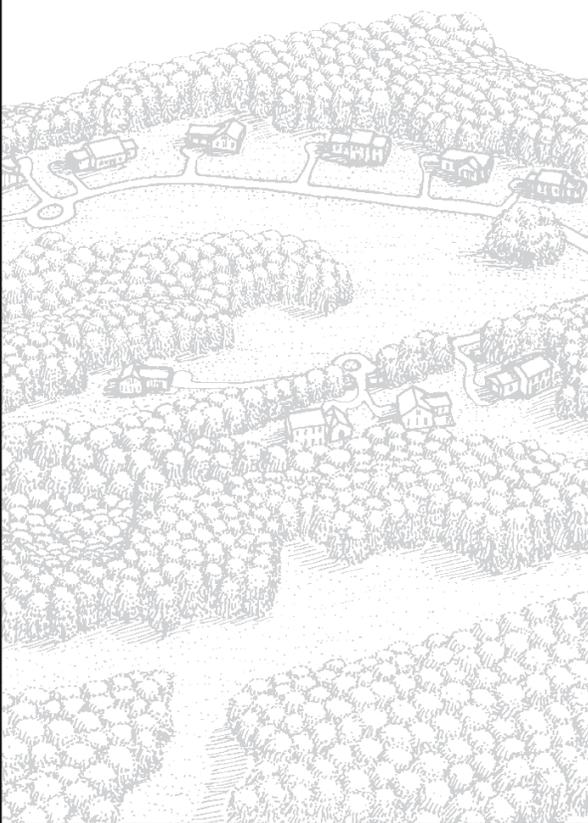


# Growing Greener

*Conservation  
by Design*



Communities across Pennsylvania are realizing that they can conserve their special open spaces, greenways and natural resources **at the same time** they achieve their development objectives. How? Conservation through local zoning and subdivision ordinances, an approach we're calling *Growing Greener: Conservation by Design*. 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: Conservation by Design* approach might be right for you.



## Background

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 lands. 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 straightforward amendments to municipal comprehensive plans, zoning ordinances and subdivision ordinances. These steps are described on the pages that follow.

*Growing Greener: Conservation by Design* is a collaborative program of the Pennsylvania Department of Conservation and Natural Resources (DCNR); the Governor's Center for Local Government Services; Natural Lands Trust, Inc., a regional land conservancy located in Media, PA; and an advisory committee comprised of officials from state and local agencies including the Pennsylvania Environmental Council, the Pennsylvania State University Cooperative Extension, and other non-profits and the private sector. The program is based on the work of Randall Arendt, Senior Conservation Advisor at Natural Lands Trust, and Michael Clarke, former president of Natural Lands Trust.

## How Do I Learn More?

The following services are available in Pennsylvania: (1) educational workshops, held at the county and regional level, for local officials, developers and others involved in making land use decisions; and presentations at conferences; (2) technical assistance for communities—primarily in the form of assessments of land use regulations, ordinance assistance and design services; and (3) training for professionals interested in learning how to write the ordinances and use the design methods that implement the *Growing Greener: Conservation by Design* standards.

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# Putting Conservation into Local Codes

## *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:

### **Envision the Future: Performing “community assessments”**

Successful communities have a realistic understanding of their future. The assessment 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**

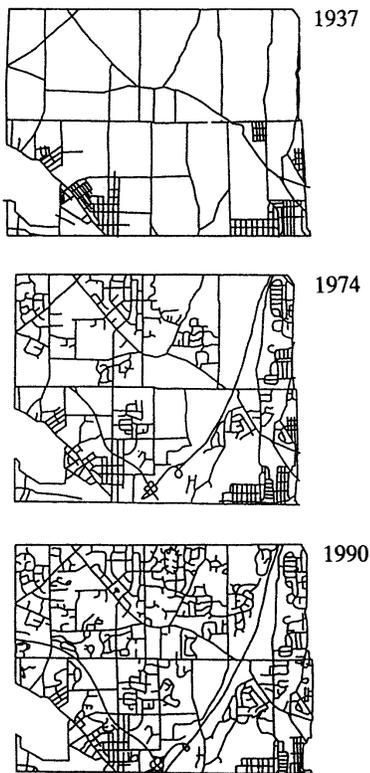
Successful communities have a good understanding of their natural and cultural resources. They establish reasonable goals for conservation and development—goals that reflect their special resources, existing land use patterns and anticipated growth. Their comprehensive plans document these resources, 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 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.

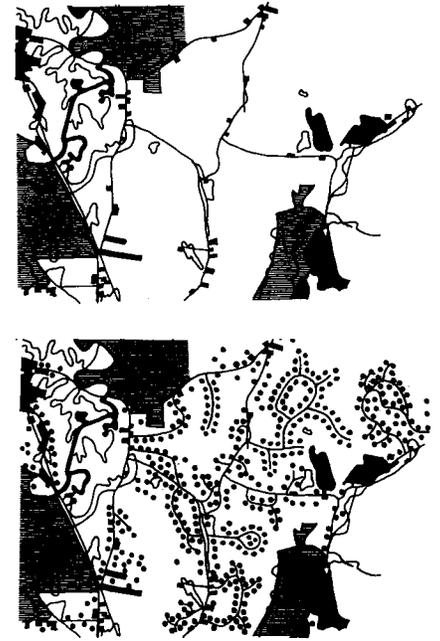
# 1 Envisioning the Future Performing “Community Assessments”

The “community assessment” visioning process helps local officials and residents see the ultimate result of continuing to implement current land-use policies. 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 (see Figure 2).

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



**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.

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.

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

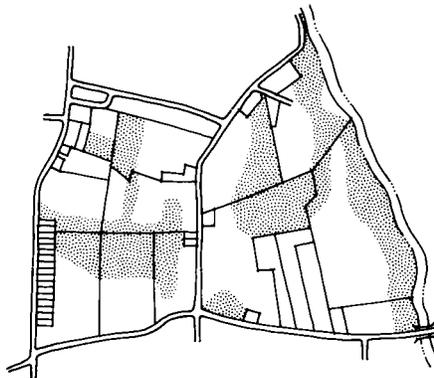
Although many communities have adopted either Comprehensive Plans or Open Space Plans containing detailed inventories of their natural and historic resources, very few have taken the next logical step of pulling together all that information and creating a *Map of Potential Conservation Lands*.

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 re-

source 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



**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.

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 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.

## 3 Conservation Zoning A "Menu" of Choices

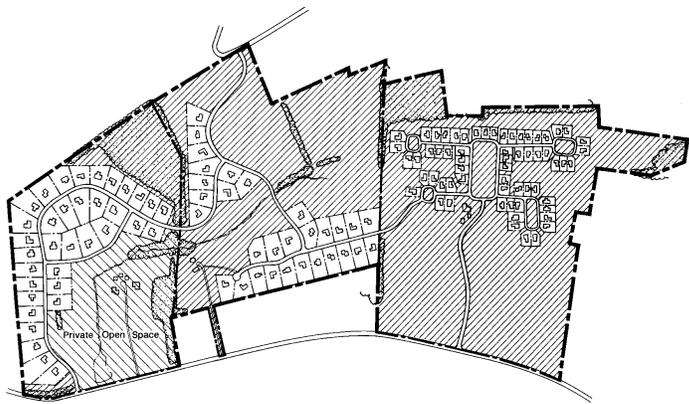
The main reason subdivisions typically consist of nothing more than houselots and streets is that most local land-use ordinances ask little, if anything, with respect to conserving open space or providing neighborhood amenities (see Figure 6).

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 disincentives for developers who do not conserve any significant percentage of land.

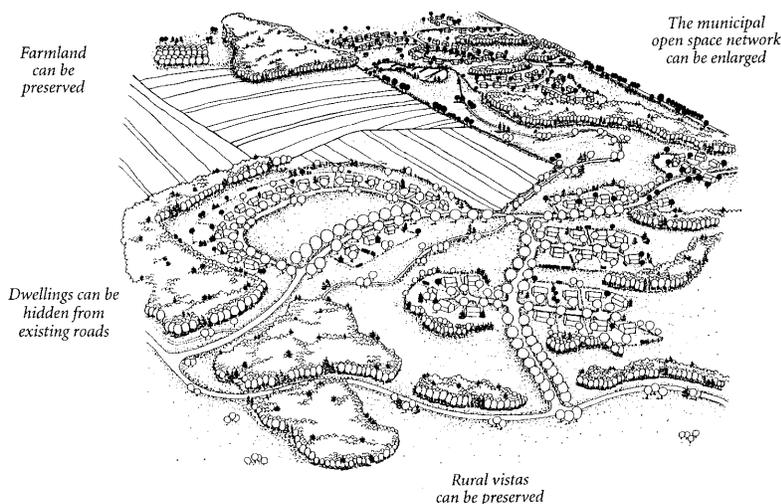
Following this approach, a municipality would first calculate a site's yield using traditional zoning. A developer would then be permitted full density *only* if at least 50 percent of the buildable land is maintained as undivided open space (illustrated in Figure 7: "Option 1"). Another full-density 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 Uses subject to a set of extensively illustrated design standards.

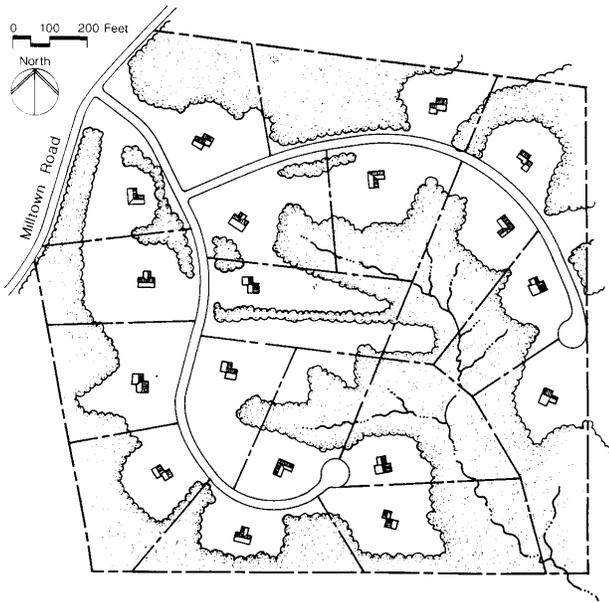
Developers wishing to serve the "estate lot" market have two additional options. One involves lots containing at least four acres of unconstrained land (Figure 9: "Option 3"). The other is



**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.

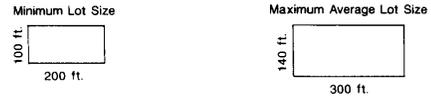
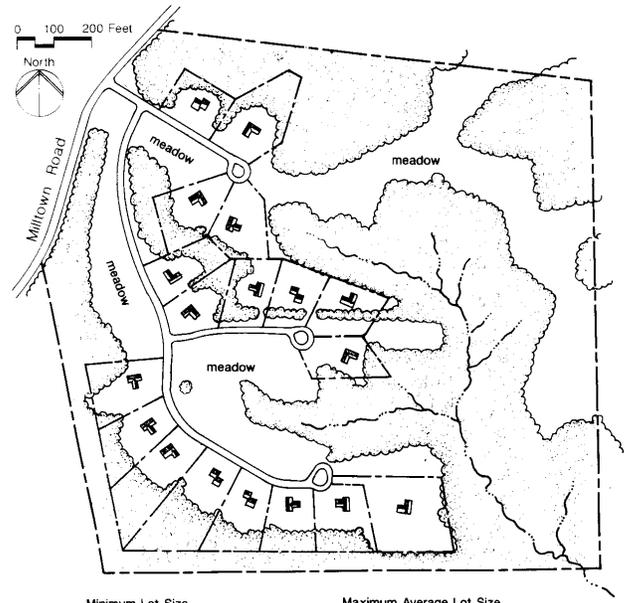


**Figure 5**  
This sketch shows how you can apply the techniques described in this booklet to set aside open space which preserves rural character, expands community parkland and creates privacy for residences. (Source: Montgomery County Planning Commission)



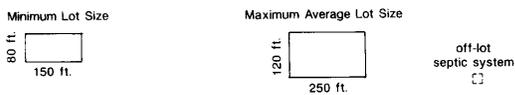
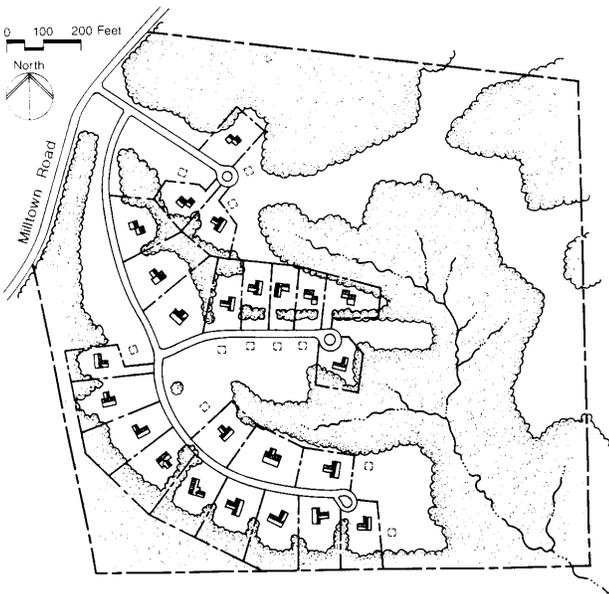
**Figure 6** YIELD PLAN

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."



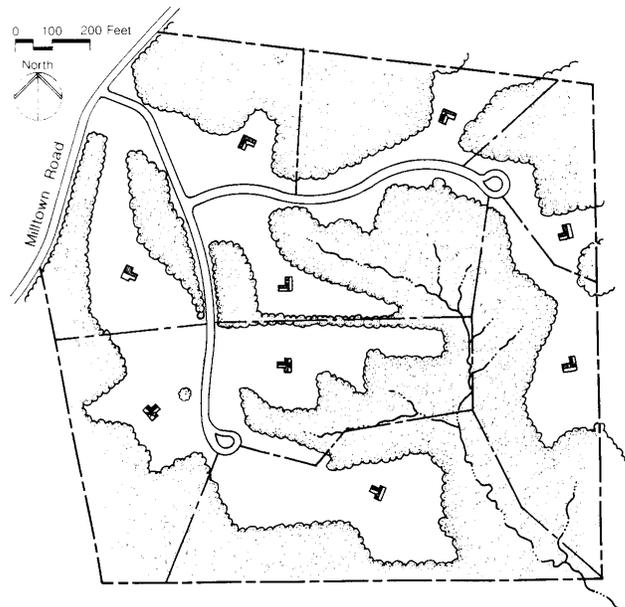
**Figure 7** OPTION 1

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



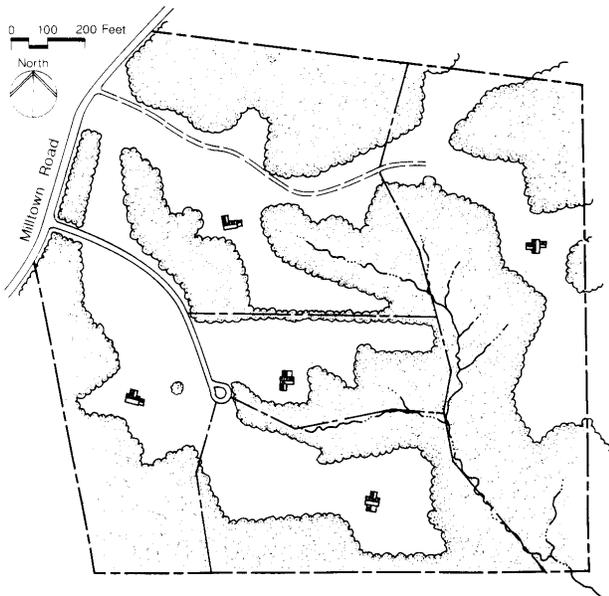
**Figure 8** OPTION 2

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

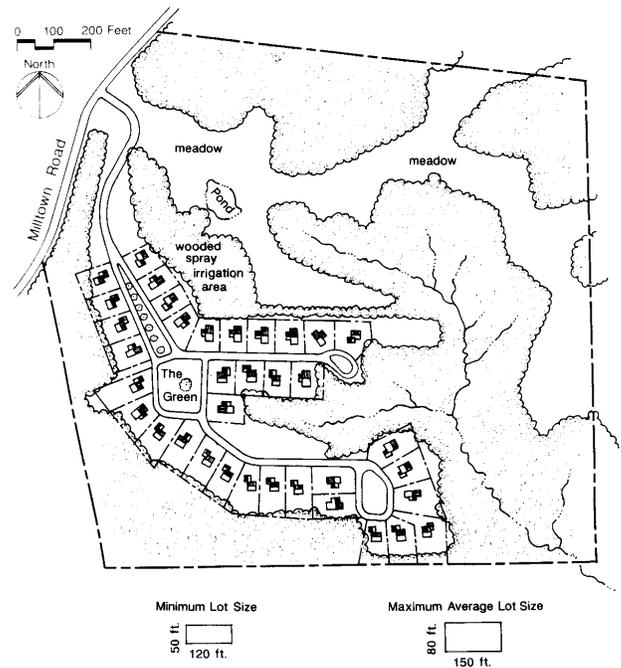


**Figure 9** OPTION 3

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



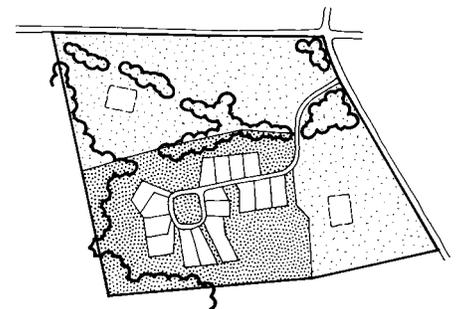
**Figure 11** OPTION 5  
Hamlet or Village  
36 Lots  
Lot Size Range: 6,000 to 12,000 sq. ft.  
70% undivided open space

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 setbacks 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.

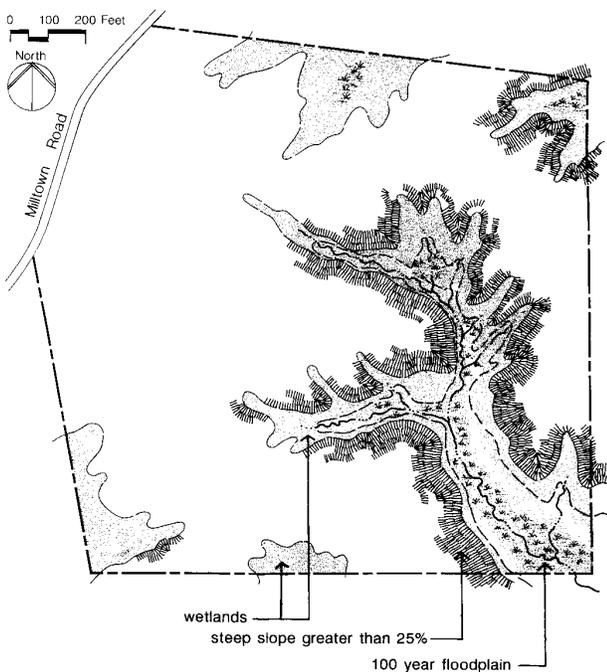
**Step One** consists of identifying the land that should be permanently protected. The developer incorporates areas pre-identified on the community-wide *Map of Potential Conservation Lands* and then performs a detailed site analysis in order to precisely locate features to

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).

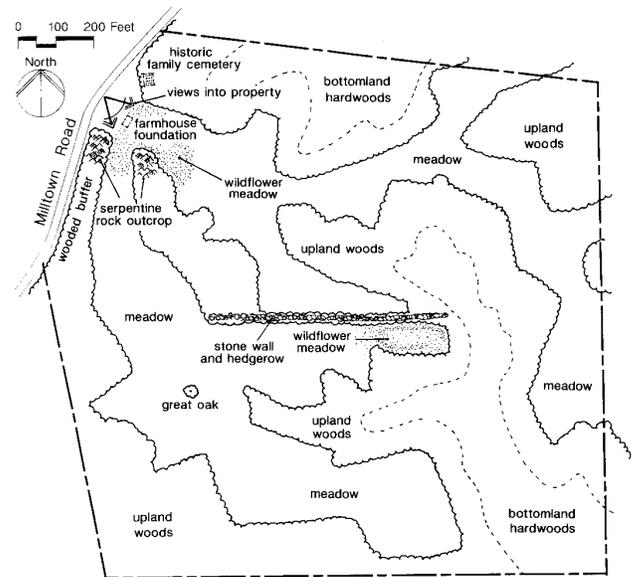
**Step Two** involves locating sites of individual houses within the Potential Development Area so that their views of the open space are maximized (Figure 16). The number of houses is a function of the density permitted within the zoning district, as shown on a *Yield Plan* (Figure 6). (In unsewered 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 street system is the

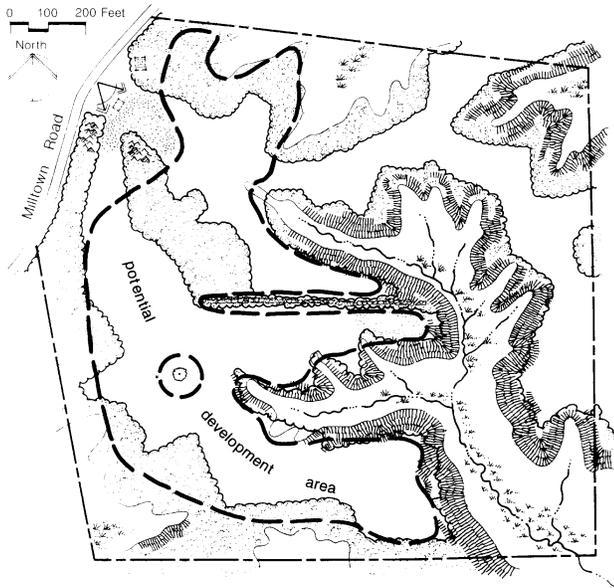


**Figure 13** STEP ONE, Part One  
Identifying Primary Conservation Areas

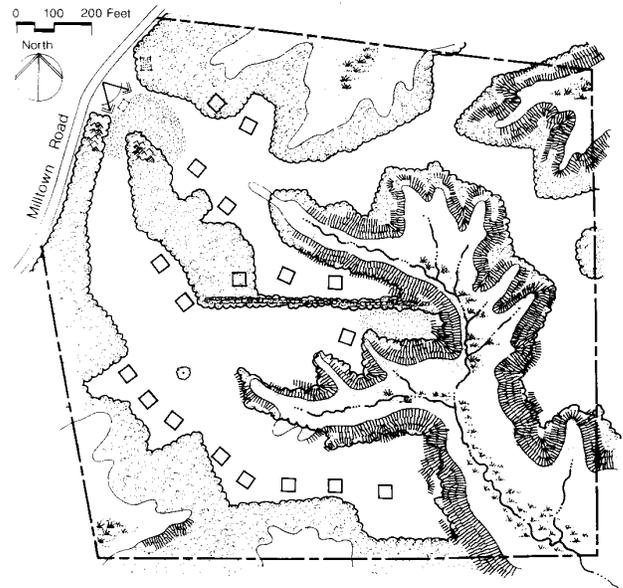


**Figure 14** STEP ONE, Part Two  
Identifying Secondary Conservation Areas

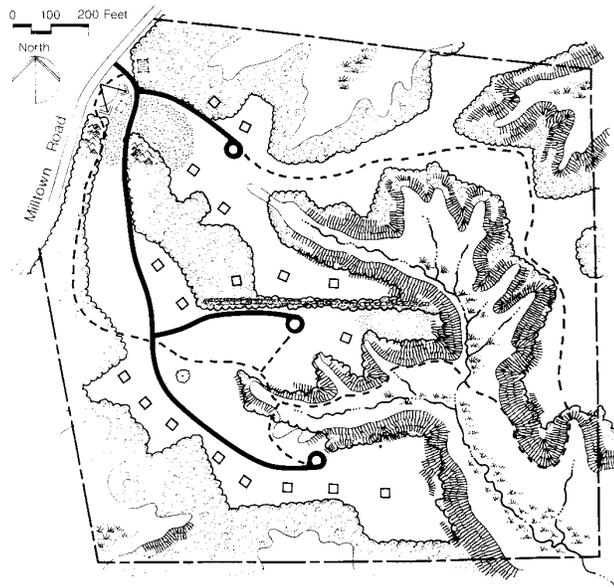
Typically unprotected under local codes, these special features constitute a significant asset to the property value and neighborhood character. Secondary conservation areas are the most vulnerable to change, but can easily be retained by following this simple four-step process.



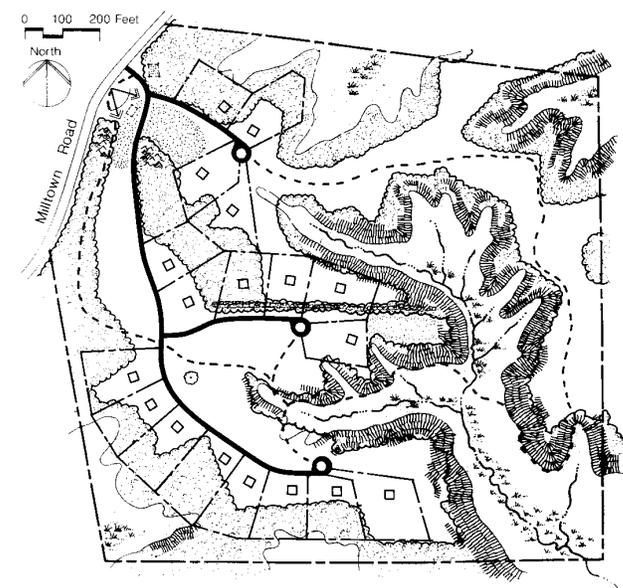
**Figure 15** STEP ONE, Part Three  
Potential Development Areas  
for Options 1, 2, and 5



**Figure 16** STEP TWO  
Locating House Sites



**Figure 17** STEP THREE  
Aligning Streets and Trails



**Figure 18** STEP FOUR  
Drawing in the Lot Lines

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.

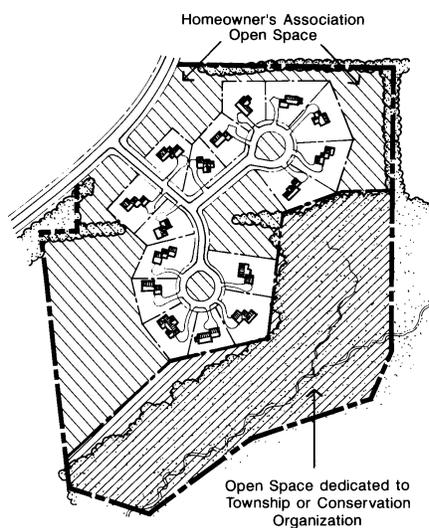
- *Individual Landowner*

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 by-laws give such associations the legal right to place liens on properties of mem-

bers 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.



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

- *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 prac-

tices 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

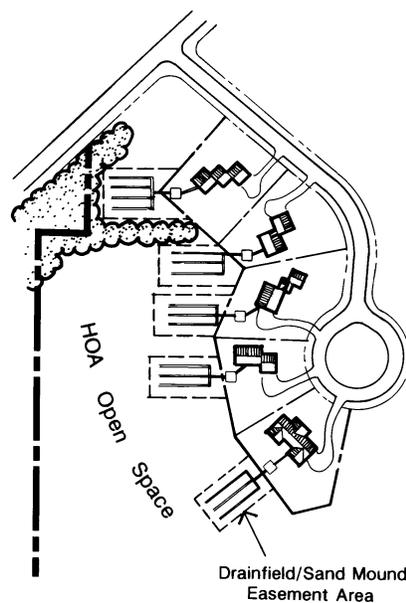
Conservation design requires the most suitable soils on the property to be identified at the outset, enabling houselots to be arranged to take the best advantage of them. If one end of a property has deeper, better drained soils, it makes more sense to site the homes in that part of the property rather than to spread them out, with some lots located en-

tirely 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 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.



**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.

## 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 per-

cent 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.

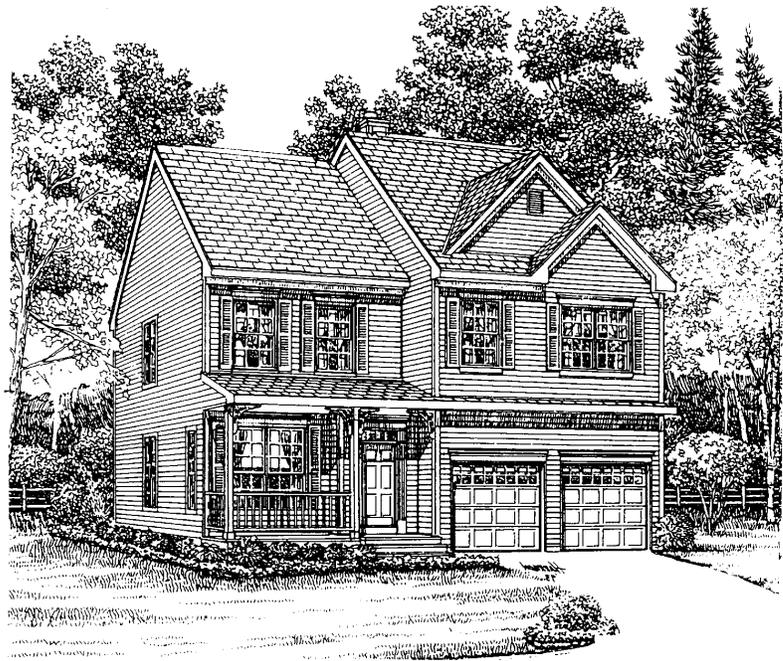
## How do residential values in conservation subdivisions compare to conventional subdivisions?

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.

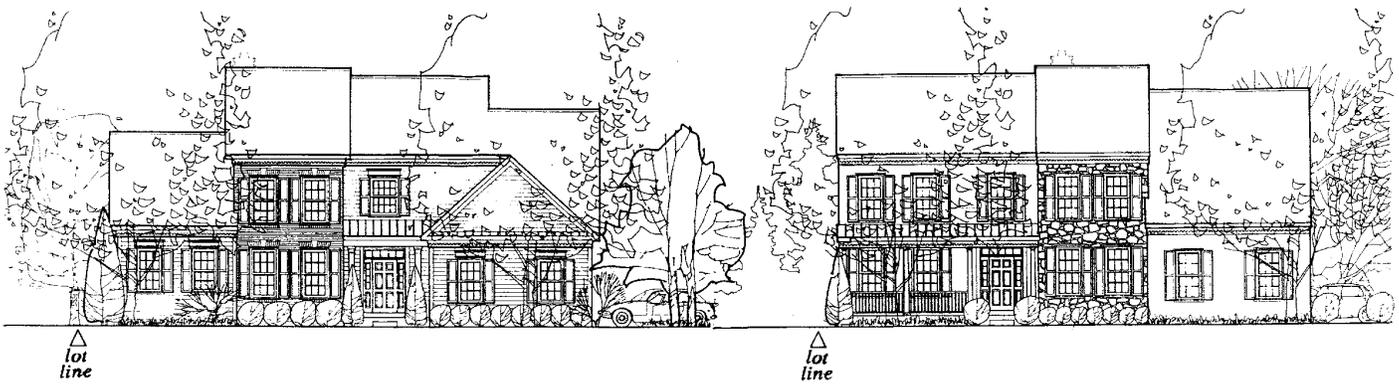
Both concerns are understandable but they miss the mark. Developers will build what the market is seeking at any given time, and they often base their decision about selling price on the character of surrounding neighborhoods and the amount they must pay for the land.

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 course commu-



**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)

nities 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 re-

flecting 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**

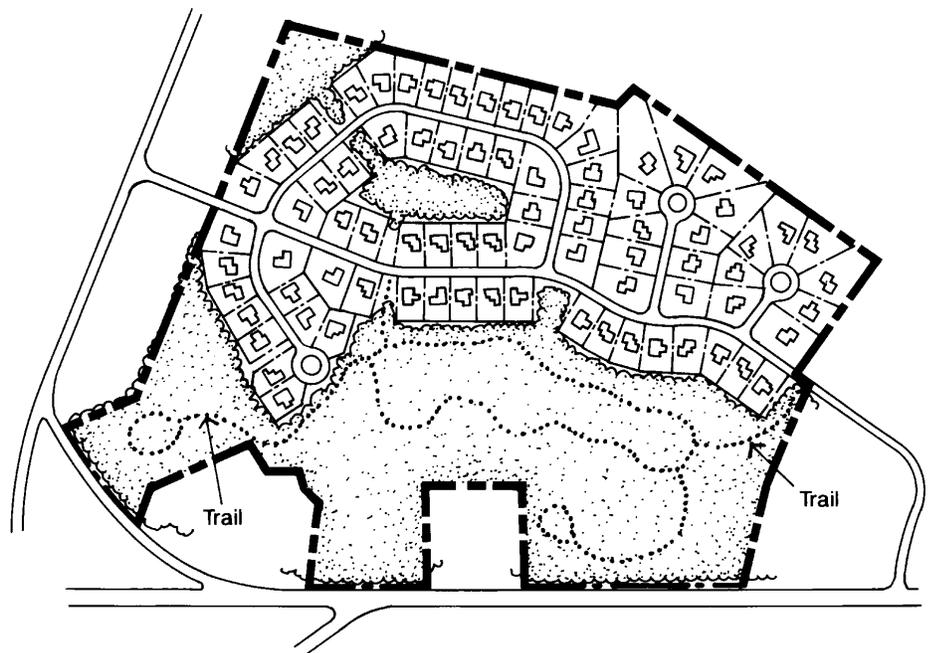
*Foulk Road, Bethel Township, Delaware County*

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



### The woodland trail at Garnet Oaks

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 hedge-row 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 cre-

ating 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.)

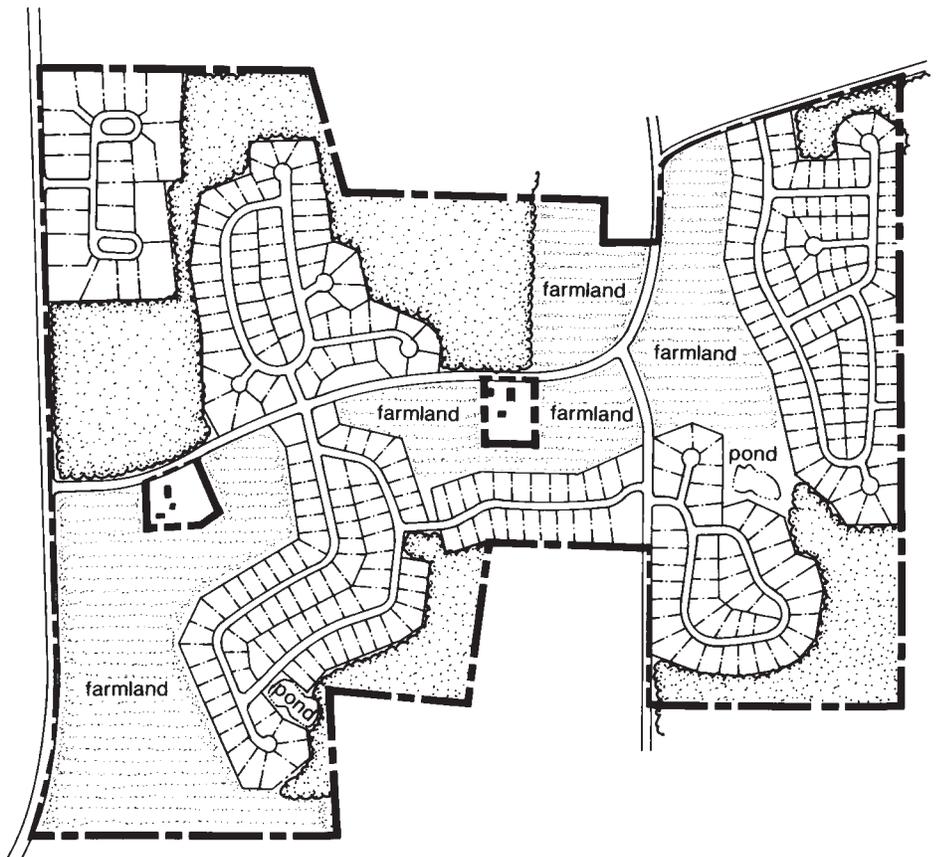
Had it not been for the developer's initiative and continued interest, this subdivision would have been developed into the same number of standard-sized

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.



**Homes with views overlooking working farmfields at Farmview**



ECKERT SEAMANS CHERIN & MELLOTT, LLC

ATTORNEYS AT LAW

October 16, 1997

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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.

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

CEZ/ljr

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

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