An Examination of Market Appreciation for Clustered Housing With Permanent Open Space

by
Jeff Lacy

Department of Landscape Architecture And Regional Planning

University of Massachusetts/Amherst

INTRODUCTION

General Problem

The implementation of conventional zoning and subdivision regulations since World-War II has resulted in a spatial pattern of development around metropolitan centers now commonly known as suburban sprawl. Originally conceived by the real estate industry in the 1920s as a means to segregate incompatible uses and to protect private property values, these regulatory approaches have since been exported to other, more rural areas as well. Many of the zoning ordinances and subdivision regulations now employed by smaller Massachusetts towns were derived from those found in the more urbanized regions surrounding Boston, Washington, D.C. and New York City. In the rural municipalities where such mechanisms have been employed to separate differing land uses and to regulate development, the patterns of recent growth upon the land bear an unsettling resemblance to the monotonous spread of "grid-style" housing which now girdles our major metropolitan areas.

The traditional landscape of New England, that of compact villages surrounded by an open countryside, is fast giving way to this newer pattern of roadside development, "wall-to-wall" subdivisions, shopping centers and office parks.

Modern land-use regulations often dictate such an outcome. Land-consumptive requirements for large building lots, extensive road frontage, deep set-backs for structures, and wide, paved roads with vertical curbing have effectively prohibited development designed along more traditional lines. At the same time, little or no requirement is made for the preservation of open space; some form of conversion and development is envisioned for all land in this zoning process. Measures originally intended to preserve rural character and slow growth have merely dispersed development, while consuming a proportionally larger amount of farm, forest, and recreational land in the process. The historic lines of demarcation between what is village and what is countryside are slowly becoming blurred and replaced by an homogenous, suburbanized landscape without such distinctions.

Specific Problem

A clustered, or, more correctly, an open-space settlement pattern is as old as New England itself. As villages grew naturally around commons and greens, individual houselots were small with homes positioned relatively close to one another. Much of the best surrounding land was not developed for housing, but was

reserved for farming, forestry, and public purposes. In much of New England this spatial pattern has endured to this day, forming what many consider to be a defining characteristic of the region.

In recent years, many planners and municipal officials have been re-examining this "neo-traditional" approach to the siting of new residential and commercial structures. Whether called open-space, village, community, cluster, or planned-unit-development zoning, the underlying principles are similar. The same number of homes that would be constructed under a conventional development plan (typically as single-family-detached units) are grouped more closely together on down-sized houselots, with the remaining area of the parcel left as permanently preserved open space. This undeveloped land, often 50% or more of the original parcel, is then either managed by a homeowner's association, deeded to the municipality or a land trust, or retained by the original owner who has surrendered (sold) all of the development rights. In this last case, the open land may be subsequently resold by the landowner, but only for agricultural, forestry, or non-motorized recreational uses. In all cases, the homeowners have traded a larger houselot for the assurance that the adjacent open land will never be developed for commercial, residential, or industrial purposes.

Slightly more than half of Massachusetts' 351 towns now have open-space zoning options available to developers; several other northeastern states have publicly endorsed the concept as an integral component of their growth management policies. And yet, examples of recently-built, cluster/open-space developments are infrequently found in New England: The conventional option of a grid-style subdivision continues to predominate.

One concern frequently expressed by those in the real estate and development professions is that because of the smaller houselot size, clustered housing, even with protected open space, will not necessarily appeal to the average American home-buyer as an investment. Quite correctly, they associate the marketability of a newly constructed home with its resale value (or market appreciation) in the future[1]. This has become an increasingly important consideration, as real estate is now regarded both as a sound investment and as a hedge against inflation. Younger families frequently use residential property as a means of building equity by regularly "trading up." Any form of housing not suitable for this purpose will not, as a whole, be economically viable to build in today's market.

OVERVIEW OF STUDY

Purpose

With the aforementioned issues in mind, the purpose of this investigation is to assess the following statement:

Market appreciation rates for clustered housing with associated open space can be equal to those for conventionally developed housing types.

Method of Analysis

Appreciation was measured as the percent change (as compared to absolute dollars) in the selling price of a unit of housing. Percent change is defined as:

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(Sale Price - Original Price) * 100
( Original Price )
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Changes for cluster/open space housing were compared against those for conventional housing over the

same time period. Due to possible regional variations, direct comparisons were only made between housing types in the same communities. All data were obtained from the records kept at each local assessor's office.

Information collected for each individual housing unit included private yard area, living area of the unit itself, the year built, and all subsequent sales prices. These data were entered into a computerized spreadsheet program and statistically analyzed for minimum, maximum, mean and percent increase. Representative graphs and tables were then generated .

Study Site Selection

Examples of conventionally-designed residential subdivisions built after the World War II abound throughout the northeastern United States. However, the location of contrasting cluster/open-space developments was considerably more difficult.

Two basic requirements had to be met before a site could be categorized as a representative of the cluster/open-space genre. First, it must be a true representative of the cluster/open-space design model, where houselots are reduced from the requirements in the underlying zoning district, but without any significant increase or decrease in the overall housing density of the project. Further, this lot-size reduction must have been compensated for by a proportional set-aside of permanently-preserved open space. Second, the age of the units in the study site must be sufficient to measure the desired parameters of market appreciation over time.

The location of suitable cluster/open-space developments was the limiting--and deciding--factor in the selection of the study towns. As this design concept is relatively new under modern zoning and subdivision control, it was somewhat difficult to find qualifying developments old enough to show resale trends. After a thorough evaluation, the Massachusetts communities of Amherst and Concord were selected as the study areas for this investigation. In both cases, an open-space development was contrasted and compared to housing developed along more conventional lines in the same municipality.

CONCORD, MASSACHUSETTS

Study Area

Concord, Massachusetts is an upper middle-class, mostly residential community approximately 15 miles west of Boston. The cluster/open-space development selected for study, Meriam's Close was built in 1979. This residential neighborhood is located approximately one mile from the town center and off the main road to neighboring Lexington (Fig. 1).

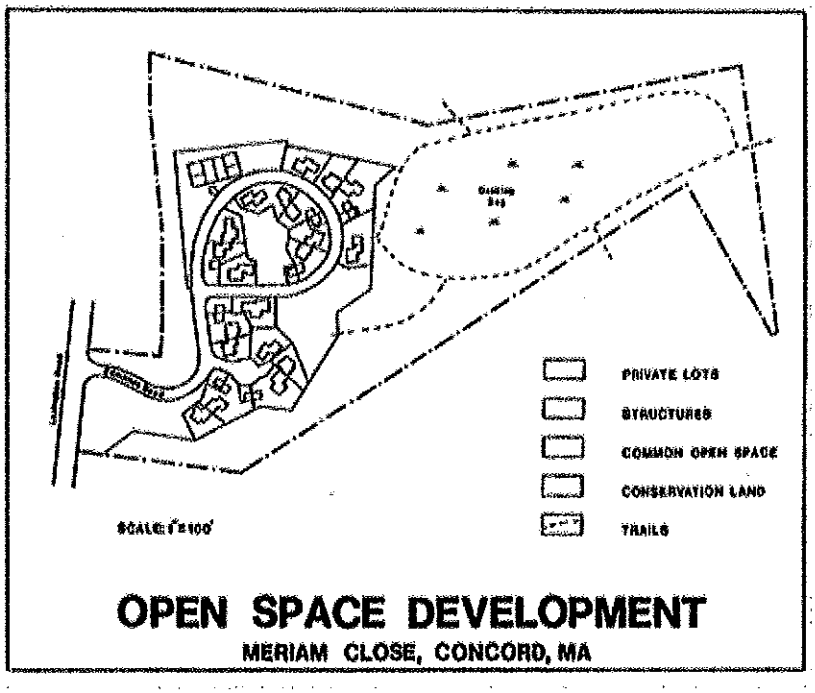

Figure 1. Open Space Development: Meriam Close, Concord, MA

The size of the original parcel was 24.1 acres. Of this, 3.32 acres (14%) was used for private houselots, and 3.42 acres (14%) is commonly-owned, recreational land. The remaining 17.36 acres (72%), which hosts a "quaking bog" mentioned in Henry David Thoreau's journals, was set aside as permanently-protected, conservation land.

All of the open-space lands within Meriam's Close are managed by a homeowner's association. The association uses monthly dues to contract for mowing, general gardening and winter plowing. It also maintains a set of tennis courts, the private roadway system, and on-site, septic disposal facilities. Water is supplied and metered by the town.

The 20 units of housing front onto a small cul-de-sac and a larger "loop" road, both of which are connected to the Town road by a dead-end collector street. All roadway surfaces within the development are paved and 18 feet wide. The housing units are positioned well back from the town road, but have a modest average set-back of 18 feet from the streets on which they front.

Fourteen of the twenty total units of housing are two-family (semi-detached) dwellings, while the balance are single-family detached structures. All of the units, whether two-family or single-family, have similar amounts of usable living space (an average of 2,145 square feet per unit) and contain 3 bedrooms, 3 bathrooms, a garage, and a full basement. In the case of a two-family units, the private yard-line bisects the structure along the fire-wall.

Concord Methodology

Sales data were collected from 1979 through 1988. Since the majority of the units were sold for the first time in 1980, that year was selected as the base upon which to measure subsequent appreciation rates. As there was only one recorded sale for Meriam's Close in 1989, that year was not included in the analysis.

The same procedure was followed for conventional residential development; however, town-wide data were

used rather than information from any specific development. This approach was necessary because no comparable, standard subdivision (similar age, house size, location, etc.) could be identified in Concord. The database then consisted of all residential properties with structures in Concord which were sold in the base year of 1980, and then resold in the period up to and including 1988. To completely separate the sets of data, the Meriam's Close sales figures were not included for Concord.

It is interesting to note that for the 116 units of housing inventoried for the Town of Concord, the average lot-size was 33,453 square feet. This represents an almost five-fold difference over the Meriam's Close lot-size average of 7,232 square feet per housing unit.

Mean sales prices were calculated on a yearly basis between 1980 to 1988, along with the percent increases in sales prices (over the starting price) for each year following 1980. These results are shown in Table 1 and Fig. 2.

Table 1

Market Appreciation 1980-1988

Meriam's Close, Concord, MA

Parameter	Town of Concord	Meriam's Close
Number of Units Studied	116	20
Average Lot Size (sq. ft.)	33,453	7,232
Open Space (acres)	N/A	20.78 (86%)
Average Living Area (sq. ft.)	N/A	2,145
Average 1980 Price	$102,046	$136,894
Average 1988 Price	$251,833	$366,750
Appreciation (1980-88)	146.8%	167.9%
Average Appreciation Per Year	18.4%	21.0%

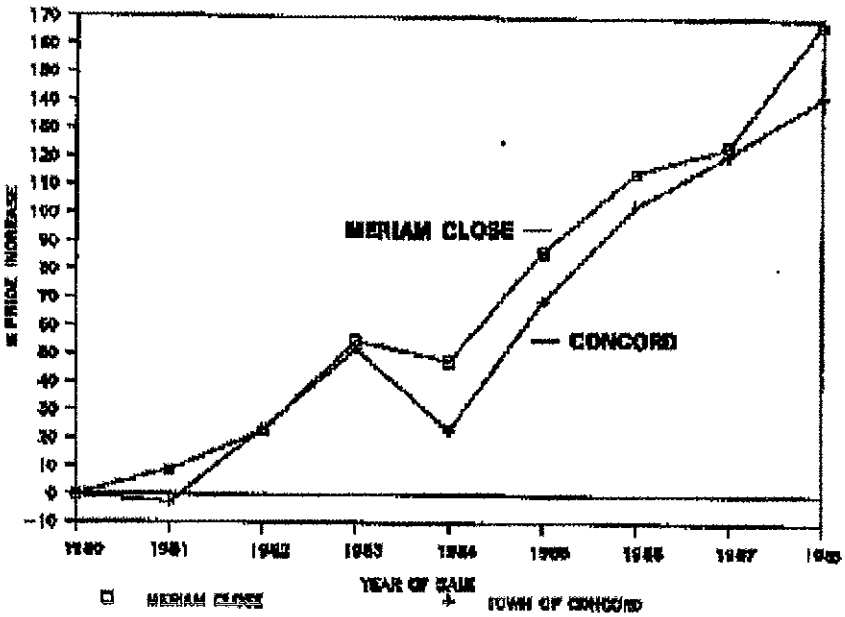

Figure 2. Market Appreciation: Meriam Close, Concord, MA (1980-1988)

Concord Results

Market appreciation, from the base year of 1980, and as measured in each of the eight years thereafter, occurred at a higher percentage rate for Meriam's Close than for the Town of Concord in all but 1982. When measured over the full duration of the study, the cumulative appreciation rate for Meriam's Close was 167.9% (21.0% annually), while the Town's rate was 141.9% (18.4% annually). These data show an appreciation rate 26 points higher for the cluster development with protected open space than for residential properties with significantly larger private yards, but without the associated open-space.

The two sets of data exhibited somewhat "parallel," yearly increases, with both showing the market fluctuations of the 1980s. However, the most dramatic disparities between data sets occurred in the years of 1984, 1985, and 1988.

Concord Conclusions

The prospective home-buyer, selecting residential property as an investment in 1980, would have achieved a higher rate of return on that investment in 1988 by purchasing the "average" home in Meriam's Close, versus the "average" home in the Town of Concord as a whole. A home-sale occurring in any year during that period, with the exception of 1982, would also have produced the same result.

AMHERST, MASSACHUSETTS

Study Area

Amherst is a growing community in the Connecticut River Valley, approximately 85 miles west of Boston. The area is a center for academic life, with four major colleges and the University of Massachusetts in close proximity. Thirty years of associated growth have brought with it significant changes in the character and

types of land uses in what was once an almost exclusively agricultural region. The familiar spatial pattern of randomly-dispersed, low-density residential development has accompanied the area's emergence as regional center.

The Amherst part of this study differed from Concord in that a cluster/open-space development was compared directly with a conventional development.

Echo Hill South, conceived in 1965, and built in the latter half of the decade, was selected as an example of a cluster/open-space development (Fig. 3). A number of conventionally-designed subdivisions were available for comparison. The final selection was based upon the need for both of the developments to share similar basic characteristics: just as the cluster/open-space development had to be a true representative of its genre, the same was true for the conventional subdivision. This requirement left no room for deviation from the applicable dictates of standard zoning and subdivision controls. Orchard Valley, also built in the mid- to late-1960's, best met these requirements and was chosen as the contrasting, conventional development for this study.

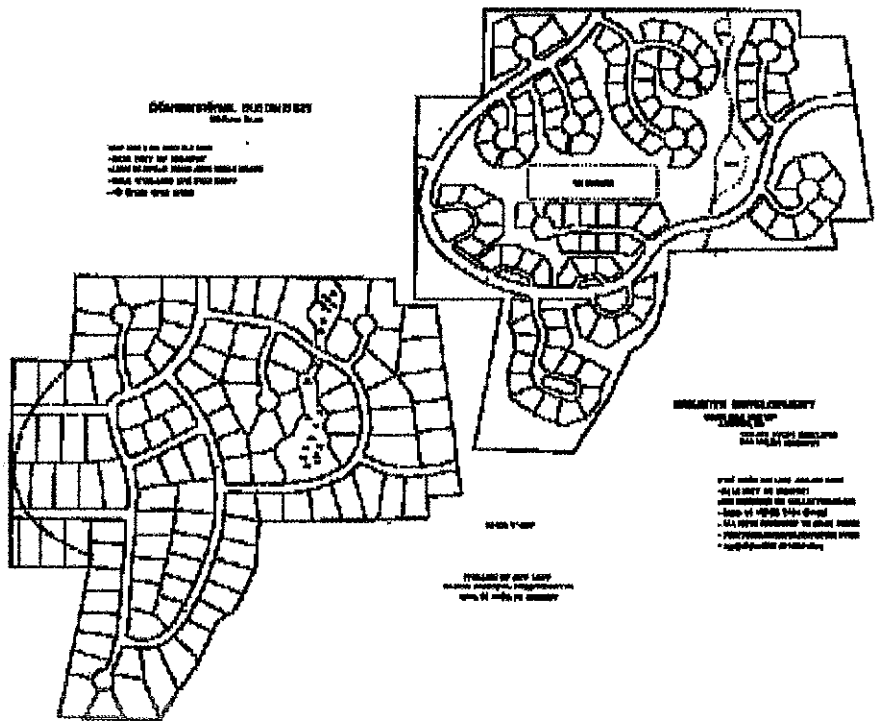

Figure 3. Preservation of Open Spaces

Although several conventional subdivisions would have sufficed as a comparison, Orchard Valley matched Echo Hill quite well in terms of other variables, which could have proven confounding to the analysis. Both developments were built at the same time, have the same proximity to schools and Amherst Town Center, are served by municipal sewer and water, are projects of similar size, and contain housing units with similar amounts of usable living space that sold for nearly the same average price in the base year. In addition, both developments contain only single-family, detached homes on privately-owned lots. Adding to these similarities is the fact that both projects were designed by the same landscape architect.

Echo Hill South

Echo Hill South was the middle phase, both chronologically and geographically, of the overall Echo Hill development project. The final portion of the project involved townhouse-type apartments on large lots, a health club, and

a small commercial center. Both Echo Hill South and this last section were built as distinct elements of a planned-unit-development. Echo Hill South was the first "open-space" development built under zoning in Massachusetts[2].

Utilizing the flexible provisions of the planned unit development ordinance, then a part of the Amherst by-laws, the developer and landscape architect designed and built the 102-unit subdivision while preserving over 36 acres of commonly-held, open-space (nearly half the total area of the original tract). Figure 3 shows the comparison between an original, conventional plan for Echo Hill South and the cluster/open-space alternative that was eventually built. To accomplish this without affecting the overall housing density, individual lot sizes were reduced from the underlying one-half acre requirement (21,780 square feet) to an average of just over one-quarter acre (12,189 square feet). The remaining lands are now held in common ownership, with each individual homeowner possessing an undivided, but equal, interest in the property.

The layout of the street system, private houselots and common space is shown in Figure 3. One major collector street serves the development. This roadway was built "over-standard," having a paved width of 31 to 32 feet, 3 feet of which, on either side, is marked for pedestrian travel. It is a through-street, linking Echo Hill South to three entries and exits onto major roads. None of the 102 houselots have their road frontage on this collector street. Rather, 13 cul-de sacs and "eyebrow" streets form the core of distinct neighborhoods where the houses are grouped. These roads, designed for local-access traffic only, were built "under-standard," with paved widths ranging from 21 to 28 feet.

The privately owned houselots are laid out in distinct groupings. Each of the 13 access streets serves from 3 to 14 units. The removal of trees and low-growing vegetation from the houselots was kept to a minimum. Open space, in the form of woods and fields, threads between adjoining neighborhoods, providing privacy while creating a rural atmosphere. Every resident has direct access to the open space through their side or rear yard. The open space within Echo Hill South is found throughout the larger parcel in the fashion of Radburn, a 1920's "garden city" in Fairlawn, New Jersey[3]. These undeveloped areas are allocated as large blocks for recreational use, and as buffer-strips to screen the residential neighborhoods from the collector road and from one another. Most of the open land remains in its natural, wooded state with an inter-connecting network of trails. A large, open field has been maintained as a "town green" which provides space for ball sports and community events. Nearby, a pond with park benches is available to residents for fishing, birdwatching and skating.

Orchard Valley

The Orchard Valley development was selected as an example of a "conventional" subdivision. Houselots in Orchard Valley are the standard size required in the zoning ordinances in effect at the time of construction: lot areas average 24,352 square feet each, nearly double the size of the average houselot in Echo Hill. As a result, the entire original parcel, with the exception of a small area of unbuildable wetland, was converted to either a houselot or included in a road right-of-way. Figure 3 shows a "conventional" subdivision plan for Echo Hill South--a plan that could have been, but was not, implemented on the same parcel of land. This diagram is included because of its similarity to the actual layout and dimensions of Orchard Valley (which is not illustrated separately).

The homes built in Orchard Valley, like those in Echo Hill, combine a mix of several architectural styles, and include colonials, ranches, raised ranches, capes, and more contemporary designs. The layout is more

expansive, reflecting the larger lots, longer frontages, and deeper set-backs for the structures. Without the open space to buffer and separate distinct neighborhoods, the housing units are spaced more uniformly throughout. In keeping with these larger dimensions, roadways are considerably wider, ranging from 28 to 32 feet from curb to curb.

It is interesting to note that the land on which Orchard Valley was built was indeed a working orchard. The original subdivision plans called for retention of nearly half of the parcel as an orchard with recreational facilities. After encountering resistance from neighbors and local boards, the developer quickly abandoned these plans for a less controversial and more standard subdivision, in which the full number of units could be built.

Little was done to conserve existing vegetation on the site, and most of the pre-existing orchard trees were removed as construction progressed. However, an ambitious planting program, undertaken early in its history, has resulted in an attractive "re-forestation" of Orchard Valley. The profusion and variety of both native and ornamental trees and shrubs now gives the area a feeling of lushness during the growing season.

Amherst Methodology

As in Concord, all data were obtained from the Office of the Assessor. However, in this part of the study, the cluster/open space development was compared directly with a single conventional development.

Information on sales, lot-size, and living area was collected for each housing unit in both developments from 1968 to 1989. Because 1968 was the first year in which a sizable number of units from both developments were sold, it was selected as the base year for the analysis.

Mean sales prices were calculated on a yearly basis between 1968 and 1989. Market appreciation for the two developments was expressed as the percent increase in average selling price in each year subsequent to 1968.

Amherst Results

During the 21-year span of this study, homes within the Echo Hill development appreciated at an average annual rate of 22% (462% cumulative). Concurrently, homes within the Orchard Valley development increased in average sales price at an average annual rate of 19.5% (410% cumulative). From a difference in average selling price of $600.00 (2.28%) in 1968, the two developments diverged to a difference of $17,100 (12.7%) in 1989 (see Table 2 and Fig. 4).

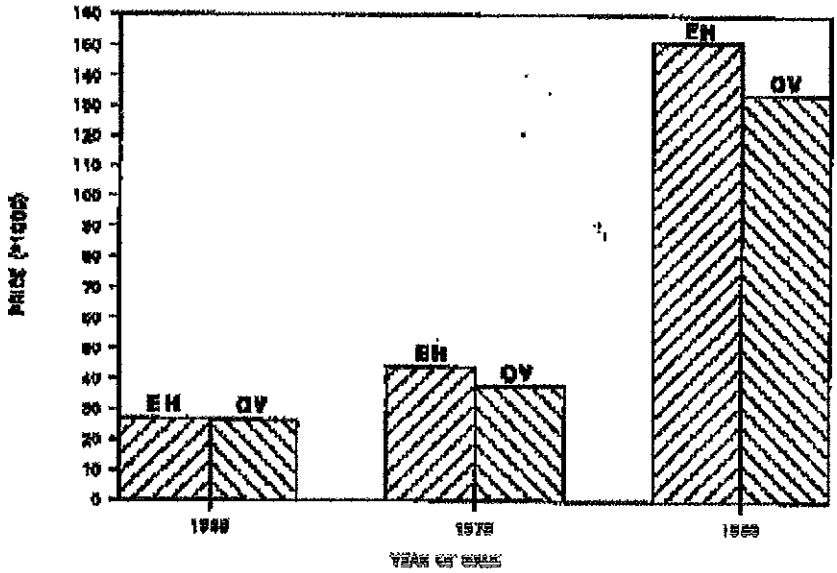

Figure 4. Home Sale Prices 1968 - 1989 : Echo Hill/ Orchard Valley, Amherst, MA.

Table 2

Market Appreciation 1968 - 1989

Orchard Valley/Echo Hill, Amherst, MA

Parameter	Orchard Valley	Echo Hill
Number of Units Studied	125	102
Average Lot Size (sq. ft.)	24,352	12,189
Open Space (acres)	None	36
Average Living Area (sq. ft.)	1,559	1,697
Average 1968 Price	$26,300	$26,900
Average 1989 Price	$134,200	$151,300
Appreciation (1968-89)	410%	462%
Average Appreciation Per Year	19.5%	22%

As was true with the study sites in Concord, the graphic interpretation of year-by-year, percentage-price increases shows a somewhat parallel escalation in appreciation for both Echo Hill and Orchard Valley over the period of study (Fig. 5). The decade of the 1980s did see greater appreciation for real estate region-wide, and Amherst was no exception. Along with rapidly rising prices, this ten-year period saw greater discrepancies in the data from year to year. However, in spite of these fluctuations, the cluster/open space development appreciated (from the base year) at a higher cumulative rate when measured in 18 out of the 21 years of the study.

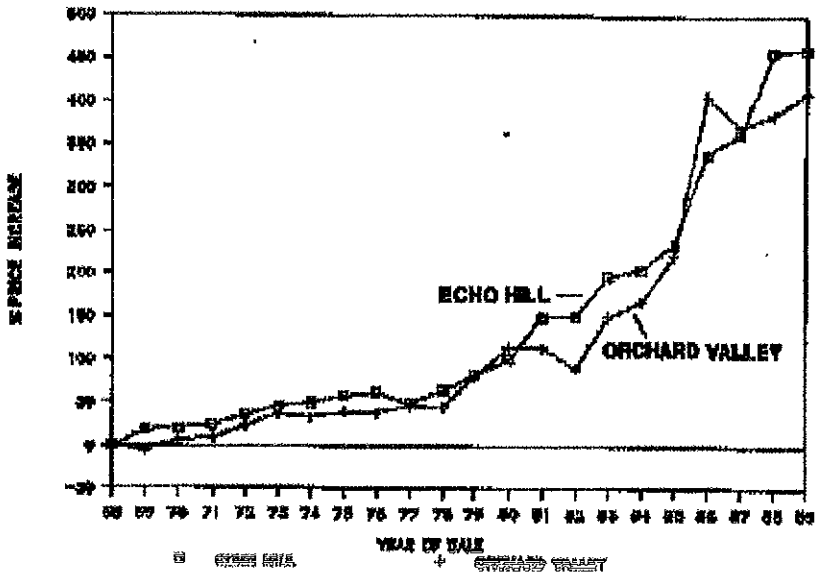

Figure 5. Market Appreciation : Echo Hill/ Orchard Valley, Amherst, MA.

Amherst Conclusions

The cluster/open space Echo Hill development exceeded its conventional counterpart, Orchard Valley, in open-market, sale-price appreciation during the period of 1968 to 1989. Based upon this analysis, the purchase of the average home in the open-space community would have yielded a higher rate of return on investment than one in the conventional development, despite the nearly 2:1 lot-size differential.

IMPLICATIONS

Other studies have shown that proximity to protected open space and the provision of some basic recreational facilities enhances residential property value[4]. This study suggests benefits that can transcend even a significant reduction in house-lot size: The design flexibility inherent in an open-space layout leaves room for integrating the undeveloped lands into and around the groupings of structures. This ensures ready access to considerably more open land than would be possible on a given, albeit larger, residential houselot.

Developers, municipal governments, and home-buyers may wish to re-evaluate the marketability and property-tax generation potential of cluster/open space developments as an alternative to the more land consumptive, conventional housing pattern. It is an approach to land development that can meet multiple needs. Landowners and developers are permitted to construct the same number of housing units otherwise allowed under a conventional subdivision plan while capitalizing upon the added economics of scale and flexibility inherent in a cluster/open space design[5] . Local zoning that permits (or, in some cases, mandates) open-space design can meet a municipality's land-protection goals at little or no cost. This is possible because, as each new subdivision is built, a portion of the town's remaining open space is protected rather than consumed--but without the high costs associated with the purchase of the land itself or its development rights. Finally, as this research indicates, the home-buyer, speaking in dollar-terms through the marketplace, appears to have demonstrated a greater desire for a home with access and proximity to permanently-protected land, than for one located on a bigger lot, but without the open-space amenity.


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