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DETAILED MEMO
Growing Greener Ordinance Assessment

TO: Hanover Planning Board

FROM: Randall Arendt, FRTPI

DATE: February 2, 2004

This *Detailed Memo* is divided into three parts, dealing with the *Comprehensive Plan*, the *Subdivision Ordinance*, and the *Zoning Ordinance*.

In addition, it is supplemented by a separate Appendix dealing with issues relating to the "gray infrastructure" (streets, drains, etc.).

Part 1: The *Comprehensive Plan*

Core Principles

Your Core Principles section is excellent, in terms of protection policies for natural resources and the goal of maintaining a 3:1 balance of urban-to-rural population (a powerful concept, expressed with elegant simplicity). The *Open Space Priorities Plan* (Map 5-3) is an impressive document in itself, and should become the touchstone for all future planning in the community.

However, in light of the fact that the vast majority of the undeveloped land in town is rural, the *Plan* should probably do a bit more to clearly acknowledge the hugeness of the challenge lying ahead (i.e., the challenge of accommodating three-quarters of future growth on a fraction of the Town's land area).

Policies

Restricting unserviced development and promoting the creation of two new village centers are very enlightened policies. Some measure of understanding the difficulties involved in necessarily infilling and densification is hinted at in the words "controlled change in downtown neighborhoods, consistent with the character of those neighborhoods". However, that statement somewhat begs the question of what that character is, and how the Town might finesse increased density (including attached dwellings) in or adjacent to established single-family neighborhoods. It is a smart policy to try to identify infill opportunities with the least potential impact (as mentioned in the *Plan*), but that might ultimately not be enough, and the Town should be prepared to advocate for a sensitive evolution in the character of some neighborhoods, if its 3:1 goal is to be attained, over time.

Implementation

Chapter 14 contains a number of very fine ideas, and closely parallels the enlightened policies enunciated in earlier chapters. It mentions the need for a new mixed-use zone (at Dresden village center), zoning revisions to maintain the 3:1 urban/rural resident ratio (without providing any further detail, except to mention performance zoning and TDRs), and declares a policy of maintaining a distinct limit to the extension of municipal services. It calls for a natural resources inventory to identify sensitive areas to preserve in the North Centerra Village Development Area, and tells readers that the subdivision ordinance needs to be updated to introduce elements of traffic-calming, and to make new neighborhoods more pedestrian-friendly.

As discussed below, I suggest that the Subdivision Ordinance would benefit from quite a number of additional improvements, dealing with both submission requirements (more detailed site inventories, site analysis, sketch plans), and more thorough procedures (site visits, four-step design process).

It is recommended that an amendment to the *Comprehensive Plan* include full descriptions of the specific kinds of revised language that would be needed in both the subdivision and zoning ordinances for implementation of the community-wide open space network shown on the *Town-wide Map of Potential Conservation Lands*, which should be added to the *Plan* as one of its cornerstone elements, defining Hanover's "greener vision" of its future pattern of development.

Specifically, the need for a *Context Map* (replacing the *Location Map*) providing generalized information as to the natural features within 2000 feet of the proposed development, plus a much more thorough inventory of site features in a detailed *Existing Resources/Site Analysis Map* should be noted, as well as the necessity of receiving this submission prior to the all-important Site Visit. The *Plan* should inform readers that both of these things need to occur before the critical *Sketch Plan* stage. The *Sketch Plan* itself should be described as taking the form of an overlay sheet, and my special four-step design process -- which begins with conservation areas being identified first, followed by house locations, streets/trails, and lot lines (in that sequence) -- should also be noted. In addition, review criteria need to be added to this section, which currently provides no guidance

whatsoever to inform applicants, staff, or Board members as to what the Town expects Sketch Plans to achieve, in terms of site features to design around and conserve.

One largish omission in the *Plan* is the lack of fuller zoning discussion describing the Town's visions for its infilling and new village centers. Some other communities (most notably Port Royal SC and Chestertown MD) have adopted new Comprehensive Plans quite recently, which embrace the design principles of the New Urbanism for completing and extending their built-up areas. I particularly commend the former, partly because the community has posted some excellent design principles for this kind of development on its website (www.portroyal.org, under "Master Plan"). I am not suggesting that Hanover adopt the New Urbanism *per se, although* many of its elements would seem to be a good fit, for what the Town says it wishes to achieve in terms of maintaining its 3:1 urban/rural balance. (Great language can be found at www.portroyal.org, under "Master Plan".)

So the essential question of how new development is to be shaped, what form it is to take, what it will actually look like, and the extent to which is will harmonize with the classic 18th and 19th century streetscapes that make Hanover such a delightful place remain unaddressed and unanswered.

One advantage of my fortuitous British training in town planning is that I had the opportunity to experience living in a number of outstanding cities, towns, and villages in England and Scotland, where I was able to absorb (almost by osmosis) many of the principles of good, traditional urban design. Books that I would not have been likely to have seen in a northamerican university, such as W.G. Hoskins' *Making of the English Landscape*, Gordon Cullen's *Townscape*, Thomas Sharpe's *Anatomy of a Village*, and Colin and Rose Bell's 2000-year retrospective of British town-making since Roman times (*City Fathers*) all influenced me.

The result of that osmosis, training, and reading was a profound uneasiness about the way that most communities in my native US are handling development ("mishandling" would actually be a more accurate verb). That uneasiness has manifested itself principally in the research and writing of a number of books whose purpose is to convey to the average reader (typically lay members of local planning boards, and their staffs), some of the practical ideas I have either picked up or developed with respect to how new development can be sited and designed in such a way that it fits into the established fabric of the community.

In *Rural by Design: Maintaining Small Town Character*, the first four chapters focus on these issues, as they relate to existing, older towns. Another chapter deals with ways to strengthen downtown centers and how to improve (or redevelop) commercial highway strips, while several chapters in the case study section (Part Four) highlight successful examples of development, both residential and commercial (and to some extent, mixed-use as well). I mention this because I truly believe that reading selected chapters of this volume could benefit local decision-makers in any community, as such individuals typically come to their positions without any particular background or training in this somewhat specialized subject matter.

By April it is hoped that the companion volume to *Rural by Design* will be back in print again. It is called *Crossroads, Hamlet, Village, Town: Design Characteristics of Traditional Neighborhoods, Old and New*, an even more richly illustrated publication providing scores of examples showing how new development can be designed and structured so that it truly complements the character of the community's historic design traditions.

Very little is said about architecture in all of this, partly because it is generally beyond the scope of authority of town governments to set architectural design standards (except within designated historic districts), and partly because the architecture itself does not matter nearly as much (especially after the first couple of decades of street tree growth) as does the pattern of streets, the depth of the setbacks, the provision of sidewalks, and (particularly) the regular planting of shade trees between streets and said sidewalks.

In perusing this book you will see how all these elements come together, how different dwelling types can be blended, how the concept of maximum setbacks (or "build-to" lines) come into play, why street frontage requirements are not essential when rear access (*via* alleys or back lanes) is provided, how lots can front directly onto neighborhood greens without frontage, or front onto greenways with no street between opposing housefronts, and how deadly-boring cul-de-sacs can be replaced with courts or "closes" creating central open spaces that are "a thing of beauty and a joy forever".

Architecture is dealt with mostly in terms of certain egregious errors to avoid, such as protruding garages with front-facing garage doors dominating streetscapes. That house style (known colloquially as the "snout house") is dealt with simply and cleanly by setting short maximum setbacks for house-fronts (say 20 feet), and deeper minimum setbacks (such as 40 feet) for front-facing garage doors. Of course, when back lanes (a.k.a. alleys) can be provided, such problems are neatly avoided altogether. Speaking of rear access, attached dwellings can be required to be designed with rear-facing garages so that their front facades may determine the character of the streetscape, with rear yards separated from the back lanes by parallel rows of attached garages, providing backyard privacy for residents.

However, the need for attached dwellings in towns such as Hanover might be minimized by introducing the concept of "detached townhouses", meaning detached single-family dwellings that are the width and depth of townhouses (say 22 feet wide and 40 feet deep), and built at densities similar to those of townhouse projects (such as one dwelling every 30 feet). That would produce side yards eight feet wide on one side, and none on the other ("zero lot line"). That narrow sideyard can be decked over and possibly screened in, as an airy, private sitting-out area or patio, something that regular townhouses do not provide. Privacy is assured by limiting windows on the neighbor's house facing the deck/patio to "clerestory" windows with sills above eye-level, and enclosing the front and back ends with privacy screens (say 42 inches high, enough to screen seated residents from street view, but also low enough to see over easily when standing up). Residents never have to worry about sound transmission through common walls, have the benefit of daylighting and ventilation on all four sides, and lower construction costs (as common walls with fire-proofing are less expensive to build).

The point of the above commentary is that it highlights the importance of certain design concepts having enormous implications for the physical appearance of a town as it expands and matures. I believe that, at some level, such concepts should be incorporated into both the *Comprehensive Plan* and the regulatory ordinances which implement *Plan* policies, goals, and objectives.

The above design concepts are part of what many planners call the New Urbanism, an approach that seeks to help communities connect with their

past when laying out street extensions and planning new neighborhoods and commercial nodes. My parallel backgrounds in historic preservation, British town planning, and land trust conservation projects have enabled me to blend New Urbanist thinking with conservation design, so that the resulting development pattern will be thoroughly respectful of natural and cultural features as well as harmonizing with traditional streetscapes.

However, all in all, your *Comprehensive Plan* is a very good document, with only a few items that could be added or clarified.

c. Supplementing the Implementation Chapter

The Implementation chapter closely parallels the policies contained in earlier chapters. For instance, it advocates for the creation of a new mixed-use zone ("Dresden Village Center"), zoning revisions to reflect the 75/25 urban/rural goal, and maintenance of district limits to municipal service extensions.

In addition, it calls for a natural resources inventory in the North Centerra Village development area, to help understand the most suitable places for intensive development, and the places that should be designed around and preserved. It calls for studying new approaches such as TDRs and performance zoning, and recommends further thought as to how to protect the village character of the Town's existing center.

Finally, it recommends revisiting the subdivision regulations to revise street standards to calm traffic and to make streets more pedestrian-friendly.

The above recommendations are very good, as far as they go. However, as an example of the items which should ideally be addressed in an expanded Implementation chapter, I feel the *Comprehensive Plan* should advise readers about certain new ideas in the use of the conservation design technique, such as protecting subdivision open space as "non-common" land owned by third parties, providing for land trusts to play an important role in preserving, owning, and maintaining conservation lands, and focusing protection techniques on easements (rather than on deed restrictions). Density bonuses to encourage public access to greenway trails, to encourage the donation of land for public playing fields, and to create endowment funds when land trusts receive part of the open space, are other *Growing Greener* ideas that could be incorporated into this section.

The easiest way to accomplish this would be to adopt all or most of the seven pages titled "Model Comprehensive Plan Language" in the *Growing Greener* workbook. Such amendments would give Hanover a firmer legal foundation for implementing the specific kinds of ordinance refinements described in this memo. The sections in my model *Comprehensive Plan* language that could be incorporated into your *Plan* describe seven different items appropriate for zoning ordinances and six items for the subdivision ordinance.

Many of these items refer to things the Town has not yet provided for, or which it is not yet engaged in (such as landowner compacts), while other items relate to things that it is already doing but which it could be doing better (highly detailed site analysis plans, site walks, *Sketch Plan* overlay sheets, and "traditional neighborhood design"). It does no harm to include such language in an updated *Comprehensive Plan*, and could help in several ways, making it easier to defend elements of your ordinances, and pointing the way toward even more innovative approaches that are worth considering as future ordinance amendments.

I believe that conservation design – when coupled with New Urbanist design principles– holds the key to the Town's future success in achieving its stated goals of creating attractive neighborhoods to help maintain the 75/25 urban/rural balance.

The beauty of this approach is that, unlike other techniques, this one:

- does not require large public expenditures (as do PDRs),
- does not require "down-zoning",
- does not depend upon landowner charity (as do land trust donations),
- does not involve complicated regulations for shifting development rights to other parcels (as do TDRs), and
- does not depend upon the cooperation of two or more adjoining landowners to make it work (as do "landowner compacts").

The salient differences between suburban PUD-style clustering and "conservation design" are detailed below, in terms of the basic requirements in the subdivision and zoning ordinances. These are the kinds of specific ordinance recommendations that I believe should be in your *Comprehensive Plan.*

The *Subdivision Ordinance* should contain, at a minimum:

- A requirement for a *Context Map*, showing all natural and manmade features surrounding the site.
- A requirement for a detailed site inventory of existing features upon which to base decisions regarding the development.
- A required Site Visit by the Planning Board members accompanied by the developer, with the site inventory in hand.
- A "*Sketch Plan* Overlay Sheet" showing the location of proposed conservation areas, house sites, and the circulation pattern,
- A Four-Step Design process in which the conservation areas are determined first, before streets/squares, houses, and lot lines are established.
- Standards for the configuration and location of the conservation lands so that the open space is designed to link up with potential conservation areas on adjoining properties to ultimately preserve a Town-wide network of protected open space.

The *Zoning Ordinance* should contain, at a minimum:

- The ability for an applicant to obtain full-density, through a "by-right" (not Conditional Use) approval process, but only when a conservation design option is selected, with accompanying TND standard
- A requirement that protected lands in conservation subdivisions are comprised of at least 50% of the buildable ground in one-acre districts, at least 60% of the buildable ground in two-acre districts, 75% of the gross land area in three- and four-acre districts, and 80% in five acre districts, etc. In general this works out to be about the same as a declaring a maximum lot size of about one acre (but 1/2 acre in the one-acre zone). The Town's current open space standard of 35% of the total tract area (in Section 501.5) is entirely out of line with the potential that your lower rural densities make possible. This low percentage is even more curious when one reads Section 502.5.B, which requires 65% open space in the denser districts

when PUDs are created. In denser, serviced locations, such as where 3-5 dwellings/acre might be expected, I usually aim for 25-35% of the net buildable land as open space. That approach is extensively illustrated in *Crossroads, Hamlet, Village, Town.*

• Strong disincentives to discourage "conventional" development, usually by reducing the density by half (or by classifying it as a Conditional Use – with the condition being a convincing demonstration that carving up all the resource land into standard houselots and no open space better implements key *Comprehensive Plan* policies). In your case, the Planning Board determination of whether a conventional layout may be submitted and approved is even an even stronger variation of this approach.

• I generally recommend adding a *Town-wide Map of Potential Conservation Lands* to the *Comprehensive Plan.* Such a map would encompass both "Primary Conservation Areas" (wet, floodprone, steep) and "Secondary Conservation Areas" (otherwise buildable woodlands, farmland, riparian corridors, cultural landscapes and scenic viewsheds, and other noteworthy features that help define the Town's special character). This map would illustrate the community's "green infrastructure", which is just as critical as the better-known "gray infrastructure" (roads, utilities, etc.) and would help to help preserve an interconnected network of conservation lands as the Town grows outward.

However, the excellent mapping in Figures 5-3 and 5-3a, illustrating open space priorities, might possibly take the place of that kind of *Town-wide Map of Potential Conservation Lands.*

The two kinds of maps described above are somewhat different, and those differences should be fully understood before the Town decides that its current mapping effort is sufficient (or not). For example, on the *Town-wide Map of Potential Conservation Lands,* one particularly useful data layer shows unprotected, undeveloped, and unconstrained lands (i.e., those that are vacant, buildable, and without protection). I would therefore recommend your considering creating such a *Map of Unprotected, Undeveloped, Unconstrained Lands,* which would show the location of woodlands, open fields, moderate slopes, and historic/cultural features so that the basic texture of these areas may be understood. That map could then be overlain with another one showing the severely constrained lands (wet, floodprone, steep) which are already protected from development through existing regulations, and also with a third one showing lands protected through easement, public ownership, etc. That third one might also show, in a related but different color, properties identified for potential acquisition by the Town or by a conservation organization. I believe that such a map would be a very useful tool to help Hanover focus its attention on the most critical parcels that might be protected in any one of a number of different ways, including creative development design.

Shades of Green: To simplify matters, the Town might proceed with a *Composite Map* rendered in essentially three shades of green:

• The darkest green would be reserved for public lands designated for conservation use, properties with conservation easements on them, and lands owned by conservation organizations such as land trusts. (Potential acquisitions could be shown in hatching of that shade of green.)

• The next deepest green would show the inherently unbuildable lands (wet, floodprone, and steep), a category I call "Primary Conservation Areas".

• The third and lightest green would include further resource lands such as woodlands and viewsheds that are not otherwise wet, floodprone or steep, plus a number of other features of the natural and historic landscape that are noteworthy and desirable to protect whenever feasible (a category I call "Secondary Conservation Areas").

This revised map could then be incorporated into the body of the *Comprehensive Plan.*

One final thought about the *Comprehensive Plan*: Drawing from my experience in Chester County, PA, the East Pikeland *Comprehensive Plan* contains a critical sentence stating "The nature of existing development practices should be analyzed to determine the extent to which the Township wishes to continue or discontinue selected practices." This is an excellent sentiment and I feel something like this should be printed in boldface type in every municipal plan. That passage recently led to the Township's engaging a planning consultant to personally visit and photograph the vast majority of subdivisions built there since the late 1950s, and to prepare a constructive critique of what he found, highlighting both positive aspects to encourage in the future, and negative features that should be avoided in new subdivision designs. Based on that experience, I would therefore recommend that Town officials visit past and current developments in your community and critically evaluate them, to learn first-hand how those subdivisions either succeeded or failed in terms of implementing its Plan policies, particularly those involving open space protection and conserving farmland. Learning from past mistakes or missed opportunities helps any community avoid repeating those errors, and also helps them to reach as high as their ideals. (To do this best, it is recommended that the applicant's original site analysis map showing all the property's existing features prior to development be retrieved from the files and studied, to appreciate the conservation opportunities, which had been overlooked at the time and subsequently lost forever. In the absence of such mapping, older aerial photos predating those developments could be examined. This would make it abundantly clear where and when conventional zoning has not served the Town well over the past several decades.

Part 2: Subdivision Ordinance

Purpose. Section 1.05 (Subdivision Design Objectives) encourages design creativity, the conservation of habitat, and the preservation of trees, open fields, scenic vistas, and outstanding natural and geological features. It also discourages the consumption of rural, agricultural, and forestland.

This is a rather comprehensive wish-list of features to be conserved and, if followed as written, it might be difficult to find many locations in town that would be considered suitable for development. In other words, this ordinance truly needs to be augmented with a prioritized list of resources to be conserved, not dissimilar from the one appearing in Article 6 in my model Subdivision Ordinance. More on that later.

I would suggest adding a reference to the natural resource inventory maps in the *Comprehensive Plan* (which could always be expanded in number and scope), and mentioning the need to conserve greenway corridors and to protect certain elements of the rural landscape even in Town's designated growth areas (such as notable tree stands, hedgerows, and even individual trees of note). It should also speak of the need to honor and continue the Town's historic building traditions in terms of streetscape design, and neighborhood open space. The existing wording misses an important opportunity to make these points.

Because many ordinances speak in their purposes section of the need for "mitigating significant negative impacts", it would be refreshing if this part of the code were reworded to state that developments should produce positive environmental outcomes. As typically worded, success could be defined as "getting down to zero", which is an odd way for a community to define the future it wishes to create. For instance, habitat areas that have been degraded by forest clearance and/or agricultural drainage could be restored or at least enhanced thorough management practices within open space preserved in new conservation subdivisions. As an example, drain tiles from old farm fields converted into subdivision open space could be crushed, allowing the original hydrology to reappear, supporting wetland vegetation and attendant wildlife.

b. Subdivision Procedures. The recommendations in this section are based on the model subdivision ordinance provisions described in detail in Chapters 4 and 5 of the *Growing Greener* book (and contained in its appendix), and also in the newly revised edition of *Crossroads, Hamlet, Village, Town.* These model ordinance provisions are also available from me in electronic form on a CD-ROM, to make your revisions easier. Key elements describe a fuller set of procedures and plan content requirements pertaining to more detailed *Context Maps*, *Existing Resources/Site Analysis Maps*, a *Site Visit* by local officials with that detailed site analysis map in hand, *Sketch Plans* as tracing paper overlay sheets on top of the *Existing Resources/Site Analysis Maps*, and a *four-step design process* in which open space is identified from the outset (in relation to a *Town-wide Map of Potential Conservation Lands*).

Context Map. The *Context Map* that I recommend is an extension of the general Location Map required in Section 5.06.c. These Location Maps are very sketchy affairs with precious little detailed information, just the minimum needed to identify where the proposed development site is situated within the Town. On the other hand, *Context Maps* show natural features on both the proposed development site and on adjacent properties. I usually recommend that Location Maps be expanded in scope in order to show reviewing officials the location of natural features and development patterns on adjacent properties and also within one-half mile of the development site (just five inches at the 400-foot scale).

To make this information easy to provide, and to minimize the cost involved, such data can easily be taken from existing published sources such as aerial photographs (from the USDA Natural Resources Conservation Service, formerly Soil Conservation Service) for patterns of vegetation and development, USGS topo sheets, FEMA floodplain maps, and USFWS wetlands maps. (If wetlands maps are not available, a good substitute is the UDSA soil maps -- which show locations of "very poorly drained" soils that are virtually wetlands.) These maps and photos should then be reproduced by the applicant's engineer to the same scale (1" = 400 feet).

The value of such an enhanced (and re-named) *Context Map* would be to help reviewers understand the relationship of resources on the subject property to natural and cultural features, and to possible development patterns, on adjacent and nearby lands. This kind of understanding is critical to planning for improved buffers and open space connections, and minimizing developmental impacts in the neighborhood. See Section 401.C.1 in the model ordinance for sample wording on *Context Maps*

2) *Existing Resources/Site Analysis Map*. The kind of drawing which I suggest the Town should require from the very outset of the process (i.e., the *Sketch Plan* stage) would -- compared with current regs -- provide a greater amount of essential information and would reflect a rather more thorough approach to documenting the location of a large variety of site features, ranging from those deemed to be critical to those considered to be noteworthy. It would typically be prepared by a landscape architect or physical planner for the developer, and would sometimes be based on recommendations from historic preservation specialists and/or conservation biologists. It would tell reviewers virtually everything they need to know about the property in terms of its noteworthy natural and cultural features.

Drawn to a scale of one inch equals 100 or 200 feet, it would reflect a thorough understanding of the site by those who have walked it extensively, so that even the location of noteworthy individual trees or tree groups, unusual geological formations (such as sinkholes and fault lines), vernal pools, prime farmland, or the depth of the public viewshed, could be identified. Regarding tree locations, the use of GPS technology makes their documentation relatively easy and inexpensive. This information enables the site designer, the developer, and the Town officials to render much better-informed decisions.

An increasing number of developers are beginning to understand that preserving trees -- whether they be notable individual specimens, hedgerows, or woodlands -- enhances the value of their projects, because buyers appreciate such amenities. With respect to the diameter at which a tree becomes noteworthy, I recommend girths related to specific species, such as 4 inches for a dogwood or redbud, 6 inches for a sassafras or holly, 8 inches for a hop hornbeam or water beech (the latter also called ironwood or musclewood), 10 inches for a wild cherry or black birch, 12 inches for a red oak, white oak, hickory, or beech, 14 inches for a tulip poplar, 16 inches for a sycamore, etc.

I feel that the *Existing Resources/Site Analysis Map* is the most important document in the subdivision design process, as it provides the factual foundation upon which all design decisions are based. My recommendations go beyond the standards currently contained in your Subdivision Ordinance, If we can agree that this information is necessary to enable the Town to render a fully-informed decision, and that it should therefore be submitted at some time during the review process, we should also agree that it should be submitted very early on, before any design work is conducted, so that the design process itself may be informed by these data.

3) Site Visit. Because it is impossible to completely understand a site only by examining a two-dimensional paper document inside a municipal building, it is essential that most of the voting members walk the property with the *Existing Resources/Site Analysis Maps* in hand, to take the full measure of the proposed development site. With the *Existing Resources/Site Analysis Map* in hand, Town consulting staff and officials would walk the property with a view toward offering suggestions about the recommended location of Secondary Conservation Areas. Without the benefit of experiencing the property in a three-dimensional manner (as opposed to reading a two-dimensional plan in a meeting room), it is extremely difficult to evaluate the proposed layouts. I might have missed it, but I did not see any requirement that any Planning Board member must visit the property to be subdivided and see it first-hand, before discussing the issues or voting on any motion. In my judgment this is a very serious -- but easily remedied -- deficiency.

Such visits really help provide a much better understanding of the best locations for potential conservation areas on the subject parcel, and their potential linkages to natural or cultural features on adjacent properties that might be developed sometime in the future. Site visits must be publicly advertised meetings, but can be structured as informal "outdoor work sessions" at which no decisions are reached. They should be scheduled either soon before or soon after the *Sketch Plan* is submitted. Once the expensive *Preliminary Plan* has been drawn up, the layout hardens and is extremely difficult to change in any meaningful way. I recommend inviting abuttors to obtain their input at a stage where such information can be very easily factored into the design process. Typically abuttors are invited only at the Public Hearing stage, after the highly-detailed *"Preliminary" Plan* has been produced, at enormous cost, which is far beyond the point when further input can be utilized. Experience has shown that the process runs much more smoothly when the legitimate concerns of abuttors are discovered from the get-go, and when they are treated as if their comments really matter (which is definitely not the message they receive when they are invited in only after the issues have pretty much already been settled between the Town and the applicant).

4) Sketch *Plan*. Section 5.02 could be strengthened by requiring that the *Sketch Plan* be prepared on tracing paper as a very useful "overlay sheet", lain on top of the *Existing Resources/Site Analysis Map*. This format enables reviewing officials and staff to see clearly how well (or how poorly) the proposed layout avoids impacting the underlying resources, and what opportunities have been taken (or missed) to actually improve site conditions (such as by helping to restore habitats degraded by prior agricultural practices).

It is quite impossible to judge the quality of a *Sketch Plan* layout without knowing exactly where all of the potentially significant or noteworthy existing features are located. Since all that information must be submitted sooner or later, it only makes sense to have it in hand from the start -- in fact from the outset, even before the *Sketch Plan* is submitted, at the very beginning of the process when the *Site Visit* occurs. As mentioned elsewhere in these memos, further details are also needed, such as the location of large trees by species and size, and even ephemeral but critical features such as vernal pools. Trying to evaluate how well a *Sketch Plan* has been laid out, without this kind of very basic site data, is like trying to play a game of Gin Rummy with a 28-card deck. Put another way, relying on an incomplete data-set, having only part of the information that is needed to render a truly informed judgment, the only kind of decision which can be made is a poorly informed one.

I believe that this plan (and other more detailed plans submitted later in the process) should be required to be prepared by either a landscape architect or by a physical site planner experienced in applying landscape architecture principles to development design. Some communities with which I am familiar regularly hire a landscape architect or planner of its choice, to walk the site with the developer, to understand the developer's building program (in terms of house widths, etc.), and to prepare a *Sketch Plan* for the developer, so that the planning process gets off to a positive start. A New Urbanist site designer with a working knowledge of ecological planning principles would probably be the best choice for infill sites, while the landscape architect would be preferred in rural areas. (A few practitioners, such a s myself, have relevant experience in both kinds of planning areas.)

The combined influence of the *Context Map*, *Existing Resources/Site Analysis Maps*, the *Site Visit* (by the entire Planning Board and relevant staff), the *Sketch Plan* overlay sheet (drawn on tracing paper), the *four-step design approach*, the professional design assistance from a landscape architect

or other physical site planner, and the various conservation zoning options (described in the *Growing Greener* book) would all make a significant difference.

Part 3: Zoning Ordinance Recommendations

Purpose. The "Preamble" section (101) makes no mention of the Town's important open space objectives, its 75/25 urban/rural goal for new development, or any of the critical policies in *the Comprehensive Plan*. The missed opportunities here are both numerous and significant. The Zoning Ordinance therefore lacks any beginning section that speaks to its overall purpose or vision, in terms of shaping new development to produce results in line with the Town's official policies (as contained in the *Comprehensive Plan*). To a certain extent, this omission is compensated for by the objectives listed for each zoning district.

However, this section nevertheless provides a splendid opportunity to frame the Town's overall vision, and even to mention some specific ways in which the zoning ordinance helps to implement those objectives, through conservation design in rural areas an some sort of traditional neighborhood development (akin to the New Urbanism) in its denser, serviced areas.

If the Town agrees that the principles of New Urbanism would serve it well, in terms of promoting extensions laid out in a manner which complements (and does not conflict with) the established pattern of historic streets that makes Hanover such a delightful place, I recommend that the ordinance reference this approach. If the *Comprehensive Plan* is updated in the way that I have suggested (incorporating some of the language from the Port Royal SC *Comprehensive Plan*), the zoning could simply refer back to your updated *Plan*.

2. Design Flexibility. The following paragraphs detail some zoning considerations as they pertain to conservation design and neo-traditional design provisions. This section is intended as a checklist of items to keep in mind when updating the zoning to encourage a blend of these more creative approaches to development.

3. Comparison of Typical Cluster/PUD Regulations and the *Growing Greener* Approach

Inasmuch as the Town has asked me to provide a detailed and constructive critique of its current regulations, I presume your interest in learning more about the *Growing Greener* approach (which I have helped many PA townships to understand and to adopt). It would therefore be appropriate at this point to discuss some of the salient issues raised by cluster/PUD regulations, and to mention the kind of alternative thinking embodied in the *Growing Greener* approach. A Massachusetts version of my PA model ordinances is available online through the Green Neighborhood Program of the CZM division of the Executive Office of Environmental Affairs, at www.state.ma.us/czm/osrdspecialbylawtext.htm

a. Minimum Tract Size. Regarding the minimum size for a tract proposed for conservation design, in many towns such minima are 20 or more acres, which effectively prevents this superior design technique from being utilized on parcels smaller than that, ensuring that every parcel less than that size will be subdivided in a conventional land-consumptive manner). Although your cluster/PUD regs do not appear to contain any minimum tract area, the temptation might exist for you to adopt one at the time the ordinance is being updated in the future. In Lower Merion Township, Montgomery County, the Board of Commissioners ten years ago decided to mandate the conservation design approach (not simply permit it), and applied this requirement to every parcel containing five or more acres. They recognized that even parcels at the lower end of the size spectrum could contribute a greenway link (such as along a stream valley), providing connections between open spaces on each side. If only one or two acres of flat dry ground are conserved on a five-acre tract, that would be plenty to serve as neighborhood green (or informal playing field), significantly enhancing the quality of life for nearby residents.

b. Districts Where Permitted. Many towns strictly limit the number of residential districts in which conservation design is permitted. However, to help the Town achieve its broader open space and rural character conservation goals, and to make the denser development in its services areas more livable, it is recommended that conservation design be permitted wherever the Town would like to preserve open space, particularly where protecting resource lands and potential greenway linkages could be a critical element in implementing future open space goals.

c. Density Determination. Most cluster/PUD regs offer varying degrees of density bonuses, but I am not convinced at all that such bonuses are necessary. Developers experienced in conservation design recognize that their development costs often decline due to much less mass grading, and also to shorter or less-wide street pavements. They also recognize the premiums they can charge for lots that abut or face onto protected open space (much as golf course developers do). However, in denser subdivisions in serviced areas, where many New Urbanist developers regularly report premiums achieved as a result of their more traditional streetscape emphasis, it is also true that this particular approach – which requires expensive amenity features to be provided up-front -- gives them a stronger argument for some additional density bonuses.

Section 501.4 .B offers a 10% density bonus for dedication of attractive and usable open space land for public use, which is something I have recommended for years.

Section 501.4.A establishes density as being on a par with what could be achieved in a "regular" or "ordinary" subdivision situation. This "density-neutral" approach is one I have long advocated in rural areas without services and low densities, but exactly how that level of density is determined should be elaborated upon in your ordinance. The current lack of clarity is extremely unhelpful.

Some towns make the mistake of basing density on gross tract area, divided by the normal minimum lot size in conventional subdivisions. However, the fallacy in that approach is that it does not determine units (or bedrooms) on the basis of the actual number of houselots that could normally be created on the parcel in a conventional layout -- taking into consideration the parcel shape and configuration, and the location and extent of wetlands, floodplains, and steep slopes. In other words, although the density in conventional subdivisions is never calculated on the basis of gross area but rather on the number of buildable lots that can realistically be created, given environmental constraints, no such logical approach applies when gross tract area is divided by a density factor expressed in terms of either dwellings/acre or bedrooms/acre.

That is the chief reason I prefer the "Yield Plan" approach, which is detailed below, just after another potential approach is described. My model *Growing Greener* code offers applicants a choice of two procedures for determining density in conservation design subdivisions. The first involves an arithmetical calculation on the basis of the total land area minus wetlands, floodplains, steep slopes, and public utility easements, as described below. The second involves a simple "Yield Plan". Both are described below.

1) Adjusted Tract Area. Many communities have adopted "density factors" whereby the amount of development (number of dwelling units) permitted on the property is determined not only by the underlying zoning, but also by the environmental resources present on the site. Logically, a property characterized by steep slopes and floodplain has less development capacity than one comprised of flat meadowland with soils suitable for on-site septic systems.

Section 4.4 of the *Growing Greener* book, and the model ordinances in the Appendix, show how this approach works. "Adjusted Tract Area" is the amount of land left after partially subtracting constrained land areas such as wetlands, floodplains and steep slopes. The density calculation is based on the Adjusted Tract Area.

Basing density on a site's ability to sustain development, rather than on a more arbitrary "one-size-fits-all" zoning district, is an approach that the courts in Pennsylvania have looked favorably upon. In *Reimer v. Upper Mt. Bethel*, the Pennsylvania Supreme Court upheld a density factor system, which is quite similar to the one in the *Growing Greener* workbook. Like everything else in the model, the standards, such as the percentage of constrained land that would be "netted out," are subject to local adaptation.

To avoid legal challenges attacking the recommended net-out percentages, I strongly recommend that applicants be permitted to follow a second, alternative method of density determination, in which they submit simple "Yield Plans" -- actual drawings demonstrating the maximum number of minimum-sized lots they could reasonably build on their property, given the realities of physical and environmental constraints (wetlands, floodplains, and steep slopes). This approach is very even-handed, as it essentially applies the same density calculation rules to conservation designs as it does to conventional layouts.

In other words, I suggest allowing developers to choose either a "net-out" formula (as described above), or the "Yield Plan" approach, where they show the maximum lot yield achievable with standard platting and use that as a basis for their cluster number. *Yield Plans* must, however, be realistic, without make-believe lots that would be unbuildable in the real world due to site constraints. Said another way, "Yield Plans" must pass the "straight-face" test, and must not contain any make-believe lots.

The "net-out" procedure contained in Section 104.C.1of the model *Growing Greener* zoning ordinance excludes 95% of wetlands, 75% of slopes >25%, and 50% of floodplains, which I believe is fair to applicants, given the fact that these kinds of land can typically be incorporated into the large conventional lots currently permitted in your conventional subdivisions.

2) Yield Plans. The *Yield Plan* helps protect the ordinance from being struck down in court on the basis that any "net-out" percentages are arbitrary -- which some developers' attorneys might be inclined to argue. To keep applicants honest, I recommend that the *Yield Plan* be subject to a reality-check in the form of a 10% sample of lots with septic system perc tests (in unsewered areas). Town staff or consultants would select which lots would be tested, based on slope, soils mapping, vegetation patterns, etc. Any lots that fail are automatically eliminated, and if any lot fails the applicant must wait another 30 days and submit tests for an additional 10% sample. This process continues until all the lots in the 10% sample pass muster.

Just as the *Yield Plan* should be an optional requirement, so should any arithmetical calculation of density in an alternative "net-out" approach, in our opinion, so that applicants may choose between the two. Even more importantly, as noted above, this choice would help to insulate the Town from any potential legal challenges to its density calculation formula, that it might inadvertently produce fewer lots (or dwellings) than would a conventional layout, in which the back ends of large, deep houselots are typically permitted to include

wetlands, etc. Under many poorly-conceived cluster/PUD ordinances, these constrained lands are totally excluded from density calculations, effectively penalizing developers who might consider opting for this more creative design approach. That penalty causes most developers to reject the flexible design option and submit farm-destroying cookie-cutter layouts with normal lot sizes.

By legislating maximum lot sizes (within an overall density control, such as X dwellings or bedrooms per adjusted acre) -- instead of requiring certain minimum lot sizes -- and by adopting design standards requiring developers to avoid certain sensitive areas (or simply areas with mature woodland, wildlife diversity, or scenic viewsheds), the Town's most threatened resources could be very effectively protected.

What is needed to protect the woodlands, habitats, farmland, viewsheds (or any other kind of natural or cultural feature the Town wishes to protect) is a set of design standards for conservation lands, as contained in Sections 601 and 603 of the model *Growing Greener* subdivision ordinance. Such standards address the protection issue directly, in a very effective manner, in a way that your ordinance does not yet accomplish.

d. A New Look at Density Incentives. Most of the older "cluster/PUD" ordinances on the books today include density bonuses as a "carrot" to entice developers to select this option. Fortunately, Hanover's ordinance does not fall into that trap. My experience is that density incentives (when unaccompanied by density *dis*incentives) typically need to be rather huge to successfully encourage developers to do anything different from the standard cookie-cutter layout in situations where they can easily continue to build these land-consumptive layouts at full density, by-right. However, large incentives often set up a certain community dynamic inadvertently, wherein local residents (often abutters) vent their displeasure at having to put up with a significantly higher number of people living nearby, not to mention more schoolchildren to educate, and more traffic to congest the roadways. Rather than face such opposition, most developers usually opt for the simple and relatively hassle-free route, with standard full density in standard lots and no open space.

For many years I have advocated *reversing this dynamic*, so that developers must "earn" their basic full standard density through conservation design with significant open space. Under this approach, there is no density bonus for the standard conservation subdivision with 50 percent of the unconstrained land designated as open space. That kind of development becomes the basic standard, and is the only way for developers to achieve full density. Those who wish to continue with cookie-cutter designs covering the entire development tract with houselots and streets may do so, but only at a lower overall density, as described below.

The Modern Idea of "Density *Dis*incentives". Most cluster/PUD ordinances make the grave error of continuing to allow conventional sprawl development as a full-density option, granted "by right". Under *Growing Greener*, communities have for the first time a truly effective method of actively discouraging such land-consumptive development patterns, which often also fail to create any sense of neighborhood or community. *Growing Greener* actively discourages large-lot subdivisions by reducing the overall density (or "lot yield") for applicants who elect not to participate in the conservation design approach. This is perfectly legal in most states. In fact, some towns have gone farther: they have eliminated the large-lot option altogether, not allowing it to be built at any density, as described immediately below.

Requiring Conservation Design in Certain Districts. I am not sure how much authority the Planning Board wields when it "recommends" or states "a preference" for open space design (in Section 5.08 of the Subdivision Ordinance). If its authority is very strong, and the recommendation is tantamount to a directive, the following sections of this memo may be disregarded. However, if the words mean no more than they plainly say in print, then the next several sections of this memo have much greater relevance.

If the latter is true, then Hanover might consider requiring conservation design and TND (instead of conventional plats) at least in certain situations where parcels are proposed for development along the Town's pre-determined *Map of Potential Conservation Lands*, to ensure that possible future greenway connection opportunities are not lost – particularly along rivers, creeks, and stream valleys. This approach would ensure that the interconnected network of open space would become a reality, and not simply be another good idea, which is not implemented.

3) Density Bonuses for Special Public Interest Goals. I would also suggest that you consider providing density bonuses to encourage developers to provide endowments for land trusts, which may eventually own and manage the open space, are also advisable, as described on page 48 of the *Growing Greener* book.

e. Conditional Use vs. By-Right. I feel rather strongly that the conservation design option should not be written to require review under the Conditional Use process, which is a provision in many zoning ordinances I have reviewed.

I believe that CU designation typically produces a chilling effect upon many applicants, frequently discouraging them from opting for this flexible design approach, and I would therefore strongly urge the Town to avoid the common mistake of running this superior approach to development through that additional process. The CU process tends to be lengthier, more costly, and with much less-certain outcomes. There is no reason a businessman would want to pursue such a route, when it is comparatively much easier to obtain

approvals with conventional cookie-cutter designs. Typical zoning provisions allows CU proposals to be turned down on the basis of vague criteria such as "impact on the neighborhood and surrounding properties", and permits the Planning Board to impose any "reasonable additional requirements". The CU process sometimes even requires approval by both the Planning Board and the BOA, placing applicants in double jeopardy. Plus, in such situations, the BOA may also impose additional conditions it deems necessary. It would be difficult to imagine an ordinance provision that would be unfriendlier to applicants, and that would be more likely to be rejected by them as a viable option. However, that is the trap into which some communities have fallen, in their paranoid fear that any deviation from conventional layouts could produce disastrous results that would lower property values and degrade nearby neighborhoods.

When adopting such flexible approaches, it is not necessary to designate them as CUs because they can be made to "perform" well through a set of detailed and strict "performance standards" relating to the quantity, quality, and configuration of the protected open space. Extra measures of protection for the Town, such as those guiding the design process (the "four-step" method, plus the detailed "Resource Conservation and Greenway Delineation Standards", both contained in the model subdivision ordinance in Sections 402.C.3 and 603) should give municipal officials a greater feeling of security that this new approach will produce superior results.

An important distinction between typical cluster provisions and conservation design is language in my model stating that the conservation design approach will be the only way that future developers may attain full density in new subdivisions. I therefore recommend that conservation design be designated as a by-right use, though subject to detailed design standards governing the quantity, quality, and the configuration of the open space. The Conditional Use process is often counter-productive, as it tends to drive developers away from the more creative design option, due to the extra time, additional submission requirements, and greater uncertainty associated with the CU process.

As mentioned above, an innovative twist to the typical Conditional Use approach—that might be of particular interest to Hanover -- is to apply it to conventional subdivisions with little or no open space. In other words, the CU process can become a good tool to actively discourage conventional layouts, which could be classified as requiring CU permits. The key to such an approach would be to require that applicants clearly demonstrate how their laughable cookie-cutter layouts would more effectively implement the *Comprehensive Plan* policies for protecting the Town's special character. In other words, the condition to be met would be for the applicant to make a clear and compelling case at a public hearing that a conventional approach to developing his parcel (with zero open space, and no neo-traditional streetscape design) would better implement the goals and policies of the Town's (updated) *Comprehensive Plan* -- a virtual impossibility, of course. But that is precisely the point: if a development does not further the goals and objectives of these documents, it should certainly not be approved and built!

f. Calculating Open Space Areas. In most "cluster" ordinances, some percentage for open space is established, and typically that number suffers from two flaws relating to quantity (too low a percentage, sometimes 20-25%) and quality (allowing wetlands and steep slopes to be included, as well as stormwater detention basins and land under high-tension electrical transmission lines). Your regulations appear to reflect both these weaknesses, if I have read them correctly.

In my view, much greater minimum required open space percentages should be established for Open Space Subdivisions, where the current 35% open space requirement (in Section 501.5) is substantially under-achieving. As mentioned earlier in this memo, protected lands in conservation subdivisions could be required to be comprised of at least 50% of the buildable ground in one-acre districts, at least 60% of the buildable ground in two-acre districts, 75% of the gross land area in three- and four-acre districts, and 80% in five acre districts, etc. In general this works out to be about the same as a declaring a maximum lot size of about one acre (but 1/2 acre in the one-acre zone).

Secondly, I believe that this minimum open space should be in addition to the most severely constrained parts of the property. I believe it is important to set minimum open space requirements as a percentage of the *net* buildable land area that is not constrained by wetness, floodability, or steepness. Said another way, in addition to certain percentages of lands that are inherently unfit for development (wetlands, floodplains, and slopes >25%), at least 50-80% of the remaining land should be earmarked as permanent open space in the various zoning districts. This would ensure that a good part of the total open space would be usable by more than ducks or mountain goats.

In higher-density districts (three to five du/acre) -- where it would be more difficult to reduce lot size to the same extent -- the minimum required open space percentage could decrease to 35% (again, based on net buildable land).

g. Open Space Ownership and Maintenance. In addition to the typical ownership options for the open space within new conservation subdivisions (such as homeowner associations, land trusts, and the municipality), I would recommend that a fourth category of ownership be established ("non-common ownership"), which would enable the developer or original landowner to sell part of the property to a third party who could use it for a variety of specified ways, such as gentlemen's farm, an equestrian center, a wholesale nursery, possibly a pick-your-own operation (berries, pumpkins, apples, etc.).

Pennsylvania examples of the non-common ownership alternative include the working orchard at *The Ponds at Woodward* subdivision in Kennett Township, Chester County, the wholesale nursery operation in *Indian Walk* in Buckingham Township, Bucks County, the horse pastures and equestrian facility within *Summerfield* in Elverson, Chester County, and the conserved fields at *Farmview* which are owned by a municipal land trust (the Lower Makefield Township Farmland Preservation Corporation), in Lower Makefield, Bucks County.

Advantages of non-common open space are varied. First, it reduces the acreage that the homeowner association needs to care for, simplifying their responsibilities. Second, it can provide for some additional local employment and higher property tax payments. And third, the opportunity to sell some of the open space to a third party could provide an extra financial incentive to developers, encouraging them to select the conservation design rather than a standard cookie-cutter approach.

Management plans are mentioned very briefly in Section 170-48.C.2.19, but no details are provided. In conservation subdivisions, the land which is not divided into houselots should be managed comprehensively (usually by a homeowners' association) to maintain or enhance the ecological health of the habit The land trust in Pennsylvania for which I still work part-time (Natural Lands Trust) has prepared a set of model land management guidelines for the subdivision open space. I could probably obtain a copy for the Town if folks are interested.

h. Limiting Active Recreation as Open Space Use. Unless the project were to involve the conversion of an existing golf course, I would recommend against permitting golf courses to consume more than half of the unconstrained open space, and would recommend inserting a detailed section pertaining to the design, layout, ownership, and maintenance of the open space. (Please see Section 110 of the model zoning language in the *Growing Greener* workbook, as well as Section 4.7 of the *Growing Greener* workbook text.)