Design for a Prototypical Community in Suburbia

by James Martin

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'Human beings, in their present condition, may be likened to bees in the act of swarming, as we see them clinging in a mass to a single bough. Their position is a temporary one, and must inevitably be changed. They must rise and find themselves a new abode. Every bee knows this, and is eager to shift its own position, as well as that of others, but not one of them will do so till the whole swarm rises. The swarm cannot rise, because one bee clings to the other and prevents it from separating itself from the swarm, and so they all continue to hang. Indeed, there would be no outlet for the bees if each one were not a living creature possessed of a pair of wings... If among these bees who are able to fly not one could be found willing to start, the swarm would never change its position. And it is the same among men.'

-Tolstoy, The Kingdom of God is within You (12).

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Preface

The issue of housing is one of particular interest to me, especially the study of improving suburban communities. These communities have not only consumed much of our valuable agricultural land and natural habitats through over-development, but have often failed to provide residents with a strong community orientation. In the design of a suburban prototype, I hope to convey the importance of landscape architectural design in attaining this goal of developing more livable communities.

Introduction

Throughout the past few decades, Americans have deserted urban centers and flocked to the suburbs hoping for a better lifestyle- one full of clean air, higher wages, and plenty of open space. However, resultant suburban communities have soon become over-developed and very congested. The suburbs have become never-ending metropolises dominated by automobiles and disregarding the human being. Our communities no longer have a focused identity. Communication between residents is often no longer encouraged because our homes have become places of seclusion. The purpose of this study is to design an ideal community which will urge residents to communicate with one another, and to create a residential neighborhood focused around community facilities such as shops and necessary services. The goal of community design should be to offer people a place where they can have everything needed within a short distance, while still being near the amenities of a large city. Another important contemporary issue is wellness and how promoting a public wellness concept can be incorporated to promote better physical health for the residents.

Proposal

The goal in the design of this project is to create a mixture of residential and commercial development. The community is not to be in actuality a "new town", one which is able to be self-sustaining. Instead, the development is to rely on the metropolitan Indianapolis area for it's jobs and resources. The intention is to encourage community involvement and interaction amongst the residents. The goal of the development is to possess a "community" atmosphere and to become a financial success for the developers.

Preliminary Statement and Problem Analysis

Unanswered questions related to area of study:

1. How can communities in the suburbs be designed in order to create more resident communication and interaction?
2. What are the important elements we expect to find in our living environment?
3. How can a wellness program for physical fitness be incorporated into an overall design plan for a community?

Preliminary statement of the problem:

Americans have deserted urban centers and flocked to the suburbs. Resultant communities become over-developed and congested. Suburbs are dominated by the automobile and disregard the human being. Communities no longer have a focused identity and communication between residents is no longer encouraged.

Specific objectives (based on unanswered questions):

1. To design homes and layout of homes in order to encourage resident interaction.
2. To design a community including necessary elements and a mixture of housing and commercial.

3. To design facilities for physical fitness.
4. To determine what should be considered a "community".

Hypothesis or tentative solutions:

1. Homes can be centered around a common area/community open spaces.
2. By including an actual town square with shops and services, residents don't feel a need to travel to the city or mall as often.
3. System of walking/jogging trails also encourages resident interaction.

History of New Town Development

During the past several decades development in the United States has been in the form of an urban sprawl. The cultural and social activities once found in the urban centers of our cities are now almost non-existent. Instead, endless tracts of housing have spread all across the agricultural fields, and suburban malls have taken the place of the urban centers. To many people the "suburbanization" which has occurred in America has been very beneficial, but some feel that urban sprawl is nothing but a slow death for our society, or at best a radical, negative change.

There are nine factors which are producing or encouraging urban sprawl in today's society:

1. the population of the United States is increasing
2. people are leaving rural farm villages for jobs in the cities
3. all people do not like the density of inner cities
4. many buildings around the inner city are allowed to decay
5. rising salaries and incomes of families are allowing them to move to the suburbs
6. development of highways and freeways allows for quicker transportation
7. industry has been moved out of the inner city
8. families now have more than one car
9. urban transportation problems have worsened (2).

According to James Rouse, the developer of the American new town of Columbia there are certain reasons for building new towns instead of accepting urban sprawl as the only means for growth. New towns are built in order to eliminate the slums and blight often found in urban areas. Jobs must also be made available for anyone who wishes to work. This will serve as an incentive for families to move into the new town. Decent housing needs to be within financial reach of all the residents. Educational and health facilities must be provided for people of all ages within the town. Recreational facilities should be located close to the people's homes and should be designed for the utilization by all residents. In order to provide for the safety and security of the residents, a good police and fire system needs to be established. This latter fact, of course, depends on the size of the town and its proximity to other towns. Many times several towns can work together and share such protection systems. One of the goals in the design of the town should be to create a friendly atmosphere in the community. The developers can provide certain facilities which will encourage social interaction amongst the residents. Also, depending on the size of the town, a good system of transportation needs to be established, whether it be mass transit systems, such as buses or trains, or just merely a hierarchy of roads which allow for safe and quick vehicular traffic. Parks, playgrounds and other green spaces should be located at different places throughout the development and easily accessible by all residents. Finally, the overall plan of the city should be divided into smaller neighborhoods, each possessing its own character and identity from the others and at the same time contributing to the city as a whole (2).

New towns can be built near existing cities which are experiencing

growth and expansion. In metropolitan areas, which are facing urban sprawl, new towns can be desirable places in which to live. Non-developable buffer zones of open space should be placed between the existing town and the new town in order to insure control of future development. Urban sprawl has been brought about by the increasing use of the automobile in America. The towns which have developed because of urban sprawl possess neither the qualities found in a compact urban environment nor the qualities found in rural villages.

There are certain lessons to be learned about the development of any new town. First, it must be assumed that there are risks of losing money, of ruining a company's reputation, or of completing a project unacceptable by some of the public. Second, a town must possess a feeling of wholeness. The city must consist of overlapping and interlocking layers of communities. Each community must create different choices and opportunities for the residents to pursue their personal goals and to satisfy their interests. The community must also be whole by working with the natural systems which exist (6).

The town center should be the meeting place for the entire community. Town centers in many places, have become a thing of the past. Urban sprawl, endless rows of housing tracts and the wide-spread use of the automobile have made town centers almost non-existent. Suburban shopping malls have taken the place of the old town center. All of the retail stores have relocated to the suburbs within easy access to the residents. However, the malls lack the identity, community focus, and the mixture of retail, governmental, financial, religious and residential found in the town center. The town center should become a gathering place for the residents during both daytime and nighttime. It should not become the

evening ghost town found in most suburban malls (1).

The concept of new towns is not a new idea. It began in 1898 when English planner Ebenezer Howard came up with a plan to attract people away from London. Howard referred to his town as a "Garden City" and it contained certain elements such as its own industry (with nearby housing for the factory workers families), sections zoned for commerce, culture and schools, plenty of green areas, and an agricultural belt surrounding the city to buffer it form any nearby towns. His goals through this concept were to relieve some of the urban cores from further development, screen factories and industries from the rest of the town, bring green spaces into where the people lived, and eliminate the need for long-distance commuting (2). The Town and Country Planning Association, in 1919, defined the Garden City as 'a town designed for healthy living and industry; of a size that makes possible a full measure of social life, but not larger; surrounded by a rural belt; the whole of the land being in public ownership, or held in trust for the community' (12). Howard's ideal town had a population of about 30,000 people, and as the population of the area grew more cities could be built so as not to overpopulate any one city. The individual cities were to be far enough apart so that they did not encroach on the others. Large agricultural fields and wooded areas served as the buffer zones between the cities. Each city was connected to the other by a highway, allowing for fast transportation for the residents. At the center of each city would be the urban core which would consist of retail stores, offices, restaurants, theatres and a mixture of housing. The industrial zones would be located on the eastern edges of the cities. This was done in order to allow the pollution generated by the factories to be dissipated by the prevailing winds- generally coming from the southwest in the summer and the

northwest in the winter (2).

Ebenezer Howard felt that towns were attracting people because of the amount of jobs available, higher wages, availability of social activities, and the security of well-lit streets. The country is attractive because of its natural beauty, fresh air and lack of pollution. The disadvantages of the town are the distances travelled to work, the amounts of people making it very crowded, the darkness of streets caused by towering buildings, polluted air and dilapidated areas. Some of the disadvantages of country life include the lack of activities, lack of society, lower wages and lack of available jobs. Howard was proposing a town in the country in his garden city concepts, instead of proposing for a mixture of town and country. Also, his garden cities were to be thought of as both "a city in a garden" and "a city of gardens". By this statement he meant that each city would be surrounded by a large belt of agricultural' land and woods, but Ebenezer Howard also envisioned every house having its own gardens (15).

Howard's cities were to be built on about 5,000 acres of land or eight square miles. Of the 5,000 acres, about 80% of it would be reserved for agriculture, forestry and recreation. Each one of his garden cities was designed to support a maximum population of 32,000 people. Howard's concept dealt more with "the process of growth rather than the precise shape of the garden city that remained paramount in his mind." Each city was to be somewhat self-sufficient. A wide variety of people and jobs would be found in each city. Howard stated 'town and country must be married, and out of this joyous union will spring a new hope, a new life, a new civilization.'

Letchworth, England was the first garden city built. It was located about forty miles north of London and was planned by Raymond Unwin

and Barry Parker for Howard's organization. They softened the strict geometric design Howard had wanted. Letchworth was built in 1904 and because of the high costs of living at that time attracted only very wealthy residents. The working class of England was not able to afford to live there. The second garden city was Welwyn, England. Welwyn was not built until 1920 and was located about twenty miles east of London. A greater variety of social classes was able to live in Welwyn because of public subsidies which had become available (15).

The New Towns Act of 1946 in England called for the development of many new towns many of them near major metropolitan areas of England such as London and Birmingham. By 1950, fourteen new towns had been designated. However, in the next ten years only one had been started because of changes in the English governmental policies. But by the end of 1968, twenty-eight of the towns were being built in Great Britain, Wales and Scotland. The first new towns were planned for a maximum population of 25,000 to 50,000 residents each. The idea behind these towns was to provide for a better lifestyle than was being offered in the overpopulated urban cores. New town development is usually an unattractive venture by developers who are only concerned about short -term investments. Many times a new town will require a time period of twenty years or more before the investors see any profit. However, new towns can offer good investments through the commercial and residential profits. The British new towns were very successful. By 1968, over 900,000 people were living in the twenty-two British towns (12). There are later statistics upwards of 1.2 million by 1976.

The new town movement finally came to the United States in 1929 with the plan for a community to be built in the town of Fair Lawn, New

Jersey. The project was to be known as Radburn and was designed to contain a population of 25,000-30,000 people on one square mile of land. About 1300 acres or two square miles of land was purchased. The town was to be built on half of the land and the other half was to be sold in order to make a profit. At the time, the area surrounding Fair Lawn was still very rural, but because of its close proximity to New York City was destined for major development. The Radburn project was an attempt to introduce the garden cities of Europe into post World War II America. The town was planned by the RPAA (Regional Planning Association of America) which was formed in 1923. The planning committee lasted only one decade and consisted of Lewis Mumford, Henry Wright, Sr., Benton MacKaye, Clarence Stein and Stuart Chase. Unfortunately, only five months after the first residents moved into Radburn the stock market crash of 1929 occurred. The project was then abandoned after three years of financial struggling. Only 100 acres of the more than 600 acres were ever developed in the historical Radburn plan. The rest of Radburn was built in conventional suburban housing. However, some of the innovations of the Radburn design would be the starting point for many developments of the future. Radburns use of the cul-de-sacs, interior parkland, and cluster housing set the standards for modern housing developments. The plan of Radburn removed the automobile from the residential areas and encouraged more citizen involvement. Radburn was the first step taken in development of a new way of designing regional growth. The designers created free-flowing naturalistic plans instead of the conventional linear and haphazard development. The concept for the town related to the garden cities of England by calling for communities to be connected by large areas of greenspace, but Radburn did not meet the standards set

forth by Ebenezer Howard because it lacked the five-mile greenbelt Howard said was essential to any garden city (15).

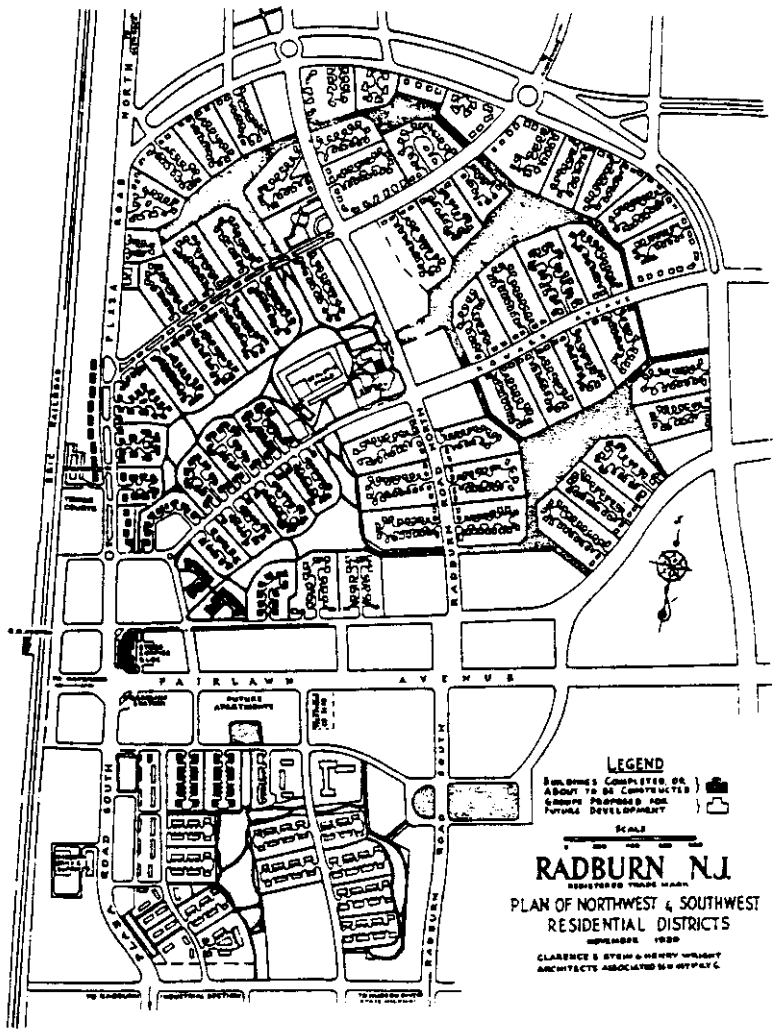
The meaning of the word "Radburn" was created by Charles Ascher. The word is derived from the Old English translation of "Saddle River" which is the name of the river bordering Radburn. There were four major design elements in the original plan for Radburn. The designers called for a specialized highway and road system. The roads were laid out in a hierarchy of usage by the people. Heavily travelled roads were built to allow traffic to flow through them quickly and easily. Smaller roads branched off of the main roads and served the residential corridors. Common interior spaces of parkland were located between the backs of the houses and were to be used by all residents. There was to be a complete separation of pedestrian and vehicular traffic. Over- and under-passes were used for the separation of the two. Lastly, the houses were to have a reversed design as compared to conventional homes with the back yards leading onto a highly utilized community open space and pedestrian pathways. The parkland was intended to "generate an atmosphere conducive to neighborliness and cooperative effort" (15).

The houses in Radburn were sited differently than typical homes in the United States. Instead of facing towards the street with a formal front yard entry and an informal back yard entry, the Radburn plan did just the opposite. The living room of the house was placed in the back overlooking the back yard and a community open space. The plan allowed both of the entrances into the house to have equal importance. The one facing the street was used for deliveries and the one facing the back was used for more leisurely activities or for use by neighbors when they would stop by (15).

Radburn was designed by Henry Wright, Sr. and Clarence Stein. Ralph Griswald was the landscape architect and played a vital role in the site planning for the project. They were interested in creating a "physical and social landscape that would focus on the family, and especially the child- not the real estate speculator-as the major concern." The community, which was advertised as the "town for children," had 28% of their residents aged 1-5 in 1934. Radburn attracted many wealthy families because most lower or middle-class families could not afford to live there. Because of this the townspeople were highly educated as compared to the rest of America. At that time in history, only 6% of Americans received college degrees, but in Radburn 87% of the men and 75% of the women had attended college. Seventy-seven percent were Protestant and 70% commuted to New York City every weekday morning. Thus, in regards to the goals set by the designers of the town, Radburn had two major failures. For one thing, the designers had hoped to build a city in which any person could afford to live and secondly they had hoped to build a self-sustainable town where the people could both live and work, but instead Radburn became yet another bedroom community for the metropolitan New York City area. During the mid-1930's only 462 families called Radburn home. The population was held at 1500 people until after World War II. Only one-tenth of the community was ever built. This was too small to display the dimension of the social plan (15).

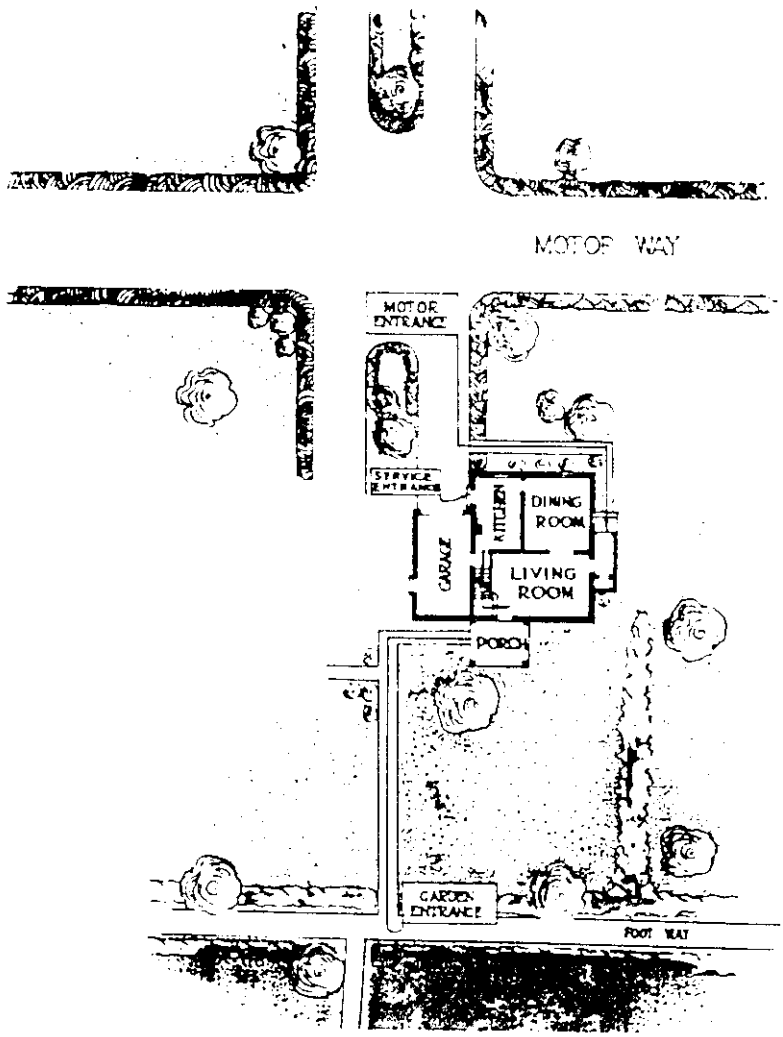
Radburn was the first community in America to consider the automobile as a vital part of the community design, but did not allow the automobile to dominate. The design strayed away from the conventional 200' by 600' rectangular blocks found throughout most other American suburbs. Instead a "superblock" of 1200' by 1800' was used and did not

allow traffic to flow through but instead around it. An interior area ten to fifteen times the size of conventional blocks was created. In the center were four to six acres of interior parkland utilized by all residents. This created a link between parkland and homes without being interrupted by roadways. Cul-de-sacs or dead end streets were made only twenty feet wide in order to reduce and slow down traffic. The percentage of road area was reduced from 35% of land in conventional suburban developments to only 21% of Radburns land. The plan did not allow the roads to dominate, instead they were there to serve a purpose or function (15).



The Neighborhood Unit (1929): Radburn's answer to the faceless metropolis would contain 10,000 people and include an elementary school and a shopping center to achieve a degree of self-sufficiency. There is a striking similarity between Radburn's neighborhood unit and Howard's garden city ward. Courtesy of the Radburn Association Archives, Fair Lawn, N.J.

The homes in Radburn were designed differently from the traditional suburban developments in the United States. The houses were actually reversed so that both sides of the houses served as important entrances into the house. The back entrance led out into the community open space and garden area, the front entrance was more service oriented (15).



The creation of new towns in the United States never quite caught on as it did in England. Most of the projects in America were only relatively successful at best. Many people argued that the new towns of America were actually just bedroom communities of nearby urban areas, and in fact most if not all of the new town projects had been built near large cities and most of the residents commuted to work. The reason for the lack of success of American new towns is uncertain, but a lot of it could have to do with the differences in our culture and the European culture. Americans may not yet see the need for new towns as much as Europeans because we still have so much open space available for urban sprawl, whereas the Europeans live in a much denser environment and see a need for new town development.

A project on such a large scale as a new town development depends not so much on a certain plan or written policies, but instead on the pulling together of the values and common interests of all the people involved. The common intent of each individual expands as the design development continues. In a speech given by James Rouse in 1966, he discusses the problem brought about by urban sprawl and unplanned developments. Most importantly he poses the question as to how our society may be changing because of this type of growth. 'Our cities grow by accident, by the whim of the private developer and public... By this irrational process, non-communities are born- formless places, without order, beauty or reason, with no visible respect for people or the land... The vast, formless spread of housing, pierced by the unrelated spotting of schools, churches, stores, creates areas so huge and irrational that they are out of scale with people- beyond their grasp and comprehension- too big for people to feel a part of, responsible for, important in... I believe that the ultimate test of

civilization is whether or not it contributes to the growth and improvement of mankind. Does it uplift, inspire, stimulate, and develop the best in man? There really can be no other right purpose of community except to provide an environment and an opportunity to develop better people. The most successful community would be that which contributed the most by its physical form, its institutions, and its operation to the growth of the people' (6).

According to Mr. Rouse, people who live in small towns or villages rather than large cities can experience a much broader range of friendships and social relationships. There is also a greater sense of support for one's neighbors in a village, and a spiritual tie with nature is encouraged and is more available in a more rural environment. People are able to find solitude and study nature more in untouched natural environments than in those which appear natural but are in fact man-made. Cities overpower humans because people cannot relate to the massiveness of the urban forms. We should instead design a town center containing cultural, educational, and recreational facilities surrounded by 10-20 small towns or villages (14).

During the 1960's, the development of new towns in America was once again gaining popularity mainly due to the increase in population and the desire for families to move out of the city and experience the "American dream" of owning their own house. A new town was in the planning stages- it would be known as Columbia, Maryland. The goals of Columbia were to create an environment conducive to human growth, to preserve as well as enhance the natural landscape throughout the development, and at the same time make a profit for the investors in land sales. An appropriate population for Columbia was set at 100,000

inhabitants. This would allow for a feeling of spaciousness and security as seen in small towns and villages and at the same time allow for a wide array of opportunities and services. Columbia was never intended to be a self-sustaining community, instead it rely on and add to the Washington-Baltimore corridor (6).

The plan for Columbia was completed by the Fall of 1964. It was to consist of nine villages, each with a population of 10,000-15,000 residents, located around a town center. The site was roughly nine miles by five miles and was bisected by a highway. One of the requirements for any community is to have a wide range of activities and facilities available and to have these easily accessible for every resident. Because of this, Columbia planned for a public transit system in order to allow all the residents freedom to move about the town easily. The town was planned so that 40% of the residents would be able to live within walking distance of the bus line. Each village consisted of four to six neighborhoods, which housed about 500-700 families each. Each neighborhood was to contain an elementary school, a community room, a child care center, a playground, a swimming pool and a small convenience store. The village center is the focal point of the surrounding neighborhoods. The village centers were designed to contain a high school, a middle school, a library, an auditorium, churches, a medical clinic, a supermarket, and gas stations. The styles of architecture differ with each village in order to express a unique identity from the other villages. Each village center contains shops different from the other centers so as to attract residents of other villages as well. Overpasses and underpasses would allow the residents to walk or ride a bicycle to the neighborhood centers or village centers without having to cross vehicular traffic. At the heart of all the villages in Columbia was to

be located the town center which would contain a shopping mall, restaurants, movie theatres, a concert hall, hotels, a college, a hospital, and the main library (13).

The site of Columbia was chosen because of its easy access to both Baltimore and Washington (20-25 miles to the downtowns of both cities), the expanding growth rate of the area, and the land availability to undertake a project of such large scale. The process for developing Columbia began in 1962 with purchases of approximately 15,000 acres of land in Howard County, Maryland. The project was financed by the Connecticut General Life Insurance Company and the Community Research and Development Company (now known as the Rouse Company). These two corporations were joint owners in the Howard Research and Development Company which did the actual purchasing of the land. Cost for the land was approximately $22,500,000. By 1965, Howard County had granted "new town zoning" for the development and another $25,000,000 was raised for development costs. At the time, Howard County had a population of only 45,000 residents and was fighting to stop the urban sprawl of the Washington-Baltimore corridor which had begun spilling into Howard County. However, they saw the Columbia project as an alternative to urban sprawl as well as a major boost to their socio-economic advancement (6).

The designers of Columbia did not want to create a large centrally located building to be used as the town's cultural center, but instead wanted the arts to flow throughout the entire city, in each village and neighborhood. They emphasized more "spontaneous creation and performance" by establishing arts and crafts programs in the villages as well as building a multi-purpose community center in each village (6).

In June of 1966, construction was started on Columbia's first village-Wilde Lake. The first occupants of the town moved in a year later. The town has grown to about 68,000 residents in just 22 years and is expected to contain over 100,000 residents at its completion. The town planners wanted to put the people as the top priority in the design. They accomplished this by providing open space, recreational facilities and buildings which are built to a human scale. When Columbia is complete over 33% of the land will be owned by the Columbia Association and designated as open space. Also by placing the institutions of the people's lives close to one another, such as the schools, churches, and social activities, they were able to create the social interaction necessary in a community (10).

About the same time Columbia was being planned a similar project was in process about an hours drive to the south. This project was located eighteen miles west of downtown Washington, D.C. and about five miles east of what is now the Washington Dulles Airport. This new town was known as Reston, Virginia. In late 1960, Robert E. Simon bought 7,400 acres of land which would become Reston. Many people believe that this was the first modern new town to be developed in the United States. They hoped this town would become the ideal garden city once dreamed about by Ebenezer Howard. Like Columbia, Reston was also designed as a series of villages or small communities. The six villages of Reston are Lake Anne, Hunters Woods, Tall Oaks, South Lakes, Dogwood and North Point. Another village, North Hills, is in the process of being developed. The population of Reston surpassed 50,000 residents in 1987. Reston is located in Fairfax County, Virginia which is the fastest growing county in the metropolitan Washington, D.C. area and is ranked as the third wealthiest county in the

nation. The population of Reston is expected to increase to 62,000 people by the turn of the century. The residents of the town are mobile, well-educated and affluent. The town's median household income in 1987 was $56,600, which is much higher than most other American communities. The residents are also college graduates more often than the national average. About 52% of Reston's adults are college educated as compared to 16% nationwide. Since the early 1970's, Reston has been able to attract hundreds of large companies to establish offices within their community. Most of the companies are related to the high-tech industry, thus attracting very affluent and well-educated people. Today over 40% of Reston's residents also work within the city (11).

Early zoning requirements for the Fairfax County area called for minimum lot sizes of 1/3 acre per dwelling unit. An overall population was estimated at ten people per acre. If no changes had been made in the zoning requirements, Reston's 7,400 acres would have provided space for 74,000 residents with no space left for commercial, offices, schools or recreational facilities. The residents of Reston would have been forced to face long drives in order to reach these places. In cooperation with Fairfax County, the developers of Reston established the Residential Planned Community (RPC) zoning category. Instead of zoning by lot sizes, the RPC looks at overall density per acre. This type of zoning allows the recreation areas of employment centers to be located near the residential areas. In fact, many of the apartments and houses are located within walking distance of the schools, shops and open spaces (7).

Six goals were set forth in the creation of Reston. Many of them are similar to the goals of other new town developments. First of all, the designers wanted to build a community which would be somewhat

wholistic. A community which would contain places to live, work and play without having to leave the community. Facilities for education, culture and recreation were also supposed to be located within easy reach of all residents. Secondly, a variety of housing needed to be available throughout the town to provide for everyone regardless of age, income, race, education and family status. The third goal of the designers was to integrate recreational, cultural and educational facilities into the design of the city and within close proximity of all the houses. Fourthly, the town was to be designed with the people in mind. Buildings were to be built relating to human scale. The fifth goal was to create an aesthetically pleasing environment, in both the built and natural areas, and the final goal was to make Reston a financial success for its investors (7).

Robert E. Simon is regarded as the chief developer of the the town of Reston. In fact, the very name of the town is formed from his initials. Simon was a native of New York City and his father was involved in the financing of the Radburn project several decades earlier. Simon started dreaming about a community like Reston while he was living on Long Island. The long train rides each day into New York City became cumbersome for Simon and he envisioned a community where jobs, schools and recreational facilities could all be in close range of the houses. He felt the best way to create this "ideal" community would be to start from scratch. Simons hired the New York firm of Whittlesey and Conklin and allowed them to design without any zoning restrictions. Simons was able to pass the Residential Planned Community ordinance in Fairfax County. The county agreed to Simon's master plan in July 1962 only after he agreed to some of their demands. Among these, the design of Reston was to have an overall density of eleven persons per acre, ten acres for every

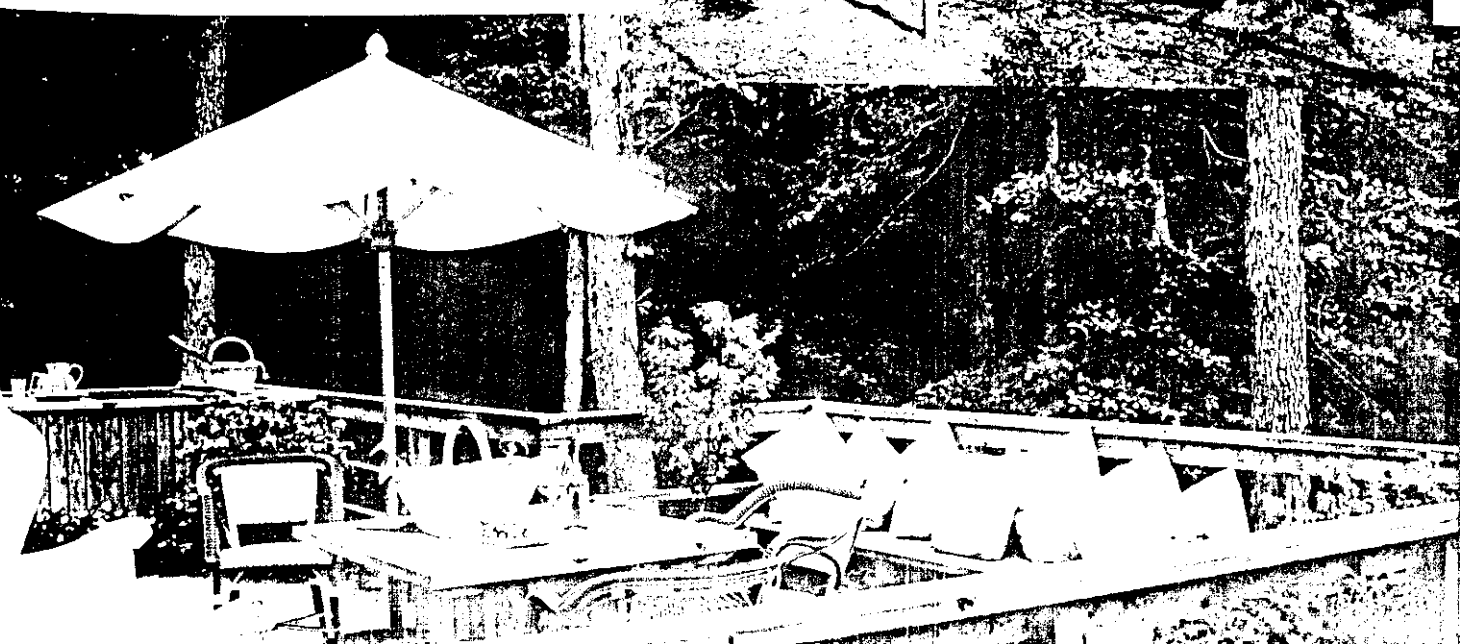
1,000 people would be reserved for parks and the RPC zone would be tied to the overall county master plan (11).

Simon's financial resources ran out during the development of Reston, and the ownership was passed on to the Gulf Oil Company. Gulf Oil later sold the land to the Mobil Oil Company who represents the Reston Land Corporation today. This company will exist only until the 1990's when it is projected that all of the land will eventually be owned by private owners and the town will be able to function on its own (11).

Today, Fairfax County is the most populated county in Virginia. With over 700,000 residents, it contains over 12% of Virginia's population. In 1970 Reston had only 5,700 residents. It has grown to over 51,500 residents today and is projected to have about 62,000 residents by the year 2000. Some critics feel that Reston is still not a true new town- that it is instead just another "bedroom" community in the metropolitan Washington, D.C. area. However, Reston has been successful in attracting many corporations to establish offices in the town. Reston was developed a little differently from Columbia. The town center and mall area was built early on as the main focal point in Columbia. However, Reston was developed without any town center. Instead, it's developers wanted to bring the residents in first and then build the commercial area once they felt one could be supported by the community. Construction is currently underway for Reston's town center, which will be comprised of a large shopping mall, restaurants, offices and a mixture of residential housing (11).

Open spaces and community lakes are found throughout the town for the wellness of the residents.

The community of Reston offers a wide variety of housing: in size, cost and architectural style.



Trails are designed throughout the entire community plan for walking, jogging and horseback riding.

In a personal interview with Donald Hilderbrandt, who is a principal at the Landscape Architecture firm Land Design/Research, Incorporated in Columbia, Maryland, and who also was one of the designers on the Columbia project, he discussed some of the requirements for developing a new town. First and probably most importantly, Mr. Hilderbrandt stressed the town's location. He pointed out that towns no longer are able to be built in a place because the topography is nice or because of the natural amenities which may exist. Towns, such as Columbia, Reston and Radburn have been successful because of their locations to larger cities. Good road systems, especially high-speed freeways, become essential when developing a new town in today's society because people want to be able to get from place to place quickly and easily. Columbia and Reston have made driving within the city limits very convenient by creating a hierarchy of roads which get smaller (and less crowded) as one enters into the residential corridors. Hilderbrandt explained that the multi-family attached housing should be located near the main roads with the single-family housing tucked further into the neighborhood (5).

New towns need to be designed with the residents in mind. As has been stated earlier, it is important to include a variety of activities for all the residents throughout the town. Large areas of open space and parkland should also be included at the beginning of any community design. Land must also be reserved for industry or office space in certain areas of the town, with ample housing nearby as well. In Columbia, 30% of the town is reserved for open space and 20% is set aside for industry.

Developing With Nature

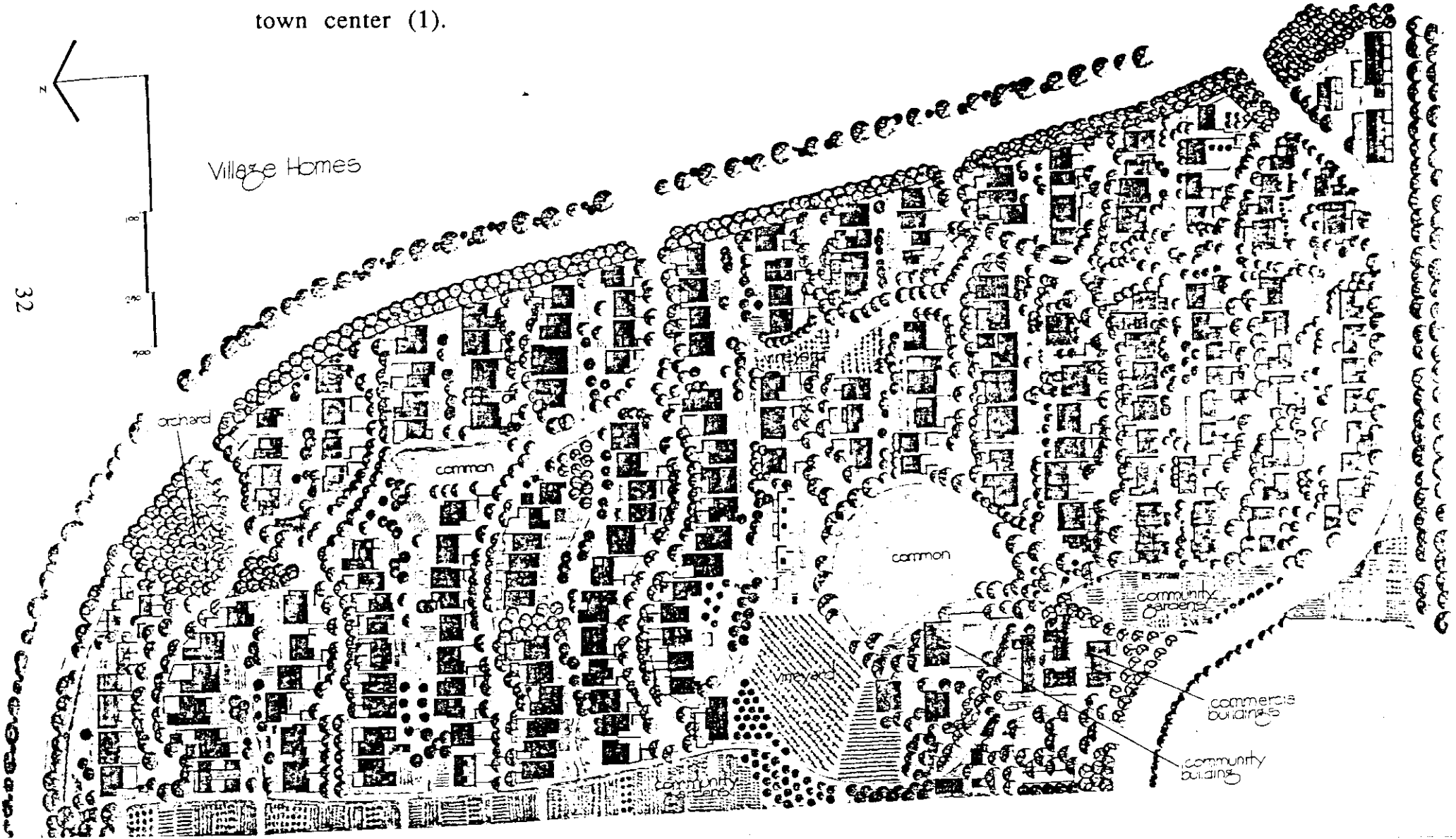
One of the major problems with current development is that it is devouring much of our valuable farm land. If possible, developments at any scale should be located on sites which are not outstanding producers of food. Another concept for developments of new towns, sort of along the lines of Howard's garden city concept, is to design them with large agricultural belts around their perimeter, plus encourage residents to utilize much of their yards for food-production as well. People can grow a lot of their food- even when they have only small lots. A Gallup Poll in 1978 showed that over 42% of Americans were growing at least some of their food. This is a greater proportion than any other time since World War II. Food production can take place at a number of levels- individual households, neighborhoods, town as a whole, and small neighboring farm (1). Ornamental plants in the residential landscape can be replaced with vegetable gardens, herbs, fruit and nut trees and berries. Many of these plants have very high aesthetic value as well as the capability to produce food without creating any more maintenance problems. Trees such as apples, filberts, figs, and apricots are excellent for use in shading patios because of the spreading growth pattern and various sizes. Trees which have more of an upright form, such as plums, cherries and pears, can be used in areas needing protection from the afternoon summer sun. Blueberries and currants can be grown naturally as shrubs. Raspberry, blackberry and boysenberry can be trained to make a fence between lots in order to add privacy. A community greenhouse can provide vegetables all year long and allow for good social interaction among the residents.

Town-level agriculture could supply fresh produce for the community markets and restaurants (1).

Use of natural drainage paths are fundamental in maintaining natural beauty and habitat. Opting for natural drainage instead of man-made drainage can also help the developer reduce costs of construction, conserve water, and delay storm sewer water runoff helping to reduce problems of flooding. Natural streams and creeks can also serve as aesthetic amenities for the community. At the Village Homes development in Davis, California, the design of the drainage systems was reversed from the systems of typical subdivisions. In most cases, the lots are graded so that they slope towards the road, but at the Village Homes the lots are sloped towards a common area between the back yards of the houses. The swales containing the runoff slowly move to large channels or ponds which are landscaped with rocks, shrubs and trees. To help prevent mosquito problems in the stream beds, the creeks are designed so that a constant flow of water will drain the creek within a couple of days or else the creeks can hold water year-round and be stocked with mosquito fish. The concept of such natural drainage systems was the most difficult thing to get approved for the Village Homes project. City planners were afraid it would attract unwanted wildlife and would be a continual maintenance problem- however, no major problems have yet occurred (1).

The lots in the Village Homes are designed along the same concepts as in the earlier Radburn project. The front yard becomes a less formal, more private part of the lot and the back yard opens onto a public greenspace. The developers created large open playfields throughout the Village Homes which provides a place for the residents to play field sports, thus making it possible to utilize the yards around the houses for gardens.

The plan for the Village Homes in Davis, California shows a clustering of homes around community open spaces. The project also encouraged community involvement through the community open spaces, community garden plots, community-operated orchards and agricultural areas and the town center (1).



Garden plots are located behind the houses of the residents and face onto a trail system which circulates throughout the entire community. The residents are able to raise a good portion of their food by utilizing their outdoor open space for gardening (1).

Since the gardens are generally located in the back of the house and this becomes a more "public" area, the homeowners keep their gardens very tidy, just as people in traditional neighborhoods manicure their front yards. The yards to the front of the Village Homes are often enclosed with privacy fences (1).

The common greenspaces are usually shared by about eight households. Many times the families use these common areas for an orchard, an outside entertainment area, and play areas for their children. Not only do these open spaces provide places for recreational activity but they also encourage neighbors to work together for mutual benefits and social interaction (1).

Security of one's property is a major concern for developers. Homeowners need to be able to see what is going on in their yards as well as the open spaces around their houses. Streets which are wide have a feeling of a public space, often ignored by the residents. On the other hand, a narrow street feels more private. The streets in the residential areas of the Village Homes are narrow and dead-end in order to reduce thru-traffic and speeding (1).

Density Development

Throughout the past few decades, the landscape of America has been scarred by large-lot single-family subdivisions. The boundaries of our metropolitan areas have been expanded uncontrollably because of the underutilization of land in residential areas. The increases in the cost of housing have been greater than for any other major consumer item and have surpassed the per capita gains in income. The costs for land development have been judged to be about 30% of a new homes cost. Therefore, land conservation is very important if the housing demands for the future are to be met. Large-lot subdivisions generally waste a lot of the basic public utilities, such as roads, sewer lines and storm drainage systems, because the utilities must traverse large distances and are usually not used to full capacity (9).

Two techniques of developing are being used to conserve valuable land. Cluster development and planned unit development (PUD) are approaches to land planning which are used on the designs of entire developments. Planned unit development is often used on large-scale community projects. Clustering of houses on a portion of a site prevents much of the land from being disturbed in grading and clearing. The costs encountered during site preparation are drastically reduced. Especially on heavily wooded sites, large areas can be left in their natural state-untouched by any of the development. Stands of mature trees and shrubs

can be left in between clusters of houses as a natural screen and provide a sense of privacy (9).

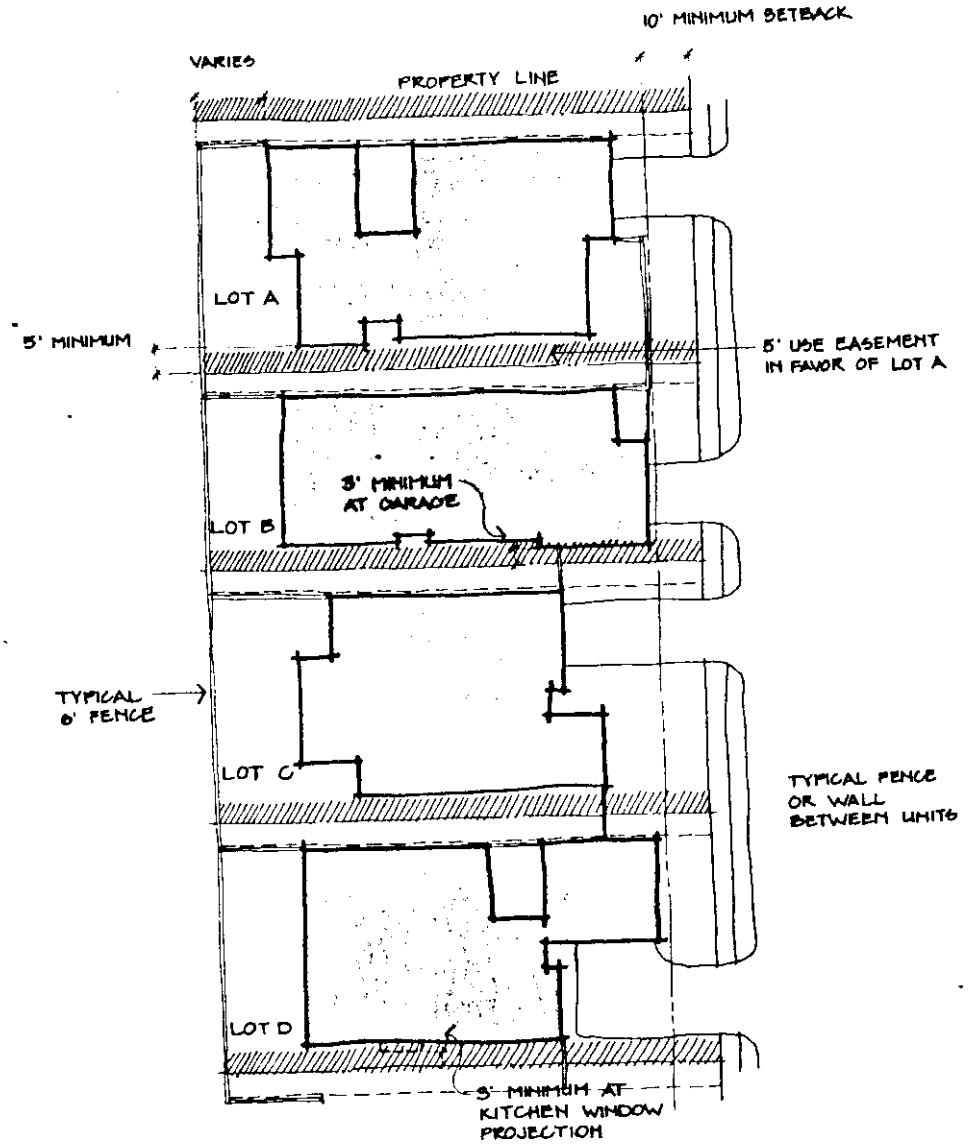
Cluster housing can consist of many different types of housing. Single-family detached houses are often sited on small lots, allowing for the freedom of owning a detached house, but at the same time reducing the costs and maintenance of large lots. Zero lot-line houses are similar to detached houses except they are built along one side of the lot. Typical subdivisions plot detached houses in the middle of the lot with two tiny, unusable side yards. Zero lot-line houses move the house to the side of the yard and double the size of one of the side yards making it large enough to use as a patio space, garden, etc. Privacy is provided by not placing any windows on the side abutting the lot line. Attached units, such as duplexes, or rowhouses can also be used in cluster development (9).

Another type of cluster housing is the patio home. This type of housing utilizes the entire yard. Often designed in an "L" pattern, the patio home focuses inward on a private court. These can also be built as zero lot line houses on one side of the lot. Some of the advantages to a patio home are that it lowers the land cost per unit (usually six to eight units are built on one acre), and it lowers the cost of land development. Utilities, such as streets, water, sewers, and utilities are cheaper to install because the frontage on the houses is less than conventional houses. Added privacy is created in the patio homes through privacy fences or walls which surround the back half of the houses. Lastly and most importantly to some, the patio homes offer very low maintenance. Yard work is now at a minimum because of the reduced lot sizes. Many developments also have maintenance programs which take care of the front portion of the homes as well (19).

Patio homes are not modern concepts. They are some of the oldest housing types known to man. It is believed that the patio home has origins over 3,000 years back in the Greek civilizations. The patio home concept has been widely used in Spain and Latin American countries. In post World War II Germany, patio homes were introduced as part of the $450 million U.S. Marshall Plan to help rebuild the destroyed cities. The Germans compared the L-shaped patio homes with other forms of housing, such as the free-standing house, the house with a garage in common, and the row house. The L-shaped patio house was the most efficient in terms of families per acre and space per family (19).

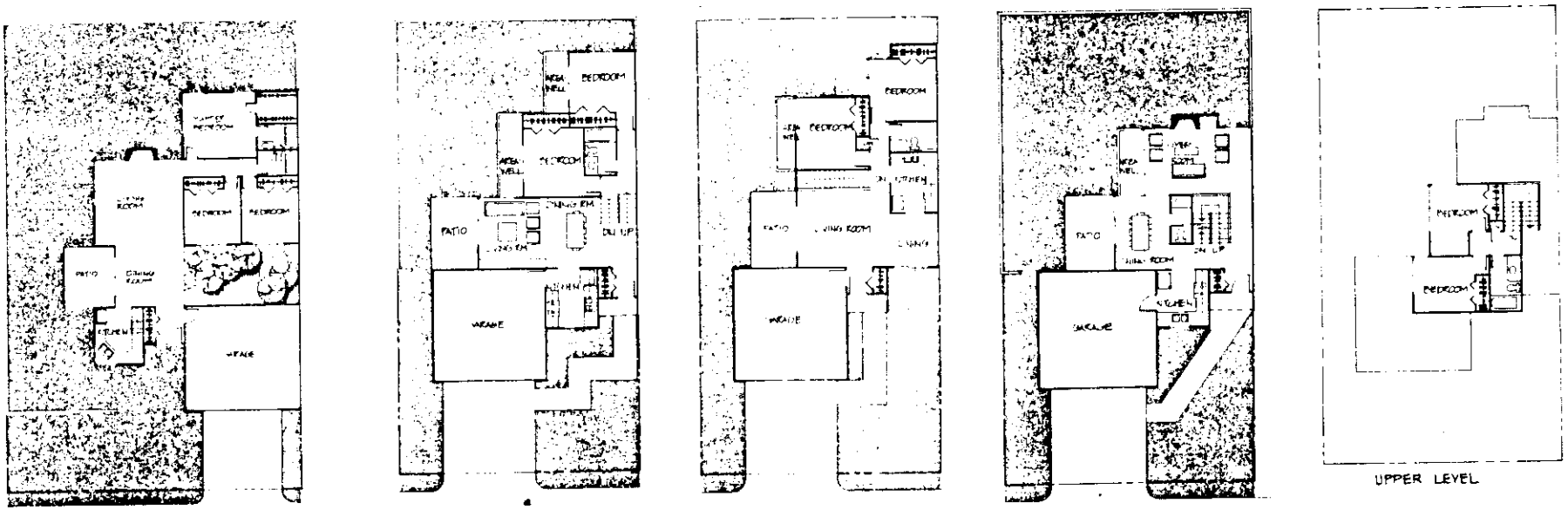
Planned unit developments allow for flexibility in the siting of buildings, mixture of housing types and land uses, open space, and preservation of natural features. The overall development is planned as a whole instead of planning each lot separately. Planned unit developments require a minimum of about twenty acres and can exceed five hundred acres or more and include recreational and commercial facilities, as well as residential areas. Planned unit developments can offer savings in the installation and maintenance of roads, sewer lines, and storm water management systems (9).

Diagrams of typical zero lot line houses shows the usual amounts of easements allotted for this type of housing. Zero lot line housing is simply moving the house onto the adjacent property line in order to create a more usable space on the opposite side of the house (3).

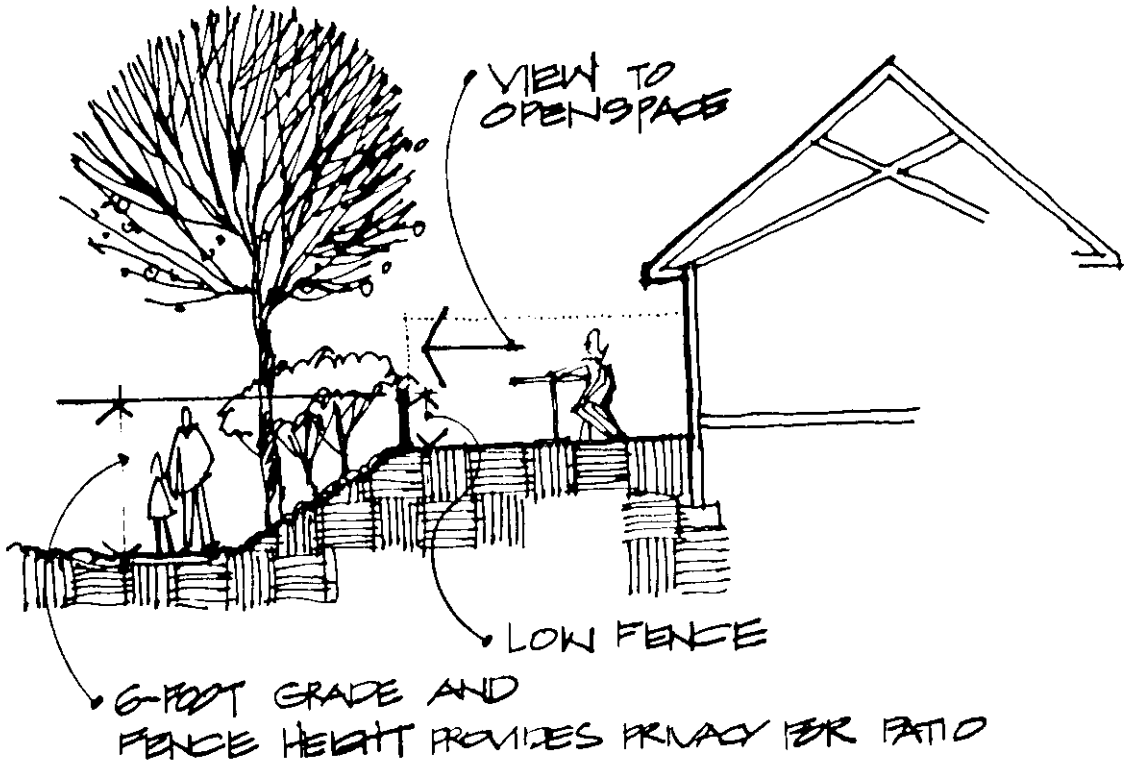


The heights and widths of buildings, such as apartment buildings, can be altered to create more visual interest and personal spaces. This will prevent us from creating a "row house effect" (18).

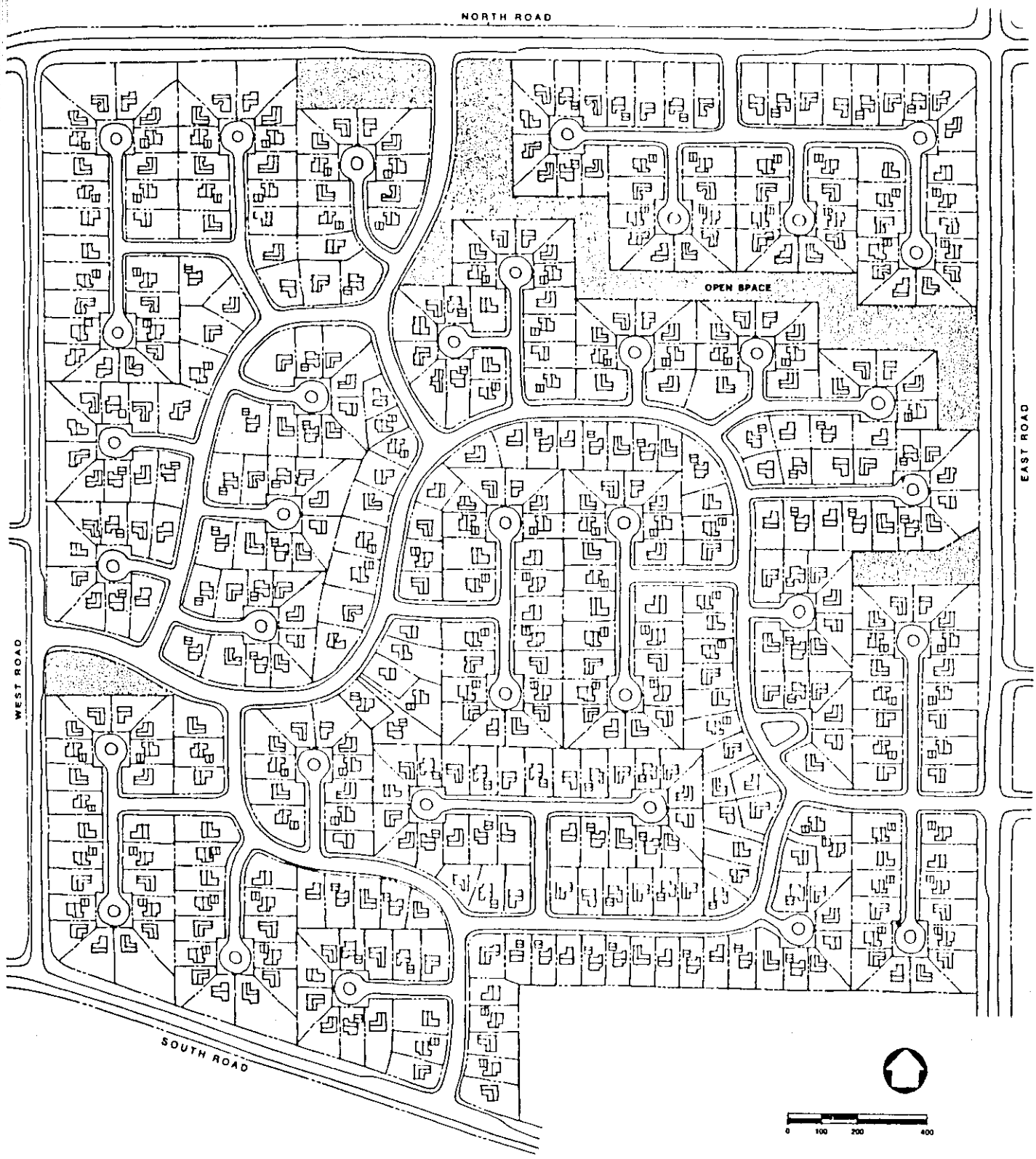
Plans of zero lot line houses can be very unique and can incorporate very private open spaces such as an atrium within the buildings themselves (3).



The patios of the townhomes can be raised several feet above the community trail system to allow for more privacy. As shown in this diagram, a height variation along with vegetation screens views and noise from the trail area (3).



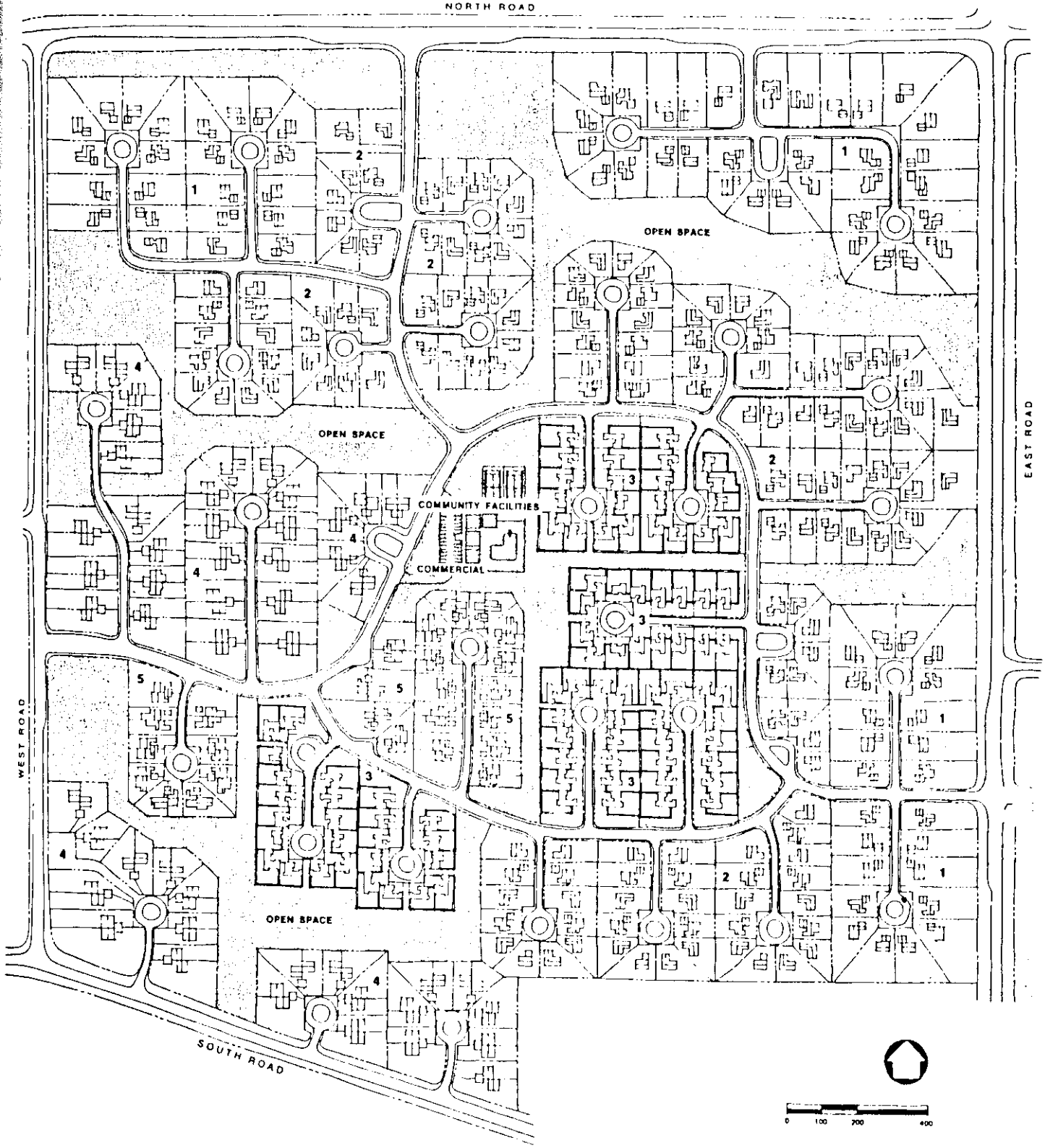
The following pages are from a booklet entitled, Density Development: Cost Effective and Affordable. These diagrams and charts show a comparison between developing a conventional neighborhood and developing one with cluster housing. The amount of open space is much greater with cluster housing than in the conventional development. The charts show the cost differences between the two types of development.



ALL DWELLING UNITS

SINGLE FAMILY 4 DU/AC

CONVENTIONAL NEIGHBORHOOD



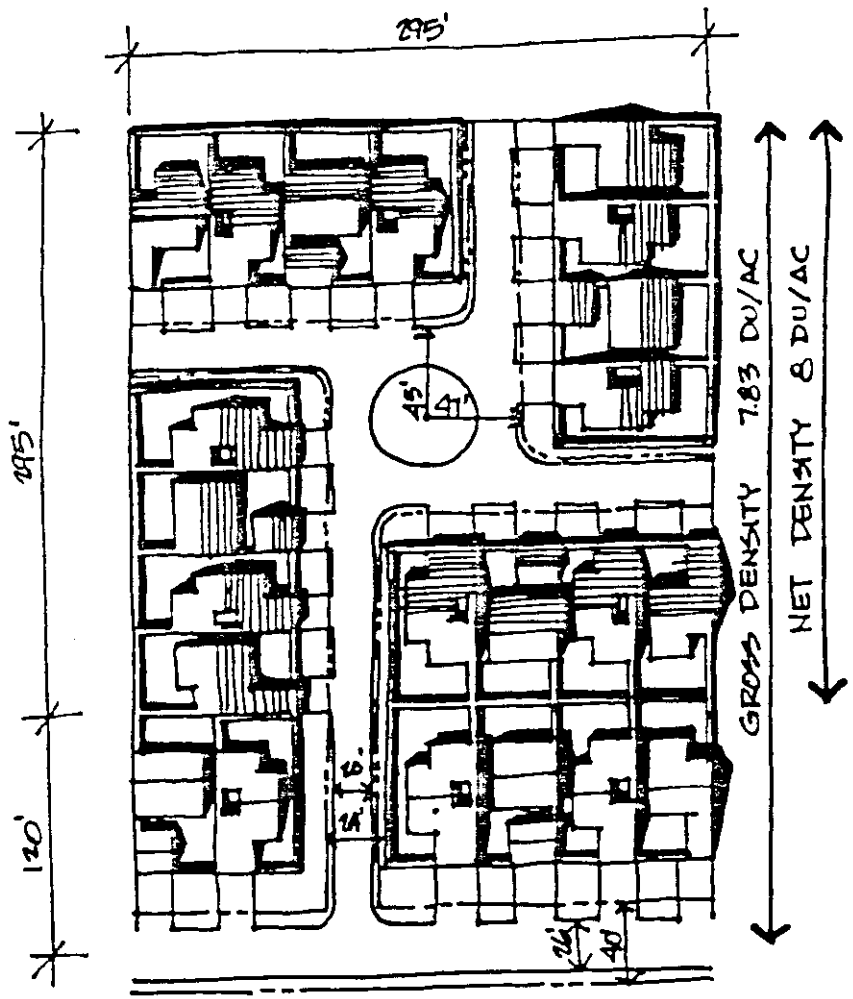
1 SINGLE FAMILY 2.75 DU/AC
2 SINGLE FAMILY 4.0 DU/AC
3 ZERO LOT LINE 5.0 DU/AC
4 DUPLEX 5.0 DU/AC
5 DUPLEX 7.25 DU/AC

CLUSTER NEIGHBORHOOD

Cost Data for Cluster vs. Conventional Plans

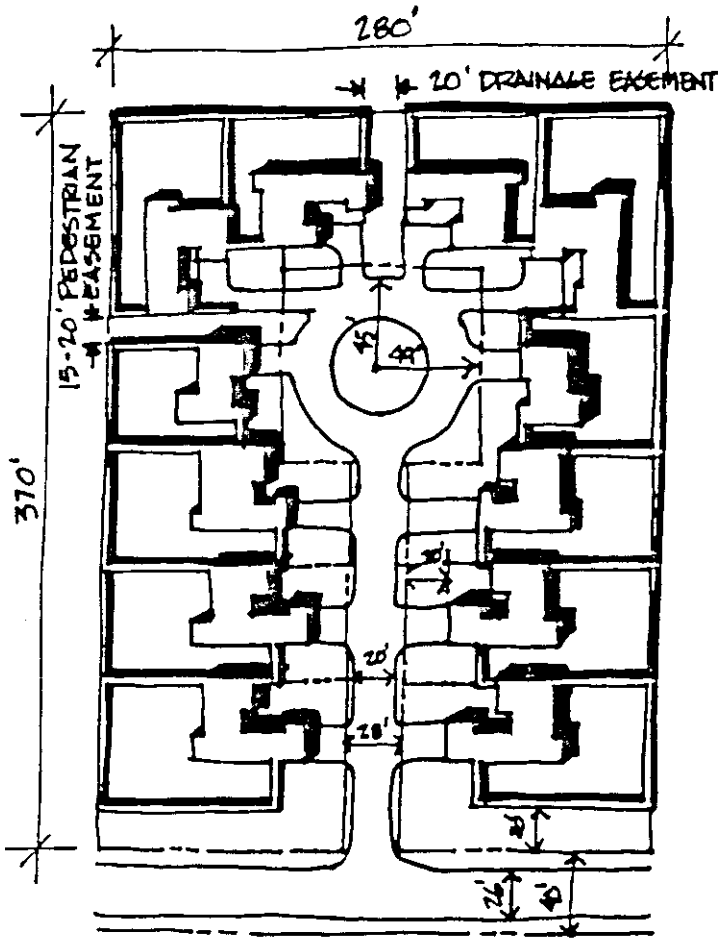
	CONVENTIONAL		CLUSTER	
STREET PAVEMENT				
Asphalt pavement				
Minor Streets/Cul-de-sacs 8" $1.83/S.F.	492,330 S.F.	$ 900,964	311,300 S.F.	$ 569,679
Collector/Subcollector 9" @ $2.05/S.F.	345,640 S.F.	$ 708,562	214,270 S.F.	$ 439,253
Total Costs		$1,609,526		$1,008,932
Costs/DU		$ 3,410		$ 2,138
CURBS & GUTTER				
$10.50/L.F.	48,208 L.F.	$ 506,184	—	—
Total Costs		$ 506,184	—	—
Costs/DU		$ 1,072	—	—
STREET TREES				
$16.00/L.F.	25,781 L.F.	$ 412,496	23,415	$ 374,640
Total Costs		$ 412,496		$ 374,640
Costs/DU		$ 874		$ 794
GRADING/STREETS & R.O.W.				
R.O.W.				
Collector/Subcollector $0.14/S.F.	512,378 S.F.	$ 71,133	316,246 S.F.	$ 44,274
Minor Streets/Cul-de-sacs $0.14/S.F.	806,344 S.F.	$ 112,888	575,008 S.F.	$ 80,501
STREET EXCAVATION	837,970 S.F.	$ 75,417	525,570 S.F.	$ 47,301
Total Streets @ $0.09/S.F.				
Fine grading, seed etc. @ $0.15/S.F.	540,752 S.F.	$ 81,113	365,684 S.F.	$ 54,853
Total Costs		$ 341,151		$ 226,929
Costs/DU		$ 723		$ 481
DRIVEWAYS				
Concrete pavement @ $2.25/S.F.	330,400 S.F.	$ 743,400	254,540 S.F.	$ 527,715
Total Costs		$ 743,400		$ 527,715
Costs/DU		$ 1,575		$ 1,213

CLEARING AND GRUBBING	CONVENTIONAL		CLUSTER	
20 acres wooded			**5 acres wooded**	
@ $4,650/acre		$ 93,000		$ 23,250
117 acres open			**118 acres open**	
@ 1,200/acre		$140,400		$141,600
Total Cost		$233,400		$164,850
Cost/DU		$ 494		$ 349
SIDEWALKS				
$6.75/L.F.	**31,000 L.F.**	$209,250	**29,300 L.F.**	$197,775
Cost/DU		$ 443		$ 419
STORM SEWER				
15" @ 26.00/L.F.	**5,300 L.F.**	$137,800	**2,700 L.F.**	$ 70,200
18" @ 28.00/L.F.	**4,500 L.F.**	$126,000	**1,000 L.F.**	$ 28,000
21" @ 31.50/L.F.	**1,400 L.F.**	$ 44,100	**700 L.F.**	$ 22,050
24" @ 34.50/L.F.	**1,000 L.F.**	$ 34,500	**1,260 L.F.**	$ 43,470
27" @ 39.00/L.F.	**600 L.F.**	$ 23,400	—	—
30" @ 43.00/L.F.	**1,000 L.F.**	$ 43,000	**120 L.F.**	$ 5,160
33" @ 46.25/L.F.	**1,000 L.F.**	$ 46,250	**300 L.F.**	$ 13,875
36" @ 50.50/L.F.	**450 L.F.**	$ 22,725	**900 L.F.**	$ 43,450
42" @ 63.00/L.F.	**300 L.F.**	$ 18,900	**60 L.F.**	$ 3,780
Headwalls @ $700 ea.	**23 L.F.**	$ 16,100	**13 L.F.**	$ 9,100
Inlets @ $2,500 ea.	**75 L.F.**	$187,500	—	—
@ $2,800 ea.	—		—	—
Manholes @ $1,375	**12 L.F.**	$ 16,500	**12 L.F.**	$ 16,500
Riprap @ headwalls $320.00/headwall	**23 L.F.**	$ 7,360	**13 L.F.**	$ 4,160
Grass swales @ $3.00/L.F.			**5,000 L.F.**	$ 15,000
Total Cost		$724,135		$411,945
Cost/DU		$ 1,534		$ 873
WATER DISTRIBUTION				
Fire hydrant @ $1,300 ea.	**21**	$ 27,300	**20**	$ 26,000
8" water @ 20.00/L.F.	**6,800 L.F.**	$136,000	**6,800 L.F.**	$136,000
6" water @ 18.00/L.F.	**15,900 L.F.**	$286,200	**12,000 L.F.**	$216,000
2" water @ 15.00/L.F.	—	—	**300 L.F.**	$ 4,500
1" service connection @	**8,968 L.F.**	$ 91,922	**6,499 L.F.**	$ 66,615
Total Costs		$541,422		$449,115
Cost/DU		$ 1,147		$ 952
SANITARY SEWER				
Manholes @ 1,000.00 ea.	**97**	$ 97,000	**88**	$ 88,000
8" pipe @ 20.00/L.F.	**23,900**	$669,200	**21,900 L.F.**	$613,200
Gravel backfill @ 2.00/L.F.	**7,887**	$ 15,784	**5,475 L.F.**	$ 10,950
6" double service connection @ 21.00/L.F.	**8,969 L.F.**	$188,328	**6,499 L.F.**	$136,479
double, Y connectors @ 82.00	**236**	$ 19,352	**236**	$ 19,352
Total Cost		$989,464		$867,981
Cost/DU		$ 2,096		$ 1,839



ZERO LOT LINE/PUBLIC CUL-DE-SAC **8 DU/AC**

Net Density	16 units on 2 acres = 8 DU/AC		
Gross Density	22 units on 2.81 acres = 7.83 DU/AC		
Average Lot Size	4,299 S.F.		
Site Development Costs/DU	**$ 8,429**		
Cul-de-sac			
Total Street		14,136 S.F.	643 S.F./DU
Total R.O.W.		18,244 S.F.	829 S.F./DU
Pavement Width	20'		
R.O.W. Width	24'		
Turnaround Radius	45'		
Turnaround R.O.W.	94' × 94'		
Subcollector Street	(½ street and R.O.W.)		
Pavement Width	26'	5,975 S.F.	272 S.F./DU
R.O.W. Width	40'	8,300 S.F.	377 S.F./DU
Setbacks			
Front Yard	18'	On Subcollector Street 20'	
Side Yard	8'		
Building Coverage			
Average		1,200 S.F.	
Garage		320 S.F.	
Total Coverage		1,520 S.F. × 22 = 33,440 S.F.	
Driveway Coverage			
Average		400 S.F.	
Total Coverage		400 S.F. × 22 = 8,800 S.F.	



ZERO LOT LINE/PUBLIC CUL-DE-SAC **5 DU/AC**

Net Density	12 units on 2.38 acres = 5.0 DU/AC
Gross Density	12 units on 2.51 acres = 4.78 DU/AC
Average Lot Size	7,390 S.F.

Site Development Costs/DU **$10,612**

Cul-de-sac			
Total Street		8,200 S.F.	683 S.F./DU
Total R.O.W.		14,924 S.F.	1,244 S.F./DU
Pavement Width	20'		
R.O.W. Width	28'		
Turnaround Radius	45'		
Turnaround R.O.W.	98' × 98'		
Subcollector Street	(½ street and R.O.W.)		
Pavement Width	26'	3,636 S.F.	303 S.F./DU
R.O.W. Width	40'	5,604 S.F.	467 S.F./DU

Setbacks
- Front Yard: 20' (10' for garages parallel to R.O.W.)
- Side Yard: 0' and 15' On Subcollector Street 20'

Building Coverage
- Average: 1,500 S.F.
- Garage: 300 S.F.
- Total Coverage: 1,800 S.F. × 12 = 21,600 S.F.

Driveway Coverage
- Average: 500 S.F.
- Total Coverage: 500 S.F. × 12 = 6,000 S.F.