically need only annual mowing. Woodlands generally require the least maintenance: trimming bushes along walking trails, and removing invasive vines around the outer edges where greater sunlight penetration favors their growth.

Tax Concerns. Property tax assessments on conservation subdivisions should not differ, in total, from those on conventional developments. This is because the same number of houses and acres of land are involved in both cases (except when part of the open space is owned by a public entity, which is uncommon). Although the open space in conservation subdivisions is taxed low because easements prevent it from being developed, the rate is similar to that applied to land in conventional subdivisions where the larger houselots are not big enough to be further subdivided. (For example, the undeveloped back half of a one-acre lot in a one-acre zoning district is subject to minimal taxation because it has no further development value.)

Liability Questions. The Pennsylvania Recreation Use of Land and Water Act protects owners of undeveloped land from liability for negligence if the landowner does not charge a fee to recreational users. A tree root or rock outcropping along a trail that trips a hiker will not constitute landowner negligence. To be sued successfully in Pennsylvania, landowners must be found to have "willfully or maliciously failed to guard against a dangerous condition." This is a much more difficult case for plaintiffs to make. Even so, to cover themselves against such situations, owners of conservation lands routinely purchase liability insurance policies similar to those that most homeowners maintain.

How can on-site sewage disposal work with conservation subdivisions?

The conventional view is that the smaller lots in conservation subdivisions make them more difficult to develop in areas without sewers. However, the reverse is true. The flexibility inherent in the design of conservation subdivisions makes them superior to conventional layouts in their ability to provide for adequate sewage disposal. Here are two examples:

Utilizing the best soils. Conservation design requires the most suitable soils on the property to be identified at the outset, enabling houselots to be arranged to take the best advantage of them. If one end of a property has deeper, better drained soils, it makes more sense to site the homes in that part of the property rather than to spread them out, with some lots located entirely on mediocre soils that barely manage to meet minimal standards for septic approval.

Locating individual systems within the open space. Conventional wisdom also holds that when lots become smaller, central water or sewage disposal is required. That view overlooks the practical alternative of locating individual wells and/or individual septic systems within the permanent open space adjacent to the more compact lots typical of conservation subdivisions, as shown in Figure 20. There is no engineering reason to require that septic filter beds must be located within each houselot. However, it is essential that the final approved subdivision plan clearly indicate which parts of the undivided open space are designated for septic disposal, with each lot's disposal area graphically indicated through dotted lines extending out into the conservation land. These filter beds can be located under playing fields, or conservation meadows in the same way they typically occupy positions under suburban lawns. (If mound systems are required due to marginal soil conditions, they are best located in passive use areas such as conservation meadows where the grass is cut only once a year. Such mounds should also be required to be contoured with gently sloping sides to blend into the surrounding landscape wherever possible.)

Although maintenance and repair of these septic systems remains the responsibility of individual lot owners, it is recommended that HOAs be authorized to pump individual septic tanks on a

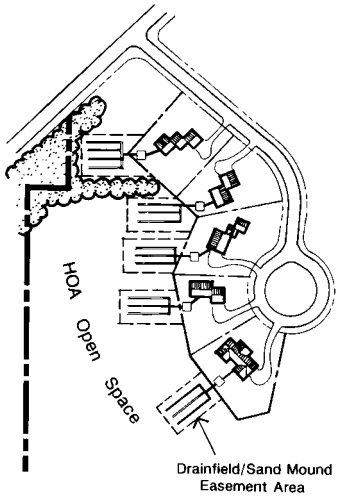


Figure 20
A practical alternative to central water or sewage disposal facilities are individually-owned wells and/or septic systems located within conservation areas, in places specifically designated for them on the final plan.

regular basis (every three or four years) to ensure that the accumulated sludge never rises to a level where it can flow into and clog the filter beds. This inexpensive, preventive maintenance greatly extends the life of filter beds.

How does this conservation approach differ from "clustering"?

The *Growing Greener* conservation approach described here differs dramatically from the kind of "clustering" that has occurred in many communities over the past several decades. The principal points of difference are as follows:

Higher Percentage and Quality of Open Space. In contrast with typical cluster codes, conservation zoning establishes higher standards for both the quantity and quality of open space that is to be preserved. Under conservation zoning, 50 to 70 percent of the unconstrained land is permanently set aside. This compares with cluster provisions that frequently require only 25 to 30 of the gross land area be conserved. That minimal open space often includes all of the most unusable land as open space, and sometimes also includes undesirable, left-over areas such as stormwater management facilities and land under high-tension power lines.

Open Space Pre-Determined to Form Community-wide Conservation Network. Although clustering has at best typically produced a few small "green islands" here and there in any municipality, conservation zoning can protect blocks and corridors of permanent open space. These areas can be pre-identified on a comprehensive plan *Map of Potential Conservation Lands* so that each new development will add to—rather than subtract from—the community's open space acreage.

Eliminates the Standard Practice of Full-Density with No Open Space. Under this new system, full density is achievable for layouts in which 50 percent or more of the unconstrained land is conserved as permanent, undivided open space. By contrast, cluster zoning provisions are typically only optional alternatives within ordinances that permit full density, by right, for standard "cookie-cutter" designs with no open space.

Simply put, the differences between clustering and conservation zoning are like the differences between a Model T and a Taurus.

How do residential values in conservation subdivisions compare to conventional subdivisions?

Another concern of many people is that homes in conservation subdivisions will differ in value from those in the rest of the community. Some believe that because so much land is set aside as open space, the homes in a conservation subdivision will be prohibitively priced and the municipality will become a series of elitist enclaves. Other people take the opposite view, fearing that these homes will be smaller and less expensive than their own because of the more compact lot sizes offered in conservation subdivisions.

Both concerns are understandable but they miss the mark. Developers will build what the market is seeking at any given time, and they often base their decision about selling price on the character of surrounding neighborhoods and the amount they must pay for the land.

In conservation subdivisions with substantial open space, there is little or no correlation between lot size and price. These developments have sometimes been described as "golf

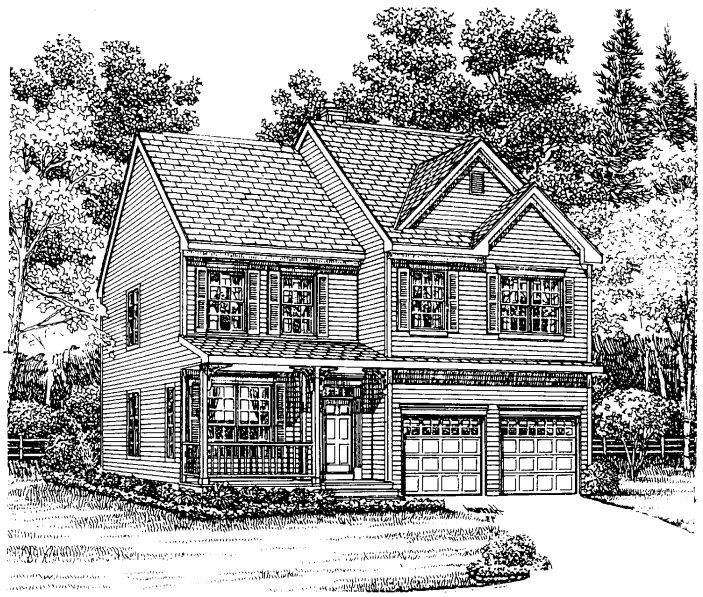


Figure 21
This house design fits comfortably on lots 45 to 50 feet wide, demonstrating that homes with 2,400 sq. ft. of floorspace and a two-car garage can be built within the village-scale lots featured in the "Option 5" zoning alternative. (Courtesy of Hovnanian Homes, Fox Heath subdivision, Perkiomen Township, Montgomery County.)

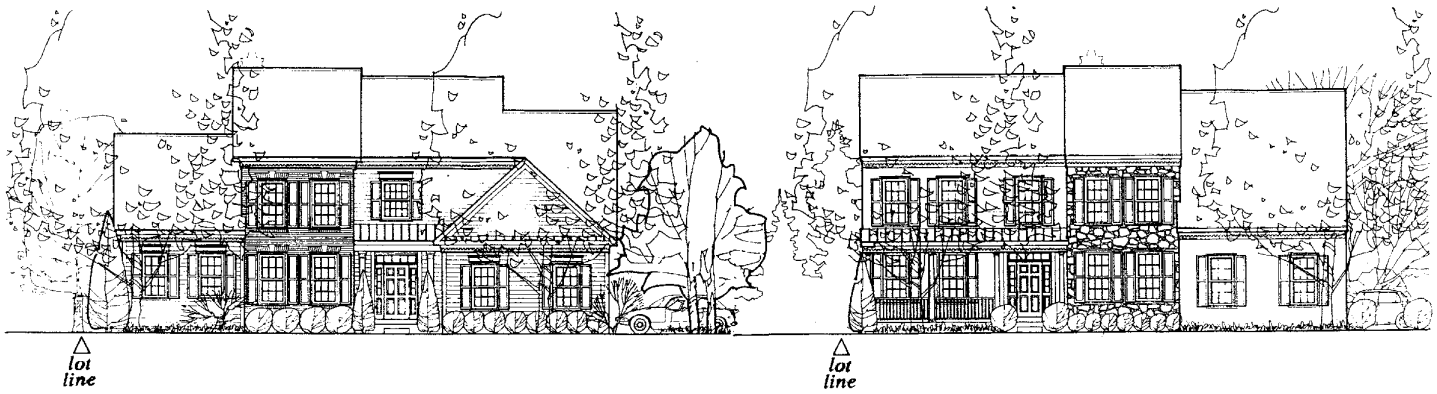


Figure 22
Developers who wish to build larger homes will find this example interesting. Although it contains nearly 3,000 sq. ft. and features an attractive side-loaded garage, it fits onto lots just 100 feet wide. This has been achieved by positioning the homes off-center, with 30 feet of side yard for the driveway and five feet of yard on the opposite side. This ensures 35 feet spacing between homes. (Courtesy of Realen Homes, Ambler)

course communities without the golf course," underscoring the idea that a house on a small lot with a great view is frequently worth as much or more than the same house on a larger lot which is boxed in on all sides by other houses.

It is a well-established fact of real estate that people pay more for park-like settings, which offset their tendency to pay less for smaller lots. Successful developers know how to market homes in conservation subdivisions by emphasizing the open space. Rather than describing a house on a half-acre lot as such, the product is described as a house with 20 and one-half acres, the larger figure reflecting the area of conservation land that has been protected in the development. When that conservation area abuts other similar land, as in the township-wide open space network, a further marketing advantage exists.

Relationship of the *Growing Greener* Approach to Other Planning Techniques

Successful communities employ a wide array of conservation planning techniques simultaneously, over an extended period of time. Complementary tools which a community should consider adding to its "toolbox" of techniques include the purchase of development rights; donations of sales to conservancies; the transfer of development rights; and "landowner compacts" involving density shifts among contiguous parcels. Other techniques can be effective, but their potential for influencing the "big picture" is limited. The *Growing Greener* approach offers the greatest potential because it:

- does not require public expenditure,
- does not depend upon landowner charity,
- does not involve complicated regulations for shifting rights to other parcels, and
- does not depend upon the cooperation of two or more adjoining landowners to make it work.

Of course, municipalities should continue their efforts to preserve special properties in their entirety whenever possible, such as by working with landowners interested in donating easements or fee title to a local conservation group, purchasing development rights or fee title with county, state or federal grant money, and transferring development rights to certain "receiving areas" with increased density. However, until such time as more public money becomes available to help with such purchases, and until the Transfer of Development Rights mechanism becomes more operational at the municipal level, most parcels of land in any given community will probably eventually be developed. In that situation, coupling the conservation subdivision design approach with multi-optioned conservation zoning offers communities the most practical, doable way of protecting large acreages of land in a methodical and coordinated manner.

Appendix

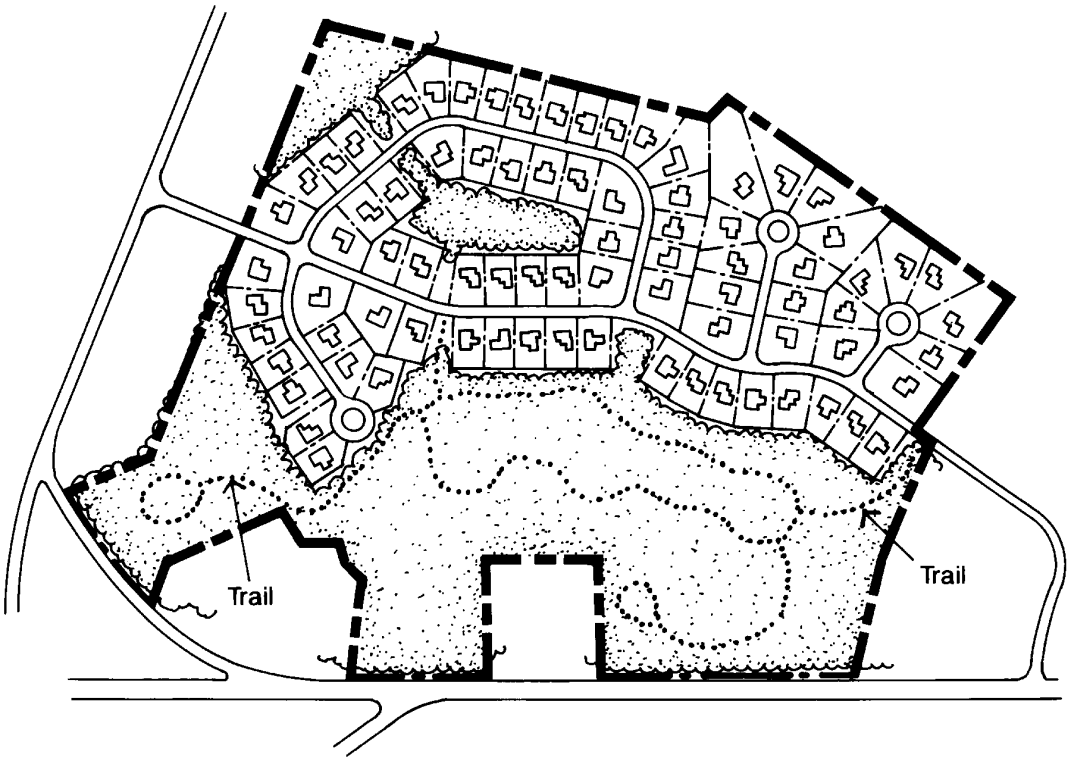
Selected Examples of Conservation Subdivisions in Pennsylvania

The two examples shown here demonstrate how conservation design principles can be used to protect different kinds of resources. In *Garnet Oaks*, a woodland wildlife preserve was set aside by the developer, who also constructed extensive walking trails. A well-equipped tot lot and an informal picnic grove provide additional amenities to the residents. At *Farmview*, 137 acres of productive farmland were permanently protected, in addition to most of the woodlands. This subdivision prompted the township to revise its conventional zoning so that the developer's creative design could be approved. Since that time over 500 acres of prime farmland has been preserved in this community through conservation subdivision design representing a $3.5 million conservation achievement (at an average land value of $7,000) and these figures continue to grow as further subdivisions are designed. The potential for replicating this and achieving similar results throughout the Commonwealth is enormous.

Garnet Oaks

Foulk Road, Bethel Township, Delaware County
Developer: Realen Homes, Ambler
Development Period: 1993–94

Just over half of this 58-acre site has been conserved as permanent privately-owned open space through the simple expedient of reducing lot sizes to the 10,000–12,000 sq. ft. range (approximately 1/4 acre). The developer reports that these lot sizes did not hinder sales because about two-thirds of the lots directly abut the densely wooded open space, which gives them the feel and privacy of larger lots. In fact, the evidence indicates that the open space definitely enhanced sales in two ways: increased absorption rates and higher



prices (through premiums added to the prices of lots which abut the conservation areas).

The locations of these conservation areas were carefully selected after a comprehensive analysis of the site's natural and historic features had been conducted. Those secondary features that were identified for preservation included a line of mature sycamore trees along an existing farm lane, a stone wall and springhouse, and several areas of healthy deciduous upland woods, in addition to the site's delineated wetlands. Based on information received from post-sales interviews in its previous developments, Realen's staff learned that today's homebuyers are considerably more discerning than they were 10 and 20 years ago, and now look for extra amenities not only in the houses but also in the neighborhood setting. This knowledge led Realen to take special measures to protect trees on individual houselots and within the street right-of-way. Their approach included collaborating with the Morris Arboretum in preparing a training manual for subcontractors and conducting training sessions in tree conservation practices, attendance at which was required of all subcontractors.

The centerpiece of Garnet Oaks' open space is the near mile-long woodland trail which winds its way through the 24-acre conservation area, connecting a well-equipped playground and a quiet picnic grove to the street system in three locations. Where the trail traverses areas of wet soils it is elevated on a low wooden boardwalk. This trail, which was cleared with assistance from a local Boy Scout Troop, features numerous small signs identifying the common and botanical names of the various plants and trees along the trail. Realen's staff also designed and produced an attractive eight-page trail brochure that illustrates and describes the flora, fauna, environmental areas, and historic features along the trail. The guide also explains the developer's creative use of low-lying woods as a temporary detention area for stormwater runoff, a naturalistic design that helped avoid a more conventional approach in which many trees within the preserve would have been removed to provide for a conventionally engineered basin. Realen's sales staff reported that prospective buyers who picked up a copy of the trail brochure and ventured out onto the trail typically decided to make their home purchase in Garnet Oaks.

Farmview

Woodside Road and Dolington Road, Lower Makefield Township, Bucks County
Developer: Realen Homes, Ambler
Development Period: 1990–96

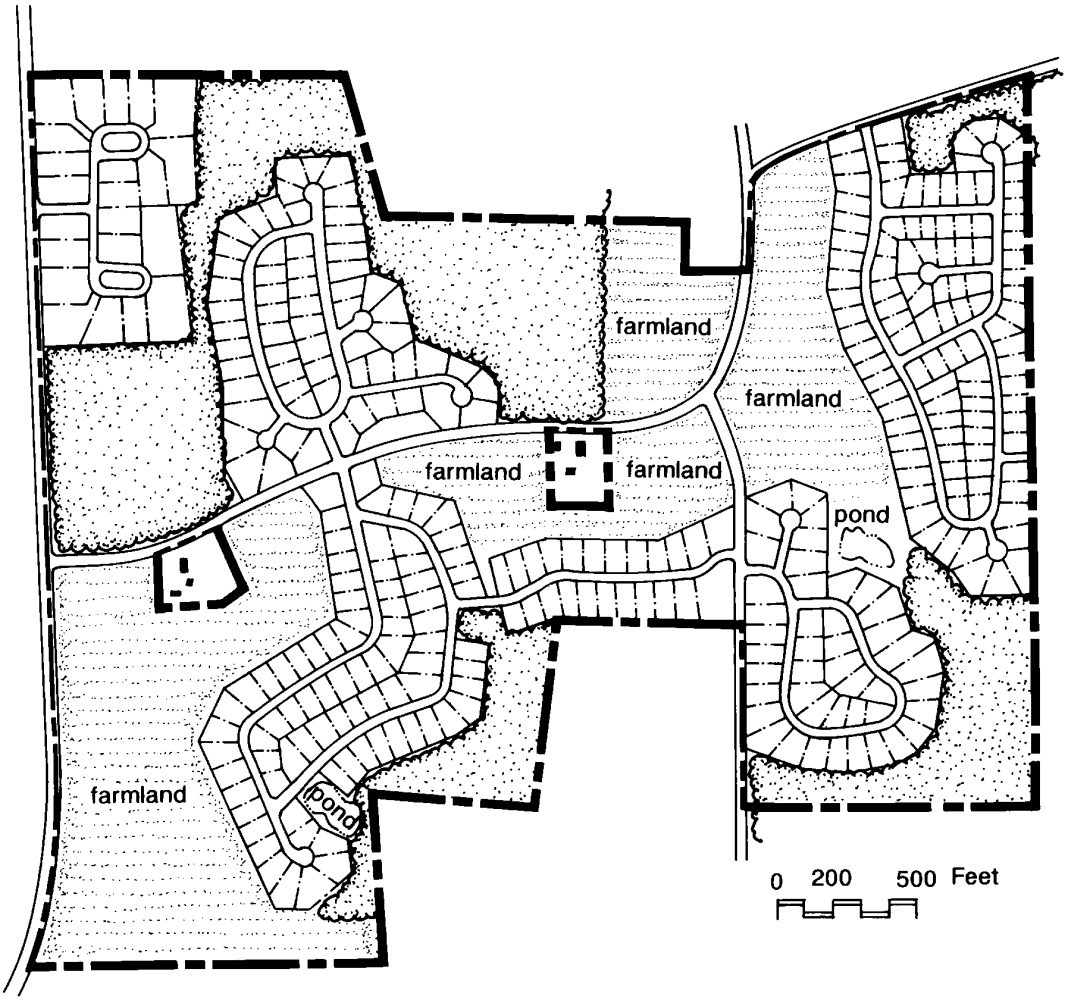
Located on a 418-acre site, Farmview is a 322-lot "density-neutral" subdivision whose layout was designed to conserve 213 acres of land (51 percent of the property), including 145 acres of cropland and 68 acres of mature woods. While 59 percent of the original farmland was needed for development, 41 percent categorized as prime agricultural and farmland of statewide importance was able to be preserved in addition to nearly all of the wooded areas.

The 145 acres of farmland that have been saved were donated by the developer to the Lower Makefield Farmland Preservation Corporation, a local conservation organization whose members include local farmers, township residents and an elected official liaison. This cropland is leased to farmers in the community through multi-year agreements that encourage adaption of traditional farming practices to minimize impacts on the residents, whose yards are separated from their operations by a 75-foot deep hedgerow area thickly planted with native specie trees and shrubs.

Realen Homes also donated the 68 acres of woodland to the township to support local conservation efforts in creating an extended network of forest habitat and wildlife travel corridors. These areas also offer potential for an informal neighborhood trail system in future years. (The developer's offer to construct such trails was declined by the supervisors, citing liability concerns, despite the fact that other townships in the region actively encourage such trails in new subdivisions and also on township conservation lands.)

Had it not been for the developer's initiative and continued interest, this subdivision would have been developed into the same number of standard-sized one-acre lots, which was the only option permitted under the township's zoning ordinance in 1986 when Realen purchased the property. After 18 months of discussing the pros and cons of allowing smaller lots in exchange for serious land conservation benefits, the supervisors adopted new zoning provisions permitting such layouts specifically to preserve farmland when at least 51 percent of a property would be conserved. These regulations target the most productive soils as those which should be "designed around."

Although other developers were at first skeptical of Realen's proposal to build large homes (2,600–3,700 sq. ft.) on lots which were typically less than a half an acre in a marketplace consisting primarily of one acre zoning, the high absorption rate helped convince them that this approach was sound. Contributing to the project's benefits to both the developer and the township were reduced infrastructure costs (for streets, water, and sewer lines). Premiums added to "view lots" abutting the protected fields or woods also contributed to the project's profitability.



ECKERT SEAMANS CHERIN & MELLOTT, LLC
ATTORNEYS AT LAW

October 16, 1997

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Post Office Box 1248
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Randall G. Arendt, Vice President
Conservation Planning
Natural Lands Trust, Inc.
1031 Palmers Mill Road
Media, PA 19063

Re: Conservation Planning Documents and
Growing Greener Workbook

Dear Mr. Arendt:

I have had the opportunity to review the *Growing Greener* workbook and the proposed conservation planning concepts set forth in that workbook for compliance with the provisions of the United States Constitution, the Pennsylvania Constitution, and the Pennsylvania Municipalities Planning Code (the "MPC"). In my opinion, the conservation planning concepts as set forth in the *Growing Greener* workbook are constitutional land use control concepts and the provisions comport with the requirements of the Pennsylvania Municipalities Planning Code.

The subdivision concept which provides for a conceptual preliminary plan and standards for that plan is authorized specifically under the MPC as part of the two-stage planning process allowed by Section 503(1) of the MPC. The Zoning Ordinance concept utilizes a multi-tiered zoning system with options available to the landowner under the Zoning Ordinance. Such a device is specifically authorized under Section 605 of the MPC which specifically encourages innovation and promotion of flexibility, economy and ingenuity in development based upon express standards and criteria. The proposed ordinances contained in the workbook satisfy that specific requirement.

Harrisburg
Pittsburgh
Allentown
Philadelphia
Boston
Fort Lauderdale
Boca Raton
Miami
Tallahassee
Washington, D.C.

The provisions of both the United States Constitution and the Pennsylvania Constitution require that the land use regulations be reasonable and be intended to benefit the public health, safety and welfare. The concept of providing a variety of options for choices by the landowner meets both the reasonableness and public purpose tests of constitutionality. The benefit of the *Growing Greener* concept is that there will be a greater amount of usable open space, while at the same time the landowners will be able to make reasonable use of their property under the options available as proposed in the workbook.

Individual municipalities within the Commonwealth of Pennsylvania will have to apply the concepts and will have to establish their own densities based upon the unique circumstances in each particular municipality. There can be no guarantee that all such ordinances will be constitutional unless they satisfy the requirements of being reasonable with regard to the locational circumstances of the particular property and community in question. However, it is my opinion that if the concepts and procedures set forth in the *Growing Greener* workbook are followed and that the densities and requirements reflect the unique circumstances of the individual municipality, that the *Growing Greener* concept is lawful and constitutional in the Commonwealth. The concepts set forth in the *Growing Greener* workbook provide a new method of addressing the pressures of growth and development throughout both the urban and rural portions of the Commonwealth of Pennsylvania, and I urge the municipal officials to give full consideration to these exciting new concepts.

Very truly yours,

Charles E. Zaleski

Charles E. Zaleski

CEZ/jr