APPENDIX 4

GROWING GREENER WORKBOOK

MODEL COMPREHENSIVE PLAN LANGUAGE DESCRIBING ORDINANCE IMPROVEMENTS NEEDED TO IMPLEMENT CONSERVATION PLANNING OBJECTIVES

Model Comprehensive Plan Language

Describing Ordinance Improvements

Needed to Implement Conservation Planning Objectives

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Model Comprehensive Plan Language

Describing Ordinance Improvements

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A. ZONING ORDINANCE REFINEMENTS

In order to protect the community's existing open space network municipal officials should consider amending the zoning ordinance to include the following special techniques for "creative development":

1. "Menu" of Options Offering a Variety of Densities and Conservation Requirements

The first zoning technique discussed here provides landowners with a "menu" of options to encourage land-conserving subdivision designs, and to discourage land-consumptive layouts that needlessly divide all the acreage into suburban houselots and streets. In its most basic form, this "menu" of five choices consists of two low-density options, one "density-neutral" option, and two higher-density options.

The "density-neutral" option would yield the same number of lots attainable under the pre-existing zoning. To attain full density, developers would have to submit a "conservation design" in which lots are reduced in area in order to permanently conserve half the unconstrained land. Developers willing to leave a greater percentage of the unconstrained land as undivided open space would receive a density bonus through a second layout option.

To encourage landowners to consider creating rural "estates" or mini-farms (at one principal dwelling per 10 acres, for example), a "Country Properties" option is included. Several incentives are offered for those who choose this alternative, including special street standards for gravel-surfaced "country lanes", and the ability to add two accessory dwellings per lot (subject to certain size limits and design requirements for harmonizing with the rural landscape). Another low-density option of four-acre lots is provided for developers who feel that there is a strong local market for executive homes on large lots, but which are smaller than the 10-acre mini-estates.

The fifth, highest-density option would involve a significant density bonus, doubling the pre-existing yield to produce well-designed village layouts in a neo-traditional manner, including architectural standards for all new construction, tree-lined avenues, village greens, parks,

playgrounds, and broad perimeter greenbelts or conservancy areas in which mini-farms could be situated. (For additional details about this design option, please refer to #5 below.)

2. Natural Features Conservation Standards

The zoning technique known as *Natural Features Conservation Standards* typically excludes certain environmentally sensitive lands from development activities. Depending upon the fragility of the resource, restrictions can prohibit construction, grading, and even vegetative clearing (especially when steep slopes co-occur with highly erodible soils). "Net-outs", which subtract constrained land from the acreage on which building density is calculated, often accompany *Natural Features Conservation Standards* and effectively reduce the maximum allowable density when environmentally constrained lands occur. The percentage of constrained land which is subtracted typically varies according to the severity of the building limitation imposed by the site feature involved. This variation on *Natural Features Conservation Standards* is sometimes called "density zoning" or "performance zoning", described below.

3. "Density Zoning"

This approach, frequently referred to as "performance zoning", was first promoted actively in Bucks County during the early 1970s, and an excellent publication by that name is still available from the county planning department in Doylestown. Under "density zoning", the permitted intensity of development directly relates to the ability of the site to safely accommodate it. This tool provides municipalities with a highly defensible way to regulate building density, in contrast to conventional zoning which designates entire districts for a single uniform lot size. While the latter "blanket" approach is defensible at higher densities in serviced areas, this more finely-grained "performance" approach, which responds to the constraints present on individual parcels, is legally more sustainable in outlying areas where a community wishes to place stricter limits on new development for a variety of sound planning reasons. Courts which have rejected attempts to zone entire districts for two-, three-, or five-acre lots in Pennsylvania have upheld ordinances that place similarly restrictive density limitations on land that is steeply sloping, shallow to bedrock, or underlain by a seasonally high water table. (The definitive court decision on this issue is *Reimer* ***vs.*** *Upper Mt. Bethel Twp.,* 615 Atlantic Reporter, 2nd, 938-946.)

Under this approach, various "density factors" are applied to different kinds of land to objectively calculate the true area of unconstrained, buildable land within any given parcel. In that way, tracts of good flat, dry land would be eligible for full density, while other parcels of the same overall size but with fewer buildable acres would qualify for proportionately fewer dwellings. However, for more effective control over the location of house-sites and to limit the percentage of the development parcel that is converted from woodland, meadow, or farmland to suburban lawn, density zoning must be combined with other land-use techniques encouraging or requiring "conservation subdivision design", described under "Subdivision Ordinance Refinements", below.

"Landowner Compacts"

Although this approach is not currently prohibited, neither is it encouraged (or even mentioned in the zoning as an option for people to consider) in most communities. Simply put, a landowner compact' is a voluntary agreement among two or more adjoining landowners to essentially dissolve their common, internal, lot lines, and to plan their separate but contiguous landholdings in an integrated, comprehensive manner. Areas for development and conservation could be located so that they would produce the greatest benefit, allowing development to be distributed in ways that would preserve the best parts of the combined properties. Taking a very simplified example, all the development that would ordinarily occur on two adjoining parcels could be grouped on the one containing the best soils or slopes, or having the least significant woodland or habitat, leaving the other one entirely undeveloped. Two landowners would share net proceeds proportionally, based upon the number of houselots each could have developed independently. The accompanying illustration shows how a "landowner compact" might occur on two hypothetical adjoining properties.

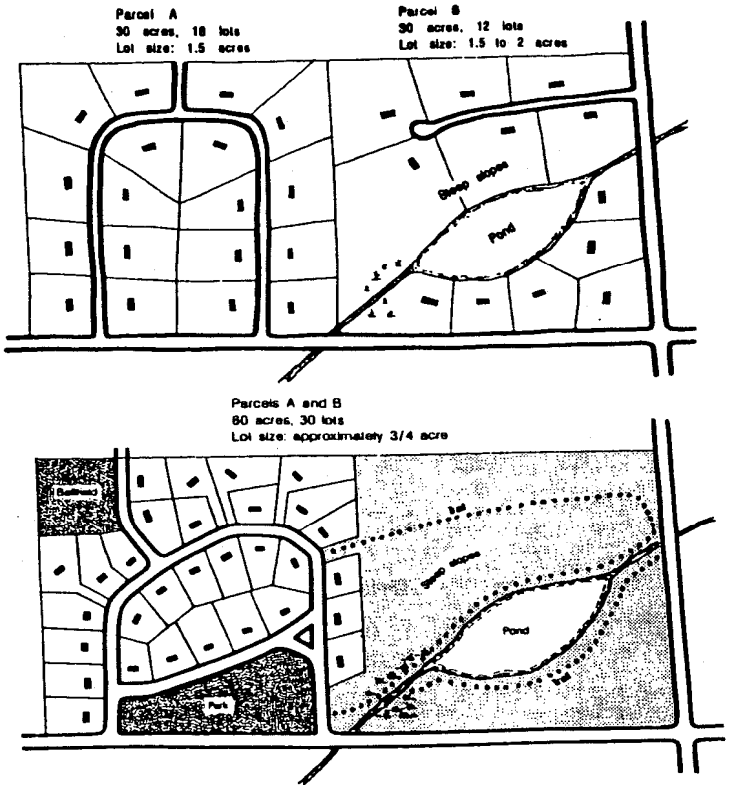

Figure 14-10. These sketches illustrate contrasting approaches to developing two adjoining parcels, each 30 acres in area. Parcel A contains very few site constraints and could easily be developed into the maximum number of lots permitted under local zoning: 18 lots. Parcel B contains some steep slopes, a pond, and a small wetland area, but could still be divided into 12 lots. However, much of parcel B is also covered with some rather special stands of trees, which would be completely unprotected under local regulations: mature hemlock groves around the pond, and numerous large beeches on the hillside. The landowner compact approach would allow the common boundary between the two parcels to be erased, so that an overall plan could be created for distributing houselots in a manner that would preserve all the important natural features on parcel B. The en-tire development of 30 homes could be located on parcel A, together with a natural park/buffer along the public road, and a ball field in one corner. Net proceeds would typically be divided in a proportional manner between the two owners, for example, 18/30ths (60 percent) for the owner of parcel A, and 12/30ths (40 per-cent) for the owner of parcel B.

5. Traditional Neighborhood Model

When it is deemed necessary or desirable to accommodate a diversity of housing sizes and types, including semi-detached and multi-family dwellings at a variety of price ranges, that development can best be handled through the creation of new neighborhoods designed along traditional lines, rather than as suburban-style 'Planned Residential Developments' with garden apartments and townhouse condominiums (where the central organizing principle typically appears to be the asphalt parking lots). Accordingly, the zoning ordinance should be amended so that higher-density development will be guided by detailed design and layout standards regarding lot size, setbacks, street alignment, streetscape design, on-street parking, the provision of interior open space as well as surrounding greenbelt areas, etc. Where appropriate, high density development should be allowed in a manner that reflects the best of traditional villages and small towns in the Commonwealth, such as Bellefonte in Centre County and Lititz in Lancaster County. (An excellent resource in preparing such zoning design standards can be found in *Crossroad, Hamlet Village, Town: Design Characteristics of Traditional Neighborhoods, Old and New,* by Randall Arendt, American Planning Association Planning Advisory Service Report, 1999.) Zoning standards for traditional neighborhoods should always include numerous illustrations including aerial perspectives, street cross-sections, building elevations, photographs, and streetscape perspectives, so that intending developers will know what the municipality expects before they prepare their proposals.

6. Transfer of Development Rights (TDRs)

Another technique that might ultimately help to conserve some of the Township's undeveloped lands is known as the "transfer of development rights" (TDRs). Under this approach, a zoning ordinance amendment would authorize developers to purchase the rights to develop one parcel of land and to exercise those rights on another parcel within the township. Such an ordinance would determine the areas from which those rights may be "sent" and those which would "receive" them, either by designating special districts for such purposes or by establishing certain objective criteria to be met in each case.

When most rural lands are already zoned at suburban densities (one-half to two acres per dwelling), the number of potential units that would need to be accommodated within TDR 'receiving districts' becomes extremely high, unless only a small part of the rural area were to be protected in this manner. The experience of TDRs in several Pennsylvania townships is that the "sending districts" (to be preserved) should therefore be relatively modest in scale, so that they will not overwhelm the 'receiving districts' with more dwelling units than they could reasonably handle. For this reason, *in areas zoned for suburban densities (e.g.* 0.5 to 2.0 dwellings/acre), TDRs are inherently limited to playing only a partial role in conserving a community's undeveloped lands, and they should therefore be viewed as a tool mostly for use on an occasional basis. An exception to this general rule in Pennsylvania is Lancaster County, where numerous townships have -- with the political support of their Amish and Mennonite farmers -- down-zoned much of the agricultural land to base densities of 20 or more acres per dwelling. Once those local political decisions were made, it became relatively easy to draw

"urban growth boundaries" around the remaining parts of those townships and to designate them as TDR "receiving areas".

In West Bradford Township, Chester County, the TDR technique was used successfully in 1997 to protect the scenic and historic Albertson-Yerkes farm at the edge of the historic village of Marshallton, from which the majority of development rights were transferred to a wooded tract several miles away. The success of this transaction was largely due to the general public consensus that preserving the scenic viewshed around Marshallton was extremely important to conserving the Township's rural character, and the broad support which existed among residents for employing this special technique to achieve that objective gave the Supervisors and Planning Commission the backing they needed to adopt this special procedure. Areas that are designated to receive the TDR development rights must be appropriate in terms of general location, accessibility, and public water/sewer service or soils suitable for community water and sewage treatment systems. To gain greater political acceptability at the local level, it is important that the TDR technique should be combined with detailed design standards to control the appearance of the areas designated to receive the additional development rights, so that they will resemble historic hamlets and villages with traditional streetscapes and neighborhood greens (as advocated in A.5 above), rather than higher-density groupings of attached housing arranged in a suburban manner around cul-de-sacs and large parking lots.

In West Vincent Township, also in Chester County, the Supervisors saw a large proposed golf course subdivision with its own new spray irrigation sewage treatment system as an incredible opportunity to save pristine farmland elsewhere in the municipality. By identifying that project site -- a lovely gentlemen's farm already targeted to be bulldozed and developed -- as a TDR "receiving area", West Vincent could, in effect, "turn lemons into lemonade". With conservation uppermost in their minds, officials strongly suggested that the applicant buy a large number of development rights from farmers in other parts of the Township previously identified as TDR "sending areas". In this way the developer could significantly increase the number of units over which it could spread its fixed costs (sewage system, golf course, etc.), while at the same time playing a very major role in conserving many acres of productive farmland elsewhere in the community, where rural preservation was much higher on the municipal agenda.

Common characteristics of these two examples are the outstanding vision and leadership shown by local officials who pro-actively led developers in new directions and had the courage to pursue this course amidst the inevitable objections of abuttors in the "receiving areas". Another common thread is the laser-like focus of these officials on preserving certain well-defined, very special areas, for which there existed broad agreement and popular support. Where these two communities succeeded, others had previously failed, often because their TDR "sending area" boundaries had been drawn far too generously, encompassing considerably more acreage than could possibly be saved without creating new developments that would be much larger or denser than local residents could comfortably accept as the price of preserving land elsewhere in their township.

In other words, TDR policies should be pursued -- at least at first -- in a "baby step" fashion producing modest but solid successes, and avoiding large-scale "fantasyland" notions of preserving entire rural landscapes with a TDR "silver bullet". Better to register a respectable gain with a relatively small project than to experience an embarrassing defeat from an idealistic attempt to accomplish too much, too fast. Such was the sad case in Kennett Township, also in Chester County, where local officials tried to preserve 700 acres of farmland by compressing that many acres of development onto a 55-acre site. The tightly-packed model village plan they commissioned an urban design team to produce was vociferously rejected by large numbers of residents who judged the proposed layout containing hundreds of rowhouses, twins, and occasional single-family homes as more appropriate to Philadelphia than to their quiet rural community. Some residents suggested that the Supervisors turn their energies instead into actively promoting conservation subdivision design -- as exemplified in the successful "Ponds at Woodward" project which had preserved a 50-acre orchard and a 10-acre woodland, while not increasing overall density above the two-acre/dwelling standard in that district. A well-balanced approach would include both strategies, in addition to PDRs and landowner stewardship (such as easement donations to land trusts). Unfortunately, the political firestorm ignited by the Township's overly ambitious TDR/village initiative effectively killed any further interest in that approach in that community, at least in the foreseeable future.

Inter-municipal TDRs could alleviate problems typically associated with finding areas of the community where designation of higher-density "receiving areas" is politically acceptable, provided the *Municipalities Planning Code* were amended to authorize such transfers. However, transferring development rights between jurisdictions would require a much higher degree of cooperation and coordination than typically exists among local governments. Another consideration is that Pennsylvania communities cannot rely upon TDR provisions to meet their conservation objectives, as the MPC prohibits municipalities from mandating this technique.

7. Purchase of Development Rights (PDRs)

As with TDRs, this technique is inherently limited as an area-wide protection tool by suburban zoning densities, which create land values that are beyond the affordability range of most communities. However, PDRs (like TDRs) provide an excellent way for a municipality to conserve an entire parcel on an occasional basis, and for this reason they can become an important element in protecting individual properties of great local significant, from time to time. As with TDRs, PDRs can potentially play critical supporting roles to other techniques that hold more promise as a method for protecting the majority of unbuilt lands in the community, such as conservation subdivision design (see B.5). Their advantage is that they protect typically whole properties, while conservation subdivision design (CSD) protects 40-70 percent of each parcel. (However, CSD can protect interconnected networks of open space, while PDRs usually save isolated parcels.)

B. SUBDIVISION ORDINANCE REFINEMENTS

The subdivision and land development ordinance should be specifically amended to include the following six items:

1. Existing Resources/Site Analysis Maps

Base maps showing fundamental site information (such as topography, and the boundaries of floodplains and wetlands) have long been required as part of the subdivision review process. In recent years several municipalities have substantially expanded the list of features to include many resources identified in their open space plans. The new kind of base map that has emerged from this evolution, sometimes called an *Existing Resources and* Site *Analysis Map,* identifies, locates, and describes noteworthy features to be designed around through sensitive subdivision layouts. These resources include many otherwise "buildable" areas such as certain vegetation features (including mature, undegraded woodlands, hedgerows and copses, trees larger than a certain caliper), farmland soils rated prime or of statewide importance, natural areas listed on the *Pennsylvania Natural Diversity Inventory (PNDI)or* which support flora or fauna that is known to be threatened or endangered, unique or special wildlife habitats, historic or cultural features (such as farmhouses, barns, springhouses, stone walls, cellarholes, Indian trails, and old country roads), unusual geologic formations, and scenic views into and out from the property.

Even in conventional large-lot subdivisions a few of these natural and cultural features can occasionally be conserved through sensitive street alignment, and by drawing lot lines so that particularly large trees, for example, are located near lot boundaries and not where houses, driveways, or septic systems would be likely to be sited. However, flexible site design in which lot dimensions can be substantially reduced offers the greatest potential to conserve these special places within new subdivisions. It is recommended that this kind of approach be more strongly and effectively encouraged through updated zoning provisions (such as those which offer a combination of density bonuses for sensitive land-conserving layouts to encourage this conservation design approach -- and also density disincentives to discourage conventional land-consuming layouts).

2. Pre-Sketch Conference and Site Visit

Subdivision applicants should be encouraged to meet with officials or their staff informally to discuss ideas for their properties prior to the submission of a Preliminary Plan, and to walk the land with the *Existing Resources/Site Analysis* Map in hand at this formative stage. As state law does not specifically authorize Sketch Plans, these steps should be included within the subdivision procedures section as optional but strongly recommended. Developers interested in expediting the review process will often take advantage of this option, as it helps everyone become better acquainted with the issues earlier in the process. Developers can obtain clearer insights into what local officials are looking for, in terms of conserving particular site features, or wanting to avoid (in terms of impacts) by walking the property with them early in the planning process and identifying the noteworthy features.

3. Voluntary *Sketch Plans*

Sketch Plans are simple and inexpensive drawings illustrating conceptual layouts of houselots, streets, and conservation areas. They should ideally be based upon the *Existing Resources/Site Analysis Map,* and comments received from local officials during the pre-sketch conference and on-site visit. As with that conference and visit, municipalities currently lack authority under state law to require that applicants submit Sketch Plans *per se,* because such a requirement would expand the subdivision process from a two-stage procedure (with 90 days each for the Preliminary and Final Plans) to one involving a third stage and additional time. However, some developers have found the sketch plan process to **be** time well spent, because it helps them to identify and address community concerns prior to spending large sums on detailed engineering typically required for so-called "Preliminary Plans" (where about 90% of the total engineering effort is often expended). The voluntary *Sketch Plan* helps all parties avoid the extremely common situation in which developers first pay to engineer expensive "Preliminary Plans" and then understandably refuse to modify their layouts in any substantial manner. The final nature of the highly-engineered Preliminary Plan, as the first document which local officials see, deeply flaws the subdivision review process by limiting dialogue and information exchange at the very point when it is most needed -- during those first crucial months when the overall layout should be examined and be open to modification.

4. Two-Stage Preliminary Plans (Conceptual and Detailed)

Many developers perceive sketch plans as adding to their time and costs (which is generally true only in the short run), and generally forego this opportunity to start the process with an informal sharing of ideas. To ensure that concepts are sketched out and discussed with local officials early in the process, before plans become heavily engineered and "hardened", it is highly recommended that subdivision ordinances be amended to split the 90-day review period authorized under state law for Preliminary Plans into two phases. Those applicants who decide *not* to submit voluntary sketch plans would be required to prepare *a Conceptual Preliminary Plan* during the first 30 days, and a *Detailed Preliminary Plan* during the following 60 days. The former would closely resemble the voluntary sketch plan in its requirements, while the latter would essentially encompass the requirements for the standard "Preliminary Plan". By the end of the first 30 days the Planning Commission or its staff must complete their informal but detailed review, specifying the kinds of modifications needed to bring the proposal into compliance with the applicable zoning and subdivision ordinance requirements. As with standard Preliminary Plan applications, in those instances where additional time is needed, a mutually-agreed extension should be signed by the applicant.

5. Conservation Subdivision Design

The term "conservation subdivision design" describes a relatively new breed of residential development where, in addition to wetlands, floodplains and steep slopes, the majority of

flat, dry and otherwise buildable land is protected from clearing, grading and construction by reducing lot sizes in order to achieve full-yield density. Conservation subdivision design offers the single most cost-effective way for municipalities to conserve their natural lands and the other significant resources identified in their Comprehensive Plans. It is seen as a potentially very useful tool for augmenting the land protection efforts possible through state and county funding programs, which are quite limited in scope. This design approach avoids the "taking" issue because developers can -- as of right -- achieve the full density allowed on their properties under the zoning ordinance, and because the land not converted to suburban houselots remains privately owned, typically by homeowner associations (although in some instances
developers have preferred to donate those portions of their subdivisions to local land trusts).

Conservation subdivision design differs from "clustering" in three important ways. First, it sets much higher standards for the quantity, quality and configuration of the resulting open space. Where cluster ordinances typically require only 25 or 30 percent open space to be set aside, conservation subdivisions designate at least 40 (and usually 50 or more) percent of the land as permanent, undivided open space. Unlike most cluster provisions, this figure is based only on the acreage that is high, dry, flood-free, and not steeply sloped. In this way important farmland or woodland resources (including terrestrial habitat), and historic or cultural features can usually be included within the minimum required open space.

Second, municipalities can exercise greater influence on the design of new conservation subdivisions. Rather than leaving the outcome purely to chance, this flexible design approach can be strongly encouraged or even required where the Comprehensive Plan has identified the location of noteworthy resources. That encouragement could take the form of strong density disincentives to actively discourage land-consuming layouts of large lots, combined with density bonuses for land-conserving design exceeding the minimum 50% open space requirement. In certain overlay districts where the resources are critically important or particularly sensitive, the ordinance could simply require all plans to follow the principles of conservation subdivision design. Those principles are described below, in #6.

Third, the protected land is also configured so that it will, wherever practicable, contribute to creating an interconnected network of open space throughout the community, linking resource areas in adjoining subdivisions, and/or providing buffers between new development and pre-existing parklands, state forests, game lands, wildlife refuges, or land trust preserves.

6. Four-Step Approach to Designing **Land-Conserving Subdivisions**

The majority of subdivisions across the Commonwealth are prepared by civil engineers and land surveyors whose professional training and experience has typically not included a strong emphasis on conserving the wide range of natural and cultural features essential the successful design of this new kind of subdivision. Therefore, subdivision ordinances should be updated to explicitly describe the steps involved in designing conservation subdivisions. A

simple-four-step design approach has been devised by Natural Lands Trust as a way of clarifying the process for all parties involved, including the landowner, the developer, and local officials.

The sequence of these four steps is critical and reflects their relative importance, with the first and most significant one being the identification of conservation areas. These include both the unbuildable land (wet, floodprone, steep) which are classified as "Primary Conservation Areas", as well as noteworthy site features which would typically not **be** highlighted as elements to be designed around in conventional subdivisions. Among those "Secondary Conservation Areas" would be mature woodlands, hedgerows, large trees, prime farmland, natural meadows, upland habitats, historic buildings, geologic formations, and scenic views (particularly from public roads). In other words, this design approach seeks to conserve those special places that make each community a distinctive and attractive place and, in that regard, is a tool that is uniquely well-adapted to implementing both the letter and the spirit of the municipal open space plans. Identifying these conservation areas is a fairly easy task, once the *Existing Resources/Site Analysis Map* (described above) has been carefully prepared.

Once the primary and secondary conservation areas have been identified (which comprise the most critical step of the process), house sites are located to enjoy views of, and often direct access to, the protected open space—which enhances their desirability and value. Siting the homes in this manner provides developers with a strong marketing advantage, compared with layouts where homes are boxed in on all sides by other houselots. The third step, aligning streets and trails, is almost a matter of "connecting the dots" for vehicular and pedestrian access, while the fourth and final step of drawing in the lot lines typically involves little more than marking boundaries midway between house locations.

It is virtually impossible to design a truly bad subdivision when following this simple four-step approach. Conservation subdivision design and the four-step approach can be institutionalized in municipal ordinances, providing communities with a ready tool to help them implement their open space conservation objectives even when parcels cannot be protected in their entirety, through donations, purchases, or more sophisticated planning techniques such as TDRs.

(Note: In laying out hamlets, villages, and other forms of traditional neighborhoods such as TDR "receiving areas", Steps Two and Three are reversed, signifying the increased importance of streetscapes, terminal vistas, and public squares in such developments.)