

**THE ART AND SCIENCE OF  
DESIGNATING  
URBAN GROWTH AREAS**

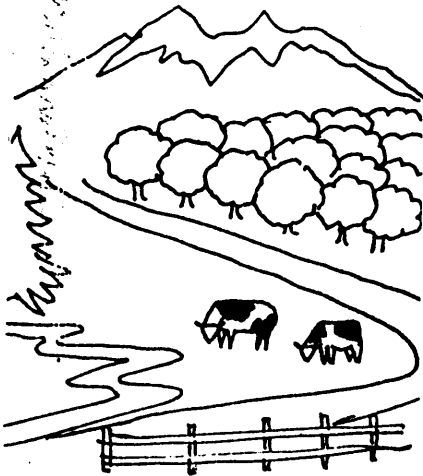
**PART II**

***SOME SUGGESTIONS FOR  
CRITERIA AND DENSITIES***

**State of Washington  
Department of Community Development  
Growth Management Division**

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## Establish Rural Area Densities Which Limit Service Costs and Help Maintain Rural Areas for Rural Uses



Rural areas can accommodate uses which do not require an urban level of public facilities and services. Rural areas can provide opportunities for farming, forestry, and mineral extraction where they can co-exist with other rural uses. Rural areas can offer opportunities for major open space areas and recreational uses and may contain extensive environmentally constrained areas or other areas unsuited for urban levels of development. In addition, rural areas can accommodate demand for a more country-like residential environment. Lower densities are desirable where only a rural level of services will be provided. Use of lower densities can also help buffer resource use areas from the more intensely developed urban land uses. The level of densities you assign should be related to the types of uses you are seeking to promote.

**Rural Residential Development.** Development trends in recent years suggest that there is a strong demand for rural residential development. Recreation homes can be a particular problem because of their tendency to locate near sensitive features, such as lakes, rivers, and sensitive mountain environments. Such development should not be encouraged to occur in a haphazard way, interspersed with resource uses. Instead, it may be better to plan for such uses in more limited areas (lacking high quality soils and resources) while reserving other areas for exclusive resource use.

The main considerations for setting densities for rural residential areas are to choose densities which: (1) are supportable from an environmental standpoint; (2) will not interfere with nearby resource uses; and (3) are cost-effective to serve with a rural level of services.

Densities should be low enough to be supportable by a rural level of services, most particularly septic tank rather than sewer. State regulations impose some limitations on lot size for development served by septic tanks. Lots must be, at a minimum under ideal soil conditions, 12,500 square feet. In reality, these conditions are the exception rather than the rule. For new lots, where a well is used, a minimum lot size of five acres is required (WAC 248.96). The five acre minimum was established primarily to protect the wells and aquifer. (Hendrickson)

Florida communities allow a maximum density of one unit per ten acres in rural areas and consider densities between two units per acre and one unit per ten acres to be sprawl development. The Urban Growth Management Study: Case Studies Report prepared for Oregon's Department of Land Conservation and Development noted the need to establish a floor minimum lot size in rural areas and is recommending eliminating zoning under a five to ten acre per unit density for rural areas. A study of density-related public costs by the American Farmland

Trust found that a one unit per five acre development may be even more expensive to serve than developments at densities between one unit per acre and one unit per five acre densities in the Louden County, Virginia area.

By clustering and carefully siting development, pockets of higher density development can be accommodated while leaving greater area in open space. Average densities in rural areas should be kept low, however, to assure that rural service provision remains cost-effective. Self-contained communities and master-planned resorts may be appropriate on a limited basis in rural areas provided they meet the criteria set forth in the GMA (Section 16 and 17, ReSHB 1025).

A final piece of advice from Florida is worth noting:

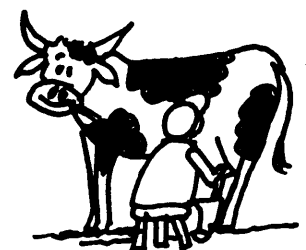
*"The key to allowing development in a rural area is proper planning which will preserve the area's rural character. The issue is not density alone. As permitted densities increase, so should the guidelines and safeguards applied by local governments to ensure that rural development does not result in unaffordable, nonfunctional, and unattractive sprawling development patterns."*

Although this guide is focused primarily on providing guidance for setting densities, density may not be the sole issue. Appendix D contains some useful guidelines from Massachusetts and Hawaii to preserve rural character, while allowing some level of rural residential development.

### **Establish Resource Area Densities Which Support the Continued Operation of Resource Uses**

Resource areas should be reserved primarily for resource uses to assure their continued viability and to reduce pressure from competing residential uses.

**Agriculture.** Our country is losing productive agricultural lands to urban development. The National Agricultural Lands Study report, presented to President Carter in 1981, claimed that three million acres of agricultural land were being converted each year into housing developments, shopping centers, industrial complexes, highways, water reservoirs, and other types of urban development. This phenomenon is occurring at a time when domestic and export demands for agricultural goods are rapidly increasing. The same trend has become increasingly evident in Washington. Although the number of farms has actually increased, the number of acres in commercial farming has decreased (Nelson and Daniels, 1986).



As urbanization occurs, higher land costs create a temptation to "sell out" to urban development, which can command a higher dollar value for rural land at the urban fringe. In addition, urban development and densities near farmlands can impact agricultural operations in a variety of ways, which can threaten their continued viability. The Portland area Metro Service District found that agricultural and urban uses were frequently incompatible, because agricultural operations creating dust, noise, odor, smoke, and chemical spray draw complaints from adjacent urban areas. In return, adjacent urban development often brings vandalism, traffic interference, higher production costs due to smaller field size, higher urban taxes, service district charges, and higher insurance costs, all to the farmer's demise. Those problems have been sufficiently troublesome in Washington that farmers have succeeded in getting right-to-farm legislation adopted in this state. (See Appendix C for more explanation of right-to-farm laws.) As agriculture diminishes in the area in general, agricultural support services (feed stores, etc.) pull out, further hampering agricultural operations. ("Urban Growth Boundary Findings," 1979)

At the same time, some areas have been successful in maintaining productive farmlands close to urban areas. For example, five of Florida's ten most populous counties are also in the top ten counties in terms of market sales of agricultural products. For some types of agriculture, the proximity to an urban market can enhance the profitability of the operation.

Use of minimum lot size is perhaps the most common method used by local governments to prevent the conversion of agricultural land to urban use. The objective with this approach is to maintain parcels in large enough pieces to allow viable farm operation and to discourage purchase of farmlands for competing uses, such as residential development.

Communities in Washington and across the country have applied a wide range of densities to maintain rural uses and specifically, agricultural uses. The U.S. Census Bureau defines rural densities as 200 persons per square mile or just over one unit per ten acres. According to Mitch Rohse, the Oregon Department of Land Conservation and Development, communities in Oregon have typically applied minimum lot sizes ranging from 20 to 80 acres. Nelson (1986) notes that minimum lot sizes as high as 320 acres per unit were applied in the rangeland of Deschutes County, Oregon. Marin County, California uses a large-lot designation of a minimum of 60 acres (Holding, 1987). Boulder, Colorado applies a one unit per 35 acres restriction, but allows two units per acre if 75 percent of the land is open space (Beatley and Brower). The Florida Department of Community Affairs considers densities ranging from two to ten units per

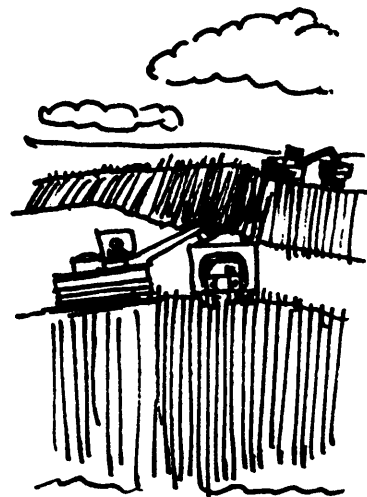
acre to constitute urban sprawl and counsels that agricultural densities should not be more dense than one unit per 40 acres. The Minneapolis-St. Paul Metro area zones rural area at four units per 40 acre densities, but applies one unit per 40 acre densities for farms committed by covenant to continue agricultural uses in exchange for benefits. In this state, communities apply a variety of rural density standards, frequently falling within the two-acre to ten-acre minimum lot size and 35-40 acres minimum for agricultural zones where they have been distinguished from generic rural zones. Spokane County has differentiated rural land use categories to a greater degree than most, establishing several "semi-rural" categories with densities between two and ten acres per unit, a rural designation accommodating primarily large-lot residential use at a one unit per ten acre minimum and establishes an agricultural zone in which there will normally be only one or two houses per 640 acres (Spokane 1990 Comprehensive Plan).

"Viable farm size" refers to the threshold property size which will enable the farm operation to be an economic success. The viable farm size and necessary conditions for a successful operation vary depending on the type of agriculture.

Deschutes County, Oregon has concluded that a 320-acre minimum lot size is important for sustaining the cattle ranching activity. Hardin County, Kentucky concluded that 78 acres was the minimum viable parcel size needed to support the principally tobacco and grain-type agriculture prevalent in their locale. The American Farmland Trust advises that "for a cash crop operation in Michigan, the lot size should be not less than 40 acres."

In Washington, the Final Environmental Impact Statement for the King County Comprehensive Plan refers to data from their (former) Office of Agriculture that 35 acres is needed to support dairy farming and a minimum of 15 acres is needed for an economic horticultural operation. A recent Redmond study found that ten acres could support an intensive "specialty" farm operation, such as berry farms or organic vegetable farms (Jones and Stokes Associates).

Some forms of agriculture appear to be viable in more urban counties as well. Kurt Moulton from King County Cooperative Extension and Lyle Fitch from the King County Soil Conservation District convey the general sense that large-scale commercial agriculture is economically marginal now in urban counties such as King and Snohomish Counties. However, agriculture does appear to be viable as a part-time occupation or in the form of intensive or specialty farming. Dairy farms, nurseries or tree farms, berry farms, and specialty lettuce farms, and some types of livestock, such as sheep or exotics such as llamas, have also been



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successful in this area. The intensive farming can be workable on acreage as small as ten to 20 acres. The dairy farm operation is more likely to require 40 or more acres.

The National Trust for Historic Preservation notes that unless the minimum lot size:

*"is as large as the minimum size for a viable working farm--for example, 160 acres in McHenry County, Illinois--large-lot zoning can do more harm than good. Although the intent may be to protect land, large-lot residential zoning may actually waste land and may increase environmental problems rather than alleviate them."* (Stokes with Watson)

Viable farm size is only one factor in the formula for determining appropriate agricultural densities. Equally important is the question of whether permitted densities are likely to attract forms of development which may edge out large-scale farming operations. A number of studies indicate that both hobby farms (which some refer to as "Martini" farms) and large-lot residential development with no pretense of farming (estate homes or what some have described as the "McMansion" problem) can threaten the larger-scale farm operation. Healy and Short, in their 1981 study of the rural land market, found that parcels of five to 40 acres sold well, particularly among people seeking homesites. They note that:

*"It is certainly safe to say that the division of high-quality farmland into the two to ten acre building lots typically found in rural subdivisions precludes commercial agriculture of most currently practiced types. Nor do the ten to 40 acre "farmettes" and "ranchettes" that have been created in so many rural places promise much commercial crop or livestock production.*

*Parcellation, changing ownership patterns, and high land prices may impede our future ability to expand commodity production. Perhaps the most important obstacle is parcellation."*

For more urban counties, both Lyle Fitch, King County Conservation District, and Kurt Moulton, King County Cooperative Extension, note that ten acre or less zoning tends to attract residential development. Kurt Moulton noted that at 20 acres, there is adequate land area to support an intensive farm operation and people "have to be serious" to purchase 20 acres.

#### Consider Applying More Flexible Agricultural Zoning Techniques.

Rather than establishing a rigid single unit per specified acre standard, some communities have developed zoning approaches which give farmers more flexibility to accommodate homes for other family members or

worker accommodations. These approaches may be workable and have advantages for the farmer, where larger commercial tracts still exist. North Hopewell Township, York County, Pennsylvania limits the number of new single-family dwelling units to six in addition to the prime farmstead, regardless of the size of the tract. The units are located in a minor subdivision with a maximum lot size of 1.5 acres to avoid consuming excess high-quality agricultural land.

Peachbottom Township, in the same county, uses a sliding scale to implement a similar concept. They felt that allowing a set number was unfair to larger property owners. They established a system in which the number of single-family units permitted on a tract of land increases on a sliding scale with the size of the land. The table below shows the number of units permitted on various size tracts. (Kartez, 1984)

**Excerpt from Peachbottom Township Zoning Ordinance (1971)**

**G. Conditional Uses**

s.493 All applications for approval of a conditional use shall be referred to the Township Planning Commission for recommendation.

s.494 Single-family dwelling units in the agricultural zone shall be subject to the following limitations:

a. There shall be permitted on each tract of land the following number of single-family dwelling units:

<u>Size of Tract of Land</u>	<u>Number of Single-Family Dwelling Units Permitted</u>
0 - 7 acres	1
7 - 30 acres	2
30 - 80 acres	3
80 - 130 acres	4
130 - 180 acres	5
180 - 230 acres	6
230 - 280 acres	7
280 - 330 acres	8
330 - 380 acres	9
380 - 430 acres	10
430 - 480 acres	11
480 - 530 acres	12
530 - 580 acres	13
580 - 630 acres	14
630 - 680 acres	15
680 - 730 acres	16
730 - 780 acres	17
780 - 830 acres	18
830 acres and over	19

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"Quarter/quarter zoning" is used in many Michigan and Minnesota communities. Under this system, each landowner is entitled to one lot per 40 acres of farmland. Once the landowner reaches the number to which he is entitled, it becomes a matter of record and no further development on the parcel is permitted. (American Farmland Trust, 1987)

Two-tier density programs can also increase zoning flexibility. Some Florida communities set an underlying maximum density for an area but allow that density to be exceeded if certain guidelines are met. Criteria for the lower densities should include clustering and open space ratios, provision to address development impacts, and so forth. (Florida Department of Community Affairs)

Finally, the experience from a variety of areas suggests that large-lot zoning alone is unlikely to protect agricultural lands. According to Florida's Department of Community Affairs, "the most important issue for maintaining the rural character of an area is not the densities that are allowed, but the pattern of development that is permitted. This is not to say that densities are not relevant, but the real issue is how densities will be used." It will need to be combined with other measures which support agricultural operations and limit interference from competing uses. The purpose of this guidebook is to examine the application of densities rather than to describe farmland protection measures in detail. However, Appendix C offers some excellent suggestions from the American Farmland Trust, the National Trust for Historic Preservation and James and Stokes Associates, Inc., for complementary measures to support agriculture. Among the measures communities may wish to consider are exclusive agricultural zones, taxation policies, right-to-farm legislation, and purchase or transfer of development rights.



**Forestry.** The nature of forest practices, involving use of particularly heavy and noisy equipment, may make it particularly difficult for forest operations and residential development to coexist. Forestry operations may be even more severely impacted by the fragmentation of property than are agricultural operations. Even limited residential development nearby can severely constrain forest operations.

State statutes require a contiguous ownership of 20 acres to qualify for forest land valuation under 84.33.100 RCW. A five-acre minimum is required for eligibility under the Open Space Taxation Act (84.34.020(3) RCW). Although these statutes may provide some incentives for forest operations, the acreage requirements bear no relation to the actual acreage needs for a viable forestry operation.



A study of forest land in northern Michigan found that marketing and logging costs can be affected by the size of timber tracts. The study noted that the average size of contiguous forest tracts had decreased in size from 182 acres in 1946 to 156 acres in 1962. The study concluded that a 200-acre parcel would be more economical to harvest than five 40-acre blocks because: (1) fewer owners would need to be contacted and informed; (2) access roads can be laid out more efficiently; and (3) the cost of harvesting and marketing would increase with land fragmentation. (Schallau, 1965)

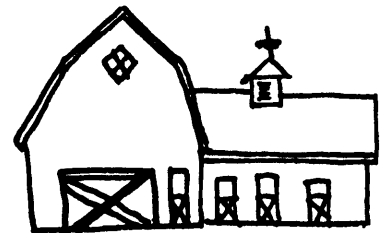
A timber conversion study prepared by the California Department of Forestry goes further noting that "At some point, a piece of property gets so small that timber operations become virtually impossible. Generally, a 160-acre parcel is large enough that property size would place no constraint on timber production, barring access problems." The study noted that California Department of Forestry foresters in El Dorado County felt that splitting a 160-acre parcel into 40-acre parcels would constrain timber production. Most study respondents felt that 40 acres would provide adequate space for a viable operation, under ideal conditions where there were no problems with adjacent owners or access difficulties. (INTASA, Inc., 1981)

However, as parcels become smaller, they become more attractive for residential development. The Final Impact Statement for the King County Comprehensive Plan, (1985), stated that a minimum lot size of 80 acres was an important threshold for efficient forest practices. King County's Land Development Information System data indicated that there was a significant increase in conversion rates below the 80-acre parcel size.

## Resource and Rural Density Suggestions Summarized

To summarize these points about setting appropriate rural densities:

- ◆ **Agriculture.** It is important to look at the particular types of soil conditions, current land use and ownership patterns, and types of agriculture which have historically been conducted in your community to establish appropriate densities. Talk with your local soil conservation district, local agricultural stabilization and conservation service committee, and cooperative agricultural extension agents for their advice about viable farm size for the particular types of agriculture practiced, or potentially possible to practice, in your area. You can match the densities you establish to the needs of the specific form of agriculture you are seeking to support. If you seriously wish to maintain intensive, specialty farming, a 20-acre minimum may be preferable to minimize competition from residential development, although such farming may be viable on ten or somewhat fewer acre parcels.



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If you still have in place the conditions which make large-scale commercial farming viable, you might not want to settle for large-lot residential zoning or so called "Martini farms." The experience in other communities suggests that minimum lot sizes as low as 40 acres may risk the eventual decline of commercial farm operations. Even dairy farming, which appears to be viable on parcels as small as 40 acres, may experience problems because of typical manure disposal practices. Establish other areas with lower quality soils and potential, where primarily rural residential uses can develop without harm to viable commercial operations. A separate exclusive agricultural use zone at lower densities is preferable for high-quality commercial agricultural areas. However, agricultural zoning alone will not maintain continued agricultural operations. Zoning should be supplemented with supportive measures, such as right-to-farm provisions and a supportive tax structure. Again, refer to Appendix C for complementary measures to support agriculture in addition to density controls.

- ◆ **Forestry.** In his article on forest land preservation, Robert Liberty recommends zoning controls as "the most effective means to retain forest lands." The more limited studies available on forest land conversion and preservation indicate that forestry on contiguous parcels smaller than 40 acres may be difficult unless conditions are ideal. A larger parcel size of 80-160 acres is likely desirable to make the logging operation more economical and to reduce the likelihood of conversion to residential or other uses. Specifically placing prime forest lands in a forest resource zone, where forestry has priority, can further protect the forestry resource. Variations on the measures to support agriculture found in Appendix C may also be applicable to forestry lands.
  
- ◆ **Rural Residential Development.** In these areas, limiting the overall amount of area designated for these uses and planning how and where these developments occur to improve compatibility may be almost as important as actual density levels. If the development is not clustered, then densities low enough to avoid the problems associated with sprawl (less than one unit per ten acres) are recommended. (Clustering techniques and techniques to preserve rural character are in Appendix D.) In any event, such development should be directed into separate zone districts different from true commercial forestry or agricultural operations. Creating a separate district for rural residential uses can help resolve conflicts between rural residential and resource uses. Residential uses can be given priority in urban and rural residential areas, but be on notice in resource areas that logging or agricultural uses will be encouraged. A careful study of existing development patterns, quality of soil, and other conditions should be made before locating or recognizing existing rural residential areas.