CLUSTER ZONING

by

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Submitted to the Department of City and Regional Planning, Massachusetts Institute of Technology on May 20th, 1966 in partial fulfillment of the requirement for the degree of Master in City Planning.

This thesis attempts to determine whether the success of cluster development is dependent on the degree of flexibility in the zoning by-laws.

Cluster development is a recent innovation in residential development; having been introduced to the Commonwealth of Massachusetts during the last ten years. The study centers on the Boston metropolitan area, where ten cluster subdivisions have been used in case studies.

The underlying objective of the study is to evaluate existing cluster zoning with the intention of advancing recommendations for improvement.

The timing of the study is opportune, as sufficient activity has taken place to enable conclusions to be drawn. At the same time, a considerable increase in the use of cluster is anticipated. William H. Whyte captures the situation in the opening paragraph of his book, Cluster Development., "Cluster is on the verge of becoming the dominant pattern of new residential development."

The ambition of the study is to develop recommendations for the guidance of future cluster development.

Thesis Supervisor: Frederick J. Adams
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To Professor Frederick J. Adams, my thesis advisor, and to Professor John T. Howard, Head of the Department, I extend my appreciation for assistance.

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1.0 CHAPTER I

BACKGROUND

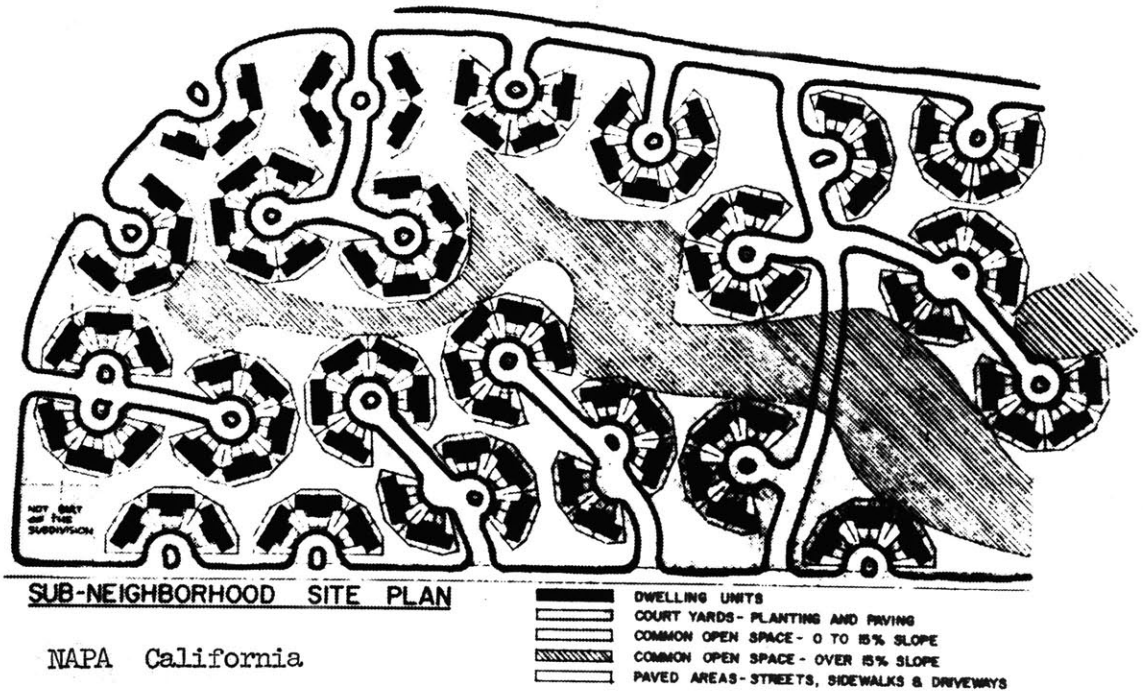
1.1 Cluster Defined

1.11 Cluster is a concept of residential development. Underlying this concept are two basic characteristics which qualify the title. Firstly, houses are grouped closer together in clusters and secondly, the space saved by the clustering is used as common land by either the residents or the public. Similar definitions have been used in studies by William H. Whyte,[1] Urban Land Institute[2] and American Society of Planning Officials.[3]

An important aspect of the definition is the degree of flexibility suggested. There are no limitations on the size of the development, the degree of clustering nor the uses to which the common land might be put. From a design standpoint, flexibility allows a greater freedom of expression with the result that cluster development has taken numerous physical forms. See Illustrations 1, 2 and 3.

In spite of the flexibility suggested by the definition there is also a measure of restriction. Cluster is directed at residential development, more specifically to the single family detached house. This conclusion is supported by the studies previously quoted; however, the principle of

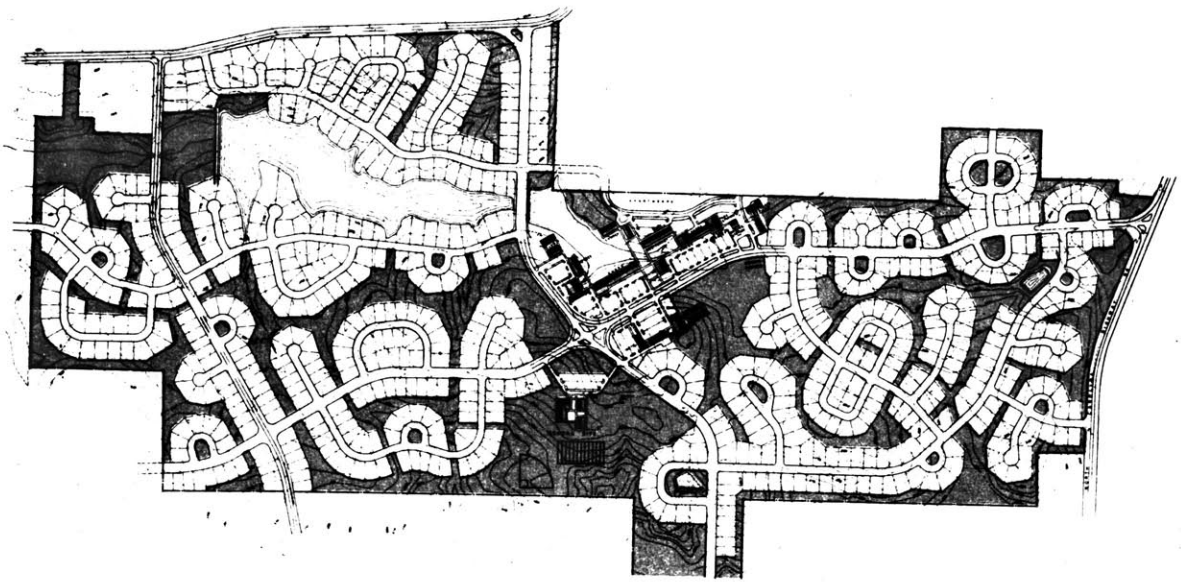
ILLUSTRATION I-1



SUB-NEIGHBORHOOD SITE PLAN

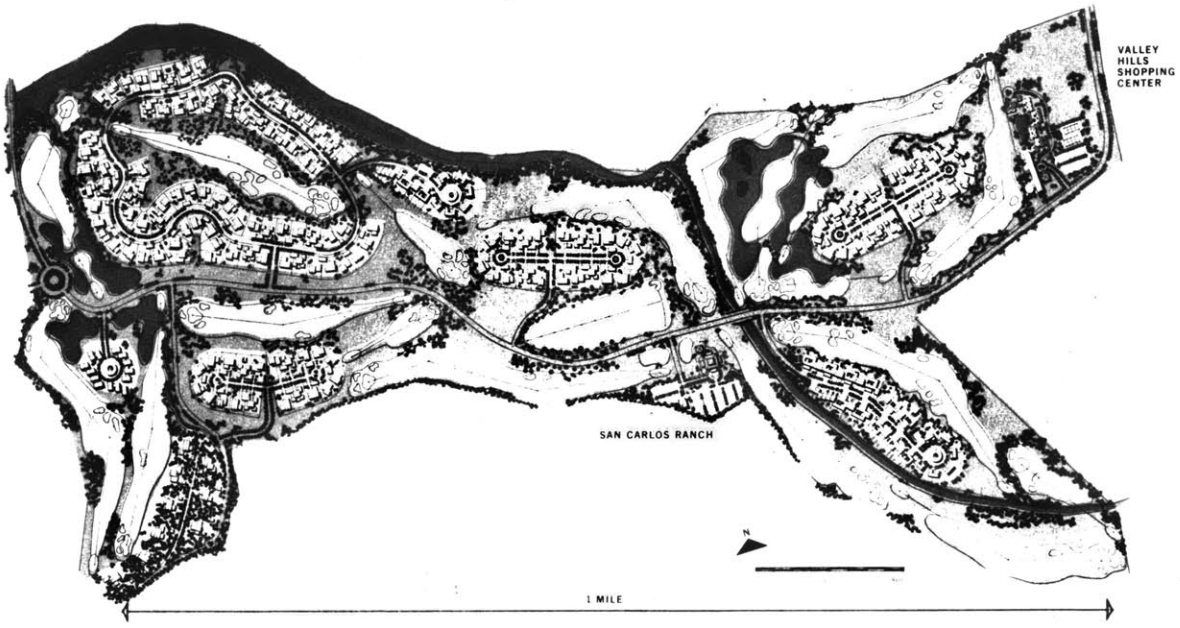
NAPA California

ILLUSTRATION I-2



Parkwood Durham North Carolina

ILLUSTRATION I-3



Plan of Carmel Valley Golf and Country Club.

cluster carries over into other forms of residential development.

1.12 Types of Cluster

Three distinct categories of cluster have emerged. Planned Unit Residential Development, Cluster Subdivision and Town House Development. All three essentially deal with residential development; cluster subdivision and town house development involve detached and row houses respectively while planned unit residential development embraces detached, row and multi-family housing and may include commercial, business and industrial uses. The distinctions tend to be housing type and scale of development while the unifying element is the need for flexible zoning. A statement by L. Weismantel of St. Louis, Missouri, makes the point, "Cluster subdivisions are just one form of residential development that will emerge when minimum lot size zoning is replaced by density control."[4] Here, density control is the unifying element which calls for flexible zoning.

1.13 Need for Change

Another aspect of cluster which helps to define its purpose is the set of circumstances which influenced its introduction. Primarily cluster was conceived of as a means of overcoming the monotony of suburbia and to help retain the rural character of the countryside that was so rapidly disappearing. ".....the countryside was always vanishing over the next hill.....the new subdivisions homogenized the land with lots as far apart as income or pride could enforce."[5]

Cluster is a direct challenge to these conditions, by grouping houses into clusters the focus is immediately distracted from the seemingly endless rows of houses to the clusters of houses punctuated by natural open spaces.

So strong has been the criticism against the monotony of suburbia that it has become a platform for the successful introduction of cluster zoning. In Baltimore County this intention is expressed in their regulations: "..... to offer recreational opportunities close to home, to enhance the appearance of neighborhoods through preservation of natural green spaces, to counteract the effects of urban congestion and monotony."[6]

Most of the blame for monotony and lack of open space in suburbia has been levelled at outmoded regulations.[7] The control measures employed by these regulations have focused on the individual lot, specifying minimum lot size. The result has been the adoption of the minimum as the standard. To permit cluster development, the emphasis in regulations will have to shift from the individual lot to the project.[8]

Such a change of emphasis in regulations is not likely to occur immediately. However, it is interesting to note that the acceptance of new innovations are dependent, to some extent, on the favor in which existing practice is held. This accounts for the fact that cluster development is viewed in a negative sense, being a means of overcoming the failures of current practice rather than being hailed as an innovation

offering more positive values.

1.14 Defined by Objectives

Cluster is best defined by its objectives; it is not a hard and fast measure that allows rigid definition. This in fact is a condition it seeks to avoid. Cluster relies on density zoning which specifies density per acre rather than minimum lot size. Under this arrangement the lot sizes can be varied, provided that the total number of lots do not exceed the permitted number per acre. The arrangement of these lots is left to the developer subject to restrictions which stipulate absolute minimum area and directions regarding open space.

Appendix A sets out the various cluster provisions contained in the zoning by-laws of towns used in later case studies. It also includes the cluster provisions of other selected Massachusetts towns and several out-of-state ordinances.

A common practice is a statement of purpose rather than a definition of cluster. This allows a choice of alternative designs involving groups of reduced, variable sized lots with areas of open space. This method is in direct contrast to defined minimum lot size which has failed to achieve either open space or variability of lot size.

1.15 Summary

Cluster is a concept of development embracing two major characteristics; firstly, houses are grouped in clusters and, secondly, the space saved by this practice is reserved for common open space. Cluster development does not restrict

itself to cluster subdivision; it applies equally to Planned Unit Development and Town House Development. Cluster has received greatest impetus from the failure of individual lot zoning to provide the ultimate in residential development. Cluster is best defined by its objectives; it defies rigid definition.

1.2 Advantages of Cluster

Cluster has been in vogue for sufficient time to allow critical evaluation. Since its inception in the late 50's, arguments have developed both supporting and opposing its use as an innovation in residential development.

1.21 Design

Design considerations are prominent in support of cluster. The departure from conventional side by side, back to back subdivisions has given rise to variety in design. The increased flexibility of siting buildings in groups and the opportunity of being able to choose alternative sites for these groups, enables the designer to take greater advantage of natural features. The grouped buildings offer another opportunity to the designer to create individual focal points and variations in the enclosed spaces and courts.[9]

1.22 Preservation

Preservation of open space is another major advantage in support of cluster. Public acceptance of preservation is being stimulated through the many programs sponsored by the federal government. Cluster provides the developer a cost free opportunity of setting aside stream beds, swamps and ridges

which are generally most desirable from a conservation point of view and least desirable from a development standpoint. The preservation of the natural environment helps to break down the monotonous and repetitious character of conventional development.[10]

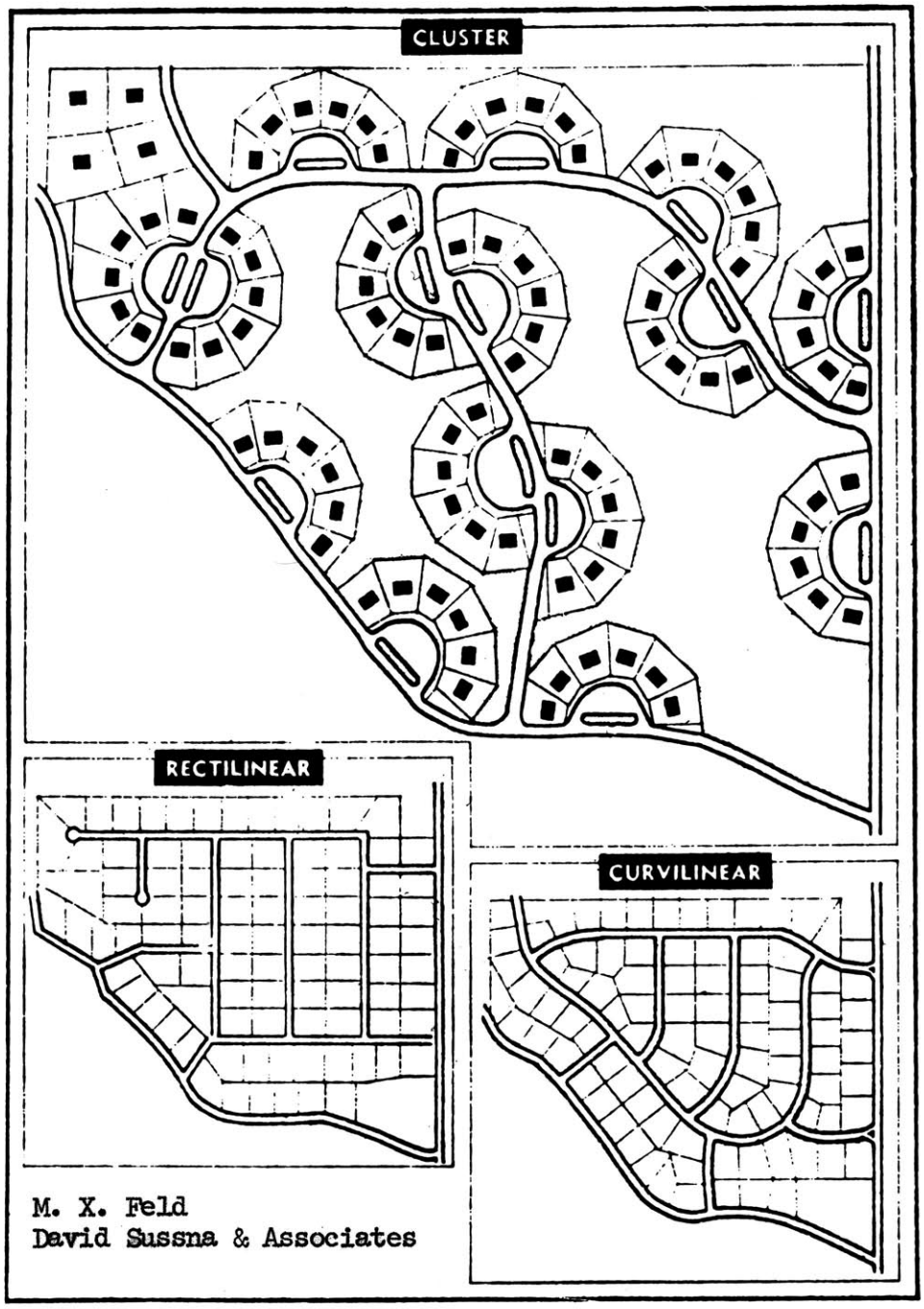
1.23 Economy

More economical development is often cited as an advantage of cluster. The location of roads and other services is much less critical. Under cluster, services constitute a smaller proportion per unit area and enjoy greater flexibility in location. It is claimed that as much as 50% can be saved in road construction by clustering houses. A classic example is the design prepared by M. X. Feld of Stephen Sussna Associates, where lots were reduced by half, leaving nearly half the original tract in open space with a resultant saving in roads of 50%.[11] See Illustration 4. House connections from the various service mains will normally be reduced under cluster while the mains themselves are likely to remain constant.

1.24 Offsite Costs

Cluster has a very definite influence on water management problems, being much less likely to involve the community in latent off site costs for drainage, pollution and water supply. By preserving lowlands and steep sidlings in open space the community and the developer both gain by cluster as opposed to conventional subdivision which necessitates development of the entire tract to be economically feasible.

ILLUSTRATION I-4



Design by M. X. Feld illustrating reduced road requirements in cluster.

1.25 Residential Traffic

Through traffic flow in residential developments can be reduced to a greater extent in cluster developments by restricting housing to minor streets and culs de sac. The collector streets, to which the minor streets and culs de sac connect, can be left free of abutting dwellings, eliminating driveways and parked cars and thereby enhancing traffic flow while eliminating through traffic in residential streets. This facility is subject to design and while it is possible at increased cost in cluster development the cost would be prohibitive in conventional development. See Illustration 5.

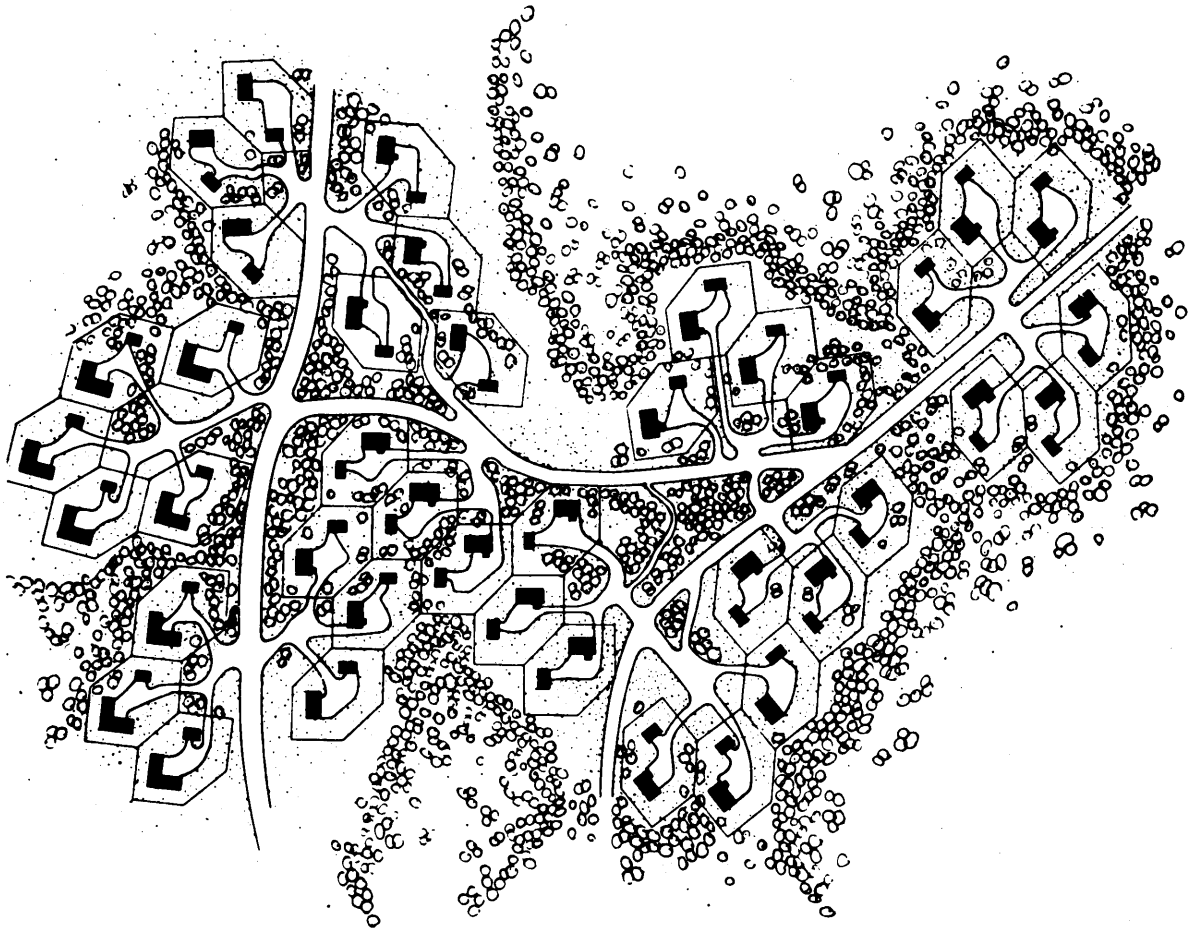
1.26 Recreation

Recreation, to the extent to which it is a function of open space, has a greater potential under cluster development where regulations currently allow up to 50% to remain in open space. This potential may be utilized for active or passive recreation. The degree, however, will be dependent on ownership and access as determined by the development and the regulations controlling it. Local authorities are likely to receive less demand for recreation facilities where cluster development provides part of this need.

1.27 Social Cohesion

Social cohesiveness is claimed as a feature of cluster.[12] The grouping of houses around common courts and parking areas provides an opportunity for social interaction which is not available where houses are strung out in rows in a

Illustration I-5



Hexagonal Cluster Finland

Illustrating separation of housing from collector roads eliminating through traffic in residential clusters.

conventional development.[13] The provision of Homeowners Associations and concentrated recreational facilities adds to the opportunity of social interaction on a broader scale than the small intimate group of houses. While greater social interaction is provided it can be achieved with little detriment to the privacy one expects in larger lots. Wedge shaped lots, focused on common court areas at the front, widen out at the rear onto open space offering ample opportunity for privacy.[14] See Illustration 6.

1.28 Passed over land

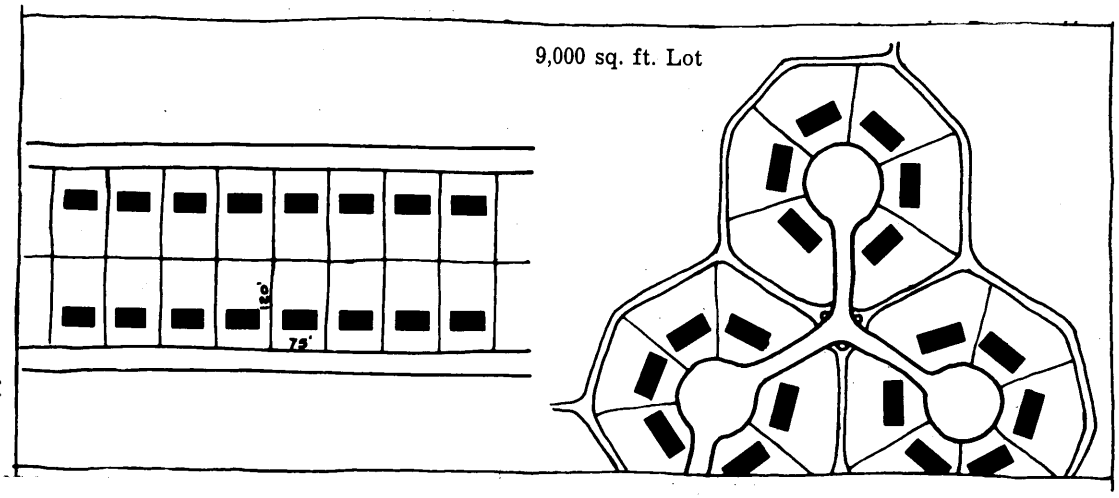
Passed over land may be developed under cluster regulations which otherwise would be impractical to develop. This is due to the versatility inherent in the cluster method which allows more freedom in design with the subsequent result that passed over tracts containing impediments to development can be overcome.[15]

1.29 Summary (b)

Design freedom generated by increased flexibility of zoning laws is the most prominent advantage of cluster. Preservation of open lands resulting from clustering is another important advantage. Economic use of land and reduced site costs are secondary advantages of cluster. Cluster, through site design, can provide a separation of pedestrians and traffic, reduce traffic flow in residential streets, improve the opportunity to participate in recreation and increase social interaction.

ILLUSTRATION I-6

SOCIAL INTERACTION - COMPARISON OF CLUSTER AND CONVENTIONAL



The increased opportunity for social interaction is illustrated in this comparison of conventional and cluster subdivisions. Privacy in cluster is achieved by the outward focus onto open space at the rear of the lots.

1.3 Problems of Cluster

1.31 Discretion

Modern innovations in residential development call for greater flexibilities in zoning regulations. Parallel with this is the increase of discretionary powers of the administrative authorities. The problem raised by this situation is the degree of discretion which can be prudently vested in these authorities.

With increased discretion comes increased responsibility and power which render these authorities more open to financial corruption.

1.32 Evaluation

The question of whether local administrative authorities are capable of assuming additional responsibilities may also bear consideration. The evaluation of proposals based on modern innovations will require a higher degree of sophistication. This situation compares quite markedly with conventional regulations.

> "Regulations so detailed that specific proposals will be disposed of more or less automatically when presented. The strength of this belief has not waned over the years."[16]

1.33 Design Ability

The problem of design ability on the part of the developer is just as critical as the evaluative ability of the administrative authority. Cluster development requires an appreciation of land form to create a harmonious marriage of clusters and open space; a sensitivity to the spatial

arrangement of buildings is also necessary to achieve meaningful clusters.

Large scale developments, which are becoming more prevalent, invariably draw on the service of designers. This practice is creating an awareness among developers to the value of design with the result that smaller cluster subdivisions are being prepared more frequently by designers.

1.34 Security of Open Space

The ability of open space to withstand the pressure of development is a fear expressed by many citizens. The problem in this situation is the assurance that adequate safeguards will be taken to protect the public interest. This breaks down to a matter of mechanics, requiring that sufficient control is written into the regulations to govern the various modes of ownership.

1.35 Summary (c)

Modern innovations demand more discretionary powers on the part of local administrations. A responsible administration will ensure good results; however, the opposite can be true. The increased discretionary powers may also invite financial corruption. Evaluation of proposals becomes more critical with increased discretion which is matched by the need for design ability on the part of the developers. Open space should be controlled to assure continuity of purpose, management and maintenance.

1.4 Open Space

1.41 Purpose

A basic concept of cluster is preservation of the natural environment. To the public this concept embraces what is affectionately known as the "country." It may be open fields, timbered hills, streams, an old barn, swamps, stone fences or a variety of forms which symbolizes the country.

It connotes various activities and conditions such as farming, recreation, picnics, nature study, fresh air, health, leisure and many others.

There are a wealth of materials, motives, symbols and activities the designer can utilize for the design of open space, although evidence of such utilization is meager.

The exceptions are interesting, although the ideas which have emerged can be expanded. Two common recreational activities associated with cluster are golfing and boating, marketed as country clubs and marinas. Another activity developed in cluster is the small recreation area which invariably contains a swimming pool.

The Sea Pines Plantation at Hilton Head, South Carolina provides a golf course of 125 acres and wildlife preserve of 1,600 acres with $3\frac{1}{2}$ miles of nature trails.

The Ville Du Pare, Mequon, Wisconsin, provides a 27-hole golf course, swimming pool, fishing pond, riding stables, bridle paths and walking trails along a river park of 440 acres.

New Seabury, Mashpee, Massachusetts, envisages a

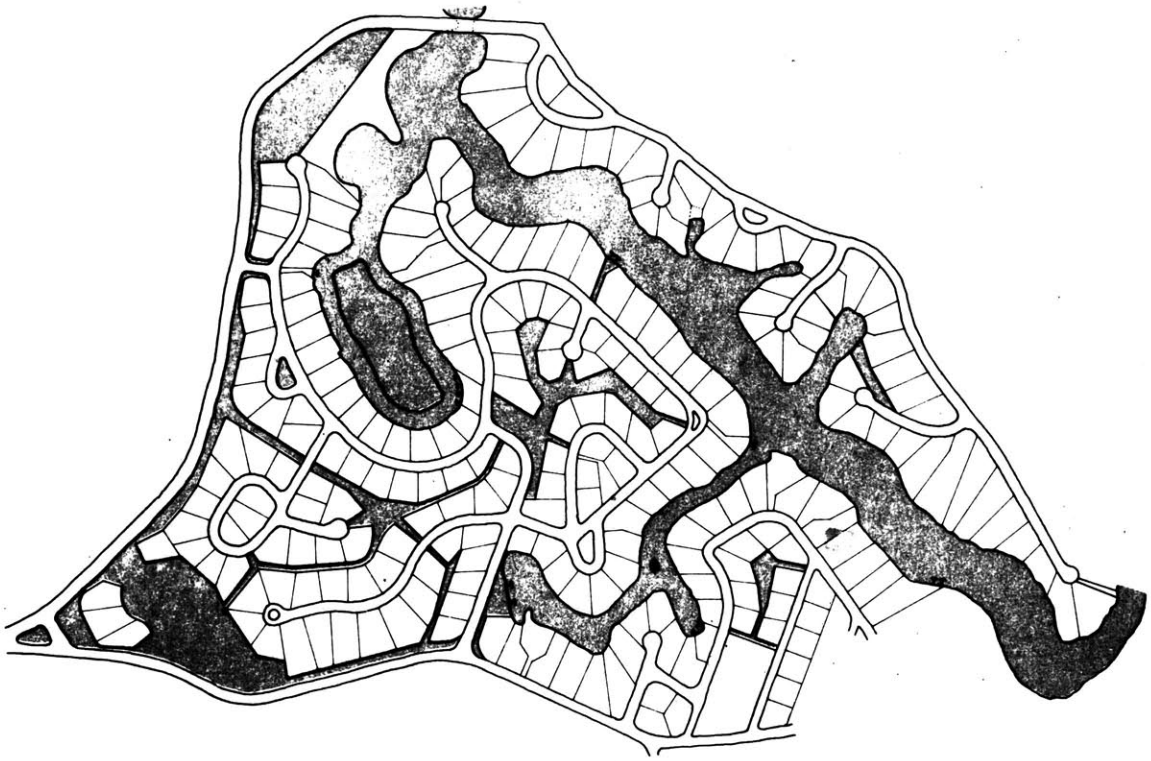
complex of interrelated cluster developments each focused on independent activities. In all eleven focal characteristics are planned. Presently under construction are clusters focused on horse riding, surf fishing and boating respectively. See Illustration 7.

Where the developer elects to leave the open space in its natural state there is a tendency to have it dedicated for public use. This action would be taken only after the developer had assured himself that no loss would be occasioned by this action.

Under these circumstances little attention is given to the positive values of open space. The developer will obviously utilize it as a means of reducing site costs and look upon it as the left overs. This does not mean that the land will have no value as open space; quite the contrary is possible as the left overs may be steep rocky slopes, creeks, swamps and heavily wooded areas difficult to develop but valuable for conservation. What this does indicate is the lack of design thought that can be credited to the open space aspect of the plan.

The purpose of the open space will receive as little thought as the design, under the above conditions. Many parcels of land branded for conservation will have little value for that purpose. The status of conservation will invite this label from the developer while the eagerness of the local conservation groups to acquire land will assure its acceptance.

ILLUSTRATION I-7



Plan of village of Bright Coves, New Seabury.

Conservation should be an active element in the local planning scheme. Policies should be set out and a master plan prepared to give the program direction. Where possible cluster should subsidize the scheme and, in fact, be encouraged to do so.

Agriculture could be used as a theme, with cluster being fitted into an active agricultural context. A fish hatchery might be used as a focal point, as might a nursery for a nearby forest or an agricultural field station.

1.42 Ownership

Residents of cluster developments are generally regarded as the strongest claimants for open space ownership. For all practical purposes the cost of the open space may be regarded as being covered by their purchase price.

The public have a claim through the purpose to which the open space is subjected. The public may also be specified as the owner through the regulations. In the case of conservation, for example, public ownership does not seem unreasonable, although the principle of acquiring land in this manner is questionable. The local authority always has an out with cluster in that it is an optional alternative to conventional development and therefore not compulsory.

Jan Krasnowiecki is critical of compulsory public ownership of open space resulting from cluster developments.

> "This much is clear. To regard cluster or planned unit zoning as an inexpensive method of providing public parks and playgrounds is to misconceive its purpose and to compromise most of the benefits,

> both public and private, that can be derived from these new forms of residential development. The long term interests of a community are poorly served by planning for public intrusion into the heart of new residential developments. Such a program can only undermine the value of the new residential development as a place to live and so inevitably detract from the value of the community as a whole."[17]

Private ownership may be arranged in several different ways. Homeowners associations are the most common form of private ownership accepted by the local authority. Acceptance is subject to the local authority's satisfaction that maintenance, collection of dues and equity of participation, among other things, are adequately covered. Assurances may be required to secure the future use of the open space; usually a restrictive covenant is required for the purpose.

Homeowners Associations are becoming more widely accepted. They have grown in number and experience and are no longer the unknown quantity which confronted local government in the 1950's.[18]

> "Widespread, long term experience with the automatic-membership homes associations shows that it is a practical and desirable method for maintaining open spaces, recreation centers, and other common facilities in residential developments. The homes association provides continuous maintenance and control by a responsible body for the benefit of the homeowners without using public funds. This answers a major question arising in cluster subdivision plans and other promising land planning concepts."[19]

1.43 Problems

A difficulty associated with open lands is

maintenance and patrolling. Much of the open space will be left in a natural state for conservation purposes and vested in either the town or a conservation commission. The task of maintaining and patrolling many small, irregular and widely separated areas is immense.

The incidence of open space will tend to be highest in large lot zones where population is least. It is also likely that these areas will contain land most suited for conservation. Both these trends will help to alleviate the immensity of the task.

Homeowners associations face the responsibility for their own common lands which localizes and brings the problem closer to a manageable scale. Exclusion of the general public from Homeowners areas will also tend to reduce responsibility and the physical task of maintenance.

The system with least maintenance worries is individual ownership of the open space by the residents of the development. In this system the town authority holds a covenant which prevents spoilation or development of the land which would normally be held in common title. This system does not exclude maintenance and patrolling completely, as some periodic check may be required to ensure the covenant is being honored. There may arise, however, conflicts of interest over the land which will tend to reduce the advantages of low maintenance involvement.

1.44 Summary

More consideration should be given to the design and

purpose of open space. The functions of open space can be expanded to include other uses such as agriculture. Need for overall program to guide conservation and open space.

Private ownership is the most equitable form of ownership. Use of open space is a determiner of ownership. Safeguards required to assure the permanence, maintenance and general operations of open space.

1.5 Physical Factors Affecting Cluster

1.51 Residential Development

The trend in residential development is towards large scale operations. What were formerly independent and isolated operations are now part of the overall project. The more than 20 new towns in the course of construction are a testimony of the change. Reston, a new town out of Washington, is planned to house 75,000 by 1980.

> "Before World War II, the majority of homes were built for a known buyer on a sold basis. Today, approximately 85% of the new homes are manufactured on a for sale basis. In the course of this fundamental transition, home building has evolved from a craft to an industry."[20]

1.52 Conservation

William H. Whyte regards the cluster movement as a step in the direction of conservation. It could be that conservation is a step towards cluster, especially with recent legislation highlighting conservation and channelling vast sums of federal money to this cause. The public is being alerted to the values of conservation and there is little doubt the publicity and consciousness this has aroused has done

much to promote cluster.

With many cluster subdivisions there will be little of value to conserve in the open space; yet it is very conceivable that the land will go to conservation to be held by one of the many groups operating under that banner. Care should be taken to ensure that dedication for conservation is meaningful; in cases where conservation does not apply, the approving authority should express this point and suggest development of the area with provision for a homeowners association to look after the land.

1.53 Continuity

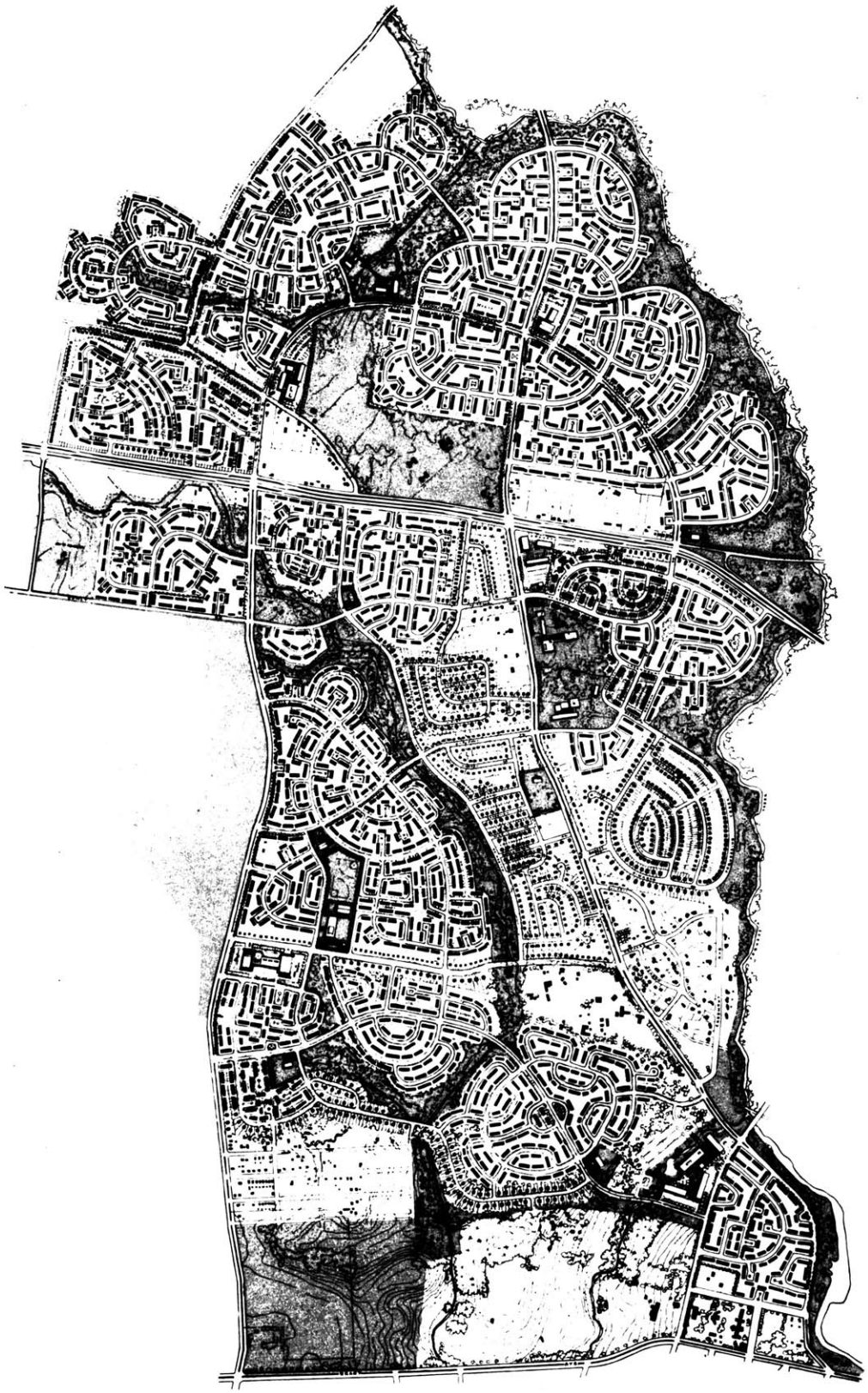
The positive approach taken by Whyte is to visualize cluster as a means of achieving an overall linked pattern of conservation areas.

> "The key is to anticipate cluster development and to lay down in advance the skeleton of an open space network that would unite the open spaces of one cluster development with the open spaces of others."[21]

Please see Illustration 8. This system has been used in the Far Northeast section of Philadelphia on a district basis encompassing some 5,000 acres. Santa Clara County, California, has adopted a linked system for its major waterways and Guilford County, North Carolina, is proposing a county-wide system of linked open space along its waterways.

Under these conditions conservation can make real sense, although cluster development cannot be expected to accomplish the whole program it can certainly subscribe. Open

ILLUSTRATION I-8



Philadelphia's master plan for the Far Northeast area.

space and conservation proposals should have a definite expression in the comprehensive plan as a guide to the approval of subdivisions.

1.54 Summary

Residential development is taking place on a larger scale, the trend is towards the complete product, the new town. Conservation is becoming a household word; the association with cluster will tend to promote this type of development. An extension of conservation and open space thinking is leading to the idea of continuous open space to conserve streams and help to tie the open space together in a linked pattern.

1.6 Legal Factors Affecting Cluster

1.61 Zoning Changes

Development controls were focused on the single lot due largely to practices in vogue at the time zoning came into existence. Development occurred one lot at a time with independent actors performing the roles of subdivider and builder.

Another distinct focus of conventional zoning was the zoning district: A practice which separated uses into districts of uniform use. Distinctions were sufficiently detailed to regard single family, row housing and apartments as independent uses.

Cluster breaks with conventional zoning in two ways. Firstly the focus is removed from the individual lot to the tract. In effect cluster converts minimum lot size into dwelling units per acre.

Secondly, a departure from district uniformity is

achieved by the resultant variability of individual lot sizes.

Departure from the established pattern of uniformity has raised doubts about the validity of cluster zoning. A case which dismissed these fears, at least for New Jersey, was Chrinko vs. South Brunswick. The charge was made that State statutes required uniformity within a zoning district. In part, the decision handed down read,

> "Nor is it an objection that uniformity of regulation is required within a zoning district. Such a legislative technique accomplishes uniformity because the option is open to all developers within a zoning district, and escapes the vice that it is compulsory."

The decision went on to touch on another interesting point regarding the status of the concept on which the enabling legislation is based.

> "Zoning ordinances in rapidly growing municipalities may be founded on an outmoded concept that houses will be built one at a time for individual owners in accordance with zoning regulations."[22]

New York state passed an enabling act specifically for cluster, Chapter 963 of the Laws of 1963. In addition to dispelling any fears of uniformity preventing cluster, it also clarified open space ownership and provided, subject to the discretion of the Boards, the opportunity of varying the building type.

1.62 Recent Zoning

Recent cluster zoning by Baltimore County provides an interesting approach to the permitted lot size variations.[23]

Instead of using an absolute minimum to control lot size reduction, an average lot area is used in conjunction with a minimum lot area to mark the lower limit of permitted variation. A third control measure stipulates the allowable percentage of lots below the average. Table I-1 illustrates the method.

TABLE I-1

LOT SIZE CONTROL BALTIMORE COUNTY

District	Conventional Lot Size	Average Lot Size	Minimum Lot Size	Max. % Lots Below Average
R-40	40,000	30,000	25,000	75
R-20	20,000	16,000	13,000	75
R-10	10,000	8,500	7,500	50

The method provides an additional degree of flexibility as the average, while being the controlling element, is made up of a range of variables. The percentage of lots below the average has little significance as a control. Depending on the actual percentage adopted, however, it can influence the distribution of lot sizes.

Under the provision, open space must be owned and controlled by trustees for the sole benefit and use by the residents of the development.

The Density Development Ordinance of St. Louis County, Missouri, provides another interesting approach to cluster zoning.[24]

The computation of the number of permissible lots is

derived by subtracting land encumbered by easements, flood plains and a fixed percent for street rights of ways, then dividing the remainder by the minimum lot size for the district in which land is situated.

Lot size reductions vary from 54% in the one acre B district to 20% in the D district; there is a further flexibility given under Section 4a. This section allows reductions below the minimum lot area, as determined for the cluster method, providing the average lot size is not less than the stated minimum. In this section no limiting minimum area is given which means that a variety of lot sizes can be developed.

Open space must be deeded to Trustees under a trust indenture, approved by the planning board, for the sole benefit and use of the residents. The trusteeship is limited to the life of the subdivision or 20 years whichever comes first, at which time the land becomes vested in the residents.

1.63 Special Exception

Although density zoning is flexible enough to encompass both conventional and cluster subdivision, minimum lot zoning has been retained with density zoning added as a special exception. The use of the special exception as a vehicle for cluster subdivisions is not universal; the practice, however, is widespread. One contributing factor is the reluctance of local government to make sweeping changes. Another is cluster subdivision's relationship with planned unit development which has led to the adoption of similar regulations.

Critics of the special exception procedure point out the additional barrier cluster must surpass to attain equal footing with conventional subdivisions. This acts as a deterrent to cluster. The procedure is wrong in principle according to one writer.

> "The board of adjustment is, surely, the least likely body to exercise planning functions within new residential development. Those who created a place in the zoning scheme for this body envisaged that the board of adjustment was to make small scale changes in the case of hardship."[25]

Despite slow processing and cumbersome procedures, cluster development is becoming more widespread. There are many examples of direct, clear cut ordinances. One such ordinance is that of South Brunswick, New Jersey, which was adopted in October 1962.

This ordinance is of particular interest as it was subsequently tested by the courts. Until this case was upheld, doubts existed as to the validity of cluster zoning as a direct right under current enabling law.[26]

Lawrence A. Sullivan describes the function of special exceptions as a device for adding a degree of flexibility:

> "The ordinances may authorize specified uses, which would not otherwise be permissible, when conditions particularized by the local legislative body have been met. Usually, the enabling statute authorizes a board of appeal, which must determine whether the conditions set forth in the ordinance are fulfilled, to impose such further conditions in granting an exception as it may deem appropriate."[27]

Sullivan expresses the opinion that modifications of a more

comprehensive scale than that intended by either state enabling law or local ordinances, are being achieved. Thus, the conflict which pervades so many zoning problems, between the need for flexibility and the imperative that the police power be exercised only pursuant to the rule of law, is also latent in the administration of special exceptions.[28]

1.64 Large Lot Zoning

A development which contributes to cluster is large lot zoning. This device is basically used to control density. The amount of land required by many residents is something less than the limits set by large lot zoning. As a consequence a reduction of lot size is not an acute loss but may be an asset in some cases.

The Regional Plan Association of New York has calculated the average lot size in the New York metropolitan area at 2/3 acre and the trend is for larger lots. From a cluster point of view this indicates a large potential, but more important it indicates that prudent use should be made of land resources. At a consumption of one acre per family over the next 50 years residential land use would absorb 15% of total land resources.

Lot size has an important bearing on cluster development. As the determiner of density it theoretically prescribes the quantity of land needed to serve a given population. As the measure of land use, it indicates, for a given market, the amount of land superfluous to housing needs. In practice it would be difficult to quantify the above proposi-

tion which alludes to optimum lot size and open space area. Enumerating the variable factors presents a task in itself; difficult as this may be, it offers a much better alternative than the arbitrary system currently employed. A difficulty which large lot zoning poses is fragmentation of ownership in a pattern unsuited to denser development. Should the financial burden on local government shift, it is conceivable that a smaller lot size could be adopted. Under these circumstances the pattern established by large lot zoning would prove a barrier in achieving this objective. Cluster does not pose such a problem in this respect.

The distribution of open space under the cluster system varies by lot size districts. Obviously a 50% contribution to open space in a large lot zone will exceed theoretical standards calculated for local open space. The reverse will be the case in small lot zones.

While an endeavor to achieve the optimum relationship between open space and density of population may not be prudent, it would certainly be wise to be conscious of the relationship. The provision of 3% in a minimum lot size district of 8,500 square feet for example may be meaningless in terms of the resultant spaces.[29] Consideration could be given to the introduction of different housing types where lot sizes are considered large enough for only marginal decreases.

A novel method of dealing with lot size and density distribution is proposed by G. D. Lloyd, White Plains, New York.[30] He puts forward a suggestion that development rights could be made transferable from one property to another. The

right to intensify development could be purchased at the expense of reducing intensification in another area, thus maintaining an overall balance.

1.65 Summary

Cluster requires a break with conventional zoning, needing more flexibility and relief from the uniformity of conventional zoning. The tendency is to hold onto conventional practice and add the innovations as an exception to the accepted practice. These departures have raised doubts on the validity of cluster which were tested by a case in New Jersey. Some states have adopted enabling legislation for cluster zoning. Recent zoning in Baltimore and St. Louis provide new approaches to cluster. Lot size flexibility is increased while ownership of open space is restricted to homeowners.

Large lot zoning favors cluster development. Lot sizes are not determined by physical needs. Population control through large lot zoning used to ameliorate financial problems of community. Open space in large lot zones excessive for physical needs as compared to inadequate open space in small lot size zones. A program designed to achieve a balance of population and open space may lead to variation of housing types in smaller lot size districts.

CHAPTER II

2.0 CASE STUDIES

2.1 Cluster in Massachusetts

2.11 Summary

Andover was the first of the towns in Massachusetts to adopt cluster zoning. This was in 1960. Since then four other towns have added cluster to their zoning bylaws, bringing the total to five for the Boston Metropolitan area.

There are 3 towns outside the metropolitan area who have also adopted cluster and whose by laws have been added to the list for review. It was not ascertained if other than the above three towns have cluster zoning nor were these three towns considered in the case studies.

There is no state organization which has an up-to-date collection of zoning ordinances and bylaws, other than the Attorney General's office which is closed to the public. Under ideal conditions of state-local relationships, the Department of Commerce and Development would ordinarily receive a copy as courtesy. Unfortunately conditions are not ideal.

In order to determine the cities and towns in the metropolitan area who have adopted cluster, a telephone survey was conducted. The information received from this

survey is shown in Table 2-1. The information is only complete for cities and towns in the metropolitan area who have actually adopted cluster zoning. For towns considering cluster and towns outside the metropolitan area the information is incomplete.

Andover, apart from being the first town to adopt cluster, has also had by far the greatest number of cluster subdivisions. Out of the total number of subdivisions passed by the Andover planning board in the past six years, cluster represents 55%.

The remaining four towns have only seven subdivisions between them, of which 4 pertain to Concord, while Brookline is yet to experience a cluster subdivision. These seven subdivisions with a sample of three subdivisions from Andover are used in case studies.

TABLE 2-1

CLUSTER ZONING AND DEVELOPMENT
IN MASSACHUSETTS

Metropolitan Boston	Year Adopted	Considering Adoption	Development
Andover	1960	-	Over 20 subdivisions
Concord	1961	-	4 subdivisions
Lincoln	1964	-	2 subdivisions
Sharon	1961	-	1 subdivision
Brookline	1962	-	No development
Lexington	-	Approved 1966	-
Woburn (City)	-	Part of 701 study	-
Dover	-	Defeated 1966	-
Outside Metropolitan Area			
Amherst	1964	-	Planned Unit Development
Mashpee	1963	-	1 Subdivision
Wilbraham	1964	-	Not Known

2.2 The Enabling Legislation

2.21 Enabling Law

The cities and towns of the Commonwealth of Massachusetts are creatures of the state. Their powers are derived through state enabling acts two of which, the Zoning Enabling Act and Municipal Planning and Subdivision Control Legislation, provide the power to create zoning bylaws and subdivision regulations.[1]

2.22 Exception

Cluster zoning has largely relied on Section 4 of the Zoning Enabling Act for its authority.[2] Under this section exceptions may be granted by the Appeals Board, subject to the following conditions. The exception shall be in harmony with the general purpose and intent of the by-law. The character of the exception must be set out in the by-laws and finally, the Appeals Board is required to hold a public hearing. Under Section 15 the Enabling Act describes the powers of the Appeal Board. It provides, in addition to special exceptions, that cases of substantial hardship may be relieved by the board where substantial detriment is not done to the public good.

There are two problems associated with this procedure. The first is the time delay and inconvenience of dealing with two boards and two public hearings. The second problem is the psychological effect of using the appeals board as a vehicle for cluster. The role of the appeals board, as suggested by its title, is to hear appeals, grant exceptions, issue variances

and make concessions in case of hardship.[3] Cluster subdivision is branded as an exception and identified with the abnormalities of zoning, a situation which does little justice to its potential.

2.23 Uniformity

Section 2 of the enabling act requires that all regulations be uniform within zoning districts.[4] This requirement would appear to exclude cluster as an option in a minimum lot size district. However, it was this point that the judge, in the Chrinko vs. New Brunswick case, ruled that cluster was valid.[5] This may guide Massachusetts practice but it certainly does not remove all doubt.

This may account for the more frequent use of the exception method in cluster zoning. Under the exception there is no conflict with uniformity. The opportunity of additional review is another good reason for the exception.[6] A prudent safeguard considering cluster is a new innovation requiring sophisticated design skills. Another reason for using the exception is to reduce the risk of financial corruption?

2.3 Case Study Analyses

2.31 General

The case studies involved three major operations:

1. Review and analysis of cluster zoning
2. Inspection and analysis of cluster subdivisions
3. Interviews with cluster decision-makers.

Table 2-2 sets out the relationships of these operations.

Three towns outside the metropolitan area were included in the case studies to allow a review of their cluster zoning.

Appendix A contains copies of the cluster provisions of the eight towns included in the case studies. Summaries of these provisions are shown in Table 2-3.

2.32 Objective

The objective is firstly, to define and measure two variables, flexibility of cluster zoning and success of cluster zoning. Secondly, to compare these variables in order to determine their interdependence.

2.33 Procedure

The procedure for achieving this objective is

1. Analyze cluster zoning to determine flexibility
2. Determine relative flexibilities
3. Measure success of cluster by quantitative method
4. Measure success of cluster by qualitative method
5. Compare variables to determine interdependence

TABLE 2-2

INTERVIEWS - INSPECTIONS - REVIEWS

Town or City	By-Laws	Planning Board	Consultant	Inspections	Developer	Designer
Andover	Review	Official	Interview	Wood Ridge	Interview	-
				Wildwood Acres	-	Interview
				Forest Hill Commons	-	-
Concord	Review	Member	-	Barretts Wood	Interview	-
				Strawberry Hill	-	-
				Great Meadow Pk.	-	-
				Thoreau Hills (2)	-	Interview
Lincoln	Review	Official	-	Hiddenwood Path	-	-
				Wheeler Subdivision	Interview	-
Sharon	Review	Member	-	Oakhill Estate	-	-
Brookline	Review	-	-	-	-	-
Lexington	-	Official	-	-	-	-
Woburn	-	-	Interview	-	-	-
Dover	-	Member	-	-	-	-
Amherst	Review	-	-	-	-	-
Mashpee	Review	-	-	-	-	-
Wilbraham	Review	-	-	-	-	-

TABLE 2-3

CLUSTER ZONING SUMMARIZED, MASSACHUSETTS

Town	Enabling Law	Tract Size	Minimum Lot Size Conventional Subd.	Minimum Lot Size Cluster Subd.
Concord	Exception	Not Specified	80,000 s.f. 40,000 s.f. 20,000 s.f. 10,000 s.f.	30,000 s.f. 20,000 s.f. 10,000 s.f. 7,500 s.f.
Andover	Optional Right	10 acs.	30,000 s.f. 43,560 s.f.	20,000 s.f. 29,000 s.f.
Lincoln	Exception	10 acs.	80,000 s.f.	40,000 s.f.
Sharon	Exception	50 acs.	40,000 s.f.	20,000 s.f.
Brookline	Optional Right	10 acs.	40,000 s.f. 25,000 s.f. 15,000 s.f.	20,000 s.f. 12,500 s.f. 7,500 s.f.
Amherst	Exception	10 acs.	30,000 s.f.	20,000 s.f.
Mashpee	Exception	100 acs.	14,520 s.f.	Not specified 3 per acre
Wilbraham	Exception	10 acs.	40,000 s.f. 34,000 s.f. 26,000 s.f.	33,000 s.f. 28,000 s.f. 20,000 s.f.

TABLE 2-3

CLUSTER ZONING SUMMARIZED, MASSACHUSETTS

Min. Frontage	Calculation of Lots	Open Space Ownership	Open Space Uses
50'Road 100'BL 50'Road 100'BL 50'Road 80'BL 50'Road 80'BL	Deduct 10% of Tract divide by applicable lot size. Or equivalent to Conventional Subd.	Owners in Common Owners in Corp. Public Other as approved	Recreation Agriculture Conservation Park
100'Rd. or BL Aggregate = ½ Conventional	Sum of the areas = No. of Lots x min. Lot size	Not specified	Not specified
80' Road 80'BL 50' Cul de Sac or 80' BL	Equivalent no. to Conventional Subd.	Town Conservation Trust Owners in Common Owners + Town Other as approved	Conservation Recreation Agriculture Forestry Water Uses
100'Road	Equivalent to Conventional Subd.	Town	Parks Recreation
110'Road 90' " 75' "	Equivalent to Conventional Subd.	Town Private Cooperative	Recreation Other
120'Road 150'Main Road 105' Cul de Sac	Common land equals the sum of areas by which lots reduced	Town Owners Corporation	Not specified
Not specified	3 Dwelling units per acre	Town	Not specified
R40 150' R34 135' R26 100'	Deduct 15% then divide by applicable lot size	Not specified	Not specified

2.34 Flexibility

Flexibility is a condition of the controlling regulations which optimizes variety of design alternatives. Minimum controls do not necessarily imply optimum flexibility. Controls should be sufficient to ensure attainment of the basic intent of zoning.

Flexibility of cluster zoning is rated in accordance with the degree of freedom permitted by the functional controls. The functional controls fall into two broad categories. The first category contains those controls which pertain to administrative procedures. The second category contains those controls which pertain to design. Optimum flexibility is attained when the degree of freedom is highest in both categories of functional controls.

Table 2-4 is an analysis of cluster zoning showing the flexibility ratings of the functional controls.

Table 2-5 shows the ranked order of the functional controls, their weights and the relative flexibility of the various cluster zonings.

The relative flexibilities were calculated by:

a) ranking the functional controls

b) weighting the functional controls

c) multiplying the weights by the flexibility ratings

The functional controls were reduced into four more clearly defined groups. The first, dimensional characteristics; the second, administrative process; the third, bulk restrictions;

TABLE 2-4

FLEXIBILITY RATINGS OF CLUSTER ZONING
BY INDIVIDUAL FUNCTIONAL CONTROLS

Functional Controls	Concord	Andover	Lincoln	Sharon	Brookline	Amherst	Mashpee	Wilbraham	Totals
Administrative Process	2	3	2	2	3	2	2	2	12
Minimum Tract Size	3	2	2	1	2	2	1	2	15
Lot Size Reduction	3	2	3	3	3	2	3	1	20
Frontage Reduction	3	3	3	2	2	1	3	1	18
No. of Lots Permitted	1	3	1	1	1	2	3	1	13
Ownership of Open Space	3	3	3	1	3	3	1	3	20
Use of Open Space	3	3	3	2	2	3	3	3	22
Totals	18	19	17	12	16	15	16	13	120

TABLE 2-5

RELATIVE FLEXIBILITIES OF CLUSTER ZONING
IN EIGHT MASSACHUSETTS TOWNS

Ranked Order of Functional Controls	Weight	Concord	Andover	Lincoln	Sharon	Brookline	Amherst	Mashpee	Wilbraham
Lot Size Reduction Frontage Reduction	7	21	17.5	21	17.5	17.5	10.5	21	7
Administrative Process	5	10	15	10	10	15	10	10	10
Minimum Tract Size No. of Permitted Lots	4	8	10	6	4	6	8	8	6
Ownership of Open Space Use of Open Space	4	12	12	12	6	10	12	8	12
Totals		51	54.5	49	37.5	48.5	40.5	47	35

and the fourth, fate of open space.

Ranking was based on the importance of each group in satisfying the objectives of cluster development. For this purpose the background and case studies supplied the objectives.[8]

Weighting the groups involved the question of degree. How much more important is one group than another in satisfying the objectives of cluster? Here, again, the background and case studies were used as a basis for subjective evaluation.

2.35 Success of Cluster

Success of cluster means that, as an innovation in modern living, cluster improves the standard of living.

One measure of success for cluster is public acceptance. This is a quantitative measure based on the rate of use of cluster zoning in the various study areas.

This measure is founded on the principle that the consumer is the ultimate judge. His decision will decide the fate of cluster development.

Another measure of success is the degree of achievement of the objectives of cluster. In effect cluster can be defined by a set of objectives, the satisfaction of which present a measure of achievement or success. By measuring the resultant developments in terms of their achievement of the objectives of cluster, the relative and overall success of these developments may be determined.

The objectives of cluster are used as evaluative

criteria in the analysis of the case studies. To use these criteria, as a relative measure of the achievement of cluster objectives, requires that they be ranked and weighted in a similar manner to the functional controls of the by-laws. Tables 2-6, 2-7 and 2-8 summarize and analyze the subdivisions selected for the case studies. The evaluative criteria are set out in these tables. These criteria are ranked, weighted and described as measures of achievement as follows.

Cluster effect is ranked equal first. It is a combination of the degree of physical cluster and the visual sense of cluster. The degree of cluster is a measurement of the amount of clustering based on frontage and area of lots relative to the minimum lot size district in which they occur. The visual sense of cluster is a subjective field evaluation of the effect of the clustering, ranging from a high score where houses read as a group to a low score where they read as a continuous element.

Value of Open Space is ranked equal first. It is made up of a combination of three measurements: visual sense of open space, amenity of open space or facilities of open space. The grouping together of houses to create a new focus, and, the space saved by the process are the two basic objectives in cluster which are ranked equally because of their relative importance and interrelatedness. Consideration in the analysis is given on the basis of the effectiveness of the area for its chosen role, e.g. conservation, etc.

Site Utilization is ranked third. It is equivalent to

TABLE 2-6

SELECTED CLUSTER SUBDIVISIONS - ANDOVER

Summary	Wood Ridge		Wildwood Acres		Forest Hill Commons	
Total Area	60 acs.	Allowable	67 acs.	Allowable	38 acs.	Allowable
No. of Lots	55	55	59	59	35	35
Average Area	36,000 s.f.	29,000	37,000 s.f.	29,000	29,500 s.f.	29,000
Average Frontage	160'	100'	190'	100'	165'	100'
Length of Roads	4,500'	-	6,400'	-	2,900'	-
Open Space	9½ acs.	18 acs.	10 acs.	20 acs.	7 acs.	12
Lots Adjoining O.S.	27	-	29		23	-
Analysis						
Degree of Cluster	Medium		Medium		Medium-High	
Visual Effect of Cluster	Medium		Medium		Medium	
Visual Sense of O.S.	Medium		Low		Low	
Amenity of O.S.	Preservation		Preservation		None	
Facilities of o.s.	None		None		None	
Advantage taken of site	Utilized O.S. for Drainage		Avoids Lowlands		None	
Evidence of lower costs	Reduced Roads & Drainage		Reduced Roads		Reduced Roads	
Percent of Lots on O.S.	50%		50%		67%	

TABLE 2-7

CLUSTER SUBDIVISIONS - CONCORD

Summary	Thoreau Hills (2)		Barretts Wood		Strawberry Hill		Great Meadow Park	
Total Area	78 ac.	Allow-able	150 ac.	Allow-able	12 ac.	Allow-able	13 ac.	Allow-able
No. of Lots	79	79	79	79	5	6	18	18
Average Area	30,700 s.f.	29,000	67,000 s.f.	39,000	44,000 s.f.	39,000	21,000 s.f.	20,000
Average Frontage	170'	80'	230'	100'	84'	100'	100'	80'
Length of Roads	6,800'	-	10,400'	-	400'	-	800'	-
Open Space	12½ ac.	36 ac.	20 ac.	70 ac.	6 ac.	6 ac.	2 3/4 ac.	5½ ac.
Lots adjoining O.S.	27	-	13	-	2	-	7	-

Analysis				
Degree of Cluster	Low	Low-Medium	High	Low
Visual Effect of Cluster	Low	Low-Medium	Medium-High	Low
Visual Sense of Open Space	Low	Medium	Low	Low
Amenity of Open Space	Preservation	Recreation	Preservation	None
Facilities of Open Space	None	Lake & ski run	None	None
Advantages taken of site	None	Good siting of houses	Avoids Ledge	None
Evidence of Lower Costs	None	None	Reduced Road	Reduced Road
Percent Lots on O.S.	33%	17%	40%	40%

TABLE 2-8

CLUSTER SUBDIVISION - LINCOLN AND SHARON

	Lincoln				Sharon	
Summary	Wheeler Subdivision		Hiddenwood Path		Oakhill Estates	
Total Area	109 ac.	Allowable	17 ac.	Allowable	80 ac.	Allowable
No. of Lots	13 lots	50	8	8	75	75
Average Area	4¼ ac.	40,000	61,000	40,000	24,000 s.f.	20,000
Average Frontage	285'	80'	180'	80'	7,300'	-
Length of Roads	1,600'	-	670'	-	25 ac.	36 ac.
Open Space	54 ac.	50 ac.	4 ac.	8 ac.	49	-
Lots Adjoining O.S.	11	-	4			
Analysis						
Degree of Cluster	Low		Medium		Medium	
Visual Effect of Cluster	Low		Low-Medium		Medium	
Sense of Open Space	Medium-High		Low		Medium	
Amenity of Open Space	Retains Rural Character		Conservation of Lowlands		Conservation	
Facilities Provided	None		None		None	
Advantages taken of site	Attention to House Sites		Avoids Lowlands		Uses drainage for O.S.	
Evidence of lower costs	None		Reduced Roads & Drainage		Avoids Lowlands Reduced Rds.	
Percent of lots on O.S.	90%		50%		65%	

the evaluative criterion, advantages taken of site. This measure of achievement is ranked third because of the advantages that may be taken of sites due to cluster.

Economic Benefit is ranked fourth. It is equivalent to the evaluative criterion, evidence of lower site costs. This is a very definite advantage of cluster which is evidenced by reduced roads, less service lines, reduced drainage, etc., although it may be offset by the lower return for the smaller lots.

Open Space Access is ranked fifth. It is equivalent to the evaluative criterion, percentage of lots adjoining open space. One of the objectives of cluster is to achieve a measure of open space within living areas.

2.36 Compatibility

Table 2-9 sets out the measures of achievement and the evaluative criteria on which they are based. The evaluative criteria are quantified on a 3-2-1 basis of most-moderate-least. They are then averaged to measure the achievement and finally weighted to give the relative measure of achievement.

The results obtained from Table 2-9, which measures the achievement of cluster objectives, are not compatible with the results using the acceptance method. The acceptance method is synonomous with the volume of use to which the zoning by-law has been subjected per unit time, e.g. Andover 5 cluster subdivisions per annum. Table 2-10 depicts the results of both methods.

TABLE 2-9

MEASURE OF RELATIVE ACHIEVEMENT
of
10 SELECTED CLUSTER SUBDIVISIONS

		Concord					Andover				Lincoln			Sharon
Achievement	Evaluative Criteria	Thoreau Hills (2)	Barretts Wood	Strawberry Hill	Great Meadow Park	Mean	Wood Ridge	Wildwood Acres	Forest Hill Commons	Mean	Wheeler Subdivision	Hiddenwood Path	Mean	Oak Hill Estates
Cluster Effect	Degree of Cluster	1	1	3	1	1.5	2	2	3	2.3	1	2	1.5	2
	Visual Sense of Cluster	1	2	2	1	1.5	2	2	2	2	1	2	1.5	2
	Mean	1	1.5	2.5	1	1.5	2	2	2.5	2.2	1	1.5	1.2	2
Weight 5	Weighted Mean	5	7.5	12.5	5	7.5	10	10	12.5	10.8	5	7.5	6.2	10
Value of Open Space	Visual Sense of O.S.	1	2	1	1	1.2	2	1	1	1.3	3	1	2	2
	Amenity of Open Space	2	-	2	1	1.3	2	2	1	1.7	2	2	2	2
	Facilities of O. S.	-	3	-	-	0.7	-	-	-	-	-	-	-	-
	Mean	1.5	2.5	1.5	1	1.6	2	1.5	1	1.5	2.5	1.5	2	2
Weight 5	Weighted Mean	7.5	12.5	7.5	5	8.1	10	7.5	5	7.5	12.5	7.5	10	10
Site Utilization	Advantages taken of site	1	3	2	1	1.7	2	2	1	1.7	2	3	2.5	2
Weight 3	Weighted Mean	3	9	6	3	5.2	6	6	3	5	6	9	7.5	6
Economic Benefit	Evidence of lower costs	1	1	2	3	1.7	1	1	2	1.3	1	2	1.5	1
Weight 2	Weighted Mean	2	2	4	6	3.5	2	2	4	2.7	2	4	3	2
Open Space Access	% of Lots adjoining O.S.	1	1	1	1	1	2	2	2	2	3	1	2	2
Weight 1	Weighted Mean	1	1	1	1	1	2	2	2	2	3	1	2	2
	Total Weighted Mean	18.5	32	31	20	25.4	30	27.5	24.5	27.8	28.5	29	28.7	30

TABLE 2-10

RANKING OF TOWNS BY TWO METHODS OF MEASURING SUCCESS OF CLUSTER

Method	1	2	3	4
Measure of Achievement	Sharon	Lincoln	Andover	Concord
Measure of Acceptance	Andover	Lincoln	Concord	Sharon

2.37 By-law Review

Revisions of the by-laws revealed some interesting points which have not been raised under the general analysis. These points follow.

Concord. The Board of Appeals is given the option of imposing further restrictions if thought necessary. Planning Board is required to submit a report for the appeals board hearing. This report is to be given due consideration. The provisions in practice c reate a workable arrangement between the two boards and provides an opening for discretion in evaluating proposals.

Andover provides a flexible minimum for lot width. The minimum is 50% of the aggregated minimum under conventional zoning. Set back lines are part of the subdivision and are approved in conjunction with the proposal. Provision (d) in the by-law overcomes the problem of departure from uniformity: it justifies the departure by intimation that Board's approval will be given where the public good is more efficiently served.

The final provision is intended to reinforce the legal status of cluster lots which are, in a sense, non-conforming for the district in which they are situated. The provision is really an additional measure whose validity is suspect. The second part of this provision is arrived at by freezing the boundaries of lots created under the cluster zoning.[9]

The methods of dealing with open space in Andover, although not specified are usually either dedication to a conservation organization or attachment to the lots in the subdivision, subject to restrictive covenants in favor of the Town. The latter is more often used than not and for this reason the provision of freezing boundaries is necessary. In using this method Andover is freed of the responsibility of town ownership, the land remains on the tax rolls and the developer is not worried with Homeowners Associations.

Lincoln. This by-law is well written and has an ease of interpretation. It is mandatory under this by-law to set aside at least 20% to open space. Section (d) of the cluster provision provides for an evaluation of the proposal by the planning board. It relates the proposal to the master plan. It provides for an evaluation of the subdivisional design.

The reference to the master plan is significant, for the Town of Lincoln has adopted an overall plan which is very sympathetic to open space and to this extent the overall plan can guide the design of the open space.

Brookline. This by-law is briefer and more concise

than most. It leans toward home ownership of the common space and use of open space for recreational or other similar outdoor uses.

Sharon. The provisions of this by-law are more restrictive than most. To qualify, a lot must originally contain better than 50 acres. The open space must be deeded to the Town.

Mashpee. This by-law is not easy to interpret. It accepts cluster providing it is without substantial detriment to the Town. If there is any detriment, as the by-law indicates, the special exception should not go through. Restrictive provisions are loose, commercial use is permitted under the provisions which is a long way from uniformity. The minimum tract size for use of this provision is 100 acres.

At the town meeting this year a much more reasonable by-law was defeated.

Amherst has had no development on its by-law provision for cluster. An obvious reason is the degree of restriction. Frontages are only marginally decreased. All lots must have at least 50' frontage to the common land. Common land must be at least 50' wide. Common land must be dedicated to the town or a cooperative homeowners association.

Wilbraham has a workable by-law. It has a fixed formula for calculation of the number of lots which could favor its use. It ties the open space into its master plan and sets the standard for size, shape and condition of the open space. It has a condition, provision 4.3.4, that the sub-

division must be uniform in its own right, all lots should be clustered or conventional.

2.38 Analysis of Subdivisions.

In Tables 2-6, 2-7 and 2-8, a comparison is shown between the summarized characteristics of subdivisions and the permissible limits as set by the zoning by-laws.

Lot sizes were compatible in all cases except one, which departed quite radically from the allowable practice. This subdivision has little significance as it was undertaken as a non-profit development to maintain the property in as rural a condition as possible rather than allow it to fall into the hands of developers.

Minimum lot size. In only two of the ten subdivisions are the minimum lot sizes taken advantage of, which indicates the present flexibility in this provision is ample. The smallest lot size zone to which these subdivisions are related is the 30,000 square foot lot. This indicates the tendency to relate cluster to large lot zones and indicates 20,000 square feet is about the minimum acceptable lot size for the markets in these suburban towns.

Average frontage is well in excess of permitted minimum. In one case, a subdivision of 5 lots fronting a cul de sac, the frontages were less than prescribed, although permissible through another section of the by-law. The subdivisions have not taken advantage of the reduced frontages available. This point is evident from the low ratings given to the effect of cluster in Table 2-9.

Open Space is well below the maximum permitted with the exception of the Wheeler subdivision which is slightly in excess of the permitted maximum. This subdivision, however, is far from standard.

2.39 Interviews

Interviews were conducted in relationship to the case studies as shown in Table 2-4. The interviews were conducted in person using a structured questionnaire although deviations were made when warranted. Questions used in the interviews are shown in Appendix B.

The interviews dealt with planning boards and developers. In the case of planning boards the objectives of the interviews were to

P.B. (a) determine the benefits being sought by the town in adopting cluster zoning

P.B. (b) determine the methods by which they hoped to realize these benefits

P.B. (c) assess the attitude towards cluster development completed in these towns

P.B. (d) determine the criteria by which town evaluates proposals submitted for approval

P.B. (e) determine attitudes towards increased flexibility and discretionary powers.

The results of the interviews are expressed in terms of the objectives after analyzing responses to the questions.

P.B. (a) Concord. More attractive development being sought as a variation from the grid plus preservation of

decent sized lots of land. Interest in cluster from board members. Conantum, a subdivision based on the cluster concept which preceded the adoption of cluster zoning, also influenced the move.

Andover. Ensure the preservation of the natural beauty and provide less through traffic in subdivisions. Interest aroused through consultants.

Sharon. Preservation of open space and improved subdivisional design. The interest developed through planning studies for Comprehensive Plan of the town.

Lincoln. Provide a better opportunity for preserving open space and arranging subdivision to take advantage of nature. Improve the chances of implementing open space plan. Interest developed through consultants and the board.

P.B. (b) Concord. Board personally studied cluster for 12 months prior to adoption. Consultants were employed on the job. Appeals board used to ensure development would be adequate - the provisions are flexible enough to achieve good development.

Andover. Allow sufficient freedom to ensure good design possible in large lot areas - provide direct approval by planning board and provide security for purchasers of lots under minimum lot area for district.

Sharon. The board at the time had a planner as a member. They also had a consultant on retainer and consultants working on master plan. The regulations

are too restrictive - open space should go to a conservation group rather than the town to avoid waiting for town meeting approval.

Lincoln. Regulations designed to achieve good development - plenty of flexibility in the lot sizes and criteria by which to judge the open space land.

P.B. (c) Concord. Development has been promising with one exception. The rate of use a little disappointing.

Andover. Very successful, most development is cluster. Town was first to use cluster in Massachusetts. People from other states have studied development.

Sharon. The objectives are being achieved in the current development although the quantity of development is disappointing.

Lincoln. Considering the age of the cluster by-law the development is encouraging. The linked system of open space in the Wheeler subdivision is excellent.

P.B. (d) Concord. The planning board is composed of suitable trained and interested people to enable proper evaluation. The by-law sets out criteria.

Andover. Board is very experienced in handling cluster subdivisions. They favor discouragement of through traffic.

Sharon. Board is capable, would appreciate more cluster and favor review of the 50 acre minimum tract size down to 10 acres.

Lincoln. Board very conscious of preservation of open

space, the by-law sets out criteria and relates the proposal to the master plan.

P.B. (e) Concord. Appointed board is composed of specialists in related fields. They consider present flexibility is adequate. Appeals board helps eliminate any possibility of poor work being passed.

Andover. Present flexibility is adequate.

Sharon. Minimum tract size should be reduced from 50 to 10 acres. Increased discretionary powers would be appreciated.

Lincoln. The flexibility is adequate.

In the case of developers the objectives of the interviews were to assess

D. (a) Attitudes towards process of approval

D. (b) the success of the operation

D. (c) reason for engaging in cluster development

D. (d) the competence displayed by the board in assessing design.

D. (e) the degree of flexibility desirable for cluster.

The result of the interviews are expressed in terms of the objectives after analyzing responses to the questions.

D. (a) Concord I. Procedure slow and cumbersome. Approval took 12 months. People are dubious about matters that go before board of appeals. Public are sophisticated buyers. You don't need the safeguard of additional board.

Concord II. Appeals board necessary to rationalize the otherwise flexible laws which place too much onus

on planning board - reduces the chance of poor development. Time delays do occur.

Andover. No trouble.

D. (a) Lincoln. Complete sympathy and cooperation from the board. Appeals board are very necessary to guard against profit hungry developers who may otherwise use cluster to achieve more lots than would normally be available by ordinary zoning.

D. (b) Concord I. Reduction of through traffic a major success. Helped to reduce road costs as well. Public becoming aware of cluster - show an intelligent interest - appreciation of intimate grouping.

Concord II. Success of operation dependent on quality of product. No emphasis on costs.

Lincoln. Operation well planned and successful.

Andover. Subdivision selling. Public not appreciative of cluster. They look for frontage and lot size for their money.

D. (c) Concord I. Buyers have shown more interest in cluster - more attractive - topography suited to cluster development.

Concord II. To achieve more desirable subdivision by taking advantage of extra latitude.

Lincoln. Main reason was to get smaller lot frontage on two lots.

Andover. To achieve groupings of houses for aesthetic purposes. The New England country is admirably suited to cluster.

D. (d) Concord I. Time delay detracted from any competence. Board also adjusted subdivision, reducing the amount of clustering.

Concord II. Protection of appeals board a good protection. Constructive criticism welcomed. Would appreciate an expert advisory group.

D. (d) Lincoln. Planning board needs the safety of an appeals board hearing.

Andover. Appointments to a board are often by favor, excluding the more experienced. An expert advisory committee would help.

D. (e) Concord I. Flexibility could be increased. More expert boards would help in use of wider discretionary powers.

Concord II. Sufficient freedom in present by-laws. It is difficult to reduce 2 acre lots below 1½ acres - the market won't stand it. There is also a limit as to what use and facilities can be provided in open space. Most people not interested.

Lincoln. Flexibility adequate.

Andover. Would be ideal to have 50% land undeveloped. Roads should be discarded for informal driveways linking houses.

Additional Interviews.

Interviews were conducted with 2 towns and 1 city who are considering cluster.

Woburn is currently in the process of a comprehensive planning program; cluster is one of the proposals which will be put forward.

Lexington is also undergoing planning studies and has already submitted and approved a cluster amendment to its zoning by-laws at the recent town meeting.

Dover defeated a proposal for a cluster amendment at its recent town meeting.

Benefits of Cluster. Each of the authorities expressed the same major benefits anticipated in adopting cluster zoning. Fringe benefits were more numerous and diverse than the previous towns interviewed who mentioned only the major benefits. Included were engineering benefits such as reduced maintenance, better drainage and fewer water management problems. Secondary uses for scenic drives, buffer zones and continuous parks were mentioned as possible developments.

Methods of Achieving Objectives. Well thought out by-laws and the guidance of an overall plan. The method of approach depends on community;if appeals board approach is considered preferable by the townspeople this will be the method. Ownership of open space dependent on the town, the quality of the space and improvements if any.

In the case of Dover the defeat of the cluster amendment was claimed to be political. The case was well presented but not treated on its merits.

The interviews confirmed the basic intentions of cluster as preservation and improved subdivisional design. They also confirmed that the degree of flexibility is adequate, if anything over-adequate. The appeals board procedure was both criticized and commended, while the use of expert opinion

for advisory purposes was generally welcomed. Other than minor amendments to one by-law, they were all considered as suitable.

CHAPTER III

CONCLUSIONS

3.1 Study Results

The conclusions which were drawn from the study are (a) flexibility in zoning by-laws is necessary to achieve cluster development,

(b) the degree of flexibility in zoning by-laws does not control the degree of success of cluster development.

The study sought to establish a positive correlation between the above variables. A task made difficult by the following factors:

(a) the subjective nature of the measuring devices,

(b) the difficulty of holding other variables constant,

(c) the impossibility of precise definition of the study variables.

Despite the failure to establish a positive correlation, the study provided an opportunity to evaluate cluster development in the Boston metropolitan area. On the basis of this evaluation several recommendations have been generated.

Before submitting recommendations the study results are summarized for the three different methods employed in testing the thesis.

3.11 Method 1.

The measure of success was based on the number of

cluster subdivisions per unit time; the higher the number the greater the success. This measurement is relatively consistent with flexibility; as the degree of flexibility increases, success increases.

Subject to the reliability of the assumptions underlying these two measures, this result is encouraging. However, to be significant, it requires the corroboration of additional measures of the variable, success.

3.12 Method 2. The measure of success, based on the degree to which development has achieved the objectives of cluster, shows little consistency with flexibility.

The failure of this result to corroborate Method 1, would appear to cast considerable doubt on the possibilities of achieving compatible results using different measures.

3.13 Method 3. Personal interviews were used to determine the opinions of persons involved in the process of cluster development. The consensus of opinion favored the individual zoning by-laws as sufficiently flexible to achieve success.

This result may be regarded as little more than a vote of confidence in the home town. It does, however, indicate the concept these persons have of success.

Table 3-1 sets out the results of methods 1 and 2 as compared to the degree of flexibility.

TABLE 3-1

STUDY RESULTS

Measurements	Order of Towns 1	2	3	4
Method 1	Andover	Lincoln	Concord	Sharon
Flexibility	Andover	Concord	Lincoln	Sharon
Method 2	Sharon	Lincoln	Andover	Concord

3.2 Recommendations

Recommendations have been generalized to meet the variety of conditions experienced in Massachusetts towns. The high degree of autonomy enjoyed by these towns tends to develop individuality. The range of natural conditions to be found, adds physical variety. The stratification of socio-economic classes adds a class variety.

The specific form recommendations take will depend on the administrative, social and physical characteristics of the individual city or town.

The importance of the administration should not be overlooked. The best regulations in the hands of poor administrators will produce poor results. The regulations in themselves are not sufficient to ensure quality. The opposite is also true, that good administrators will enhance the quality of development despite poor regulations.

3.21 Enabling Legislation.

The enabling legislation does not explicitly provide for cluster development. Uniformity, as required by Section 2

of the present law, casts doubt on the validity of cluster zoning as of right. The use of the exception, however, avoids this situation, making it the most used vehicle for cluster zoning.

An amendment to the enabling act to permit the use of density zoning would relieve the situation and place cluster on an equal basis with conventional zoning.

Another item requiring directive authority through the enabling law, is the disposition and ownership of open space. Authority to formulate regulations covering maintenance, ownership, public acceptance, and restrictive convenants, may help to promote a more enlightened approach to these aspects.

The public interest should be adequately safeguarded by proper assurance of the continuity of the open space, its proper maintenance, and the responsibilities of the members of homeowners associations to payment of dues for taxes, maintenance, etc.

3.22 Zoning By-laws

Recommendations for cluster zoning take the form of a range of suggestions, rather than individual recommendations. The purpose behind this method is to ensure that the diversity of local conditions is at least partly covered.

3.221 Procedure

Given proper amendments to the enabling law any one of three possibilities will be available for cluster zoning.

1. Straight out density zoning blanketing entire zoning districts. This system may be best

suited to lightly developed areas where little if any precedence has been established by existing development. The advantage of density zoning is that it allows all variations to flow from the one zoning by-law.

2. Cluster subdivision as an option. Under this arrangement cluster would be permitted, at the discretion of the board, as an optional method of development. This method may be favored where conventional development exists. The discretionary power will allow amelioration of differences where cluster development conflicts with the interests of existing conventional development.

3. The exception method is suited to the situation where conventional development is favored, but where the occasional cluster development may provide benefit to the community. Under these conditions the administration could modulate its behavior to benefit the community's interests.

3.222 Number of Permissible Lots

Three alternative methods are recommended for the calculation of permissible lots.

1. Assuming the town is eager to develop along the cluster principle and has adopted density zoning districts, the recommendation is

(a) deduct all land used for roads and public purposes other than open space;

(b) deduct all land which is unbuildable and has no value as open space;

(c) divide the resultant area by the density per acre and the result will be the number of permissible lots.

Provision (b) will require board's discretion. Lnad which is not buildable may be made buildable by filling or levelling which makes the calculation of buildable land difficult. The consideration for this aspect is contained in the qualification of unbuildable land as embodied in (b).

2. Assuming the town has adopted the cluster option along with conventional zoning. Depending on the degree to which the community wishes to achieve cluster objectives, they may wish to vary the approach from that given below, to something more aligned with either provision 1 or 3.

(a) Deduct all land used for roads and other public purposes other than open space.

(b) Deduct all land which is unsuitable for development as building lots or open space.

(c) The sum of the areas of the resultant lots plus the area of approved open space should equal or exceed the product of the number of lots by the minimum lot size permitted in the district.

Provision (b) places the onus on the developer to submit a case if he feels the board's assessment of land suitable for open space is less than justified. Because cluster is permitted as an option the developer may resort to conventional development if he is grieved; alternatively the board may cede the point if it is in the interests of the community.

Under alternative one, the developer has a stronger position because the provision intimates that unbuildable land has a value as open space.

3. Assuming the town has adopted cluster by the exception method, and intends only occasional use of cluster, then the recommendation is as follows:

(a) deduct a fixed percentage of land for roads (calculated to approximate the percentage of land that could have been expected under conventional subdivision) and other public purposes other than open space;

(b) deduct all land which is unsuitable for residential development; the calculation should be based on the method for determining unsuitable land under conventional subdivision.

(c) divide the remaining area by the minimum lot size for the district concerned; the result will be the number of permissible lots.

Provisions (a) and (b) are designed to ensure that the number of lots that result are no more than would have resulted under conventional subdivision.

3.223 Lot Size Reduction

In order to achieve greater flexibility in design, and to increase the opportunity of varying lot sizes, the following recommendations are suggested.

(1a) For lot size districts of 15,000 square feet and greater, reductions of 50% are recommended. Rather than set 50% as the minimum reduction, lots under this provision may average 50% reduction, i.e. for a 20,000 square foot lot size district, the average lot size should not be less than 10,000 square feet. Lots as low as 6,000 square feet are permissible.

(1b) The minimum average reduction should not be less than 20%.

(1c) The minimum permissible lot size is 6,000 square feet for a single family detached dwelling.

In addition to the objectives of Section 1, and further, to ensure a meaningful amount of open space in relation to developed land, to provide a mix of housing types to achieve this end, and to provide variety in housing types, the following is recommended.

(2a) For lot size districts of 10,000 up to 15,000 square feet, a maximum average reduction of 40%.

(2b) Minimum average reduction 25%.

(2c) Minimum permissible lot size for a single detached

dwelling is 6,000 square feet. Minimum lot size for a semi-detached dwelling is 4,000 square feet per unit.

(2d) Maximum number of lots to be used for semi-detached units not to exceed 25%.

In addition to the objectives of Sections 1 and 2, and to ensure that small lot districts are given the opportunity to share the advantages of cluster, the following is recommended.

(3a) For lot size districts of 6,000 square feet up to 10,000 square feet, a maximum average reduction of 50%.

(3b) Minimum average reduction 30%.

(3c) Minimum permissible lot size for a single detached dwelling is 6,000 square feet; for a semi-detached dwelling 4,000 square feet per unit; for row houses grouped in 3's, 4's or 5's a minimum of 3,000 square feet per unit.

(3d) Maximum number of lots for attached units not to exceed 50% for lot size districts over 8,000 square feet; and 75% for lot size districts below 8,000 square feet.

3.224 Road Standards and Frontages

To encourage the grouping of houses, the removal of through traffic from residential streets, to reduce parking and access onto through streets, and to create a sense of open space from the travelled road, the following recommendations are made.

For the purpose of this recommendation the subdivision regulations will require amending to provide for the following road standards under cluster development. Frontage variations can be handled by the zoning by-laws.

(a) Minimum frontage for a single detached dwelling unit is 50 feet; semi-detached dwelling unit is 40 feet; and a row house is 30 feet.

(b) Minimum frontages may occur as follows:

Road	Detached	Semi-Detached	Row House
Service	Minimum	Minimum	Minimum
Cul de Sac	Minimum	Minimum	Minimum
Connector	Reduced	Not Permitted	Minimum
Collector	Not Permitted	Not Permitted	Not Permitted

(c) Dwelling units not to exceed

Road	Detached	Semi-Detached	Row House
Service	6	6	8
Cul de Sac	6	8	10
Connector	30	36	40
Collector	N/A	N/A	N/A

(d) Road and ROWs widths, and permitted uses:

Road	R.O.W.	Pavement	Sides Useable	Street Openings	Parking
*Service	20'	12'	One side	Not permitted	Off street
Cul de Sac	40'	24'	Both sides	Not permitted	Limited
Connector	50'	26'	One side	Both sides	One side
Collector	60'	30'	Not permitted	Restricted	Not permitted

*One way traffic

3.225 Open Space

To achieve meaningful use of open space appropriate to both the land and the residential development; to ensure proper consideration is given to design of open space, to guarantee permanence of the space; to provide for appropriate ownership and methods of tenure; to make provision for proper maintenance; and to arrange a takeover clause in the case of default by owners; the following recommendations are suggested.

(a) Any open space use normally permitted in residential districts, and including among others agriculture, forestry, fisheries, recreation, conservation, wild life preserves, arboretums, zoological gardens, botanical gardens, may be permitted subject to approval by the administrative authority that such use is appropriate to the general welfare and that the design is of adequate standard.

(b) Ownership of open space should be appropriate to the proposed use; the method of tenure shall be controlled, by adequate legal devices, to ensure permanence of open space or such termination as may be desirable. The tenure should provide for proper maintenance and correcting procedures in case of default; provision should also be made for the takeover of open space where owners fail to meet responsibilities.

3.226 Design Control

In order to achieve improved quality in the design of subdivisions, this study recommends that a more active role be taken by the administrative body during the preliminary subdivision approval stage.

This stage of the procedure offers an excellent opportunity for constructive action. An alternative design of demonstrable benefit to the community and the developer would usually be appreciated. The planning board, working through its planning department or a private consultant, can take the initiative where so often a negative attitude is adopted resulting in minor inconsequential amendments.

3.3 Conclusion

The objectives of the preceding recommendations have been

(a) to enhance the design potential by making cluster achievable in more dynamic and diversified forms;

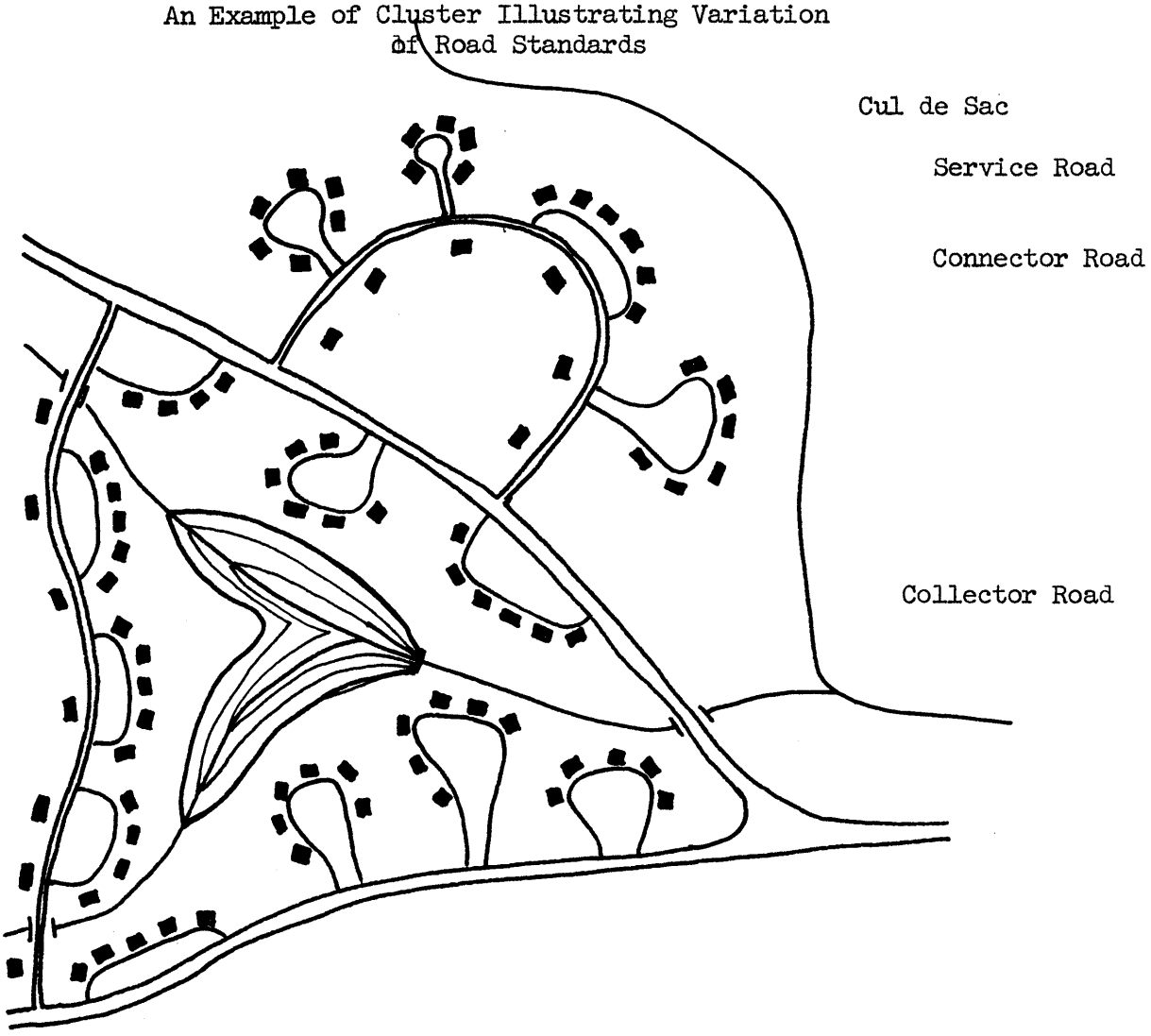
(b) to encourage cluster development by offering minor incentives, dependent however on local policy;

(c) to extend cluster to the smaller lot size districts.

Illustration 3-1 demonstrates the cluster form encouraged by the recommendations. The service road concept encourages the clustering of houses, the use of smaller lots, and the removal of houses from the travelled road.

ILLUSTRATION 3-1

An Example of Cluster Illustrating Variation of Road Standards



Cluster is establishing a new fashion in the spatial arrangement of suburban homes, a fashion born of a need for change.

As the fashion becomes more widely acclaimed, increased flexibility in development controls will be needed to handle more dynamic subdivisional forms. This study sought, unsuccessfully, to find evidence of this process.

Cluster in metropolitan Boston has not taken advantage of the flexibility in present regulations. Despite the adequacy of present controls, the recommendations of this study have been oriented towards the enhancement and encouragement of a more dynamic form of cluster development.

FOOTNOTES

CHAPTER I

1. William H. Whyte, Cluster Development (New York: The American Conservation Association, Inc.), p. 11.

2. Urban Land Institute, New Approaches to Residential Land Development, Technical Bulletin No. 40. A study prepared by the Urban Land Institute and the National Association of Home Builders (Washington: Urban Land Institute, 1961), p. 23.

3. Jan Rosenthal, Cluster Subdivisions, American Society of Planning Officials, Information Report No. 135 (Chicago: American Society of Planning Officials 1960), p. 2.

4. Urban Land Institute, loc. cit., quoting letter by William L. Weismantel of St. Louis, Missouri.

5. Whyte, loc. cit.

6. Whyte, ibid., p. 114, quoting Subdivision Open Space Regulations, Baltimore County, Maryland, 1963.

7. Issues, Suburbia Reshaped: The Case for Flexible Zoning Controls, a study prepared by the Philadelphia Housing Association (Philadelphia: Philadelphia Housing Association 1960).

8. Eldridge Lovelace and William L. Weismantel, Density Zoning, Urban Land Institute Technical Bulletin No. 42 (Washington: Urban Land Institute 1961), p. 7.

9. Rosenthal, op. cit., p. 16.

10. Whyte, op. cit.

11. New York Times, January 3, 1960.

12. Urban Land Institute, loc. cit.

13. Rosenthal, loc. cit.

14. Ibid.

15. Some regulations are so structured as to forgo this potential use of cluster. The reason being that cluster will increase population above that which would ordinarily have been anticipated by conventional development. Here the basic intent of the zoning is to restrict development.

16. Jan Krasnowiecki, "Legal Aspects of Planned Unit Residential Development," Urban Land Institute Technical Bulletin No. 52 (Washington: Urban Land Institute, 1965), p. 15.

17. Urban Land Institute, The Homes Association Handbook, Technical Bulletin No. 50 (Washington: Urban Land Institute, 1964), p. 32.

18. Ibid., p. 18. The study undertaken by the Urban Land Institute shows that 60% of the Homeowners Associations were established after 1950.

19. Ibid., p. ix.

20. Ralph J. Johnson, Technological Changes in Residential Construction, 1961-1970. Part of a study by the Committee on Banking and Currency, Subcommittee on Housing, United States Senate, 86th Congress 2d Session (Washington: U. S. Government, 1960), p. 130.

21. Whyte, op. cit., p. 15.

22. Chrinko vs. South Brunswick, New Jersey, 1963. Quote from Cluster Development, William H. Whyte, op. cit., p. 33-34.

23. "Subdivision Open Space Regulations," Baltimore County, Maryland, 1963, Section F. See Appendix A.

24. Density Development Ordinance, St. Louis County, Missouri. Section 1003-285. See Appendix A.

25. Krasnowiecki, loc. cit., p. 38.

26. This case is summarized by Whyte, op. cit., pp. 33-34.

27. Lawrence A. Sullivan, Law and Land, ed., Charles A. Haar, (Cambridge, Massachusetts, Harvard University Press 1964), p. 140.

28. Ibid., p. 141.

29. "Subdivision Open Space Regulations," op. cit.

30. Urban Land Institute Technical Bulletin No. 40, loc. cit, p. 136.

FOOTNOTES

CHAPTER II

1. Zoning Enabling Act, Chapter 40A General Laws Planning and Subdivision Control Legislation, Chapter 41 General Laws, Commonwealth of Massachusetts.

2. See Appendix A for Section 4 Zoning Enabling Act.

3. See Appendix A for Section 15 Zoning Enabling Act.

4. See Appendix A for Section 2 Zoning Enabling Act.

5. Supra, Chapter I, p.

6. This view was expressed by two interviewees in the town of Concord.

7. Two interviewees at Lincoln and one at Concord suggested that the additional board hearing would reduce the chance of financial corruption as opposed to the cluster option method.

8. A full list of objectives are given in a later part of this chapter. See pages 57 and 62.

9. Power to alter lot boundaries after approval of subdivision is contained in G. L. 41, Sec. 81-O, "the number, shape and size of the lots shown on a plan so approved may, from time to time, be changed without action by the board."

APPENDIX A-1

CHAPTER 40A GENERAL LAWS

ZONING REGULATIONS

Section 2. For the purpose of promoting the health, safety, convenience, morals or welfare of its inhabitants, any city, except Boston, and any town, may by a zoning ordinance or by-law regulate and restrict the height, number of stories, and size of buildings and structures, the size and widths of lots, the percentage of lot that may be occupied, the size of yards, courts and other open spaces, the density of population, and the location and use of buildings, structures and land for trade, industry, agriculture, residence or other purposes; provided, however, that no ordinance or by-law which prohibits or limits the use of land for any church or other religious purpose or for any educational purpose which is religious, sectarian, denominational or public shall be valid; and provided, further, that in regulating or restricting the size of such buildings or structures no provision of any ordinance or by-law shall be valid which requires the floor area of the living space of a single-family residential building to be greater than seven hundred and sixty-eight square feet.

For any or all of such purposes a zoning ordinance or by-law may divide the municipality into districts of such number, shape and area as may be deemed best suited to carry out the purposes of this chapter, and within such districts it may regulate and restrict the erection, construction, reconstruction, alteration or use of buildings, and structures, or use of land, and may prohibit noxious trades within the municipality or any specified part thereof. All such regulations and restrictions shall be uniform for each class or kind of buildings, structures or land, and for each class or kind of use, throughout the district, but the regulations and restrictions in one district may differ from those in other districts. Due regard shall be paid to the characteristics of the different parts of the city or town, and the zoning regulations in any city or town shall be the same for zones, districts or streets having substantially the same character. A zoning ordinance or by-law may provide that lands deemed subject to seasonal or periodic flooding shall not be used for residence or other purposes in such a manner as to endanger the health or safety of the occupants thereof.

Section 3. Zoning regulations and restrictions shall be designed among other purposes to lessen congestion in the streets; to conserve Health; to secure safety from fire, panic and other dangers; to provide adequate light and air; to prevent over-crowding of land; to avoid undue concentration of population; to facilitate the adequate provision of transportation, water, sewerage, schools, parks and other public requirements; to conserve the value of land and buildings; to encourage the most appropriate use of land throughout the city or town; and to preserve and increase its amenities.

Section 4. A zoning ordinance or by-law may provide that exceptions may be allowed to the regulations and restrictions contained therein, which shall be applicable to all of the districts of a particular class and of a character set forth in such ordinance or by-law. Such exceptions shall be in harmony with the general purpose and intent of the ordinance or by-law and may be subject to general or specific rules therein contained. The board of appeals established under section fourteen of such city or town, or the city council of such city or the selectmen of such town, as such ordinance or by-law may provide, may, in appropriate cases and subject to appropriate conditions and safeguards, grant to an applicant a special permit to make use of his land or to erect and maintain buildings or other structures thereon in accordance with such an exception. Before granting such a special permit the board of appeals, or the city council or the selectmen, whichever the ordinance or by-law provides, shall hold a public hearing thereon, notice of which shall be given in accordance with section seventeen. If the city council or the selectmen are designated to act upon such a special permit they shall be subject to the requirements of sections eighteen, nineteen, twenty and twenty-one in the same manner as the board of appeals.

Section 13. An appeal to the board of appeals established under section fourteen may be taken by any person aggrieved by reason of his inability to obtain a permit from any administrative official under the provisions of this chapter, or by any officer or board of the city or town, or by any person aggrieved by any order or decision of the inspector of buildings or other administrative official in violation of any provision of this chapter, or any ordinance or by-law adopted thereunder.

Section 15. A board of appeals shall have the following powers:
1. To hear and decide appeals taken as provided in section thirteen.
2. To hear and decide applications for special permits for exceptions as provided in section four upon which such board is required to pass.
3. To authorize upon appeal, or upon petition in cases where a particular use is sought for which no permit is required, with respect to a particular parcel of land or to an existing building thereon a variance from the terms of the applicable zoning ordinance or by-law where, owing to conditions especially affecting such parcel or such building but not affecting generally the zoning district in which it is located, a literal enforcement of the provisions of the ordinance or by-law would involve substantial hardship, financial or otherwise to the appellant, and where desirable relief may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of such ordinance or by-law, but not otherwise.

APPENDIX A-2

OPEN SPACE REGULATIONS - BALTIMORE COUNTY

A. Purposes of This Section

The purposes of providing for local open space tracts as defined in Sec. 23-1 (ee) of the Baltimore County Code, 1958, are to offer recreational opportunities close to home, to enhance the appearance of neighborhoods through preservation of natural green spaces, to counteract the effects of urban congestion and monotony, and to encourage participation by all age groups in the use and care of local open space tracts in new residential subdivisions. Such types as local parks, small recreation areas, and other small open spaces in a planned neighborhood pattern are intended to conserve local spots of natural beauty, to provide structure to neighborhood design, to add to the sense of spaciousness, to encourage cooperative relationships between neighbors, to help promote the public health, safety, morals and welfare of the people residing nearby, and to aid in stabilizing property values.

F. Cluster Subdivisions and Local Open Space Tracts

When the zoning regulations of Baltimore County shall have been amended to so permit, subdivisions in the R-40, R-20 and R-10 zones may provide one or more areas for local open space tracts through reduction of permitted minimum lot areas and lot widths in accordance with the following schedule, if land at least equal in area to the aggregate amount by which the lots are reduced is designated as local open space in the approved subdivision plan and allocated for joint use by the subdivision residents. Where public or community water and sewer facilities are lacking, the Health Department may stipulate larger lot sizes than indicated below.

	Lot size, square feet		Max. percent of lots below average	Min. width for lots below average size
	Average	Minimum		
R-40 (Cluster)	30,000	25,000	75	100'
R-20 (Cluster)	16,000	13,000	75	80'
R-10 (Cluster)	8,500	7,500	50	65'

In cluster subdivisions, covenants subject to approval of the Board of Recreation and Parks to insure permanence and proper use of the open space tracts must be recorded. The provisions of sub-section D do not apply to cluster subdivisions.

APPENDIX A-3

COMMUNITY UNIT AND DENSITY DEVELOPMENT
ORDINANCES; ST. LOUIS COUNTY, MISSOURI

1003.285 Density Development Procedure - 1

The purpose of this section is to provide permissive voluntary alternate zoning for all single family residential districts except the "E" 6,000 Square Foot Single Family Residential District and thereby make provisions for variation in lot sizes in said Single Family Residential Districts by permitting the density of dwelling units contemplated by the minimum lot size requirements within the various residential Single Family Districts to be maintained on an overall basis when applied to specific tracts of land and thereby provide for desirable and proper open air space, tree cover, recreation areas or scenic vistas; all with the intent of preserving the natural beauty of St. Louis County, Missouri, while at the same time maintaining the necessary maximum population density limitations of the particular Single Family Residential Districts.

(2) The developer of a subdivision in any Single Family District except the "E" 6,000 Square Foot Single Family District Zone, may, upon receiving the approval of the County Council of his Density Development Plan, vary the lot sizes within a subdivision from those sizes required by the applicable zoning district by compliance with the procedures set forth in this Section.

The land utilized by public utilities as easements for major facilities such as electric transmission lines, sewer lines, and water mains, where such land is not available to the owner for development because of such easements, shall not be considered as part of the gross acreage in computing the Maximum number of lots that may be created under this procedure. The land within the flood plains of the Missouri, Mississippi, and Meramec Rivers or within the normal banks of other water courses, shall not be considered as part of the gross acreage in computing the maximum number of lots that may be created under this Section, unless the same shall have been reclaimed by proper engineering methods.

The maximum number of lots that may be approved shall be computed by subtracting from the total gross area available for subdivision under this Density Development Procedure a fixed percentage of said total for street right-of-way purposes and dividing the remaining area by the minimum lot area requirement of the Single Family District or Districts in which the subdivision is to be located. The fixed percentages for street right-of- way purposes to be subtracted from the total area to be subdivided shall be as follows:

APPENDIX A-3
(continued)

"B"	One Acre Single Family District	15 per cent
"B-1"	30,000 Square Feet Single Family District	15 per cent
"C"	20,000 Square Feet Single Family District	20 per cent
"C-1"	15,000 Square Feet Single Family District	25 per cent
"C-2"	12,000 Square Feet Single Family District	25 per cent
"C-3"	10,000 Square Feet Single Family District	30 per cent
"D"	7,500 Square Feet Single Family District	30 per cent

This method shall apply regardless of the amount of land actually required for street right-of-way.

3. Under this Density Development Procedure, no lot in a Single Family Residential District shall be reduced in area below the following minimum standards:

Zoning District	Required Minimum Lot Area of District	Permissive Minimum Lot Area of Density Development Procedure
"B"	One Acre	20,000 Square Feet
"B-1"	30,000 Square Feet	15,000 Square Feet
"C"	20,000 Square Feet	12,000 Square Feet
"C-1"	15,000 Square Feet	10,000 Square Feet
"C-2"	12,000 Square Feet	9,000 Square Feet
"C-3"	10,000 Square Feet	7,500 Square Feet
"D"	7,500 Square Feet	6,000 Square Feet

Provided further that such reduced lots shall not contain a frontage less than the applicable frontage required in the subdivision regulations.

4. (a) Under this Section, lots may be reduced in area below the minimum lot size required, by the Residential District Zone in which the Subdivision is located, provided that the average lot size of the total lots created within the subdivision is not below the minimum lot size required in the applicable District.

(b) In subdivisions containing ten or more lots, common land for open space or recreational use may be set aside for common use by all the owners of the residential lots and such common land may be included in the total gross acreage used for determining the average lot size of the total lots created in such subdivision.

(c) Only the following land uses may be set aside as common land for open space or recreational use as hereinabove provided in subsection 4 (b):

1. Private recreational facilities, such as golf courses or swimming pools, which are limited to the use of the owners

APPENDIX A-3
(continued)

or occupants of the lots located within the subdivision.

2. Historic building sites or historical sites, parks and parkway areas, ornamental parks, extensive areas with tree cover, low land along streams or areas of rough terrain when such areas are extensive and have natural features worthy of scenic preservation.

5. Applicants desiring to make use of the voluntary alternate zoning of the Density Development Procedure as provided by this section shall file a Petition with the St. Louis County Council therein setting forth the area and the plan proposed under this Density Development Procedure together with two true and correct copies of said petition and plan for the use of the St. Louis County Planning Commission. Before approving any such Petition and plan, which approval shall be by Order of the Council, the County Council shall refer the proposed plan to the County Planning Commission, which Commission shall be given thirty (30) days in which to make a report and recommendation regarding the effect of the application of the proposed Density Development Procedure to the area and subdivision proposed in the Petition. No action shall be taken by the County Council upon any Petition proposing development under this Density Development Procedure until and unless the Report of the Planning Commission is filed, provided however, that if no report is received from the Planning Commission within forty-five (45) days, it shall be conclusively presumed that approval of the Petition has been given by the said Commission and thereafter the County Council shall consider such Petition and plan and shall by its order approve and authorize or deny said Petition and plan.

6. (a) All open space, tree cover, recreational area, scenic vista or other authorized use land, whose acreage shall be utilized in the determination of the common land as is hereinabove provided, shall be conveyed in fee simple title by warranty deed from the Subdivider to Trustees, who shall be provided for by Trust Indenture for each subdivision authorized under this Density Development Procedure, for the sole benefit, use and enjoyment of the lot owners, present and future, of said subdivision for a term of years certain, which term shall be for at least a period of twenty (20) years, or for the duration of the subdivision, whichever period of time shall be the least, after which period of time fee simple title shall be vested in said lot owners as tenants in common. The warranty deeds and trust indentures complying with the provisions of this subsection shall have attached thereto a written legal opinion prepared and signed by an attorney licensed to practice law by the State of Missouri; said opinion shall set forth the attorney's legal opinion as to the legal form and effect of said deeds and indentures. The said deeds and indentures shall be approved by the Planning Commission and shall be filed with the Recorder of Deeds of St. Louis County simultaneously with the recording of the final plat of the subdivision authorized under this Section.

(b) The intent and purpose of this subsection 6 is to provide, as a condition for the approval of a voluntary alternate zoning density development procedure the requirement, that the lands

APPENDIX A-3

(continued)

hereinabove, in the first paragraph of this subsection 6 enumerated as part of the gross acreage, shall be set aside as common land for the sole benefit, use and enjoyment of the subdivision lot owners, present and future, for the duration of the specific subdivision or for a period of at least twenty (20) years and to further provide that thereafter the said lands shall be held in common by the said lot owners as tenants in common. (No. 1946)

APPENDIX A-4

CLUSTER ZONING - ANDOVER

CLUSTER ZONING (as amended-1961)

SECTION IX Area & Yard Regulations

Paragraph 7. Special Development Plans. The Planning Board may approve according to the Subdivision Control procedures authorized in Section 81K to 81GG of Chapter 41 of the General Laws, a subdivision plan in any Single Residence District other than Single Residence A District for a tract of 10 acres or more in which some of the individual lots do not conform specifically to the lot area, frontage, setback, or yard requirements of Section IX above, provided that:

a. The total area of all lots in such proposed subdivision is not less than the product of the total number of lots times the minimum lot size for the zoning district in which the subdivision is located, and in no case shall an individual lot have less than two-thirds of the required lot size for the zoning district in which the subdivision is located:

b. The aggregate street frontage of lots in such proposed subdivision, counting only one frontage for corner lots, is not less than one-half the product of the number of lots times the minimum frontage requirement for the zoning district in which the subdivision is located, and the minimum width of any individual lot shall be 100' measured either at the street or at the set back line:

c. The proposed setback lines are clearly shown on the proposed subdivision plan and are deemed by the Board to be adequate under the specific conditions which pertain to the property in question:

d. The Planning Board finds that the proposed disposition of lots and buildings, under the particular circumstances involved, will make more efficient the provision by the Town, of health, safety, protective, and other services without detracting from the character of the neighborhood.

Said subdivision plan, when approved and recorded, shall be considered a supplementary part of thisZoning By-Law, and thereafter no land therein shall be sold and no lot line shall be changed in such way as to increase the extent of non-conformity with the general provision of this By-law.

APPENDIX A-5

EXCEPTION FOR CLUSTER DEVELOPMENT - CONCORD

Section 11.

A. For the purpose of encouraging the preservation of open space and promoting the more efficient use of land in harmony with its natural features and with the general intent of the Zoning By-Law, and to protect and promote the health, safety, convenience and general welfare of the inhabitants of the Town, an owner or owners of a tract of land, or a duly authorized agent thereof, may, in connection with the submission of a subdivision plan for Planning Board approval under the Subdivision Control Law or, if no such approval is required, after consultation with the Planning Board, make application to the Board of Appeals for a special permit excepting his plan from the lot area and frontage requirements of paragraphs c, d, e, and f, of Section 6 and paragraph g, of Section 4 of the Zoning By-Law.

B. After notice and public hearing, and after due consideration of the report and recommendations of the Planning Board, the Board of Appeals may grant such a permit provided that

(1) It finds that the proposed plan will promote the purposes of this section and

(2) The number of lots on the plan does not exceed the larger of

(a) 90% of the number derived from dividing the total land area of the tract which is usable for residential construction by the minimum lot size otherwise permitted in the zoning district or districts in which the tract lies, or

(b) the number of lots upon which a dwelling could be constructed, without regard to this section, under the applicable laws and regulations of the Town and the Commonwealth, and

(3) Every lot shall contain not less than the following:

In Residence A A districts; 30,000 square feet
In Residence A districts; 20,000 square feet
In Residence B districts; 10,000 square feet
In Residence C districts; 7,500 square feet, and

(4) Every lot shall have a minimum frontage of fifty feet on a public or private way, and

(5) Provision shall be made so that at least 10% of the land area of the tract, exclusive of land set aside for road area, shall be Open Land, and

(6) Provision shall be made so that Open Land shall be owned;

(a) In common by the owners of the lots in the tract, or

(b) By a membership corporation, trust or association whose members are all the owners of the lots in the tract, or

(c) By the Town, or

(d) Otherwise as the Board of Appeals may approve.

(7) Provision shall be made so that Open Land shall be:

(a) Restricted to any one or more of the following uses; recreational, agricultural, conservation or park.

APPENDIX A-5
(continued)

(b) Open to such uses by at least the owners and occupants of the lots in the tract.

(c) Restricted so that no structure shall be erected thereon except as an incident to the above uses, and no such structure shall be more than 15 feet in height, and

(8) Provision shall be made so that each dwelling shall be set back from the public way or private way on which its lot is located at least to a point on its lot where the lot width is a minimum of one hundred feet in Residence A A and A districts and 80 Feet in Residence B and C districts but in no event less than the minimum required front, back or side yard setback.

C. The Board of Appeals may, in appropriate cases, impose further restrictions upon the tract, or parts thereof, as a condition to granting the special permit.

D. In connection with an application for a special permit from the Board of Appeals under this section, the Planning Board shall submit in writing prior to the hearing its recommendation and report to the Board of Appeals. Such report may be supplemented by a further report if deemed advisable by the Planning Board as a result of matters brought out at the hearing. The report of the Planning Board shall include at least

(1) A determination of the area of the tract "usable for residential construction,"

(2) A general description of the neighborhood in which the tract lies and the effect of the plan on the area

(3) The relation of the plan to the Long Range Plan of the Town,

(4) The extent to which the plan is designed to take advantage of the natural terrain of the tract, and

(5) The Planning Board's opinion as to the over-all design of the plan and the advisability of granting the special permit.

The Board of Appeals shall give due consideration to the report of the Planning Board and, where the decision of the Board of Appeals differs from the recommendations of the Planning Board, the reasons therefor shall be clearly stated in writing.

E. For the purposes of this section, the following definitions are adopted:

(1) Land "usable for residential construction" shall be land found by the Planning Board, assuming compliance with the Zoning By-Law, to be suitable for the construction thereon of residential dwelling units, under the rules and regulations of the Town of Concord and the Commonwealth of Massachusetts relating thereto.

(2) "Frontage" shall be measured in a continuous straight line between the intersection of the lot boundaries on the way.

Any condition set forth herein requiring a minimum lot area or frontage shall not be construed as purporting to limit the right of the

APPENDIX A-5
(continued)

Board of Appeals to grant a variance therefrom as permitted by law.

Source: Town of Concord, Zoning By-Laws, Revised Up To and Including Annual Town Meeting, March 4, 11, 1963.

APPENDIX A-6

EXCEPTION FOR CLUSTER DEVELOPMENT - LINCOLN

8. Exception for Cluster Development in an R-1 Single Residence District.

a. For the purpose of promoting the more efficient use of land in harmony with its natural features and with the general intent of the Zoning By-Law, and to protect and promote the health, safety, convenience and general welfare of the inhabitants of the town, an owner or owners of a tract of land situated within the R-1 Single Residence District, or a duly authorized agent thereof, may, in connection with the submission of a subdivision plan for Planning Board approval under the Subdivision Control Law or, if no such approval is required, after consultation with the Planning Board, make application to the Board of Appeals for a special permit excepting his plan from the lot area and frontage requirements of sub-paragraph B-1 through B-5 of this Section VI.

b. After notice and public hearing, and after due consideration of the report and recommendations of the Planning Board (see sub-paragraph d below), the Board of Appeals may grant such a permit provided that:

1. It finds that the proposed plan is in harmony with the purpose and intent of this By-Law and that it will promote the purposes of this section;

2. The area of the tract of land to be subdivided is not less than ten (10) acres;

3. The number of lots on the plan does not exceed the number of lots upon which dwellings could be constructed on the total land area of the tract which is usable for residential construction without reference to this sub-section 8, under the applicable laws of the Town and the Commonwealth, as determined by the Planning Board in its report made pursuant to paragraph d below;

4. Each lot shall contain not less than 40,000 square feet;

5. Each lot shall have a minimum frontage of eighty (80) feet on a public or private way, except that a lot on the turning circle of a dead end street may have a frontage of not less than fifty (50) feet, provided that the shortest distance between side lot lines shall be at least eighty (80) feet at every point more than forty (40) feet from the street line to the dwelling or main non-residential structure;

6. The minimum front yard shall be forty (40) feet;

7. The minimum side and rear yards shall be thirty (30) feet;

8. The minimum width of the lot at the building shall be one hundred sixty (160) feet;

9. Provision shall be made so that at least 20% of the land area of the tract, exclusive of land set aside for road area, shall be Open Land, and that the area of open land shall be such that when added to the total area of all lots total area shall not be less than the number of such lots multiplied by 80,000 square feet;

10. Provisions shall be made so that Open Land shall be owned:

    a. by the Town;

    b. by the Lincoln Land Conservation Trust;

    c. jointly by the owners of the land;

    d. jointly by the owners of the land and the Town;

    e. by an association of the owners of the land, or

    f. in any other manner that may be approved by the Board of Appeals,

    provided that such ownership shall vest in the Town sufficient rights to enable it to enforce compliance with the restrictions imposed by the Board of Appeals as conditions of its special permit; and

11. Provision shall be made so that Open Land shall be restricted to any one or more of the uses allowed in a C-Open-Space Conservation District by right or appeal.

c. The Board of Appeals may, in appropriate cases, impose further restrictions upon the tract, or parts thereof, as a condition to granting the special permit.

d. In connection with an application for a special permit from the Board of Appeals under this section, the Planning Board shall submit, in writing, prior to the hearing, its recommendation and report to the Board of Appeals. The Planning Board may supplement its report after the hearing. The report of the Planning Board shall include as a minimum:

APPENDIX A-6
(Continued)

1. A determination of the area of the tract "usable for residential construction";

2. A determination of the number of lots upon which dwellings could be constructed without regard to this section;

3. A general description of the neighborhood in which the tract lies and the effect of the plan on the area;

4. The relation of the plan to the Long Range Plan of the Town;

5. The extent to which the plan is designed to take advantage of the natural terrain of the tract;

6. The extent to which the proposed Open Land is of a size and shape and has adequate access to benefit the Town;

7. The Planning Board's opinion as to the overall design of the plan;

8. The Planning Board's recommendations as to the advisability of granting the special permit, and as to any restrictions which should be imposed upon the tract as a condition of such permit.

The Board of Appeals shall give due consideration to the report of the Planning Board and, where its decision differs from the recommendations of the Planning Board, shall state the reasons therefor in writing.

e. For the purpose of this section, land "usable for residential construction" shall be defined as land found by the Planning Board and Board of Health, at the time of the application, assuming compliance with the Zoning By-law, to be suitable for the construction thereon of residential dwelling units under the rules and regulations of the Town of Lincoln and the Commonwealth of Massachusetts relating thereto.

f. Any condition set forth herein requiring a minimum lot area or frontage shall not be construed as purporting to limit the right of the Board of Appeals to grant a variance therefrom as permitted by law.

Source: Town of Lincoln, Zoning By-Law.

APPENDIX A-7

LOT AREA REGULATIONS - SHARON

(B) In the Single Residence Districts an owner of a tract of land having an area of not less than fifty (50) acres may, in connection with the submission of a preliminary subdivision plan in accordance with Chapter 41, Section 81 to 81GG, as amended, of the General Laws and in accordance with the Rules and Regulations of the Planning Board, make application to the Board of Appeal for exception from the lot area and lot width requirements of Paragraph

(A) and the Board of Appeal may grant, after hearing such exception provided that:

1. Every dwelling to be constructed in such subdivision shall be provided a lot containing not less than twenty thousand (20,000) square feet and having a width of not less than one hundred (100) feet;
2. That the number of dwellings to be constructed shall not exceed the number that would be permitted if no exception were to be granted;
3. That land area not required for lots, laid out in connection with the construction of dwellings, through the granting of such exception shall be set aside and dedicated to the Town of Sharon for park or recreational purposes; and
4. That the granting of such exception shall not in any way derogate from the intent of this By-law nor the public health, safety or welfare of the inhabitants of the Town.

In connection with such application for exception, the Planning Board may submit to the Board of Appeal, in writing, an advisory report indicating the findings and recommendations of said Planning Board and whether the proposed subdivision plan is in conformity with a general or comprehensive plan for the Town; said report to be filed with the Board of Appeal on or before the date of hearing. Permit for such exception may be issued by the Board of Appeal and may be subject to appropriate conditions, limitations, and safeguards which shall be in writing and made a part of the permit; provided that no permit so issued for the exception described herein shall be valid until such time as the lands to be dedicated to the Town of Sharon have been accepted by vote of the Town at an annual or special Town Meeting.

Source: Zoning By-Laws, Town of Sharon, March 14, 1961.

APPENDIX A-8

LOT SIZE, AREA, AND WIDTH REGULATIONS - BROOKLINE

Section 5.11 Minimum Lot Size in Subdivisions of 10 Acres or More

(a) The minimum lot size for lots in a residential subdivision approved by the Planning Board after the effective date of this By-Law may be 20,000 square feet in an S-40 District, 12,500 square feet in an S-25 District, and 7,500 square feet in an S-15 District, provided that the following conditions are met:

(1) the subdivision is 10 acres or more in total area, including public or private ways, platted lots, and the permanent open space specified below;
(2) the total number of lots does not exceed the number that would result if the total area of the subdivision were divided by the minimum lot size for lots in subdivisions of less than 10 acres;
(3) land is set aside within the subdivision and either deeded to the Town as permanent open space or covenanted to be maintained as permanent open space in private or cooperative ownership, the area of such land to be not less than the difference between the total area platted in the subdivision and the total area which would have been so platted if all lots were of the minimum lot size for lots in subdivisions of less than 10 acres, as determined by the Planning Board in the review of the subdivision;
(4) the land so set aside is shown on the approved subdivision plan and provided in such a manner that it is usable for recreation or other activities, and accessible to all residents of the subdivision or, where theland has been deeded to the Town, to the public.
(5) the land so set aside is restricted by deed or covenant to be used only for recreational or other open space uses, with any buildings or structures limited to common use and not exceeding in aggregate gross floor area more than one half of one per cent of the area of said land.

APPENDIX A-9

CLUSTER DEVELOPMENT IN OUTLYING DISTRICTS - AMHERST

a. In an Outlying Residence District only, a single detached one-family dwelling or other lawful buildings may be constructed on certain lots in a "cluster development" (as hereinafter defined and limited) although such lots have less area and/or frontage than normally required. For the purpose of this exception, a "cluster development" is a division of land into lots used, or available for use, as building sites where said lots are clustered together into one or more groups, separated from adjacent property and other groups of lots by intervening "common land."

b. The Board of Appeals may permit, as a special exception, such a cluster development (containing lots with less than the minimum area and/or frontage), provided that:

(1) The total area of land included within the development shall be 10 acres or more.
(2) Every individual lot shall have an area of at least 20,000 square feet.
(3) Every individual lot shall have a frontage of at least 120 feet (measured as hereinbefore provided), except that any lot abutting an existing or proposed major or through secondary street (as defined in the Planning Board's Subdivision Regulations or indicated on said Board's Future Street System Plan) shall have a frontage on such street no less than the amount normally required in the district.
(4) The total area of "common land" within the development equals or exceeds the sum of the areas by which any individual lots are reduced below the minimum lot area normally required in the district.
(5) Every individual lot that is reduced in area below the amount normally required, abuts such common land for a distance of at least 50 feet.
(6) The minimum width of common land between any group of lots and adjacent property, and between every two groups within the development is 50 feet.
(7) All common land hereunder shall be either dedicated to the Town of Amherst for recreational use in a location, size and shape approved by the Planning Board in its recommendations, or held in corporate ownership by the owners of lots within the development (or adjacent thereto, if admitted to the corporation). In the case of corporate ownership, the developer shall include in the deed to the owners, beneficial rights in said common land, and an easement shall be conveyed to the Town of Amherst against development of said land and the erection thereon of any structures other than for neighborhood non-commercial recreational use.

APPENDIX A-9
(continued)

c. Each application for a special permit hereunder shall be accompanied by a plan, in duplicate, of the cluster development, prepared in accordance with the specifications of the Planning Board for preliminary subdivision plans (whether or not all of the development constitutes a "subdivision"). Within 10 days after receipt of the plan, the Board of Appeals shsll transmit a copy thereof to the Planning Board, which said Board may, in its discretion, investigate the proposed layout and report in writing its recommendations to the Board of Appeals. The Board of Appeals shall not take final action on such approval until it has received a report thereon from the Planning Board or until said Planning Board has allowed 30 days to elapse after receipt of such plan without submission of a report.

d. A special permit for a cluster development issued hereunder by the Board of Appeals is primarily an authorization for the use of lots which have less than the normal minimum area and/or frontage. Subsequent approval by the Planning Board of such portions of the development as constitute a subdivision will be required as set forth in the Subdivision Control Law, including approval of the street and utility systems. A favorable recommendation by the Planning Board that the special permit be issued shall not, therefore, be deemed to either constitute subdivision approval or imply that such approval will be given.

Source: Town of Amherst, Massachusetts Zoning By-Law, As Amended Thru December 31, 1965.

APPENDIX A-10

CLUSTER ZONING DISTRICT - MASHPEE

"F" V. CLUSTER ZONING DISTRICT

(1) If a plan of land, containing 100 or more acres in a single parcel or contiguous parcels (disregarding streets, public or private easements, and creeks or other natural barriers), of which not less than 60 acres is registered land, is submitted to the Board of Appeals upon petition under Section 9.3; if the Board finds that development of the land shown on the plan on the cluster zoning principle will fulfill the spirit and intent of this By-law without substantial detriment to the public good; and if a portion of the registered land, sufficient to constitute a dominant tenement, is deeded to the Town of Mashpee by a deed which states that the land thereby conveyed is benefited by restrictions imposed thereby upon all of the land shown on such plan, which restrictions: (i) run, with respect to their burden, with all of the land shown on such plan; (ii) are noted on or in the certificate or certificates of title to the registered portions of such land; (iii) have a stated duration of not less than the maximum period permitted by Section 27 of Chapter 184 of the General Laws of The Commonwealth of Massachusetts; (iv) contain the provisions for extension described in said section; and (v) have the effect, when considered in the aggregate, of:

(a) Permitting no more than three dwelling units times the number of acres of registered land, and

(b) Permitting no more than 870 square feet of area (including in such computation the sum of the floor areas of any building but excluding customer parking areas) times the number of acres of registered land to be devoted to commercial uses, other than recreational uses.

THEN, all other provisions of this Section F, including but not limited to prohibitions on use and minimum lot size and frontage requirements shall not be applicable to the registered land so long as such restrictions are enforceable, except that no part of such land may be used for industrial or obnoxious uses. If any of the unregistered land is subsequently registered and effectively subjected to the foregoing restrictions in favor of the dominant tenement, it shall thereafter be treated, for all purposes of this Section F, as if it had been so registered and subjected at the time of approval of the plan.

(2) For the purposes of this Section F. V., a "dwelling unit" shall not include detached buildings on any lot utilized solely for non-paying guests of the person or persons occupying the principle dwelling unit on the same lot, but it shall include each individual room or suite of rooms in any hotel or motel.

Source: Annual Reports, Town of Mashpee, 1963.

APPENDIX A-11

DENSITY (CLUSTER) ZONING - WILBRAHAM

4.3.3 Density (Cluster) Zoning

4.3.3.0 In the subdivision of a tract of land containing more than 10 acres where the subdivider shall elect to design the subdivision on the principles of cluster or density zoning to preserve the natural features and to provide permanent open space and increase the amenities of the residential neighborhoods, the following provisions shall be met:

4.3.3.1 The maximum number of building lots shall not exceed the number permitted in 4.3.1. above, and shall be determined by subtracting 15% of the land area from the gross acreage of the tract, and dividing the remainder by the minimum lot area specified in 4.3.1 above for the applicable district.

4.3.3.2 The land area not allocated to building lots and streets shall be permanently reserved as open space.

4.3.3.3 Such open space shall be of a size and shape, and left in proper condition, for the purpose intended. Such open space shall be in areas shown as open space on the Master Plan or, where the subdivider proposes open space in other areas, such proposals shall be subject to the approval of the Board of Appeals after recommendations and reports by the Planning Board and the Conservation Commission.

4.3.3.4 Under the above conditions, and based on public water supply or private wells, the frontage in feet and the area in square feet of building lots shall be not less than is given in Schedule A below for the applicable district.

SCHEDULE A

	R-40		R-34		R-26	
	Front	Area	Front	Area	Front	Area
Public water	150	33,000	135	28,000	100	20,000
Private wells	175	36,000	155	31,000	115	23,000

4.3.4. The type of development in any tract or parcel of land shall be uniform. When the first part of a subdivision plan has been approved with lots laid out in accordance with the requirements of 4.3.1, plan shall not be changed to a cluster design unless the entire subdivision conforms to the requirements of Section 4.3.3.

APPENDIX B-1

QUESTIONNAIRE FOR PLANNING BOARD
WHERE CLUSTER ZONING IS INCORPORATED IN BY-LAWS

City or Town..... Cluster zoning adopted.....

1. How did the town become interested in cluster?.....
2. What were the main arguments put forward at the Town Meeting?.....
3. What studies were undertaken by the Board?.....
4. Were consultants used?.....Who?.....
5. Do the controls give sufficient safeguards?.....
6. What consideration was given to the following:
    a) aesthetics of cluster?.....
    b) applicability to the district's topography?.....
    c) the benefit and problems of common lands?.....
    d) the ownership of common land?.....
    e) the use of common land?.....
    f) the reduction of maintenance costs due to reduced service lines?.....
    g) the extended use of cluster to create continuous open space?.....
7. Do the by-laws ensure that resultant development will satisfy objectives?.....Has development proved this true?.....
8. Would more relaxed regulations encourage cluster development?.....
9. Do you favor more relaxation of controls coupled with increased discretionary powers for the Board?.....
10. Would expert committees help with discretionary powers?.....
11. Where does your present cluster zoning have its greatest impact?.....Why?.....

APPENDIX B-2

QUESTIONNAIRE FOR PLANNING BOARD
WHO ARE CONSIDERING CLUSTER ZONING

City or Town.....

1. How did the board become interested in cluster?.....
2. Who was the prime mover for cluster?.....
3. What steps have been taken to study cluster?.....
4. What advantages does it hold for your town?.....
5. What system of zoning is considered most suitable?.....
6. What amount of land will remain undeveloped in
   (a) large lot zones?.....
   (b) intermediate lot zones?.....
   (c) small lot zones?.....
7. What consideration is being given to ownership of open land?.....
8. What consideration is being given to relaxation of controls?.....
9. What problems or advantages do you see in more discretionary power for Planning Board?.....
10. What about assistance from expert committees or paid consultants?.....

APPENDIX B-3

QUESTIONNAIRE FOR DEVELOPER

1. How did you find the procedure for obtaining subdivision approval?
2. Did you experience any problems in special exceptions?.....
3. Is the procedure and controls exercised by the town adequate in the following aspects:

    a) operation from your point of view?.....

    b) offering protection to the buying public?.....

    c) safeguarding the residents of adjoining land?.....

4. Did the freedom provided by the cluster zoning improve the quality of your subdivision?.....
5. Was the freedom sufficient?.....
6. What was your main reason for using cluster?.....
7. Is this your first?.....
8. What did you find as the best selling feature?.....
9. How did the unit cost compare?.....
10. Do the public accept cluster?.....
11. What were their main reactions?.....
12. What makes a tract more suitable for cluster?.....
13. What size lot do you feel is optimum?.....
14. What should be done with the open space?.....
15. Would you welcome an expert committee to appraise subdivision designs?.....

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