

# A S Memo

JULY 1994

## Preserving Rural Character Through Cluster Development

By Susan Ernst Corser

As urban development continues to spread into rural America, consuming farms, forests, and wildlife habitat, the use of clustered development to preserve rural character is being considered by an increasing number of counties and cities. By separating lot size from density (i.e., by placing homes on smaller lots than provided for by the allowed gross density), cluster development can preserve a certain percentage of a parcel as open space, which allows preservation of uses that people associate with the rural landscape.

This issue of the *PAS Memo* looks at the potential for cluster development to create the much sought-after balance between human beings and natural processes in rural areas. It is based on research conducted for the Thurston County, Washington, Department of Planning, which studied ways that development regulations can most effectively promote cluster projects. The study was based on a review of existing rural cluster ordinances from counties and cities throughout the country, site visits to several rural cluster projects; interviews with planners, realtors, and developers; and a review of existing literature.

### Defining Rural Character

To evaluate the effectiveness of cluster development as a tool to preserve rural character, one must define rural character. Citizens at a public meeting in Thurston County, for example, characterized the rural area as a mixture of farms, forests, undeveloped open space, clean waterways, wildlife, low-density housing, and the absence of suburban amenities, such as streetlights and sidewalks.

Snoqualmie, Washington, residents described rural areas outside their city as (in order of frequency) open space, farming and logging, wildlife/farm animals, distance from cities, low-density housing, small population, few expensive/new buildings, slow pace of life, no interstate highway access, a feeling of safety, and fresh air and water. Liberty Township, Ohio, residents listed wooded areas, low-density residences (five acres or more), ravines and bluffs, the river, and farms as the key elements of rural character.

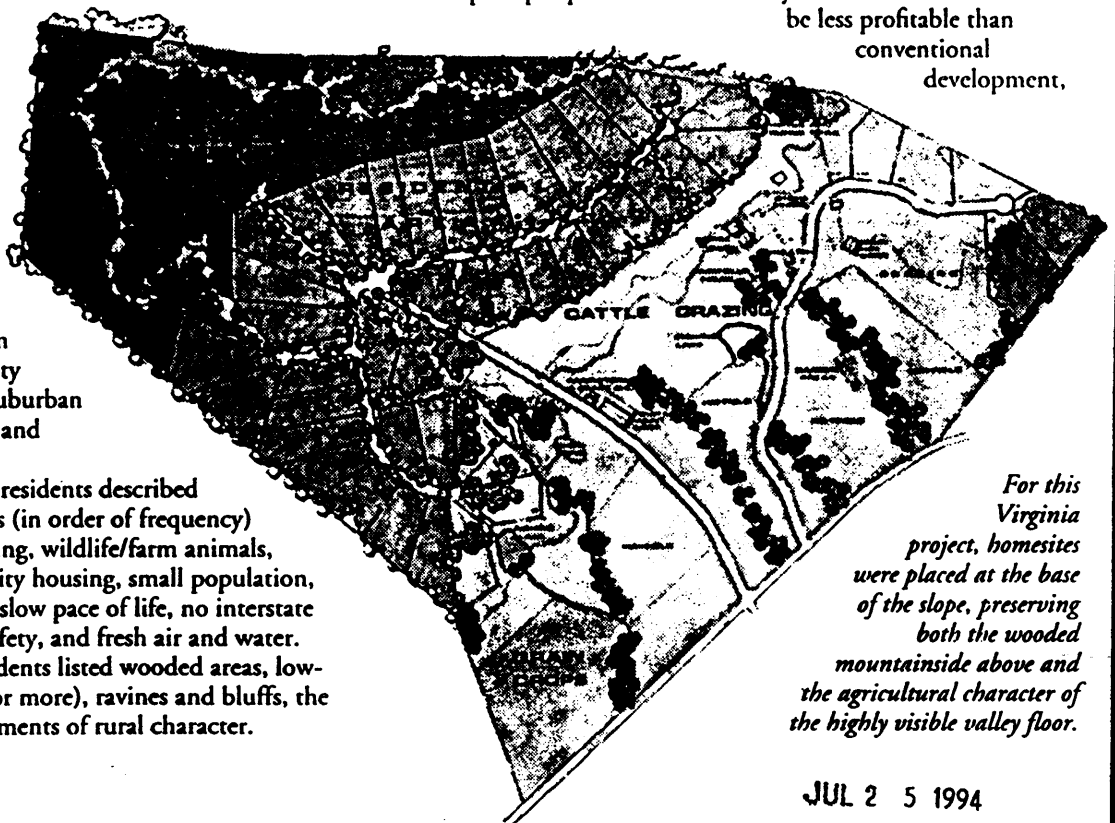
Before developing a program to preserve rural character, each community needs to conduct a detailed analysis of the specific qualities, patterns, and spatial relationships that give the area its unique, essential quality.

### Advantages and Disadvantages of Cluster

By preserving a certain percentage of each development parcel as open space and maintaining relatively low densities, cluster housing can potentially preserve many of the elements described above as "rural." Its success, however, depends on how it is implemented, particularly the amount and quality of the open space preserved. This, in turn, depends on the gross density allowed, lot size, and design standards for the open space. The design and layout of homes will also affect the cluster project's ability to preserve rural character.

One major advantage of cluster development is that it allows for limited housing development while preserving activities characteristic of the rural landscape. Second, it can contribute to the preservation of rural resources, such as water quality, stream flow conditions, habitat, and historic resources by clustering homes away from floodplains, steep slopes, geologic hazards, wetlands, wildlife habitat, aquifer recharge areas, and soils unsuitable for septic systems. Third, cluster can benefit landowners and developers by reducing costs over conventional development (depending on the design, site condition, and development standards). It also allows flexible lot siting to take advantage of views and other site features.

The disadvantages of cluster development, from the developer's perspective, is that it may sometimes be less profitable than conventional development,



*For this Virginia project, homesites were placed at the base of the slope, preserving both the wooded mountainside above and the agricultural character of the highly visible valley floor.*

depending on the design of the project, the demand for small lots in the rural area, and the jurisdiction's permitting procedures for cluster.

From the public's perspective, the availability of small lots may attract more urbanites to the rural area, which in turn can put pressure on agricultural activities and environmental resources and add to the public cost of providing services. Further, without the use of some type of building or site design review, cluster projects can appear very suburban in character.

Whether or not these potential benefits or problems result from a cluster program will depend on many factors, such as the design of cluster projects, soils, economic conditions, and the way the jurisdiction regulates cluster. These issues are discussed in greater detail in the following sections.

### **Open Space in Rural Cluster Development**

It is important that the open space in a cluster development be preserved for a specific purpose, instead of becoming a static vacant lot. (The term *open space* is used here to mean the portion of the development parcel outside building lots, preserved in its natural condition or for farming or forestry.)

The required amount of open space should be based on community-specific objectives. In general, communities' requirements are well over 50 percent, with 70 to 80 percent being the most common. In developments with 50 percent or less open space, houses become the dominant visual element and the likelihood of conflict rises between residential and open space uses. A minimum of 90 percent open space has been used in some communities where the goal is to preserve large tracts of ranchland.

If the goal of clustering is to allow continuation of rural processes, the open space must be large enough for agriculture, forestry, or the preservation of environmental resources. The requirement thus must be based on the minimum parcel size needed for these processes to continue.

In King County, Washington, the average acreage for harvested cropland was 22.6 acres in 1982, most of which was part-time or hobby farms. Thus, in King County's case, 24 acres may be adequate to continue small-scale hobby farming or intensive agriculture, such as lettuce or berries, but would probably not be enough for large-scale farming.

Counties should also consider the need for buffers between farm operations and clustered houses. As farmers apply pesticides, spread manure, and operate loud machinery, adjacent homeowners complain, which drives out the activities.

The design of open space and configuration of homes is also important. Many communities apply their design requirements through a site plan review process. Communities without such a process should incorporate some minimum guidelines regarding the location and general qualities of the open space into the cluster provisions of their zoning ordinance. Most rural cluster ordinances have guidelines requiring homes to be on the least productive farm or forest soils.

Site design guidelines can also require that large stands of trees or other vegetation be preserved if habitat preservation is a primary purpose. Recreational open space would have a different set of requirements (i.e., level play areas), but linking open spaces of adjacent cluster projects should be encouraged

for recreational purposes or wildlife habitat.

### **Water and sewage issues**

The size, location, and design of the clustered lots, and the number of homesites, are influenced directly by rural water supply and sewage disposal requirements.

The impact of a cluster project on the rural environment will depend largely on the type of water supply and sewage disposal systems used. Community wells are often preferred because they can be located in the open space away from septic systems, mitigating the chronic problem of rural well contamination. In such cases, farm activities in the open space must be restricted within the wellhead protection radius. Individual on-site wells and septic systems in cluster projects are more problematic, because as the lots shrink in size, the systems are in closer together, increasing contamination potential.

A benefit of cluster development is that it provides the flexibility to locate wells and septic systems within the site's most suitable soils. Developers benefit because they are more likely to be able to build all their allowed units. Many conventional projects contain lots that are never approved for septic systems or water service, and thus cannot be sold as buildable lots.

Septic systems can also be installed as a community system rather than on individual lots. Either type of system, however, has the disadvantage of concentrating effluent over a smaller portion of the property than with traditional large lots. A more serious consideration for water quality, however, is the effect of cluster when large density bonuses are granted, since cluster does not reduce the cumulative effects of additional population. Density bonuses should be offered only if the build-out scenario shows no adverse, cumulative impact on water quality.

### **Lot Size and Density**

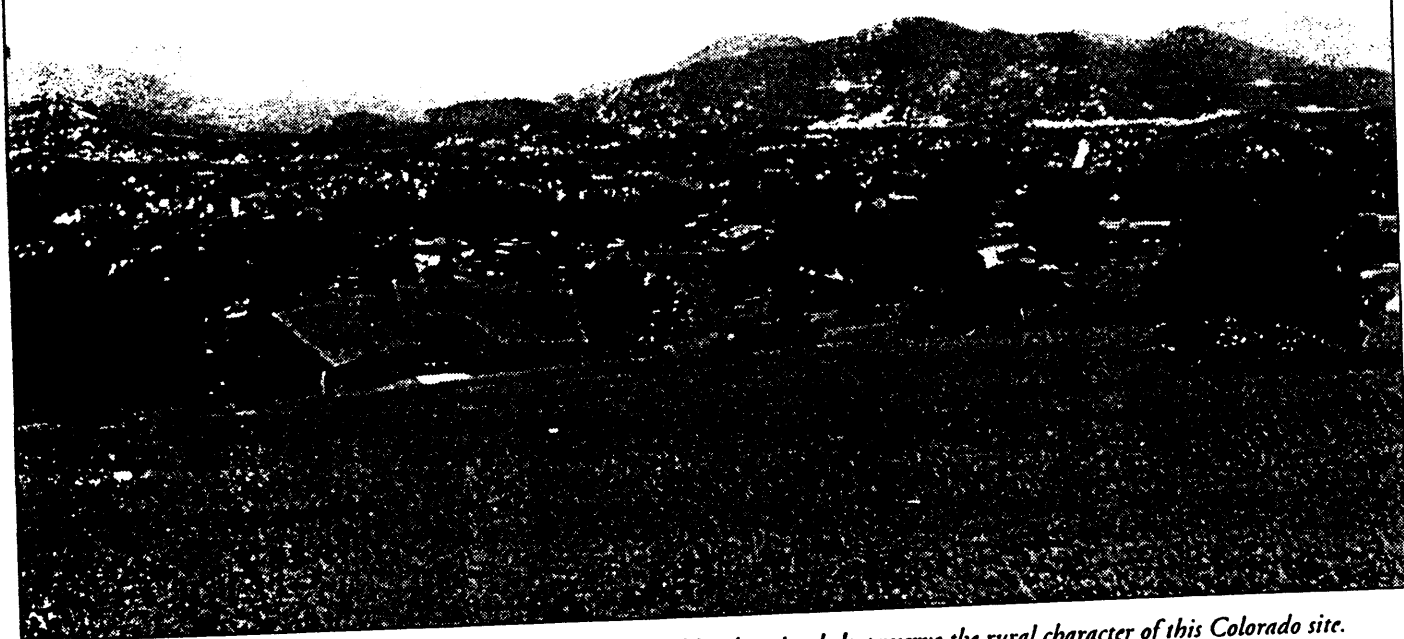
Minimum lot sizes, in many cases, will be set by health standards. For example, if on-site sewage disposal and wells are limited to one-acre lots and 70 percent of a particular parcel is preserved in open space, the resulting gross density would be one du (dwelling unit) per 3.3 acres. Thus maximum density can be determined once the minimum open space and lot sizes are established.

Lot sizes will be less restricted by health standards where community wells or public water systems are used. Whatcom County, Washington, for example, allows 15,000-square-foot lots with public water. Lot sizes can be further reduced by using community septic systems, or by locating individual septic systems outside the lot within the preserved open space. Smaller lots would thus allow either the gross density or the preserved open space to be further increased. Smaller lots would be advantageous in areas that may become urbanized.

However, the effect of such small lots and high densities on rural character and the provision of urban services must also be considered when determining densities. For example, a 100-acre project with 70 percent open space and homes on quarter-acre lots would have a gross density of 1 du/0.8 acres, or 120 homes. Although a significant amount of open space is preserved in this scenario, the impact of 120 households on adjacent farming activities, water quality, and traffic volumes must be evaluated. Research has shown that county governments often subsidize the cost of providing services in rural areas, such as schools, social services, roads, fire and police protection, and solid waste disposal. As lots get smaller, some of the benefits of living in a rural environment may be lost, making them less marketable.

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*Control over exterior colors and materials and limits on fences and landscaping help preserve the rural character of this Colorado site.*

### **Site Planning and Design**

How lots are situated with respect to topography and other site features will also affect their ability to fit within the rural landscape. For example, prohibiting ridgeline development and retaining the integrity of the existing landforms can help preserve rural character. The Farm Colony project in rural Virginia, for example, has homes located in the most inconspicuous portion of the site at the base of a slope. The most visible portion of this site, the valley floor, is preserved as a farm and the higher portions of the slope are maintained as a mountain preserve.

Another design issue is the amount and type of buffers provided within a cluster project. Recent studies of rural cluster housing recommend that various types of buffering be required. To minimize the visual impact of clustered homes from public rights-of-way, 75-foot buffers vegetated with native species have been recommended. Buffers or setbacks between homes and farm operations are also recommended to reduce conflicts. Separating the project's dwelling units into groups of four to eight homes, each surrounded by 100 to 300 feet of vegetated buffers, has also been recommended to create a clustered development pattern consistent with traditional rural farmsteads. The larger the buffer requirements, however, the less open space is available for farming or other rural activities. If, for example, a 40-acre project with eight lots and 70 percent open space were required to have a 150-foot buffer between the cluster of buildings and adjacent property boundaries, more than eight acres (28 percent) of the preserved open space could be consumed by the buffers. On a 20-acre parcel, more than half the open space would be in buffers. Requiring buffers on a sliding scale basis, with the larger the development site the greater the buffers (up to a maximum buffer width), would be one way to ensure that significant pieces of open space are preserved while screening the larger projects from adjacent properties.

Cluster ordinances should also include guidelines regarding

landscaping and street design. For example, native vegetation should be required within buffers if a suburban appearance is to be avoided. The wide streets with curbs and gutters characteristic of a suburban landscape should also be discouraged by both the cluster ordinance and county road standards.

### **Implementation and Incentives**

An increasing number of jurisdictions on the East Coast are requiring cluster in rural areas, such as Hopkington and West Tisbury, Massachusetts; Wehr, New Hampshire; and East Hampton, New York. When allowed on a voluntary basis, various types of incentives can be provided to encourage its use. Mandating cluster on all sites is likely to be politically difficult. A more feasible system would require it for those parcels meeting certain criteria or lying within an overlay district. Criteria could include a variety of site characteristics such as parcel size, prime farm soils, forest soils, or critical areas.

Requiring cluster at the discretion of the planning commission allows communities to administer it on a case-by-case basis. Some communities on the East Coast, such as Washington, New York, require that developers present both a conventional and a cluster plan, with the planning commission selecting the plan that best meets community goals.

One approach to encouraging cluster is to make the permitting and site plan review process for all cluster projects quicker for developers than approval for conventional development. To create an adequate incentive, however, the jurisdiction may have to make the conventional development significantly more difficult than cluster, which could be considered arbitrary by the courts. It may be difficult to prove that the adverse impacts of conventional development are sufficiently large to justify a significantly longer approval process or higher standard of design than for cluster.

Another option to encourage cluster is to provide density bonuses. One approach to density bonuses is to set the base density at a level consistent with average farm parcel size to

preserve agricultural activities and then allow higher densities only with cluster. Clark County, Washington, had such a program, allowing 1 du/20 acres without cluster and approximately 1 du/3.33 acres with cluster. The program was successful in terms of the number of cluster projects developed, but not in preserving prime agricultural land because the homes were being clustered on the best farm soils.

In Whatcom County, Washington, where cluster has also been popular with developers, density bonuses are currently allowed on a sliding scale, relative to parcel size, ranging from a 22 percent to 56 percent increase in density. In recent years, 25 to 30 percent of the county's rural subdivisions have been clustered. Intended to preserve the rural landscape rather than farmlands, this program is considered successful.

When the county first allowed cluster, many took advantage of it despite the fact that no density bonuses were offered. This was attributed to the fact that by clustering they also received full density credit for protecting wetlands and other critical areas. By clustering, landowners can avoid the long Army Corps of Engineers 404 permit process and can build all the units allowed by the underlying zoning, plus the density bonus.

Another type of density bonus is a sliding scale based on the amount of open space provided, with the allowed density increasing as the percentage of open space increases. For example, a development with 70 percent open space could have 20 units on two-acre lots, whereas 80 percent open space might allow 30 units on 1.3-acre lots. The developer benefits from the additional units, but the impact on rural resources is mitigated (to a certain extent) by the increase in open space.

To be effective, density bonuses must be sufficiently high to make cluster an attractive alternative to conventional development. How high they must be is primarily an economic question. The two primary factors affecting profitability are development costs (determined in part by the county's approval process and design standards) and revenues, affected by the number of units and the prices obtained for each lot. In many cases, conventional developments cannot get the maximum number of lots allowed by zoning because of poor soils, steep slopes, or other site conditions. In such cases, cluster would need only a small bonus or none at all to be more attractive. The assumption that people expect to pay less for clustered lots than conventional lots is also questionable, because of the permanent amenity provided by the open space.

Creating an appropriate balance between the benefits of the preserved open space and the impacts associated with density bonuses is a difficult decision that cannot be translated into numbers and requires careful judgement on the part of each jurisdiction. For example, as density rises, impacts also increase on farming and forestry and on environmental resources, such as water and air quality. Additional people means additional septic systems and wells. Cumulative water quality impacts, with or without cluster, increase with density. Stream flow conditions are also impacted by higher densities. A recent study in Thurston County, Washington, showed that the additional clearing and impervious surfaces caused by densities greater than 1 du/5 acres have a significant effect on stream flow conditions.

Conflicts also arise with forestry, as people trespass on private logging roads or build houses close to clear cuts. Clark County planners, for example, have concluded that the allowed density with clustering of 1 du/3.33 acres is too high for farmland preservation in their county. Another consideration is the additional demand for urban services created by higher densities, such as transportation, police, fire, and schools, and its

impact on county budgets. A study by the American Farmland Trust showed that development in rural areas generates considerably less revenues to county government than it costs the county.

## Conclusions

Cluster development can help preserve the balance between natural systems and human activity if the required open space is sufficiently large to accommodate rural resource activities and environmental processes. Gross densities must also be set at a level such that the total population of rural residents does not threaten rural processes and create excessive demands for urban levels of services.

It should be stressed that cluster housing, unless allowed at extremely low densities, will not preserve the rural landscape as it currently exists. But conventional development will make continuation of rural activities such as farming and forestry even less likely.

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## Correction

The June issue of *Public Investment* gave the wrong phone number for HUD User. The correct number is 800-245-2691.

The *PAS Memo* is a monthly publication for subscribers to the Planning Advisory Service, a subscription research service of the American Planning Association: Michael B. Barker, Executive Director; Frank S. Su, Deputy Executive Director; William R. Klein, Director of Research.

The *PAS Memo* is produced by APA staff in Chicago. Research and writing by Research Department staff: Marya Morris, Editor. Production by Publications Department staff: Cynthia Cheski, Assistant Editor; Dennis McClendon, Design Director.

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