5

Steps Involved in Designing Conservation Subdivisions: A Straightforward Approach

It is best to divide the process of development planning into two broad phases, one dealing with basic information collection and analysis and the second organizing this information and making judgments about the shape of the development itself. While the first is more objective, the second clearly involves more subjective decisions, which should usually be based upon certain design principles that provide a defensible rationale.

BACKGROUND STAGE

The first phase, the "background stage," involves four distinct steps: understanding the locational context, mapping special features, prioritizing objectives, and integrating the information layers.

Understanding the Locational Context

Within most townships or counties there are a variety of different locational contexts, some of which are more significant than others in terms of their relevance to the design process. Perhaps the

Figure 5-1. Site plan for the proposed expansion of Romansville, an historic hamlet within the rural/suburban township of West Bradford, Chester County, Pennsylvania. The author's design (at right) retains the entire density of the developer's original "cookie-cutter" plan (shown on the left) but arranges the development in a more compact village-like manner that preserves a substantial greenbelt of woodlands and farm fields around its perimeter. Due to their very compact nature, neo-traditional village layouts do not have the same high proportion of "view lots" that are commonly found in well-designed "conservation subdivisions." To compensate for this, the Romansville design includes five internal greens or commons (plus two ballfields), a relatively high number for a development of approximately 150 houselots.

most important is the site's proximity to traditional small towns or villages. New development within or adjoining such settlements should reflect and extend the historic streetscape and street pattern, especially in terms of their regularity and interconnectedness. Relationships between dwellings and streets are also important, in terms of modest, land-conserving front setbacks, sidewalks, and continuous rows of shade trees lining both sides. Special opportunities also exist here to avoid large off-street parking lots in higher density developments by designing streets with parallel parking spaces on both sides.

An interesting example of neo-traditional village design is the one prepared for Romansville, a hamlet within West Bradford Township, Chester County, Pennsylvania, where 150 dwelling units are proposed to occupy approximately 60 acres of a 160-acre site adjacent to this country crossroads settlement (a density consistent with local zoning standards). Dwellings are predominantly single-family detached, with about a dozen semi-detached homes and several apartments above shops or offices. The design is notable for its variety of lot sizes (5,000 to 30,000 square feet); its numerous commons, greens, and playing fields; and its extensive greenbelt of fields, woods, and trails (see Fig. 5-1).

The way neighborhood streetscapes would actually look in new developments that are patterned upon traditional small towns is perhaps better illustrated by the perspective sketch in Figure 5-2, from a conservation subdivision proposed in Dutchess County, New York.

In other more rural locations it is not imperative that the "traditional neighborhood" principles described above be observed, although it would be difficult to imagine a situation where they would *not* be appropriate (except in the midst of several conventional suburban subdivisions). On outlying parcels it is often equally fitting to follow more informal, irregular, or "organic" layouts, such as the one shown on the schematic plan in Figure 5-3, depicting the recent "River's End" subdivision on land bordering Deep Creek, near its confluence with the Nanticoke River, just outside the town of Seaford, Sussex County, Delaware. River's End is the county's premier example of an "open space subdivision" modeled on the principles of golf course development design, but without the course (which would be expensive to build and maintain). As with its conceptual prototype, the great majority of lots abut or face onto protected open space, including greens, meadows, ponds, wetlands, and woods. Altogether the 142 lots occupy a little less than half of the 245-acre property.

Although this particular development features commodious ¾-acre houselots, this approach is particularly appropriate when smaller lots are involved, because *the adjoining open space psychologically enlarges their actual dimensions to include some of those meadows, woodlands, or wetlands that are within direct view of the houses. In addition, the open space creates a welcome buffer on at least one boundary of each of these lots, which is preferable to being closed in on all sides by other people's yards.* Interestingly, this successful subdivision was not laid out by a landscape architect or developed by a professional developer. Rather, it is the creation of a retired economist who returned to his native Sussex with a vision for building a better place to live. As an observant layman who had thought quite a lot about the subject but who had never studied it formally, Ron Hastings concluded that the most pleasant kind of rural neighborhood he could create would be one in which about half the land remained in its natural state. And, as he says succinctly, *"Open space sells."* Having established a successful start at River's End with its upscale homes, Hastings has recently begun planning a second open space development. This development will be for Sussex County residents with moderate incomes, demonstrating that this design approach meets the needs of a wide variety of people, not just golfers and retirees with comfortable pensions.

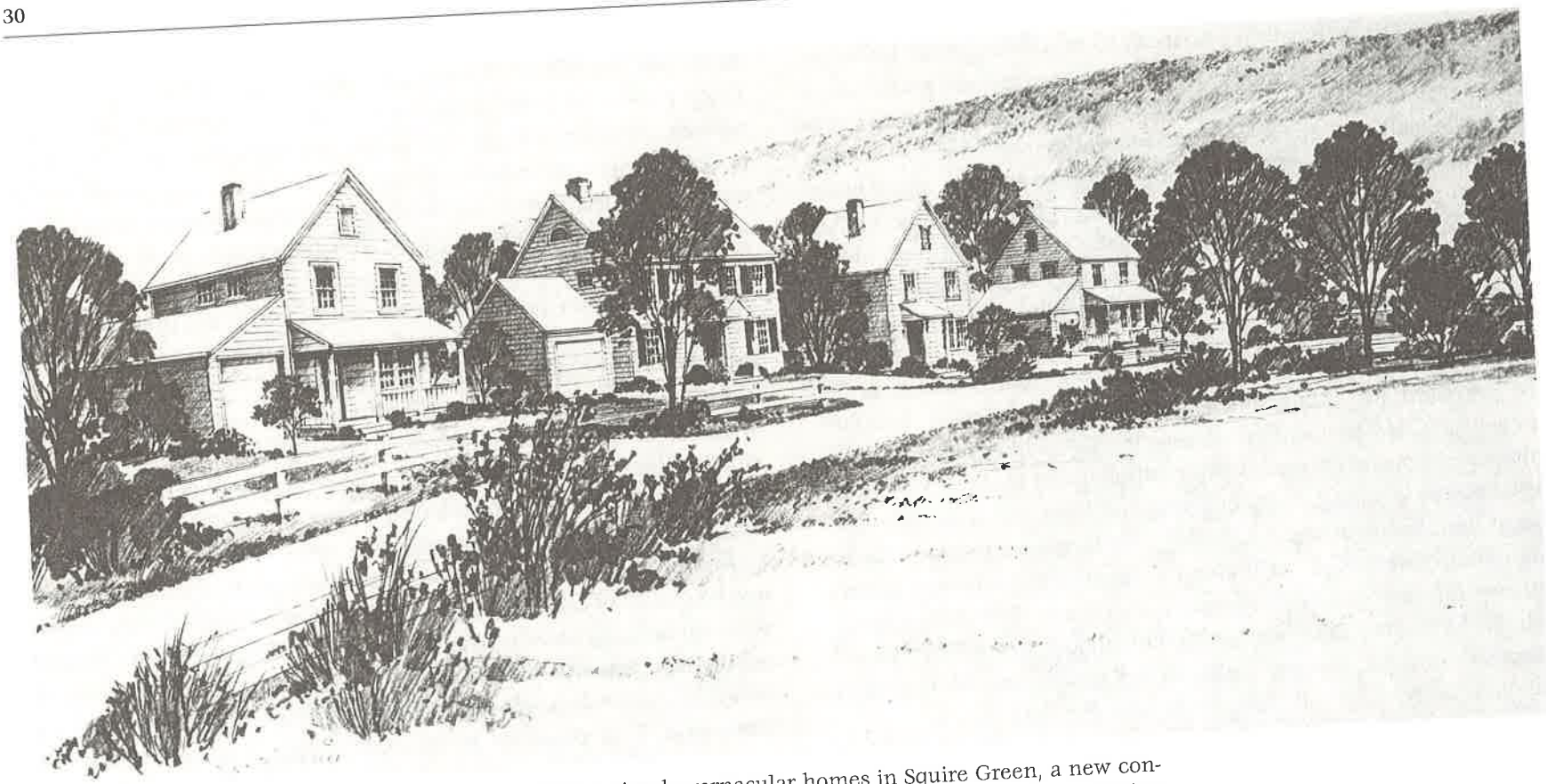

Figure 5-2. Perspective sketch of streetscape featuring simple vernacular homes in Squire Green, a new conservation subdivision in the town of Pawling, Dutchess County, New York. Note the shade trees, front porches, modest front yards, and familiar feel of this new subdivision designed along the lines of traditional neighborhoods in the classic American small town. (Courtesy SCI Real Estate Development, and Do Chung Architects of Stamford, Connecticut.)

Figure 5-4 shows a perspective sketch of a typical scene from a "conservation subdivision" designed in a more open and less formal fashion for a rural site out in the countryside (as contrasted with a "neo-traditional" village or an extension to a preexisting settlement).

Mapping Natural, Cultural, and Historic Features

Every new development should be based upon a fairly thorough (but not necessarily costly) analysis of the site's special features, both those offering opportunities and those involving constraints. All too often such efforts are limited to identifying legally un-

Figure 5-3. The site plan for River's End, near Seaford, Delaware, shows the relationship of its 142 lots to the 100 acres of open space preserved in this layout, including woodlands, meadows, ponds, streams, wetlands, riverbanks, and a neighborhood boat landing. Very few non-golf course developments in Delaware contain significant open space features such as these.

buildable areas to avoid, and moving as many units as possible onto the remaining land. That type of "short-circuit planning" could be discouraged through a new design standard for residential development, one that requires "Existing Features and Site Analysis Plans" to be submitted for review and that requires applicants to be prepared to demonstrate how they have followed the four-step design process described in the second half of this chapter.

Many of the special features of interest to site designers will be known to the landowner, who should always be consulted. A country landowner will know the fields that remain damp until late spring, places where the waterfowl nest, and the hollow trees where raccoons make their homes. After walking the site several times, from end to end in different directions (preferably in early morning or late evening, when wildlife is apt to be more visible), or in the early spring when groundwater levels are highest and vernal pools might still be present, the site designer is ready to relate to the published or readily available data. To this material he or she will then bring a personal familiarity with the land in question, including an appreciation of the visually most significant aspects of the property in terms of views into the site from existing public roads, and outward prospects toward external landscape features (such as meadows, marshes, and hills).

Listed below are the factors that development designers should include in their site analyses. An asterisk (*) denotes that the particular resource should be considered to constitute part of the site's "Primary Conservation Area" described in Chapter 2. Other resources fall into the category of "Secondary Conservation Areas." If your local government or land trust has completed a community-wide natural resources inventory, that set of documents would be the best place to start. If such information has not already been compiled for your area, individuals or groups interested in eliminating that deficiency should consult *Where We Live: A Citizen's Guide to Conducting a Community Environmental Inventory* (Harker and Natter, 1994, Island Press).

1. Soils

When on-site sewage disposal is proposed, the most suitable soils for filtering effluent (whether from individual or community filter beds, or from "spray irrigation" systems) are one of the most significant resources around which development should be organized. These locations should be identified and targeted for such purposes, including "reserve areas" for use if primary areas even-

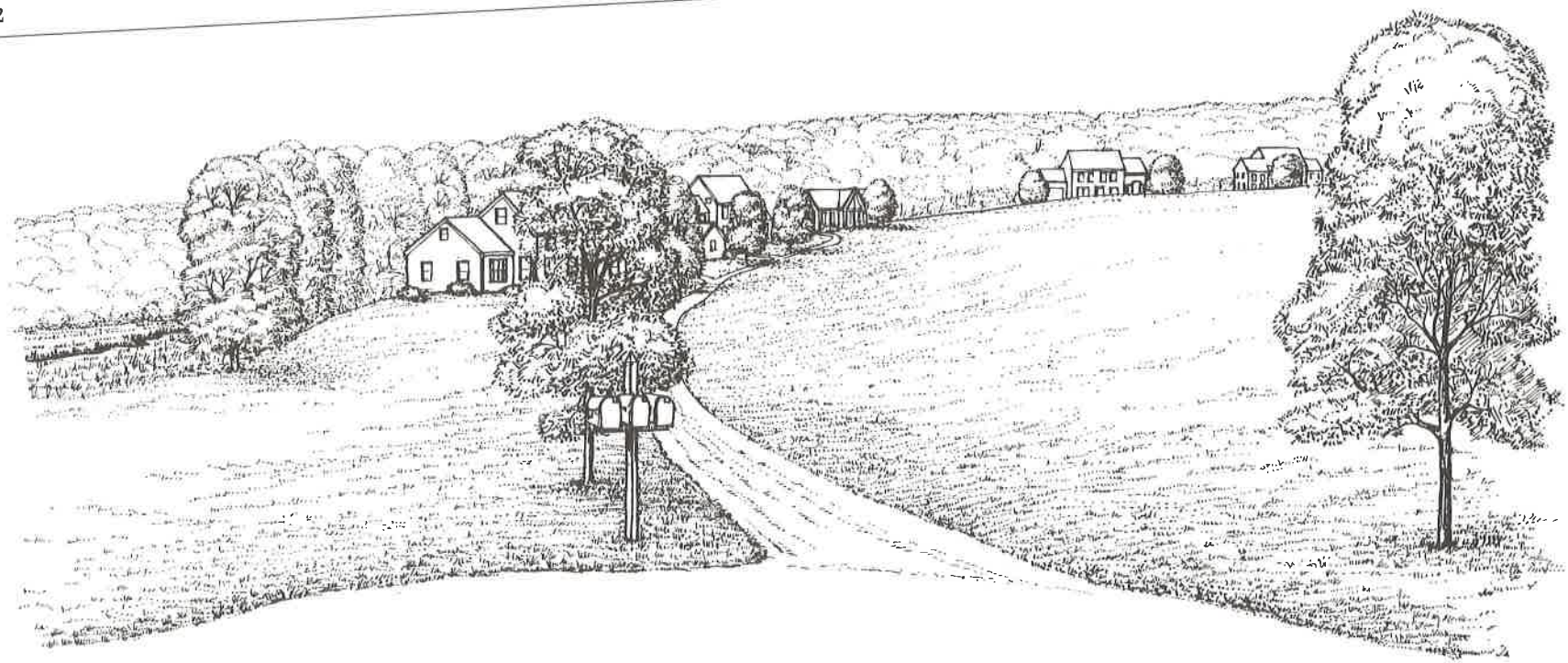

Figure 5-4. View across a protected meadow toward a group of new homes built at the edge of the woods. This view, from a township road, typifies the pattern of conservation and development represented by the examples illustrated in Chapter 7.

tually become saturated. The most favorable soils for septic disposal are those where the seasonal high water table or the impervious layer are four feet or more from the surface and which possess a medium texture, not being either too fine and silty (impeding drainage) or too coarse and gravelly (providing little filtration).

Other typical limiting conditions involve steepness or stoniness. *Medium-intensity soil survey maps* are available from local county agents of the USDA Natural Resource Conservation Service (NRCS), formerly the Soil Conservation Service (SCS). These maps are usually quite accurate down to about two acres, meaning that areas smaller than this can differ from the mapped category by being either less favorable or more suitable for the intended purpose than the map portrays. This level of mapping is generally quite adequate for identifying, in a broad-brush manner, the "Potential Development Areas" shown on the drawings for the case-study sites in Chapter 7. For purposes of identifying soils that would be suitable for subsurface sewage disposal, the accuracy of the SCS maps can be either greater or lesser than the two-acre standard, depending on the internal consistency of individual soil

types, which can vary from region to region. When dealing with soil types that are highly variable over short distances (such as the shallow-to-bedrock soils of northern New England, for example), special site-specific "high-intensity" soil surveys, accurate down to one-tenth of an acre, are strongly recommended at this stage in the design. (As this kind of detailed information will eventually be needed during the review process, when individual house sites and lot lines are proposed, such a requirement would not add to total project costs.)

On-site testing would also be desirable when the soil types occurring on a property are borderline in their suitability for sewage treatment. For example, in areas where septic system regulations require a minimum depth of 24 inches of *natural* soil above the impervious layer or the seasonal high water table, NRCS soil survey categories that include soils ranging from 18 to 36 inches in this vertical dimension will not be sufficiently detailed for the site designer, who will need the results of some on-site testing before he or she can do a good job of identifying viable house sites and lot boundaries. (This is true even when the septic systems are proposed to be situated within the undivided open space, because the locations of the best soils for such facilities play a role in determining where homes can or should be sited.)

Even when sewage will be discharged off site, the medium-intensity maps are a valuable resource, as they will show locations where basements can be built without flooding, and where *wetlands* can be expected. While they are not a substitute for a detailed wetlands analysis, these NRCS maps will show approximate locations of wetlands through their "very poorly drained" classification (which means that the land is occupied by standing water for at least several months every year). The next wettest soil class, "poorly drained," is a similarly good indicator of the presence of hydric soils where seasonal water tables close to the surface make cellars impractical and road construction somewhat more costly.

*2. Wetlands**

Both tidal and freshwater wetlands should be identified, together with dry, upland buffer areas around them. To the extent that land in such buffer areas would be buildable under federal, state, or local regulations, full density credit would be granted for applicants to use in other locations on their sites. As noted in several other parts of this handbook, these buffers perform a number of significant functions—filtering stormwater runoff, providing critical habitat at the land–water interface, and offering opportunities for wildlife travel corridors and informal walking trails for the immediate neighborhood.

Although a good general idea of their location can be determined by consulting the medium-intensity soil survey maps described above, the National Wetlands Inventory maps published by the U.S. Fish and Wildlife Service of the Department of the Interior, and/or wetlands maps published by state planning or environmental agencies, an on-site delineation by a wetlands specialist will be necessary at some point in the process to provide greater detail. If the applicant simply wants to sketch a rough layout first, to get an approximate idea of the site's potential for open space design, these materials will probably be sufficient. However, if he or she wishes to submit a concept plan on which more detailed layouts will be closely based, on-site investigations by appropriate specialists are advisable. Since these investigations will eventually be required, they might as well be done as early in the design process as possible, to improve the accuracy of every planning step along the way.

*3. Floodplains**

Although there is a long-standing tradition in some coastal areas and river valleys of permitting new structures elevated on specially engineered piers in areas prone to slow-moving floodwaters (but not in high-velocity floodways), this handbook recommends

against continuation of that practice because it is inherently unsafe and is contrary to broadly accepted principles of sound planning. Because such areas are sometimes deemed to be buildable in those communities, a density bonus—in addition to full density credit—should be offered to encourage developers in those areas to set their buildings, whenever practicable, beyond the 100-year floodplain, as shown on maps published by the Federal Emergency Management Agency (FEMA). On unwooded sites, views to the water will remain essentially the same, while on parcels with intervening woodlands, views can be substantially opened by removing lower tree limbs, an accommodation to developers that strikes a better balance than would otherwise be achievable. Unless wetlands are also present, construction could begin fairly close to the edge of these floodplains. A more effective measure would be to amend zoning to require that new buildings be set back 50 to 100 feet from the edge of floodplains wherever feasible, with appropriate, internally transferable density credits to avoid the "takings" issue.

*4. Slopes**

Due to their high potential for erosion and consequent sedimentation of watercourses and waterbodies, slopes over 25% should be avoided for clearing, regrading, or construction. Slopes of between 15 and 25% require special site planning and should also be avoided whenever practicable. Although slope maps are not published, they can be easily prepared by an engineer, planner, or landscape architect working from readily available topographic sheets printed by the U.S. Geological Survey.

5. Significant Wildlife Habitats

Habitats of threatened or endangered wildlife species form part of the "Primary Conservation Area" of any site and should be designed around and buffered. Likely travel corridors linking the areas used as food sources, homes, and breeding grounds should likewise be protected by including them in the conservation areas designated within the development. Locations that have been officially documented by state or county agencies should be identified on the development plan and buffered with additional open space for added protection whenever feasible. One of the greater challenges facing wildlife managers today involves minimizing the continued fragmentation of natural areas caused by new development, which at best often safeguards only isolated "islands" of habitat, without maintaining essential land and water connections needed on a regular basis by native animals. The importance of creating continuous greenways along waterbodies and watercourses lies primarily in their habitat conservation benefits (in addition to water quality protection and recreational trail opportunities). When isolated wildlife populations dwindle below a certain number (because their habitat has been fragmented and diminished to the point where it is unable to provide adequate food, water, and shelter), there is great danger that they will fall below their "minimum viable population" level and will disappear entirely from the locality.

Habitats of lesser significance should be placed in "Secondary Conservation Areas" to whatever extent is feasible, so that most of them will be safeguarded as well, reinforcing the "web of life" in the area's natural ecosystem. In both cases, of course, full density credit is allowed for all otherwise buildable land designated for conservation uses.

6. Woodlands

In areas where the majority of original forest has long been cleared away for commercial agriculture, woodlands may be described as remnants, often located in lower lying areas with relatively damp soils or on the steeper slopes. Despite—and perhaps because of—their small areal extent, these small woodlands play a particularly pivotal role for wildlife. Those woodlands growing on

wetland soils or on steep slopes are addressed in items #2 and #3 above and should be designated as "Primary Conservation Areas" on the Site Analysis map. Those on higher, flatter terrain often consist of mature upland forest where the land is easily buildable. To the maximum extent practicable, such areas should become "Secondary Conservation Areas" to be designed around and spared the chainsaw and bulldozer blade. In other parts of the country where woodlands constitute the primary land cover, Secondary Conservation Areas might include the most mature stands, or places where unusual species or special habitats occur. In recent years concern has risen among conservation biologists and others who point out that decreases in the number of some species of "neo-tropical" songbirds (that summer in this country and migrate to Central and South America every fall) have been caused in part by both the reduction and the fragmentation of our temperate woodland habitat. Because of rising costs of woodland clearing and stump disposal—estimated to be $9,000 per acre by one Pennsylvania developer—and due to a growing preference among many homebuyers for wooded houselots offering greater privacy and requiring less maintenance, the goal of minimizing woodland clearing is likely to be abetted by market forces in the future.

The best sources for defining the extent of woodlands, hedgerows, or tree-lines are the vertical aerial photographs that are commonly available through county offices of the USDA Natural Resource Conservation Service. These may be ordered as enlargements at working scales (such as 1 inch = 100 feet) and are indispensable in accurately locating not only tree stands but even individual trees (in meadows or fields, or alongside roads). This kind of detail enables site designers to take maximum advantage of these landscape elements, which can add immense value and enjoyment to new neighborhoods. Even a simple line of trees between abandoned fields is a feature worth designing around—for its value in privacy screening, the welcome shade it casts in summer, and the limited habitat it provides. Aerial photos can also be helpful in locating the relative positions of coniferous and deciduous trees, even when the latter are in leaf, due to the darker coloration of the conifers as registered on black-and-white film.

7. Farmland

According to many environmental officials, commercial agriculture frequently contributes to water quality problems in the groundwater and surface waters of many farming counties. There are a variety of techniques that could be made better known to farmers about ways in which they could operate their farms for high crop yields in an environmentally sensitive manner. Spreading manure in appropriate amounts and at the right time, and allowing untilled filter strips to grow along streambanks and drainage channels, are a few such ways. Some would argue that conversion of farmland to residential development is environmentally preferable because it is relatively easy to control nutrients in runoff from new subdivisions. Apart from the debate on the environmental impact of commercial farming upon surface water and groundwater, it is relatively difficult to maintain viable agriculture on the relatively small parcels spared through conservation subdivision design, especially if the land continues in traditional low-value pursuits such as field corn, soybeans, or dairying operations. For this reason, farmland preservation is not one of the principal goals of this handbook.

Environmentalists in farming areas also point out that it is usually preferable to develop farmland rather than woodland because the latter provides a much richer and diverse habitat for wildlife. Also, most of the original forest in farmland areas has already been cleared away for commercial agriculture, creating hot, dry, well-drained monocultural fields in place of shady woodlands, wetlands, and natural meadows that support a wider variety of wildlife.

However, former fields that were managed in an environmentally unfriendly manner, with heavy doses of agrichemicals to boost monocultural crop yields, can be easily converted to wildlife

meadows where many species of native grasses, wildflowers, and shrubs can provide cover, food, and habitat for birds and small mammals (as has been done at the Gwynedd Wildlife Preserve of the Natural Lands Trust in Upper and Lower Gwynedd Townships, Montgomery County, Pennsylvania). In metropolitan fringe areas it is also possible to retain some of this land in specialized high-value crops (such as vegetables, fruit, and nursery stock). Such arrangements seem to work best on larger sites when overall building densities are relatively low, in the range of one acre or more per dwelling. One example is the highly successful "Farmview" development in Bucks County, Pennsylvania, where Realen Homes built on half-acre lots (half the size usually required under existing zoning), leaving 137 of its 300 tillable acres in crops (and donating that conservation area to a local land trust). This is the fastest-selling development in its price range in the county, largely because people are buying permanent views of open space when they purchase lots in this subdivision. Because they can offer relatively attractive terms (low rents just to cover property taxes, and long leases), land trusts are often in a better position than most rural landowners to set conditions regarding the use of pesticides, manure, and so on, and to be more selective about whom they lease to.

However, in areas with serious, viable commercial agriculture, scattered large-scale residential development of any kind (including "open space designs") should be discouraged, and prime farmland should be comprehensively preserved through mechanisms such as urban growth boundaries, the purchase of development rights, the transfer of development rights, and combinations and variations of these approaches (such as the "density exchange option," as practiced in Howard County, Maryland).

8. Historic, Archaeological, and Cultural Features

Published documentation on the location of buildings or other resources with historic, archaeological, or cultural significance is far from complete. Therefore, after reviewing official lists such as the National Register of Historic Places and the historic or archaeological site inventories compiled by state and county offices of historic preservation and cultural resources, landowners and local historians or historical groups should always be consulted. In most cases, old buildings, ruins, cellar holes, earthworks, stone walls, burial grounds, or other resources will be of local rather than county-wide or regional importance. Nevertheless, as with small tree groups or nesting areas of relatively common waterfowl, it is worthwhile to steer roads, houses, and lawns to other parts of the development site to avoid impacting them when other, more suitable, locations exist for these new uses.

Because even outstanding structures listed on the National Register are not protected from demolition (unless federal funds would be involved, or unless they are also governed by a strict local historic district ordinance), these resources possess none of the legal status accorded to environmentally sensitive wetlands or floodplains and therefore should be considered as part of the "Secondary Conservation Areas." Features such as stone walls marking old field patterns and sites of known battles would be classified in the same way—placed within the open space so that they may remain intact and buffered wherever appropriate.

As no building density value is lost through this approach, it makes good sense even from a business point of view. On a wooded tract in Spotsylvania County, Virginia, one developer located his lot lines and houses to avoid disturbing or too closely encroaching upon an old mill site and lengthy earthen trenches used during the Civil War. He later capitalized on these features by erecting large cast-iron historic marker signs describing their significance and by incorporating the historic theme into his marketing strategy. In the absence of any land-use regulations prohibiting development on top of these resources, staff at the Fredericksburg–Spotsylvania National Military Park have applauded his initiative. They are also supporting proposals to incorporate "conservation subdivision design standards" into new

county regulations governing development of sites containing battle-related resources.

Similar steps are being taken in Currituck County, North Carolina, where the owner of a development parcel bordering Currituck Sound has expressed interest in utilizing these creative design techniques to avoid impacting a significant Woodland Era Native American site, while also increasing the number of new homes that would face onto the water across a waterside conservation area. County officials have expressed similar interest in incorporating these design principles into their new land-use codes, based upon a demonstration design for the above site prepared by the Natural Lands Trust as part of the Albemarle–Pamlico Estuarine Study (see Site G in Chapter 7).

9. Views Into and Out from the Site

This aspect of site design is often one of the most important from the perspectives of both the developer and the general public, who tend to see properties from different directions. Developers usually wish to maximize attractive views outward from potential homesites, while the public typically desires that new development be as visually inconspicuous as possible. Although these two objectives can easily conflict, it is often possible for development to be sited or buffered in such a way that everybody's principal interests are accommodated.

From a developer's point of view, it is desirable for sales purposes to maximize the number of homes with attractive views. This can often be achieved in creative ways that are less disruptive than the results produced through conventional platting. In areas with visually prominent ridges on which homes may be perched, Secondary Conservation Areas might include the ridgetops, requiring that new development be located sufficiently below the crest so that the horizon will continue to be defined by the ridgeline, rather than by rooflines. In situations where this is not feasible due to steeply sloping hillsides or parcel configurations, houses should be designed with a low profile, and sufficient woodlands should be retained (or planted) around and behind them to soften their visual impact. Large clear-cuts to open up panoramic views should also be prohibited, and cutting should be limited to "view tunnels" from principal rooms and/or thinning of lower limbs to create "view holes" through the foliage.

In lakefront, riparian, or coastal locations offering views of waterbodies or wetlands, the design procedures recommended in this handbook would generally allow a greater number of such lots, with views through a wooded greenway where lower limbs may be removed so that the water (or wetlands) would be visible from living room windows. In addition to these "view lots," a very large proportion of the remaining lots in a well-designed conservation subdivision will abut or face onto other types of open space, such as commons, greens, ponds, meadows, and woodlands. Given the options of a conventional development, where one-third of the lots have immediate views of the water and the other two-thirds have immediate views of their neighbors' picture windows or backyards, and a conservation subdivision, where the vast majority of lots enjoy views of water, meadows, greens, woods, or other natural features, the choice seems clear. The larger total number of "view lots" in a conservation subdivision outweighs the somewhat filtered and less immediate water views available through greenway buffers. Also, the high proportion of interior lots with views of other kinds of open space makes those lots much more desirable than they would otherwise be—if simply facing other houselots.

This design approach benefits not only developers and realtors but also future residents and the general public. Greenway buffers provide the best of both worlds, helping to screen new waterfront development while not obstructing important views. One of the best examples of this is Woodlake in Midlothian, Virginia, 18 miles southwest of Richmond. Home sales have been brisk in both waterfront and interior locations in this award-winning development. It uses a 75-foot deep greenway running along the edge of the water, between Woodlake's most expensive homes ($650,000 to

$700,000) and the Swift Creek Reservoir, to provide a delightful walking or bicycling experience for both abuttors and residents of interior lots (where single-family homes sell for as little as $80,000). The water is clearly visible through the wooded buffer from all abutting homes, while habitat and water quality are protected to a much higher degree than would have been the case with conventional development.

Recognizing the economic value of maintaining clean, clear water in the Inland Bays (in terms of tourism, recreation, fisheries, and real estate), a growing number of realtors have joined conservationists in advocating greenway buffers for subdivisions as well as for PRDs in Sussex County, Delaware. The highly successful Woodlake example demonstrates that providing water views and greenway buffers are not mutually exclusive, and it suggests a new planning principle for waterside development: each site should be laid out with greenway buffers, *as if the adjacent waterbody were a reservoir.*

As pointed out in item #7 above, views of preserved farmland can also add value to new houselots. And to the extent that home sites are located away from existing public roads, at the far edges of fields as seen from those thoroughfares, some rural character can be maintained with each new development.

10. Aquifers and Their Recharge Areas

The term "aquifer" refers to underground water reserves occupying billions of tiny spaces between sand grains and other soil particles, including gravel. They are "recharged" with surface water seeping downward through coarse sandy or gravelly deposits, and/or at low points in the landscape where wetlands frequently occur. Present groundwater levels in many farming areas are several feet lower than they were before drainage ditches and tiles were installed to make formerly wet ground suitable for commercial agriculture. These areas are buildable today for structures without basements and where sewage is disposed of through public sewers or with central sewerage linked with a private disposal facility (such as spray irrigation) located on higher, drier ground on other parts of the site (or on a neighboring property). Since stormwater retention ponds often dip into areas of high groundwater, runoff entering them can recharge the underlying aquifer with dissolved pollutants (typically excess nutrients from agricultural or lawn fertilizers), requiring special buffering along drainage swales to remove as much of these substances as possible.

Although many aquifer recharge areas consist of soils that are not inherently unbuildable (such as excessively drained sands and gravels, and certain of the less severe hydric soils), they should be avoided for construction when other parts of the property are available and are less constrained by environmental factors. As with all other kinds of buildable land that are placed into natural open space in a creative development plan, full density credit should generally be allowed for these soils (when their buildability is not in question, and typically when wastewater is proposed to be treated in a central location or off site). When it is not feasible to rearrange the development pattern within the site to minimize such impacts, density transfers to neighboring properties (under a "landowner compact" agreement between two or more adjoining landowners, or under a TDR plan involving nonadjacent parcels) should be thoroughly explored. Sometimes these strategies can be combined, each playing a partial role in the process of creative development and land conservation.

Integrating the Information Layers

Once all the pertinent features have been identified, located, and evaluated in terms of their significance, they need to be drawn onto overlay sheets (typically tracing paper) and looked at together. Because ten sheets of even the lightest tracing paper would be too dense to show all the underlying information, even if they

were placed on a light table (or taped to a large window on a sunny day), it is recommended that several types of features be drawn onto the same sheet—preferably features that do not coincide in terms of their location on the site. A composite map can eventually be prepared by looking at all the information layers together to see the overall pattern of potential conservation areas.

This is essentially the same basic technique used by generations of geographers and planners; it is sometimes referred to as "sieve mapping" because all the most suitable land for development becomes apparent as those areas that drop through the "sieve" of information layers. All *buildable* land will be in those areas *not* limited by the basic constraints posed by the "Primary Conservation Areas" (wetlands, floodplains, and steep slopes), and these will emerge clearly as the appropriate sheets are placed together. (This technique was substantially expanded and refined in the 1960s by Ian McHarg and given the name "ecological planning" in his widely acclaimed book *Design With Nature.* See also *The Living Landscape* by Frederick Steiner.)

After integrating those information layers, which typically comprise only a small fraction of any site, the remaining land is examined with regard to the other layers. Because two of these layers include farmland and woodland, it is obvious that all the remaining land to be considered for development will usually be entirely covered by one or more resource types. This is not a problem because these are simply information layers at this point, and *there is a basic commitment in this design approach to accommodate the entire amount of development that would otherwise be legally possible under conventional design.* As will be discussed in the next section, these other resource types must be prioritized to determine which are the most critical, significant, or irreplaceable. Those that meet such tests are placed into "Secondary Conservation Areas." This typically consumes no more than half the buildable land on the site, leaving the other half for homes, yards, and streets.

Therefore, the two steps of "integrating information layers" and "prioritizing objectives" are not entirely separate and sequential. It makes sense to look at the information layers first, then begin thinking about priorities for conservation, and then revisit the information layers to prepare a composite map showing the location of both Primary and Secondary Conservation Areas.

Prioritizing Objectives

As a rule of thumb, those features listed above with an asterisk—wetlands, floodplains, and slopes—take first priority for inclusion in the designated open space, as they represent highly sensitive environmental resources that are generally considered to be unbuildable in a legal sense, in a practical sense, or for reasons of common sense. As mentioned above, because of their limitations or inherent unsuitability for development, they should be placed in "Primary Conservation Areas," the first type of open space to be drawn on any site plan.

Within the second broad category of open space, called "Secondary Conservation Areas," resources vary more widely in importance, vulnerability, or fragility. Within each type of resource there are examples of *greater and lesser significance,* whether one is looking at woodlands (from large and/or mature stands or unusual species, to woods that are young, diseased, already thinned out, or degraded by invasive vines, for example), farmland (soils rated from "prime" to "of local significance"), or sites of historic, archaeological, or cultural interest (from inclusion on a federal list, to a typical pristine example of local vernacular building traditions, to a much altered older house missing many original features).

Within the elements or features listed above that are not marked with an asterisk, those ranking among the top of their category (such as *mature* woodland or *prime* farmland) should always be included in the open space protected as "Secondary Conservation Areas." When decisions must be made regarding the sacrifice

of one resource to preserve another (such as developing fields to save woodlands, or vice versa), they should be based upon broad township-wide or county-wide considerations. For example, if one resource type is scarcer or more unusual than another, or if it contributes to biodiversity or water quality in a more compelling way, that could provide the basis for deciding which is to be spared.

In short, *priorities for conserving or developing certain kinds of resources should be based upon an understanding of what is more special, unique, irreplaceable, environmentally valuable, historic, scenic, etc., compared with other similar features, or compared to different kinds of resources altogether.* Although this process will always contain some subjectivity, a ratings approach can help to reduce inconsistent and arbitrary choices. Within each category it is often fairly obvious which features are the most worthy of preservation. The harder decisions usually involve comparisons between different categories, such as whether a small isolated woodland or a historic house should be designed around, when it is impossible to save both.

It is the overall recommendation of this handbook that natural areas generally take precedence over human artifacts, except in situations where the latter are clearly more exceptional, such as most archaeological sites. The reason is that buildings can often be reconstructed or moved, and they can certainly be photographed and documented with measured drawings. On the other hand, it is more difficult to re-create a wetland or a mature forest because of the interrelationships among plants, animals, soil, and water that comprise each natural site. There is also a growing body of evidence that it may be nearly impossible, without intensive management, to regenerate a mature deciduous woodland in the mid-Atlantic region, due to invasive vines and alien species of shrubs and trees (such as Oriental bittersweet, rosa multiflora, Japanese honeysuckle, wild grape, Tartarian honeysuckle, and Norway maple,) that seed themselves and infest newly afforesting areas. Of course, in other areas with more numerous and significant historic locations, such as pastures and ridges that once witnessed major Civil War conflicts, battle-related resources could take precedence for conservation over other types of buildable land, such as prime farmland or mature woodlands.

There will generally be special reasons in each township or county for favoring one resource type over another. In New England where forests cover most of the land, and fields are relatively uncommon, the most widely favored approach is to locate new development among the trees and to leave farmland intact. In much of the Mid-Atlantic region between southern New Jersey and the Chesapeake Bay, the reverse landscape pattern exists, providing a logical rationale for a policy preference that is exactly opposite of the one which New Englanders typically choose. Taken in its own context, each policy makes sense for the area in which it is applied.

To sum up, in the Mid-Atlantic states where the Natural Lands Trust is active, it is recommended that preference generally be given to natural areas over human-made features in the landscape, and that within the natural world, buildable woodlands be afforded greater protection than buildable farmland when one must decide which to favor. (In addition to their greater wildlife habitat value and stormwater filtering capacity, woodlands typically do not pollute watercourses and waterbodies as do farm fields with their greater nutrient loads, pesticides, and erosion–sedimentation problems.) This recommendation should not be interpreted as favoring natural areas, especially woodlands, in any situation, for there may be occasions on specific sites where cropland conservation and historic preservation could assume relatively greater importance than woodland habitat protection.

DESIGN STAGE

After completing the somewhat tedious but essential steps involved in the "background stage" described above, it is time to start

the four-step design process, which is where the fun begins. Since the quality of the design result depends in large measure upon the accuracy and completeness of the information layers prepared previously, the findings on those sheets are critically important, and the majority of time and effort is typically spent on that background stage. Once this information is in place, it is a relatively easy process to create a conservation subdivision design, because the overall pattern of open space and development appropriate for each site is frequently rather obvious when the various layers are collated.

At this point, readers are encouraged to jump ahead to examine the site plans in Chapter 7, where the recommended approach to designing conservation subdivisions is graphically illustrated in a step-by-step manner. It is generally advisable to look at those drawings in conjunction with the textual description of the steps that makes up the remainder of this chapter.

If the maximum legal development density has not yet been calculated (on the basis of wording in the zoning ordinance relating to areas that must be excluded), or through the "yield plan" approach (in which a realistic conventional layout has been drawn), this should be done at this time. Of particular relevance here is the unbuildable land shown on the "Primary Conservation Areas" map. These areas (e.g., wetlands) should be excluded from the yield plan houselots to the extent that zoning restrictions normally prohibit them from being considered for density. The number of dwellings that would ordinarily be buildable on the property is then adopted as the number to be accommodated in the conservation design. Examples of yield plans can be seen in Chapter 7.

The following four subsections describe the basic steps involved in designing conservation subdivisions. They are applicable to both major schools of thinking current in rural planning discussions today: proponents of "rural clustering" and advocates of "neo-traditional" hamlets and villages. Whether one's design preference is for more organic layouts and loosely configured groups of houses, or for the more formal streetscapes and street patterns associated with traditional neighborhood development (based closely upon local historic precedents), the "four-step approach" described on the following pages makes good sense. However, in the case of neo-traditional village or town design, Steps Two and Three are generally reversed since the design of streetscapes and squares is of greater significance than the location of house sites (which predominate more in lower density rural conservation subdivisions, where lots tend to be larger than those in village layouts).

The following descriptions are relatively brief for two reasons. First, their brevity reflects the fact that the conceptual design stage is typically much less time-consuming than the information collection and analysis stage. Second, the text is supplemented with explanatory illustrations in Chapter 7, where seven different sites are evaluated for their conservation and development potential, culminating in broad concept plans showing proposed locations of houselots, streets, greens, commons, meadows, woodlands, and other types of open space.

Step One: Identifying All Potential Conservation Areas

The heart of the design process can be summarized as *four sequential steps* beginning with the all-important first one: identifying the conservation land that should potentially be protected.

These features of the property, as mentioned above, consist of the unbuildable wetlands, floodplains, and steep slopes (the "Primary Conservation Areas"), to which are added that part of the buildable uplands that are most sensitive environmentally, most significant historically or culturally, most scenic, or which possess unusual attributes that cause them to stand out from the rest of the property as areas that the average observer would miss most if they disappeared under new houselots and streets.

As mentioned earlier in this handbook, this is the general approach used by designers of highly successful golf course developments, with the basic distinction that here we are advocating preservation of natural areas as fields, meadows, and woodlands and the creation of informal public open space in the form of neighborhood commons instead of fairways, sand traps, and putting greens. Whether one is interested in building homes around a facility for a single sport or arranging them in a parklike setting full of natural features that all can enjoy (including wildlife), the only practical way is to begin by mentally defining the open space first.

When the site plan is first sketched, the site designer should not be reluctant to include more land than he or she thinks will eventually be designated as open space, so that no potentially desirable area is prematurely left out, excluding it from consideration in the design process. If zoning provisions allow one to save about half the site by reducing lot sizes from two acres to one acre (or from one acre to 20,000 square feet), for exploratory design purposes it is recommended that two-thirds of the parcel be tentatively sketched as conservation land, at least initially. If zoning allows houselot reductions of only 25%, one should aim for 35% to 40% conservation in the first "rough cut" on sketch paper.

This exercise will quickly identify where the core areas of future development are likely to lie on the property. One should then work outward from those cores, being careful to recommend for development only those other areas that appear to be least important to conserve, looking at the site as a whole (including its relationship to neighboring parcels, as described in the next chapter). This analysis may suggest to the site designer a creative way to reduce the "development footprint" through a more compact layout than the community's clustering regulations would ordinarily allow, while saving additional land that most people would appreciate being protected and at the same time securing full legal density for the client. If so, that possibility should be further discussed, first with the client, then possibly with a realtor, and then the planning staff, all on a tentative basis before presenting it as an option at a public meeting. (There are some fairly easy ways to reduce the extent of the developed area without sacrificing any marketability, livability, or safety. These concern building setbacks and lot depth, which are discussed below in the subsection on Step Four.)

Step Two: Locating the House Sites

As with golf course developments, the next design step is to identify potential house site locations. Since a developer's fundamental motivation is to make money by selling either houselots or lots with houses newly built on them, and since it is well known that most people prefer (and are often willing to pay extra) to see open space from their windows, it makes economic sense to create as many "view lots" as possible and to ensure that usable open space is located within convenient walking distance from other houses in the subdivision.

One obvious way to maximize the number of view lots is to minimize their width and to maximize the livability of the homes built on them through creative modifications (such as designing houses with a windowless side wall virtually abutting one side lot line, and another sidewall containing windows facing onto a wider side yard—and the "blind" side of the next house). Such arrangements enable the development portion of the site to be utilized nearly as efficiently as if semi-detached ("twin") houses were involved, while offering buyers genuinely detached homes. Where market conditions are favorable, however, semi-detached and multi-family dwellings should be considered. Those containing just two or three units can often be designed to resemble large single-family homes, through careful attention to their bulk, massing, window

arrangement, and "front" doorway locations (which can sometimes be internalized inside common entry vestibules, or situated on the sidewalls).

Another way to increase the number of houses with views is to design several flag-shaped lots (sometimes called "pork chop lots" or "pipestem lots" because of the long narrow strip of land connecting them with the street). These lots are especially useful as a design tool in odd corners of a neighborhood, such as at the end of a cul-de-sac or where a road takes a sharp turn. This kind of lot is essentially a variation on the triangular or wedge-shaped "pie lots" common in these situations, but because they need to be only wide enough to accommodate a driveway, they can have minimal street frontage (usually 20 to 25 feet is sufficient). And since their shape in the area where the house is situated tends to be more or less rectangular, they often provide more usable yard space than does the less efficient "pie lot" alternative.

Although flag-shaped lots are most appropriate in relatively low-density subdivisions where the overall density is one acre or more per dwelling, they can be useful at higher densities and should generally be permitted in all developments, with certain restrictions. To curb potential abuses, they should be limited to no more than 15 or 20 percent of the total number of lots (for instance), and when the "flag" portion is less than 10,000 or 15,000 square feet the planning board or commission should be authorized to require adequate visual screening between adjoining lots (particularly those that share a front/back boundary).

Although it is rarely possible to design layouts so that every house has a view over major open space, it is often feasible to give nearly every house a view of at least a minor open space, such as a small neighborhood common or village green, or several acres of trees and grass around a small pond doubling as a stormwater retention facility, attractively landscaped with native species such as red-twig dogwood shrubs. To the extent that residents of these homes live only a short walk away from a larger open space, hopefully including a network of informal trails through woodlands or around wildflower meadows, the neighborhood will offer much more than standard subdivisions (and also more to the non-golfing majority than do golf course developments).

According to research conducted at the University of Washington by zoologist Gordon Orians, most people's ideal dwelling location consists of a home set on a rise of ground offering long views over parklike terrain dotted with large trees with broad crowns (not unlike many golf courses). As Harvard biologist E.O. Wilson has observed,

> It happens that this archetype fits a tropical savanna of the kind prevailing in Africa, where humanity evolved for several million years. Primitive people living there are thought to have been most secure in open terrain, where the wide vista allowed them to search for food while watching for enemies. Possessing relatively frail bodies, early humans also needed cover for retreat, with trees to climb if pursued (Wilson 1994).

These possibly innate landscape preferences provide yet another reason supporting the appropriateness of the conservation subdivision approach, which enables development to be designed around site features that people generally like to see and be around.

It is clear that identifying house sites before lot lines and streets allows building locations to be carefully selected so that natural features worth preserving can be avoided, including large trees and prominent rock outcrops, as well as historic or cultural features such as stone walls, cellar holes, battle trenches, and archaeological remains. Because it is not always possible to draw the Secondary Conservation Areas sufficiently large to include all these features, some of them will probably fall into those parts of the site slated for development. However, the flexibility of this de-

sign approach enables the majority of such features to be "designed around."

Step Three: Designing Street Alignments and Trails

After the conservation land has been at least tentatively identified and potential homesites sketched in, the third logical step is to determine the best way to access every residence with a street system.

Areas with relatively level or rolling topography pose few street design challenges from an engineering standpoint, the major considerations being to avoid crossing wetlands and to minimize the length (and cost) of new access streets. There are further considerations from an environmental perspective, such as avoiding large trees, mature tree stands, or wildlife habitats that might happen to be within the proposed development area, or which could be in part of the open space that must be traversed to access the proposed house sites. Sometimes it is possible to split the travel lanes so that they curve apart forming an elongated, boulevard-style island between them, where a certain large tree or other natural or historic feature may be preserved and given visual prominence. (When the preservation of large trees is involved, it is essential that the entire area under the canopy's outer "drip line" be kept undisturbed from heavy construction equipment, which can easily cause permanent damage to root systems. To achieve this, temporary construction fences should be erected along such drip lines until all construction activity has been finished in the tree's immediate location.)

From an aesthetic and speed control perspective, it is important to avoid long straight street segments. Curving roads in an informal rural cluster layout, or shorter straight segments connected by 90-degree and 135-degree bends in a more formal or traditional town-like arrangement, are preferable. (Variations that combine elements of these approaches are also possible, such as short curvilinear segments terminating in frequent intersections where the choices are to turn left or right, thereby making it more difficult for motorists to travel at excessive speeds. Such practices, also including use of Y-shaped intersections, are a hallmark of many late nineteenth century subdivisions designed by Frederick Law Olmsted, such as in Brookline, Massachusetts, and Riverside, Illinois.)

Whenever possible, street systems should be designed so that their curvature or alignment produces *"terminal vistas"* of open space elements, such as village greens, water features, meadows, or playing fields. This technique will maximize the visual impact of such areas so that residents and visitors will correctly perceive the conservation emphasis that has guided the development design and recognize the subdivision as contributing positively to the community's open space goals (see Fig. 5-1, as well as the conservation development designs appearing in the case studies in Chapter 7).

The use of *"reverse curves"*[1] in street design is advised because of their grace and beauty. However, they should be employed in conjunction with relatively long horizontal curve radii (at least 250 feet) and on streets where traffic speed will not generally exceed 30 mph. The common prohibition against reverse curves in municipal street standards is a carryover from the highway design manuals on which many such ordinances were based. While reverse curves without intervening straight sections (or tangents) can be unsafe for high-speed traffic, a completely different situation exists for local access streets in residential subdivisions.

[1] *Reverse curves* are consecutive left and right curves of a street in a serpentine fashion without a straight segment separating them.

Hardly anything destroys the grace of a street curving through a rural "conservation subdivision" more than the introduction of long, straight tangents between curves.

Another design approach that has proven to be of value in both land conservation and real estate marketing is the use of *"single-loaded" streets.* This is a technical term describing streets having houses on only one side. When lots are trimmed down in width (with homes designed more compactly to fit onto them easily, as illustrated in Appendix D), developers can easily reserve certain street lengths for single-loading—such as alongside conservation areas or around village greens or commons—without increasing their average houselot to street length ratios. In other words, the street savings gained by reducing lot widths can be used to create single-loaded situations in other parts of the subdivision, where homes can be allowed to face onto open space.

Single-loading provides homebuyers with views that are more uplifting than their neighbors' garage doors staring back at them. It also provides all subdivision residents with welcome views of their conservation land as they drive, bike, jog, or walk through their neighborhood on a daily basis, increasing everyone's quality of life as well as their property values. Such designs can be seen in most of the case studies illustrated in Chapter 7. Sales records in subdivisions featuring single-loaded streets show that homes located there sell faster and for premium prices compared with similar houses elsewhere in the development. Not surprisingly, when all the streets in a subdivision are double-loaded (as is often the case in many unimaginatively designed "cluster" developments), conservation areas are essentially hidden behind continuous rows of houselots and the streetscape takes on a very ordinary appearance, much like those found in conventional "checkerboard" subdivisions.

One of my favorite ways to employ single-loaded streets in open-field situations is to use them in creating *"foreground meadows"* bordering the public road that serves the development. Upon entering a conservation subdivision laid out in this manner, one's first view would be of a wildflower meadow (or horse pasture) with homes located at its far end and facing this landscape feature (see Figures 5-4 and 5-5). If such a meadow or pasture were bordered instead by a double-loaded street curving around behind it, the view from the public road, the subdivision street, and the meadow would be of house-backs, typically dominated by sliding glass doors, pressure-treated wood decks, and asymmetrical arrangements of windows (perhaps further graced by swing sets and tool sheds as well). Not only do most new houses look far better from the front (where builders spend extra money creating "curb appeal") but residents also prefer the backyard privacy provided by not turning their rear walls toward the public road in this far-too-typical manner.

Whatever layout approach is taken, every effort should be made to *connect each street with another* so that dead ends will be minimized. Interconnected streets provide easier and safer access for fire engines, ambulances, school buses, and garbage trucks, while distributing traffic more evenly and helping to avoid conditions where certain residential streets become "collectors" with everyone in the entire development funnelling through them. In circumstances where cul-de-sacs are unavoidable (typically for topographic reasons), they should always be provided with pedestrian and bike linkages to other nearby streets or to a neighborhood trail system. Where space permits they should also be designed with a central island where existing trees have been preserved or where native specie trees, shrubs, and wildflowers can be planted. Where additional off-street parking is needed, these cul-de-sacs can also function as well-treed "parking courts."

Streets serving new developments should, whenever possible, be designed to *connect with adjoining properties* that are potentially developable in the future. Although many developers strongly re-

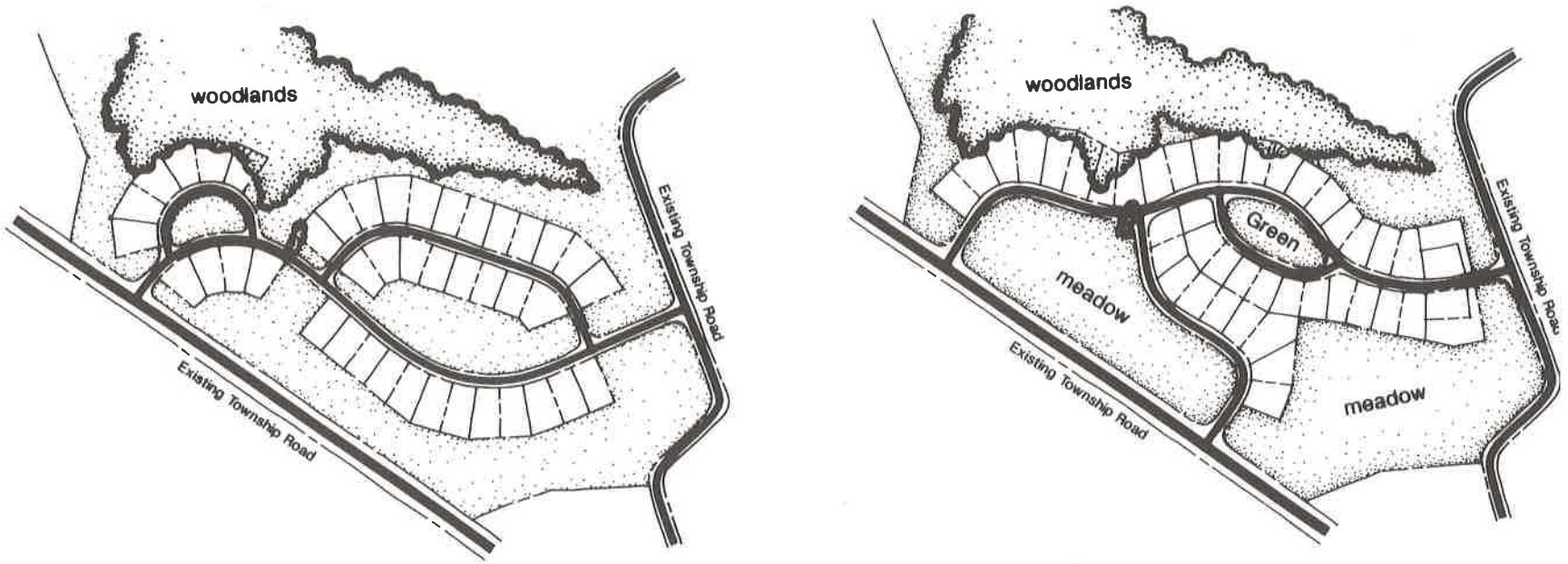

Figure 5-5. *Foreground meadows* offer special opportunities to provide attractive buffers between new homes and existing thoroughfares bordering the subdivision. Following this approach, homes located along a single-loaded street typically look out over a meadow, so that the view from the township road (or rural highway) is one of a large grassy area and house fronts, which are always visually more appealing than rear elevations. This arrangement also ensures that backyard privacy will not be compromised by house backs facing onto busy thoroughfares, and it avoids the suburban artifice of the landscaped berm (which usually symbolizes a design failure). In the above two examples, where a typical "suburban cluster" approach on the left is contrasted with a "rural conservation design" with the same number of houselots, it is worth noting that the preferred approach on the right does not require any additional street length, nor does it utilize lots that are narrower. Another unusual feature, not central to the concept of foreground meadows, is the use of two flag lots, on the extreme right, paired with two frontage lots, so that all four homes would face the existing township road across a smaller grassy expanse. This provides a slightly more formal and attractive secondary entrance to the subdivision than would a view of side yards. (See also Fig. 5-4 for a perspective sketch of a foreground meadow.)

sist such connections, preferring to market their houses as being in self-contained neighborhoods, the lack of connecting streets between developments ultimately frustrates normal travel between neighborhoods, forcing everyone back out onto the township's or county's principal road system to travel to their friends' homes in adjacent subdivisions. In most of the examples shown in Chapter 7, cul-de-sacs have been provided with "stub-street" extensions to the adjoining properties to facilitate future connections.

Step Four: Drawing in the Lot Lines

The fourth and final step is the easiest—once the conservation areas have been delineated, the house sites located, and the road alignments determined. At this point in the design process, drawing in the lot lines is usually little more than a formality (one that is unnecessary in condominium developments where all land is jointly owned). Clearly the most significant aspects of a development, from the viewpoint of future residents, are how their houses relate to the open space, to each other, and to the street. Lot lines are the least important element in the development design process, yet they and the street pattern are typically the first items to be set down on paper.

Maintaining livability on the somewhat smaller lots needed in conservation subdivisions does not pose much of a design problem in zoning districts where the normal required lot size is one or two acres. The challenge increases as density rises and lot sizes become more compact. As mentioned above in the subsection describing Step Two, lot lines in high-density single-family developments can be drawn fairly close to side walls with few or no windows, enabling larger and more usable side yards to be provided on the opposite side of the house. This approach can be taken further by building on one of the side lot lines ("zero-lot line" construction), and these lot lines can follow zig-zag patterns (so-called "Z-lots").

The issue of appropriate lot depth is related directly to the presence or absence of open space along rear lot lines. When conservation land is located immediately behind them, there is good justification for shortening proposed houselots since the open space visually extends the perceived depth of backyards.

Therefore, a logical argument can be made to reduce both the width and depth of lots where houses are located off-center (i.e., closer to one side line, thereby maximizing one side yard) and where lots abut conservation areas behind them. In developments with public sewerage or with private central treatment facilities (such as "spray irrigation"), where zoning densities allow one dwelling per 20,000 square feet of land, 75% open space can be achieved by designing houselots of 5,000 square feet. These smaller, village-scale lots are often deemed to be more desirable than conventional half-acre lots by several distinct groups of potential homebuyers—such as empty-nesters, young couples, and single parents with a child or two—who want some private outdoor living space but who also wish to minimize their yard maintenance responsibilities. These lots are especially popular when they back up to protected open space, which psychologically enlarges the dimensions of the actual lot.

Architects, landscape architects, and site designers have for many years recognized that the most efficient use of a houselot occurs when the house is located "off-center and up front." Equal side yards generally produce two functionally useless areas on lots narrower than 80 feet, and front yards are practically useless in any case because they are almost always within the public view. Unless homes are located along heavily travelled streets with considerable traffic noise, there is little need for deep front setbacks to provide buffering. Placing homes where front porches or stoops are within conversational distance of sidewalks helps create conditions for friendlier neighborhoods, where passersby can exchange pleasantries with porch-sitters on weekend afternoons or summer evenings. The illustrations in Appendix C, "Detailed Houselot Designs at Higher Net Densities," show how houses, driveways, garages, and livable backyards could be accommodated even on the smallest lot size recommended in this handbook for single-family detached houses (in Site C, where base zoning is two dwellings per acre and where lots of between 5,000 and 6,000 square feet could be utilized to conserve three-quarters of the site as open space).

Note: The above sequence of steps may be modified in situations where a more formal, "neo-traditional," or village-type layout

is desired. In such cases Step Two becomes the location of streets and squares, followed by the location of house sites. Whereas the relationship between homes and open space is of the greatest importance in conservation subdivisions, the relationship between buildings, streets, and squares is the dominant design consideration in the neo-traditional approach to site design. Both design approaches place more emphasis on the designation of public open space and on the provision of sidewalks, footpaths, and trails—in an effort to foster a pedestrian-friendly community atmosphere—compared with conventional suburban "cookie-cutter" layouts offering just houselots and streets.