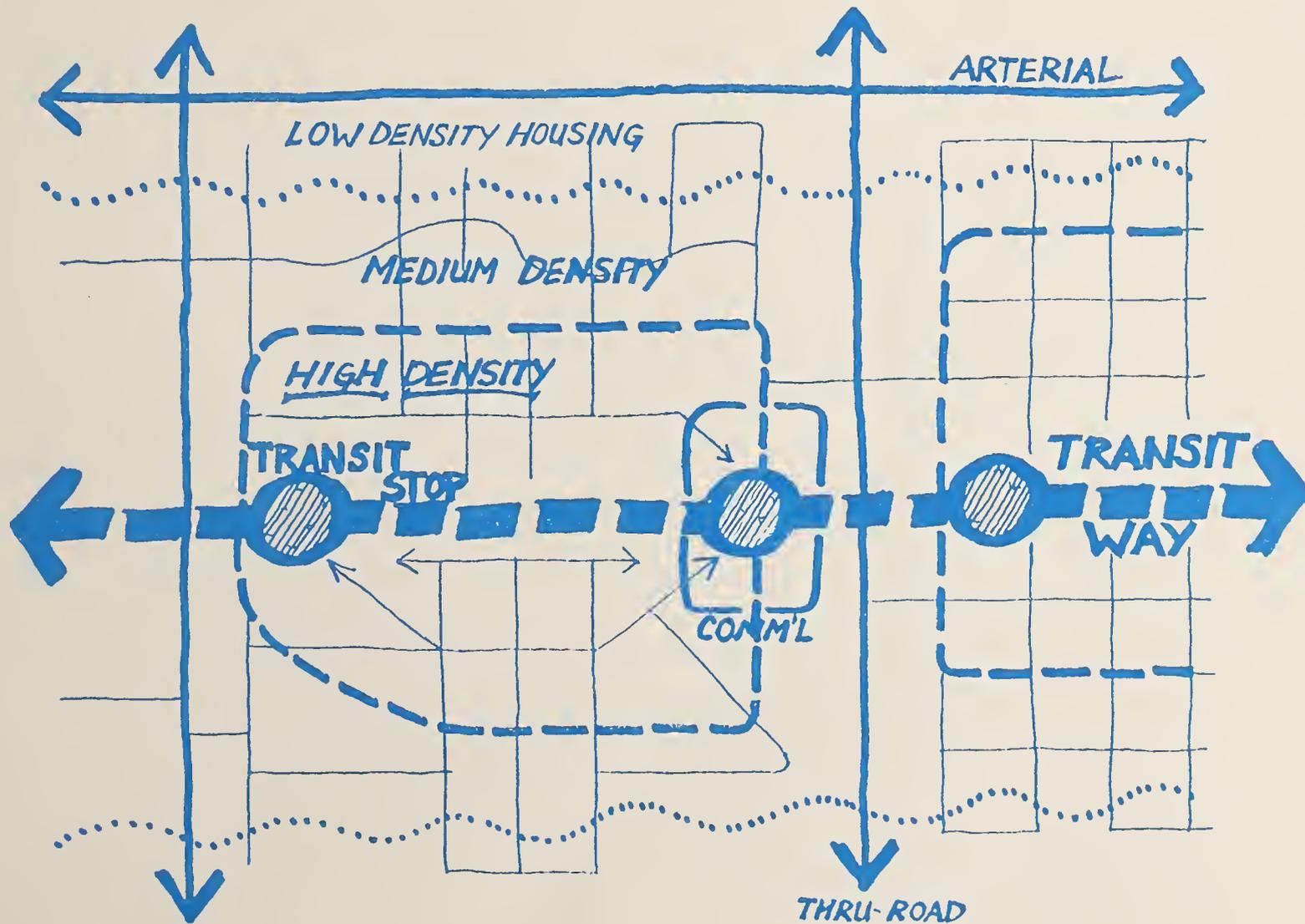




U.S. Department
of Transportation

The New Suburb

July 1991



The New Suburb

Final Report
July 1991

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ABSTRACT

Suburban areas in the United States have undergone major changes in the last 150 years. Originally developed around improved public transportation systems, they have evolved into low density, widely dispersed areas with travel dominated by the automobile. This report provides an examination of the historical basis for the suburbs and analyzes recent trends and proposals for new suburban developments, especially as they relate to public transportation.

Two groups of projects are examined. These are a group of ten 'exemplars' that represent a trend towards more concentrated development and mixed land use. Examples are given representing traditional neighborhood development, pedestrian pockets and other concepts. These examples are analyzed for the potential of transit services. Generally the proposals were found to be compatible with public transit with higher densities, concentrated demand and good pathway systems. However there are some limitations in the lack of direct transit routing, turns required, and right-of-way that could be obstacles to easy operations of transit. The second group of projects presented are entries to the suburban portion of the International City Design Competition. An analysis of over 250 entries showed a limited use of transit as part of the "vision of the future" by the entrants to the competition. Furthermore, those who use transit were generally judged to have not developed a design that used it well.

Overall it appears that there are some trends in the planning and design of suburban areas that are promising for the prospects of public transit. However, the state of the art and the level of understanding of transit is limited. Much needs to be done to provide better guidance to planners, developers and local elected officials on the role of transit in land development decisions.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

PART I: BACKGROUND AND OBJECTIVES

A. INTRODUCTION _____	1
B. REDESIGNING THE SUBURB _____	2
C. NEW SUBURBAN PROPOSALS: AN EXAMINATION OF RECENT TRENDS AND SOLUTIONS _____	2

PART II: THE DEVELOPMENT OF THE SUBURB

D. REAL ESTATE AND PUBLIC TRANSPORTATION IN THE SUBURBS _____	4
E. NEW PATTERNS OF SUBURBAN DEVELOPMENT _____	8

PART III: EXAMPLES AND ANALYSIS OF NEW SUBURBAN SOLUTIONS

F. NEW SUBURBAN PROJECTS: THE DEVELOPERS APPROACH _____	11
G. METHODOLOGY AND CRITERIA _____	12
H. ANALYSIS OF NEW SUBURBAN PROJECTS _____	16
I. ICDC COMPETITIONS: THE SUBURBAN EDGE _____	40
J. ANALYSIS AND EVALUATION OF ICDC SOLUTIONS _____	41

PART IV: SUMMARY AND CONCLUSIONS _____ 74

APPENDIX

K. SELECTED READINGS _____	78
L. LIST OF NEW SUBURBAN DEVELOPMENTS _____	81
M. DEVELOPER/DESIGNER ORGANIZATIONS _____	84
N. SURVEY FORM _____	85

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PART I: BACKGROUND AND
OBJECTIVES

A. Introduction

In the century-and-a-half since the first suburbs appeared in America, the suburban culture has become a significant lifestyle in this country. Over one-half of the population in the United States currently lives in the suburbs, and many others aspire to live there. Most of the buildings and the majority of new construction is located in the suburbs and 65% of all households live in single family detached houses. Although the suburban lifestyle has been criticized, these concerns have not affected the popularity of this environment nor diminished the pace of suburban construction.

In the 1980's, the perception of the suburb became tarnished. The number and size of suburban developments had increased considerably in the previous two decades, changing the underlying attributes of the suburbs. The great success of these suburban environments was to be, in large part, the cause of their problems.

Traffic congestion, air pollution and sprawl have all come to affect the quality of suburban life. The withering of the suburban ambience, as well as the affordability of the suburban lifestyle, has also affected the convenience, comfort, and continued growth of the suburbs. This is not yet a national phenomenon, it is specific to the high-growth areas on the East and West Coasts and much of the South, but it is also a forecast and a warning of the consequences of unplanned suburban expansion. Elsewhere, concerns about future energy availability and the affects of suburbanization on environmental quality, led to further questions about the long term viability of the suburbs in their present form, and a need to search for new directions and solutions for the future development of the suburbs.

B. Redesigning the Suburb

Beginning in the early 1980's, proposals for innovative physical design solutions to address suburban problems in high growth areas were initiated. By the late 1980's, the number of innovative proposals addressing suburban problems had burgeoned, many had appeared in design publications, and a few developments, based on these solutions, were under construction. Many of these proposals referred to, or included, ideas from important precedents, projects done 50 or even 100 years earlier. These earlier precedents included a pedestrian-oriented environment, conservation of the landscape, significant amenities, higher densities, and often provided mass-transit opportunities as well.

Innovative solutions for suburban development have found acceptance by the development community in those areas where suburban problems are most intense. Although it is too early to judge the acceptance of these pioneering projects by the demand side of the market (the first of these projects are still under construction on the East and West coasts) conditions in these areas indicate that they may well be successful and such solutions may proliferate.

C. New Suburban Proposals: An Examination of Recent Trends and Solutions

This report is an examination and analysis of recent proposals for the redesign of the suburbs which are relevant in planning transit-sensitive communities. It is part of a project which also includes the development of guidelines for transit-sensitive suburban development as well as the design of prototypical suburban communities.

This project has identified some 34 innovative design proposals for actual suburban developments in the United States. In addition, the investigators have had access to over 200 'visionary and credible' proposals for suburban development resulting from the International City Design Competition (ICDC). These two resources of design proposals provide a significant source of exciting and unique work which will be valuable in identifying trends and concepts for future suburban design.

Both the development projects and the ICDC proposals are based on individual circumstances and programs. Each proposal is unique, and many do not include transit or transit-sensitive land use in their project. Notwithstanding these differences, they contain progressive ideas and thoughtful solutions, many of which are applicable to the design of suburbs in the future. The object of this report is to determine the state of the art of these proposals, the extent these projects include transit, their land use attributes, and their compatibility with transit.

Some of the ICDC projects were eliminated from the survey because they did not address the suburban aspect of the competition, the solutions were incomplete or incomprehensible, or they were unavailable for analysis.

At the outset of this research study, about a dozen development projects were expected to be identified. The number of projects actually identified (34), was surprising. Most of the development projects are very recent (initiated within the past 3 years) and many are in the feasibility and approval phase. Only two are presently under construction. We were able to gather detailed information from ten projects which are analyzed in this report. These ten projects are high quality examples, representative of the overall population of development proposals and are projects for which sufficient information was available. In addition, these projects provide contrasts in scale, planning direction, and geographic mix.

PART II: THE DEVELOPMENT OF THE SUBURB

D. Real Estate And Public Transportation In The Suburbs



*Park Village East, Regent's Park.
John Nash, Architect and Developer*

The suburb is not a 20th century phenomenon. True, in the latter half of this century it has become the home for most of America's population, and its influence on every aspect of life in this country is enormous; but its origins and acceptance lie in the 19th century.

The earliest suburbs were not located in the United States. Park Village East and Park Village West were developed and designed in 1823 by John Nash as part of the larger development of Regent's Park in London. Nash, the planner of the overall Regent's Park project, purchased two left over, odd-shaped parcels of the project and proceeded to create a unique theme for these areas, which he called villages. His design contained all the ingredients of the suburb as we know it today — individual detached houses, curvilinear streets, lush landscaping and a strong identity. A connection to London's central district from Regent's Park was accomplished by the creation of Regent Street which made the Regent's Park area accessible and desirable, encouraging its growth.

Nash's Park Villages were a "convincing unity" and were to be emulated by later developers. It was appropriate that Nash—whose experience was equally balanced in rural and urban design, who was an architect and a developer, and who understood the role of landscape as well as landmarks—was the first to create a suburban environment.

The Eastern cities in the United States were growing rapidly. Established residents occupied substantial dwellings near their businesses in the central areas, however, as the populations of the cities significantly expanded, the urban mix of commerce, social life, recreation, family life, social interaction, and community deteriorated. Problems associated with population density, poor housing conditions, sanitation, public health and crime increased rapidly.

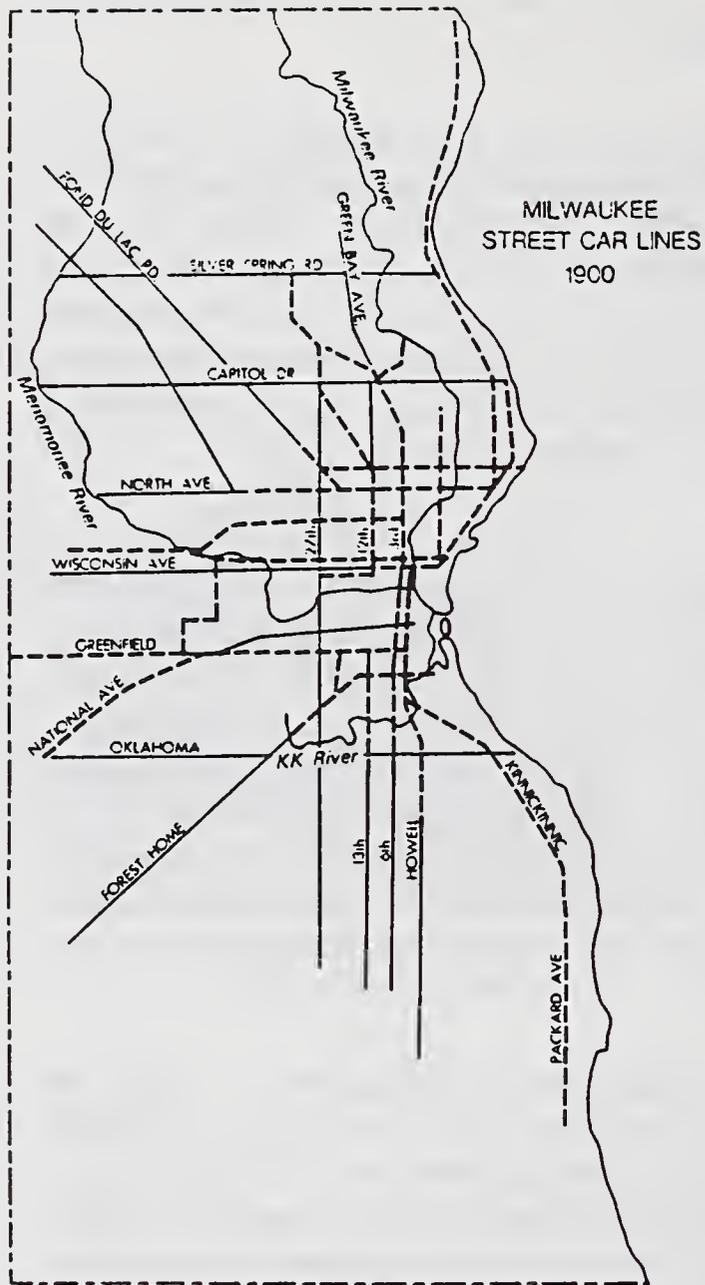
At this same time the elements that would eventually change the model of metropolitan life were evolving. In the 1830's railroads were rapidly linking cities and omnibus service initiated the beginning of in-city commuting. The middle class was growing. A change in the perception of urban living was also taking place; the pastoral life was advocated in an

increasing numbers of publications. While problems were increasing in the cities, these forces were creating the basis for a new solution.

In the mid-1850's some of the first suburbs in the U. S. were developed. Llewellyn Park, N.J., created by Llewellyn Haskell and designed by Haskell and his architect, Alexander Jackson Davis, was located on a large and beautiful site in New Jersey — almost 400 acres of hilly countryside connected by thirteen miles of rail to New York City. Because of Haskell's strong convictions and his architect's capabilities and experience, Llewellyn Park emerged as an outstanding design. It was planned as a unified site with a central open space, the 'Ramble'. Lots were large (averaging three acres each), detached houses were set back from the street, and roads undulated through the landscaped site.

Llewellyn Park, like the earlier suburbs in Britain and the subsequent explosion in suburban development, was made possible by a rapid advance in the technology and business of transportation. The horse-drawn omnibus rapidly developed from the 1820's to mid-century (there were 425 licensed coaches in New York City by 1850). Its speed, although only six miles per hour, effectively doubled the distance that a person could travel to work. Steam railroads, such as the one connecting Llewellyn Park to New York City travelling at 15 - 20 miles per hour, moved the commuting boundaries even further from the city. Llewellyn Park was a forerunner of other American suburbs such as Chestnut Hill, Pennsylvania, begun in 1854, and Lake Forest, Illinois, started in 1856-57. Hundreds of suburban projects were to be developed during the following decades.

Suburbs grew larger and more extensive, essentially becoming small towns. In 1868, the Riverside Improvement Company was formed by Emery Childs, a Chicago businessman, and a group of investors, to develop 1600 acres located nine miles west of Chicago's Loop. They hired Frederick Olmstead, the great landscape architect, and his partner Calvert Vaux, to design Riverside, Illinois, the first of 16 suburban development projects they would be involved in planning. The Riverside development not only included large lots, large setbacks and curving roads, but also provided 700 acres for public use, 7,000 evergreen trees, 32,000 deciduous trees, 47,000 shrubs, schools, and a complete lighting and public water supply.



A.T. Stewart, the Eastern department store magnate, began the development of “Garden City” in Hempstead, Long Island N. Y., in 1869. His development contained 8,670 acres and was 13 miles long and two and a half miles wide. Suburbs of this scale approached the size of a town rather than a real estate project.

The development of the electric trolley in the late 19th century provided a further catalyst for suburban development. By 1903, some 30,000 miles of trolley lines were 98% electrified — only 16 years after Frank Sprague demonstrated the first electric trolley in Richmond Va. The close relationship between mass transportation and real estate development was now obvious and soon to be joined.

Chestnut Hill (1854) and Shaker Heights (1916), suburbs of Philadelphia and Cleveland respectively, were projects in which the transit lines and real estate development components were created by the same organization. The transit created convenient access to distant acres and thus increased values; buyers were attracted by the easy access to downtown and the quality of the new suburban developments, and in turn, they became the customers for the transit component. Transit service preceded land development and in many cases the transit service was expected to lose money in the early days. However, substantial increases in land value, because of access to transit, would more than make up for the early investment.

The links between transit and real estate development was continued at even a larger scale in West Coast suburban developments. In Northern California F.M. Smith bought and consolidated the trolley lines in San Francisco’s East Bay, and purchased 13,000 acres of land for development in the Oakland and Berkley areas in the 1900’s. In Southern California Henry Huntington, a founder of the Southern Pacific railroad, developed the Pacific Electric Interurban Transit Company in the Los Angeles area. He bought up the land along his routes and laid out suburban developments, at the same time avoiding competitors’ land holdings unless he was made a partner.

Among Huntington’s partners was Harry Chandler, the largest developer in Los Angeles. In the first decade of the twentieth century, Chandler bought 47,500 acres in the San Fernando Valley, an area about the size of the City of Baltimore, and the Pacific Electric extended their

lines to the valley. A 25 million dollar water project, paid for by the City of Los Angeles, supplied the development with water after a vigorous campaign for the water project was led by Chandler's father-in-law, Harrington Grey Otis, publisher of the Los Angeles Times. Later Chandler bought the 300,000 acre (468 square miles) Tejon Ranch in Los Angeles and Kern Counties, land which is still controlled by Chandler interests. Suburban developers were now responsible for multiple towns and villages.

For half a century, until approximately 1910, the form and growth of the city had been inexorably influenced by public transportation. Transit lines formed the arteries along which the population moved and real estate development occurred. Transit stops became the nodes of commerce and entertainment and the radial lines all converged at hub of the metropolitan area. Residential neighborhoods grew up along the transit lines and small commercial districts were developed wherever lines intersected or branched. Travel was by foot to the transit line, then to any place in the community using low cost, convenient service.



With the widespread availability of the automobile following World War II, These patterns were radically changed. The suburbs became diffuse as the use of the car spread and the demand for mass transit declined. Low-density, detached housing became the standard housing form when property values no longer depended on proximity to public transit. Nodes of activity became strips of development. Commerce moved to the suburbs and downtowns experienced limited growth. Older strip commercial areas with insufficient parking also quickly declined. The rapid growth of suburban development after World War II, accompanied by the dismantling of transit systems, particularly exemplified the 'sprawl' created by the automobile.

E. New Patterns of Suburban Development

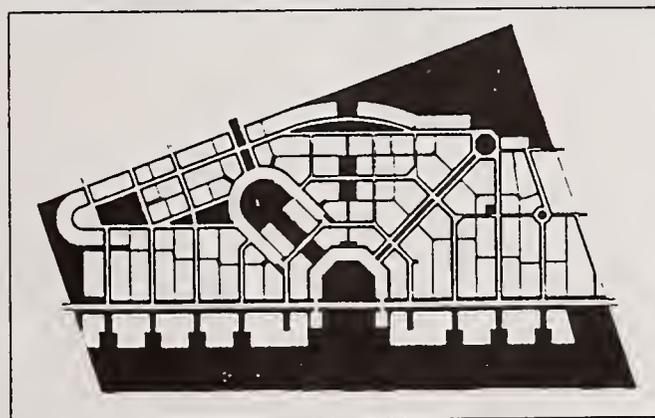
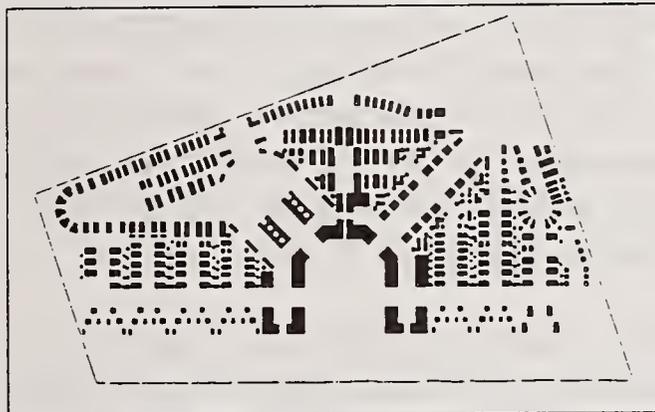
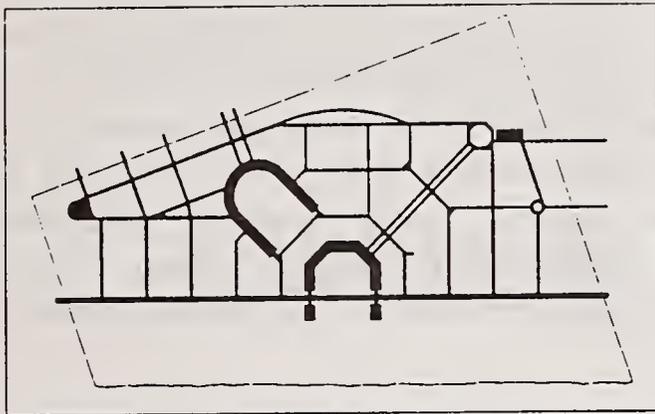
The automobile-oriented suburb has been a successful way of living in the United States for over 50 years. Ownership of a detached house in the suburbs is a goal of many Americans. Although this lifestyle is inefficient in terms of energy, public infrastructure, and fuel costs, most families in the United States have sufficient resources to be able to afford living in the suburbs.

The success of this type of development, however, is a part of its own undoing. Many metropolitan areas, particularly in the sunbelt, have grown enormously, and most of that growth has been in the suburbs, and almost all of the suburban growth has been low-density, detached housing. Commuting has become untenable as metropolitan populations have substantially increased, commuting distances have grown, and families contain two working spouses, owning two, or more, cars. Most commuting is now between suburbs, rather than between the suburbs and the central city, as employment followed population. Appropriately, the word 'Gridlock' was first used in 1980, according to Webster's Ninth Collegiate Dictionary, to describe an immovable traffic situation. Not only has there been a loss of convenience, but a by-product of this lifestyle, air pollution, has increased to the crisis stage in some areas — to a point where even clean air legislation requires a reduction in vehicle miles travelled (VMT).

The affordability of the suburban lifestyle has also deteriorated. Land prices, a major component of the cost of purchasing a home, have increased dramatically due to the demand for suburban living and the diminishing supply of conveniently located sites. In addition, over the past two decades environmental concerns have also limited land use and increased its cost.

The image of the separate, cohesive village has disappeared. The picturesque and, perhaps, pastoral qualities of the original suburban environment, have succumbed to traffic congestion, commercial development and infill land uses. The suburban enclave is now part of the general metropolitan sprawl.

Metropolitan areas in the sunbelt, as well as those on the East and West Coasts, have been particularly impacted by these factors. Both the public and private sectors, as well as citizens in these communities, are searching for solutions which help reduce problems of vehicular congestion and air quality, and which provides housing which is affordable, to which enhance



*Seaside, Florida, 1981
Duany-Plater/Zyberk*

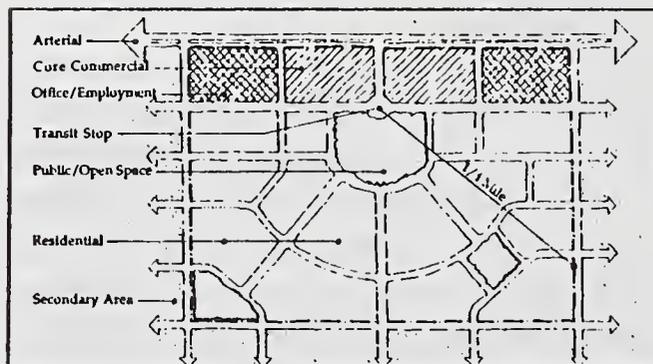
the image of their community and the life of its residents.

A new generation of innovative solutions has been developed to respond to pressures from communities for better planning which minimizes the use of the automobile, retains open space for marketable features, and is affordable. Interest in suburban planning is demonstrated by the number of projects published on this subject. A survey of articles indexed under 'suburbs' in the "Architectural Index" indicates this growing interest in suburban design. Suburban projects were deplored and ignored for decades by the architectural profession and media. Notwithstanding that most development occurred in the suburbs and most of the population lived there by choice, little intellectual or design energy was directed toward suburban design. A notable exception was Robert Stern's volume "The Anglo American Suburb", published by Rizzoli in 1981. A change in this attitude towards the suburbs occurred in the mid-eighties initiated in part by Seaside, the first of this new generation of suburban designs. Since that watershed, the number of books, articles, and academic work concerning the suburbs has been growing.

Many of the development proposals documented in this report are in large part based on the principles developed by the architecture and planning firm of Duany Plater-Zyberk Associates, whose work is primarily located on the East Coast and in Florida. This firm is responsible for nearly half of the projects involved in the new generation of suburbs. Additional refinements were introduced throughout the eighties by the work of Calthorpe and Associates of California, whose work is located primarily on the West Coast.

Seaside, located in Walton County, on Florida's panhandle, has become the major precedent of this new generation of suburban designs and the first one constructed. It was planned in 1984 by the firm of Duany, Plater-Zyberk and developed by Robert Davis. Seaside is small, only 80 acres, and will consist, when completed, of 750 dwelling units and a few commercial structures. Seaside is also a second home community, and includes no transit. How then did Seaside achieve such prominence?

Seaside struck a sympathetic chord with planners, architects, real estate developers, and the public. Its images are potent and the planning behind them insightful and coherent. Notwithstanding its small scale and lack of year-round use, its attributes were attractive enough to be extended to other communities.



*Taken from the publication
 "Transit-Oriented Development Design Guidelines".
 Calthorpe Associates in association with
 Mintz & Associates. September, 1990.*

It is the first of the neo-traditional developments, which create a memorable image redolent of the nineteenth century American suburbs, and its authors are frank in identifying many of these as their own precedents. The housing is based on traditional architectural vocabularies; porches in front, and fences surround each house. Housing designs must vary, but a consistency of mass, material and detail are also required. Streets are narrow, pedestrian oriented, and lead to amenities or the village center which contains small shops. Civic amenities abound in the form of gazebos, parks, and monuments, even on the limited scale of this project .

On the West Coast, the "Pedestrian Pocket" concept of suburban planning has emerged. Peter Calthorpe and Associates, of San Francisco, California, are involved in a number of suburban projects. One, Laguna West, outside of Sacramento, is currently under construction, and another major project is for a master plan for Sacramento County, California. Many of the same underlying principles characterize their work as the projects of Duany, Plater-Zyberk; however, the inclusion of mass transit is a key part of Calthorpe's plans.

As interest in this new form of planning has increased, substantial architectural and planning firms have become involved and the projects themselves are of a larger scale. Work by major firms such as Sasaki Associates, the Berkus Group and EDI is included and projects shown range from 10 to more than 25,000 acres.

PART III: EXAMPLES AND
ANALYSIS OF NEW SUBURBAN
SOLUTIONS

**F. New Suburban Projects:
The Developer's Approach**

The real estate development industry is adroit at the swift dissemination of successful innovation. Developers have been able to take highly effective projects, or "exemplars", and rapidly exploit them. If a new concept works well, that is if it generates a high return on investment, others will quickly emulate its success. Even in the late eighteenth century, when real estate development was just emerging as an enterprise, this rapid spread of innovation occurred. For example, John Wood the Younger began to develop and built the first 'Crescent' of row houses in Bath, England in 1776. Within the next 20 years, another 20 Crescents were built throughout Britain. Wood's Crescent and earlier examples of the 'square' and 'circus' also helped popularize the terrace or row house throughout Britain.

Recent "exemplars" include the Southdale Shopping Center and the Hyatt Regency Hotel in Atlanta. Southdale, located in a suburb of Minneapolis, opened in 1956, and was the first enclosed two-level shopping center in the U.S. The shopping center industry, based on this enormously successful exemplar designed by Victor Gruen, has virtually changed the behavior, cognition and landscape of our metropolitan regions and their populations. In 1967, John Portman developed the first atrium hotel in the United States -the Hyatt in Atlanta — and now virtually every large U.S. city contains one.

These 'exemplars' contain essential concepts which have influenced generations of development and hundreds of projects. They have had an enormous influence on the environment and the way in which we live. These new models of suburban development may also contain concepts that greatly influence the built environment — an important reason for their study and analysis.

Except for Seaside, none of these development projects we have identified have been completed, although some are now under construction. Numerous development proposals based on these principles are being made in metropolitan areas with rapidly growing suburbs as developers seek marketable solutions to problems of congestion, land cost, and pollution.

G. Methodology and Criteria

In order to determine the extent to which innovative proposals for the suburbs - specifically the International City Design Competition (ICDC) entries and the development projects - were sensitive to land planning which supports mass transit, we analyzed the physical attributes of these projects based upon three major categories:

1. How well does their basic land use planning support transit and lower the need for the automobile?
2. Does the planning support access to potential or actual transit?
3. Is the planning compatible with the operational requirements of transit?

Ten criteria measuring these attributes were used to analyze the proposals. Proposals submitted in the ICDC competition and the actual development projects were systematically reviewed based on these criteria. Because of the wide variation between the proposals pretests were used to develop data collection methods. Two research assistants examined each of the proposals using standard survey forms which included multiple criteria to measure the characteristics of each proposal. Inter-observer reliability and sampling throughout the process was assessed by the principal investigators. Some 82 (31%) of the more than 200 ICDC projects were eliminated from the survey because: they did not address the suburban aspect of the competition, the solutions were incomplete or incomprehensible, or they were unavailable for analysis.

At the outset of this research study, about a dozen development projects were expected to be identified. The large number of projects actually identified (34), was surprising. Most of the development projects are very recent (initiated within the past 3 years) and many are in the feasibility and approval phase. Two are presently under construction (Spring, 1991). We were able to gather detailed information from ten projects which are analyzed in this report. These ten projects are high quality examples, representative of significant trends in new development proposals and are projects for which sufficient information was available. In addition, these projects provide contrasts in scale, planning direction, and geographic mix.

Criteria For Transit Sensitive Design

Emerging concepts in suburban design as well as entries to the International City Design Competition were analyzed to determine how well they fit with and accommodate public transit. These concepts and projects have been analyzed in three major areas:

1. Land use
2. Accessibility to transit
3. Compatibility with transit operations

Ten specific criteria were developed to analyze the exemplars and ICDC proposals. These are as follows:

Land Use

- A. Size of population: Are the total number of people who live and/or work within the market areas of a transit stop or route sufficient for transit service?
- B. Density of Land Use: Is the population concentrated enough to provide a market for transit?
- C. Concentrated Locations: Are the locations of land uses concentrated in relationship to potential transit lines?
- D. Mix of Uses: Is there a mix of uses present to minimize travel to frequently used locations?

Access System

- A. Pedestrian Circulation: To what extent does the design facilitate pedestrian circulation?

-
- B. Minimize Walking: Does the design provide logical pathways which connect land uses with the location of potential transit services so that overall walking distance is minimized?
 - C. Safe and Secure Bicycle Access: Does the design permit safe travel to transit stops by bicycle and secure storage during travel?

Transit Operations

- A. Through Routing: Does the location of streets permit easy movement of transit vehicles into and out of the area without backtracking or circuitous routing?
- B. Turns Required: how many turns are required for transit vehicles to serve the area? Fewer turns are preferred.
- C. Right-of-Way Available: Are rights-of-way provided (either streets or guideways) that can be used for transit operations?

Assessment of these criteria could be both qualitative and quantitative. Qualitative judgments were used on this project using a 1 (low) to 5 (high) scale for each criteria. A copy of the survey form that was used is given in the Appendix. Land use assessments related to the size and quantity of buildings shown and the location of buildings relative to transit (if shown). Access was indicated by the presence of direct pathways that logically connect residential and commercial areas to potential locations for transit service locations of buildings relative to streets, and safety for pedestrians and bicycles. Transit service was judged to be satisfactory if there were reasonably direct routes into and through the development which involved a minimum of turns and directly served activity centers.

Quantitative measures of the criteria could also be developed. Land use activity could be measured by the trip density (trips/acre) within the service areas of a transit stop (1/4 mile radius). This would be the product of residential density and trip rates for residential areas. Ideally, we would prefer transit trip generation rates for different land use categories such as are provided for vehicle trips in the ITE "Trip Generation Manual". This would provide the

transit trip density within the service area of a stop. Unfortunately, little data of this sort exists. Rates of capture for transit trips vary widely and depend not only on land use type but on the quality of transit service and household constraints and activity patterns.

Access can be quantified by looking at the area or housing units covered within an appropriate walking distance (1/4 mile). Directness of path can be found by comparing actual walking distance to a straight line ("as the crow flies") path. Safety, security, and amenities of the access system cannot be easily quantified; they relate to the openness of pathways and the features that they have. Transit service compatibility could be measured in a similar way to access with a ratio of route length to direct length. Some indication of curvature of the route (turns required) would also be needed.

H. Analysis Of New Suburban Projects

Ten projects are presented here, which are representative of emerging concepts in suburban planning and design. The examples chosen typify the principles and work of the major planning and design firms which are responsible for this movement. Projects included are proposed on both the East and West Coasts and range from 10 to 25,000 acres. In addition, projects are presented which may or may not have included transit in their planning.

Location

Of the 34 proposals for new suburban solutions we identified, 33 were located in high growth areas on the East and West coasts and in the South (Appendix A). Only one project, Deerfield, in Indiana, was located in the central portion of the United States. These developments are only being proposed in areas that are experiencing great demand for construction, and where environmental, traffic and quality of life problems make it more difficult to obtain development approvals.

Conversely, areas which are not experiencing high growth are not currently attracting such solutions and may attract few projects of this type in the future. If, however, these types of projects become national exemplars with strong appeal, they may become common in even slower-growth regions.

Planning Approach

All 10 projects analyzed included a number of different uses, including offices, retail facilities, day care, etc., as part of the project at either a neighborhood or village scale. Some larger schemes contain such a mix at both scales of development. Eight of the ten projects provided a neighborhood focus which includes commercial development at approximately a quarter-mile radius. Eight projects provided a village center with a larger amount of commercial space. While every project contained a number of uses, the distant location of these uses in some projects still necessitated the use of the automobile, creating a multi-use, rather than a mixed-use project.

Each scheme also contained a mix of housing types, with 8 of 10 including at least three housing types. All provided single-family, detached houses, but 8 also contained garden apartments, and 7 included townhouses.

Local retail opportunities reinforces the neighborhood concept of these projects. A more pedestrian-oriented environment is created that provides for proximity, and sometimes an integration of housing, retail, and office uses. While a mix of housing types is often present, in many projects these are located in separate parts of the development.

Population Density

Unlike contemporary development practice, all of the projects provided housing densities that are compatible with the use of transit through the use of concentrating their housing in appropriate locations. Furthermore, each of these schemes provided a pedestrian orientation which would minimize walking to transit lines or other uses. The range of densities in these built-up areas were from 5 to 10 units per acre. Overall densities for those projects, however, ranged from 2 to 6 units per acre, based on the data supplied by the planners and developers. This overall low density is due to the areas of open space and recreational amenities which were part of these projects.

Operational Considerations

On the whole, these proposals are compatible with the requirements of transit operations. Adequate rights-of-way are present and a minimum number of turns would be necessary. However through routing would be difficult to provide in some of the schemes; four of the ten had layouts which would be an obstacle to easy operational access by vehicles.

Summary of New Development Proposals

All of the ten development proposals for this new generation of suburbs were highly ranked and all projects contained features which would likely be important in future suburban development. Only 4 of the 10 proposals actually included transit in their planning — however, all contained land-use patterns which were relatively compatible with transit services. The critical principles underlying most of these proposals, whether they included transit or not, are based on a village or neighborhood in contrast to suburban sprawl, and this concept is indeed transit-friendly. Their higher densities, concentrated locations, pedestrian orientation, and mix of uses, make them largely transit compatible.

The weakest element of these designs tends to be the lack of a high compatibility with the operational considerations of transit systems such as direct routing or minimizing the number of turns required. Some projects which included transit, for instance, were not as transit sensitive as others in which mass transit was not a concern.

Planning and design issues are ultimately tested in the marketplace and there are many unanswered questions in these projects. How willing are the potential buyers for such a development to accept such innovations? Will alleys be accepted by the housing public? Who will live over the retail stores where this type of housing is provided? How large is the suburban demand for multifamily housing? The scale of many of these innovative projects is modest and offers an alternative to the conventional suburb; but some projects are large and innovative. Is there enough demand to support these unconventional developments?

How far do these solutions go? How much do they change the experience of suburban life? Will they actually be more pedestrian and neighborhood oriented or will the car be used notwithstanding their pedestrian orientation? Will they attract a population which is heterogeneous? Will they minimize traffic congestion? Or are they a variant of the conventional suburb in a more acceptable guise?

The transit sensitive suburb, which meets all the criteria we described earlier, does not yet exist. However, just as Nash's Park Village contained the essential ingredients of the future suburb, the projects shown here may well include the elements leading to a watershed in the design of the suburb.

These projects examined in this report were based on a variety of requirements which do not necessarily include the criteria which we have employed in their analysis. In addition, it is critical to understand the pioneering context of these projects - they are the first step in an evolutionary process. They are experiments which will be closely watched. Parts of them will fail and an improved second generation of projects will be developed based on what is learned.

Our goal in this documentation and analysis was to understand the state of the art of a new generation of suburban designs and learn from their attributes. Other reports which are part of this project include the development of "Guidelines for Transit-Sensitive Suburban Design" and a prototype design based on the guidelines.

New Suburban Exemplars

The data on the new suburban projects which follow was obtained from their developers and /or the master planners. The projects are in various stages of development and are subject to change.

Density measures: The 'overall density' data is a gross density measure which belies the high net densities found in many areas of these projects. However, because of the large area devoted to open space and recreation, as well as other uses such as office and retail functions, net residential densities were unable to be calculated.

Transit Plan: Although a number of the projects do not actually include transit services, the master planners in some cases did include transit as part of their concepts.

The data in this report is current as of March, 1991.



Name: Brambleton
Location: Loudon County, VA
Proximity: Washington, DC
Size: 2918 Acres
Overall Density: 1.3 DU/Acre

Status: Construction underway with town center commercial completion anticipated for Spring, 1993

Population: 12,000
Residential Units: 3740 units +
Retail: 500,000 sq.ft.
Office: 50-80 Acres
Industrial: 204 Acres
Open Space: 700 Acres

Transit Plan: None in the initial plans

Transit Feasibility: Very high, given the concentrated density and the through routing the plan provides. There is light rail potential (though not originally planned for). The developer will provide training for companies and organizations in management programs and their implementation

Developer: Kettler and Scott

Master Plan: Sasaki and Associates

Land Use:

- Village center concept includes mixed use
- Maximum floor area ratio = .4 for urban center
- Residential density for village center is 3.7 units/acre
- Mix of single family, townhouses and multi-family units

Transportation

- Through routing provides easy access for the development
- A variety of street widths controls traffic flow and access
- Off-street and mid-block parking provided

Amenities

- 3 major parks, with 700 acres dedicated to recreation and open space
- Recreational areas at outer edges of the development
- 18 hole golf course in plans
- Extensive use of landscaping

Additional Features

- Village center and neighborhood green spaces included
- High School on site
- 7 day care facilities
- Limited medical facilities
- 5 churches
- 200 units of affordable housing
- 300 elderly housing units
- 200 1+ acre estates
- Land available for additional 18 hole golf course



Name: Cascades
Location: Loudon County, VA
Proximity: Washington, DC
Size: 3000 Acres,
Density: 2.0 DU/Acre

Status: Initial construction started, town center opening planned for Fall, 1991

Population: 15,000
Residential Units: 6000 units
Retail: 705,000 sq.ft.
Office: 4,000,000 sq.ft.
Industrial: Not applicable
Open Space: 750 Acres

Transit Plan: None in the initial plans

Transit Feasibility: Fair. There would be difficulty with turning radii and through routing. The major activity centers are surrounded by parking and separated by a major arterial. Neighborhoods are separated by significant distances, necessitating non-pedestrian movement.

Developer: Kettler and Scott

Master Plan: Sasaki and Associates

Land Use

- Traditional PUD suburban housing patterns
- Village as well as neighborhood centers
- A continuum of densities is provided with higher residential densities, such as apartments or elderly housing, around the town center
- Mixed-use retail/office center draws from the Cascades development as well as a much wider market. It is distanced from the residential neighborhoods
- Water is used to separate development areas and provide focal points for movement and orientation

Transportation

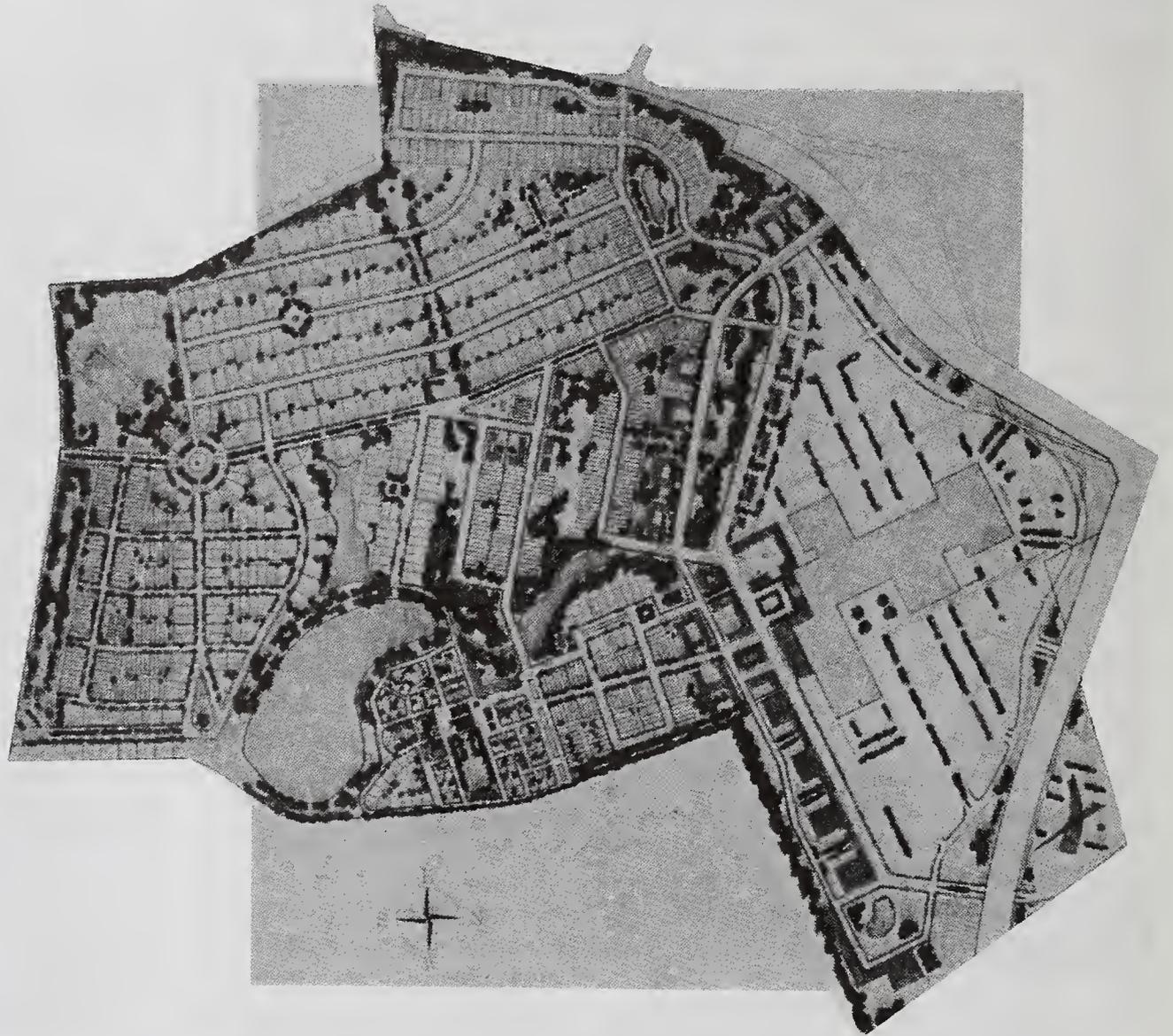
- The development is split by a major arterial, making movement between neighborhoods and center more difficult.
- High levels of parking provided for office/retail uses. Town center is accessible for surrounding market areas
- Both structured and surface parking is provided

Amenities

- Buffer zones of greenbelts or parks protect residential areas
- Landscaped pathways are provided for movement in some neighborhoods
- Located on the Potomoc River for views and recreation
- 1000 acres planned for parks
- High level of recreation includes several golf courses, 24 tennis courts, 3 jr. Olympic pools, 24 miles of jogging trails, 8 soccer fields, and 11 baseball diamonds.
- Farmers market, library, hotel, 3 community centers are included
- Architectural controls require buildings to follow Georgian/Federal styles

Additional Features

- Surrounding market area contains 45,170 households, 68,000 people, and a work force of 83,000
- Primary commercial/retail market of 130,000 persons
- Town center consists of office buildings and retail uses
- Limited mixed use exists, residential areas are distanced from the major commercial district.
- Neighborhoods include their own centers with retail and other services
- Adjacent to community college campus



Name: Kentlands
Location: Gaithersburg, MD
Proximity: Washington, DC
(15 miles)
Size: 342 Acres
Density: 4.5 DU/Acre

Status: Infrastructure in place, residential lots for development being sold off. Construction well under way at the time of publishing. Elementary school and first homes occupied

Population: 5,000 persons
Residential Units: 1600 units
Retail: 1,200,000 sq.ft.
Office: 1,000,000 sq.ft.
Industrial : Not applicable
Open Space: 64 Acres

Transit Plan: None in the initial plans.

Transit Feasibility: Good. Through routing is fair, there is sufficient concentrated points of activity, and turning radii are fair. Some parts of the plans, however are problematic in terms of transit.

Developer: Joseph Alfandre and Co, Inc.

Master Plan: Duany/Plater-Zyberk

Land Use

- Regional commercial/office space planned: it is located proximate to an existing arterial, yet has direct pedestrian access for residents of the project.
- Mixed-use town center includes offices/residences above retail/offices
- Lots for single family residences are in 22 foot increments up to 88 feet wide
- Mixed housing types included on each street to encourage variety and to create a traditional town structure
- A combination of attached and detached units is provided, and each neighborhood contains a variety of housing types and sizes
- Focus on pedestrian accessibility with all residences within a 5 minute walk of their center

Transportation

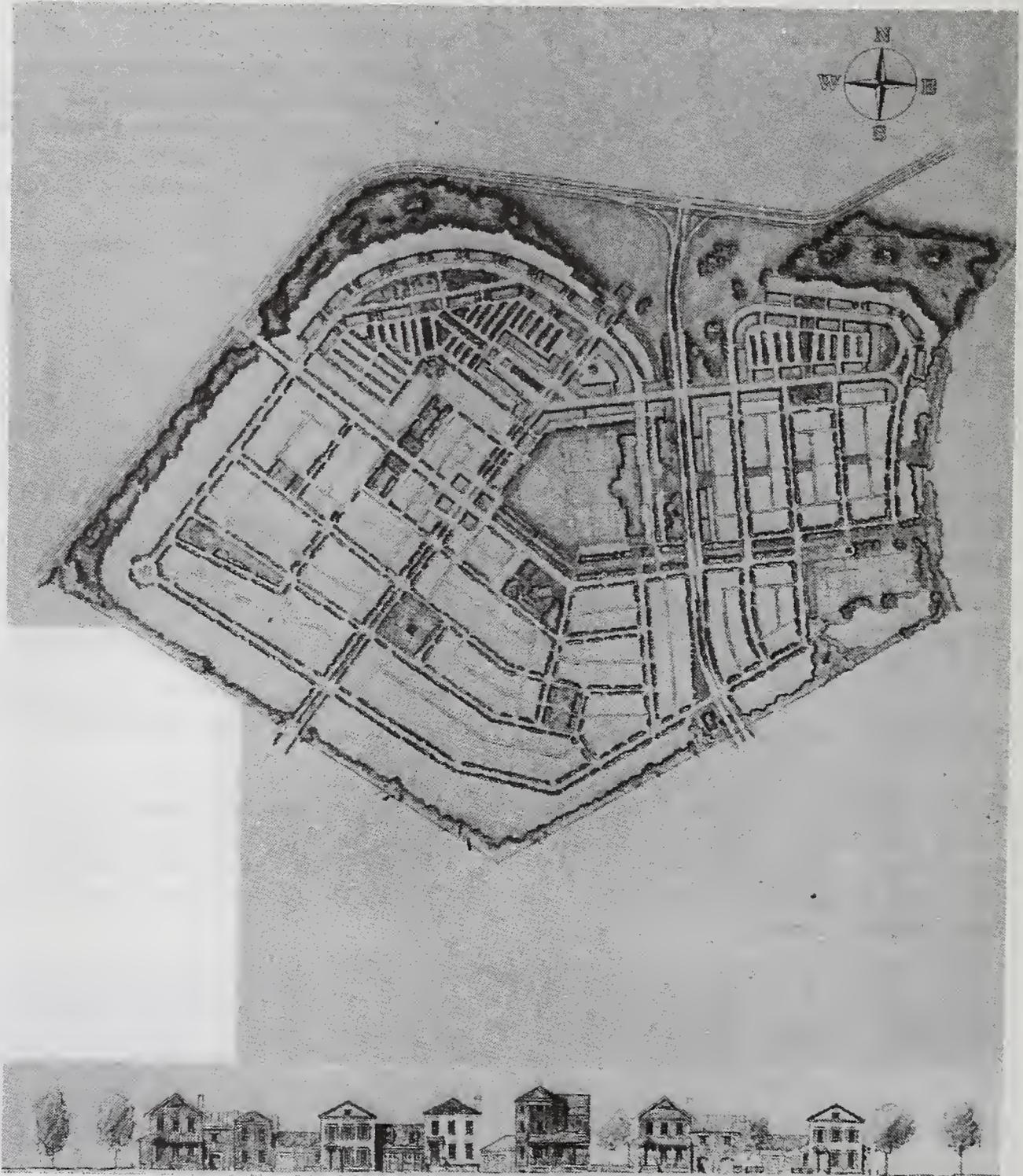
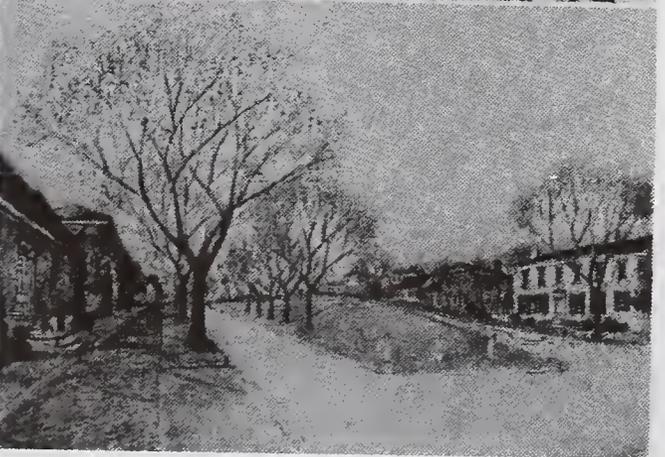
- Parking occurs on street, in mid-block lots, or in alley garages.
- Parking requirements allow for trucks, campers, boats, and trailers to be parked only in rear
- Downtown parking is provided on streets and in parking lots behind buildings
- Apartment units allow parking at sides and rear and require entrance courts to the street front. On-street parking is required
- Office buildings allow parking at the sides, rear, and below. On-street parking is required. A continuous street facade is mandatory.
- Alleys are used for access to garages and servicing

Amenities

- Buffer zones are created along major thoroughfares for residential privacy
- Five thematic neighborhoods are created: Old Farm, Midtown, Main Street, Hill District, and Schoolhouse
- Development includes 3 lakes
- Public gardens/squares or parks become organizing element for neighborhoods
- Green spaces or special objects (such as gazebos, landmarks, plantings) placed in strategic locations
- Recreation areas are neighborhood-based
- Land is specifically set aside for schools, churches, a library, and recreation.

Additional Features

- Formal designs are used for public spaces
- Long blocks are broken by pedestrian pathways for easy access throughout the site
- Architectural codes are established and enforced covering, for example; roofs, windows, materials, and porch and fence requirements
- Variety of side and rear yard configurations, with front yard spaces being either minimized or eliminated completely. Front yards require fences or hedges, porches are encouraged



Name: Belmont Forest
Location: Leesburg, Loudon County, VA
Proximity: Washington, DC (40 miles NW)
Size: 274 Acres
Density: 2.9 DU/Acre

Status: Initial planning process completed. Infrastructure currently under construction with sales of lots underway.

Residential Units: 800 units
Retail: 164,000 sq.ft.
Office: 365,000 sq.ft.
Industrial: Not applicable
Open Space: 88 Acres

Transit Plan: None in the initial plans.

Transit Feasibility: Good, although there will be some difficulty in through routing and turning radii.

Developer: Joseph Alfandre and Co, Inc

Master Plan: Duany/Plater-Zyberk

Land Use

- Traditional down town center offering variety of services around a public green space.
- Distinct neighborhoods with their own character.
- Residential areas of higher density (streets of townhouses) are broken up by a series of pedestrian paths which open up onto mini-parks
- Strong pedestrian orientation, with all residences within a 10 minute walk of the downtown
- A variety of green spaces identify neighborhoods as well as civic and commercial areas

Transportation

- Regional commercial spaces which are auto-intensive are located close to the arterial but accessible by pedestrians
- Street grids are specifically altered and rotated, based on existing features (topography, trees, etc.), to create interesting vistas and routes, as well as problems of through routing for potential transit use while at the same time creating a pleasant route with logical and recognizable transit access points.
- Alleys are extensively used for access to parking garages and servicing

Amenities

- Green spaces are broken down into several smaller areas; these become signature pieces for those neighborhoods
- Land specifically set aside for churches, schools, and recreation
- A variety of public spaces is provided: greens, baseball diamonds, parks, commons, squares
- Focal points are provided in each park.
- Trees line every block for shade and creating vistas which enhance the neighborhood concept.
- Landscaped buffer zones are created between the community and major arterials

Additional Features

- Some flexibility is provided with regard to lot sizes
- No front yards are permitted unless a fence is included porches are optional but encouraged
- Neighborhoods included standard codes which determine yard size, porch placement, outbuildings, parking restrictions, height limitations
- Architectural standards for the construction of walls, fences, balconies and porches, roofs, windows and doors, and landscaping are enforced



Location: Riverside
Proximity: West Palm Beach, FL
Size: 2664 Acres
Density: 1.95 DU/Acre

Status: Initial planning stages/on hold

Population: 11,235
Residential Units: 4,885
Retail: 122,000 sq.ft.
Office: 190,000 sq.ft.
Industrial : 800,000 sq.ft.
Open Space:

Transit Plan: Yes, it was a factor in the development's layout.

Transit Feasibility: Good. The planned use of shuttles/trams will be determined by populace's willingness to walk. It is difficult for all patrons to access the established stops. Water transit to the variety of village centers is intended.

Developer: Not Available

Master Planners:
Berkus Group
Architects

Land Use

- Centrally located town center will allow for access by foot, bicycle, car, or water
- Development of residential areas into neighborhoods which are inward-looking
- Use of village approach as a means of identifying individual neighborhoods
- Wide variety of housing types are employed including elderly housing, single family residences and multi-family buildings
- Neighborhoods separated by natural features (lakes, canals, groves)
- Scenic planning includes strong neighborhood identification and wayfinding

Transportation

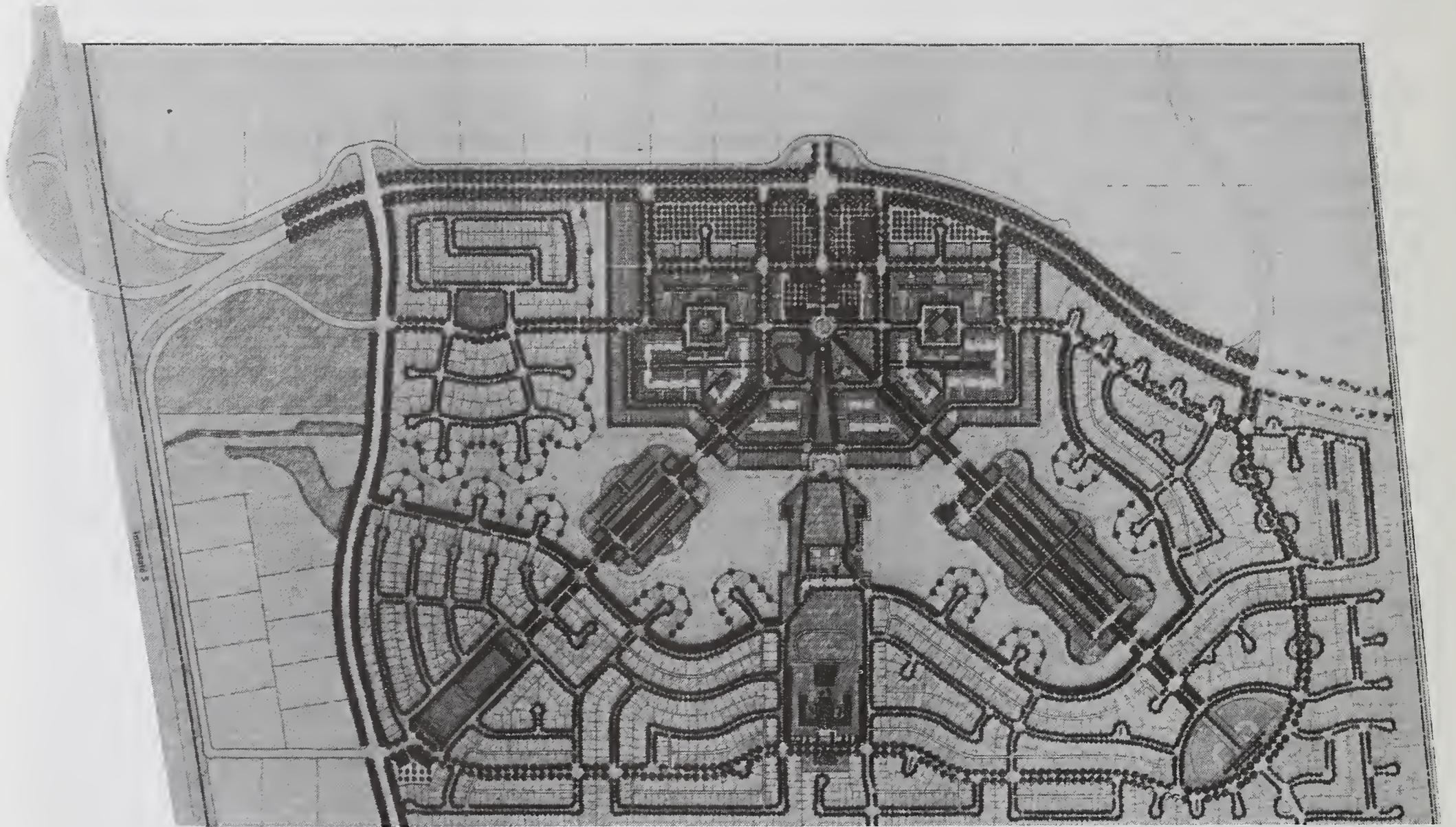
- Internal roadway loop allows for development of individual neighborhoods while providing access and wayfinding.
- Limited access points are provided for entrance into the development proper
- Transit stops are located at the focal points of individual residential areas along the internal roadway loop
- Parking is located to the rear of buildings in commercial areas

Amenities

- Access is facilitated by an extensive bikepath system which respects existing natural amenities
- Interior open space is provided between neighborhoods or in between lots which back up to one another
- Thematic development of individual neighborhoods is employed for identification of distinct areas
- 2 golf courses are integrated with residential access and views
- Extensive natural areas are provided in a variety of forms: recreational areas, golf courses, beaches, lakes and waterways
- Tree-lined streets are extensively used

Additional Features

- Loose geometric format used for green open space development
- Extensive use of water as an amenity for movement and open space



Location: **Laguna West**

Proximity: Sacramento, CA
(12 miles south)

Size: 2500 Acres

Density: 1.3 DU/Acre

Status: Infrastructure under construction, municipal buildings in design phase, land sales to builders begun.

Population: 5200 persons

Residential Units: 3300 units;
2,100 1-family,
1,200 multi-fam.

Retail: 90,000 sq.ft.

Office: 150,000 sq.ft.

Industrial: Not applicable

Open Space: 33 Acres

Transit Plan: Yes, it is essential to the initial planning process.

Transit Feasibility: High, given the density, access for residents and a strong transit connection to the development.

Developer: Phil Angelides/River West Developments

Master Plan: Calthorpe Associates

Land Use

- Town center located close to a major arterial for access by non-residents
- Development of individual neighborhoods
- Series of pedestrian pathways and bicycle paths allow for pedestrian movement throughout the development
- Center's location isolates some residents from easy access
- Reduced setbacks for residential streets result in a tighter streetscape

Transportation

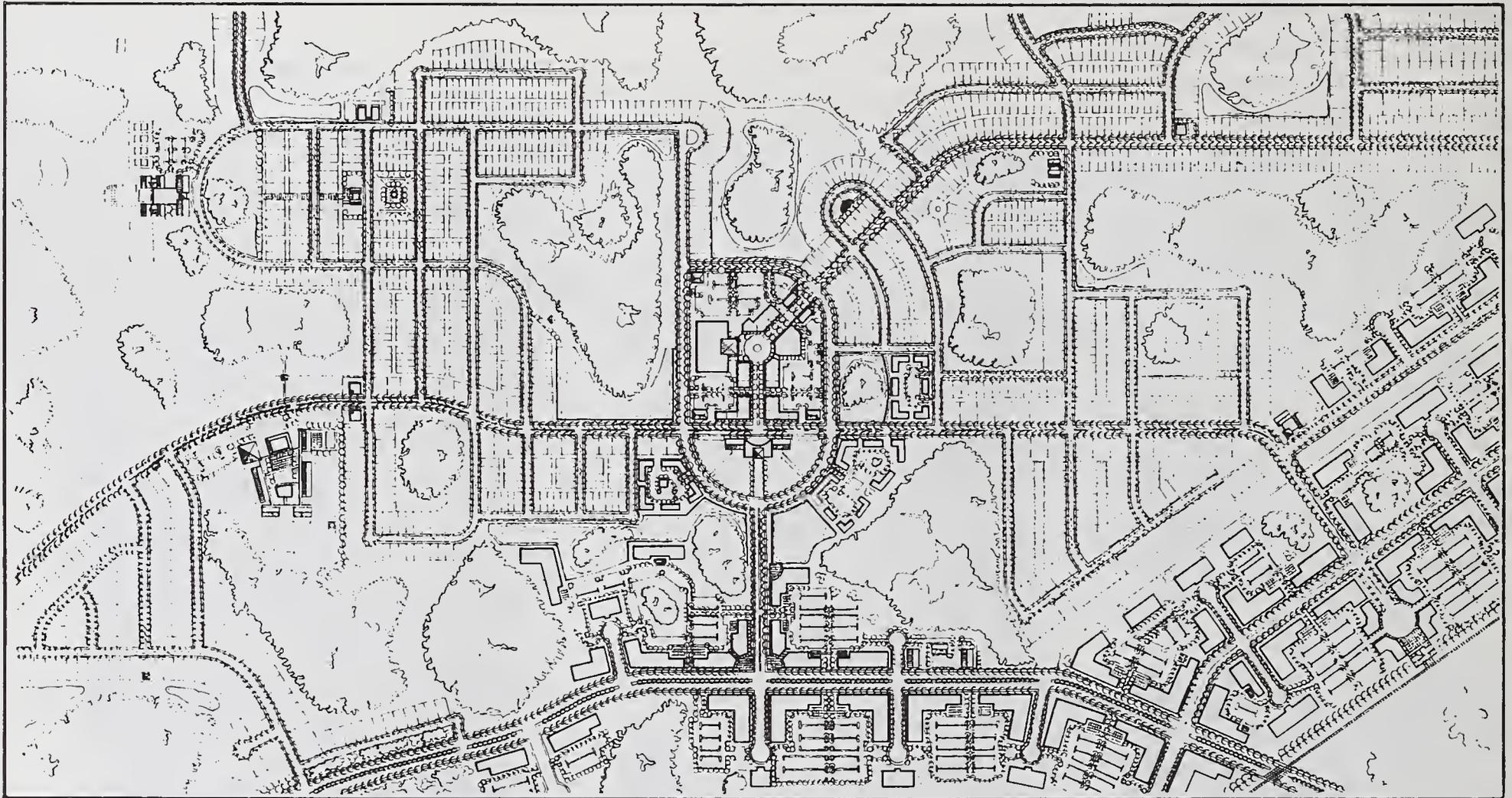
- Radial circulation from town center for direct auto/pedestrian access
- Road system developed around a modified grid system providing an understandable movement pattern
- Cul-de-sacs provide through pedestrian access
- Streets are narrowed to decrease auto traffic in residential areas
- Alleys are extensively used
- Significant levels of parking provided in the mid-block and rear of village center

Amenities

- Blocks with circular or oval green spaces to one side of the street or the other are common, helping provide easy wayfinding, creating meaningful places along major routes, and becoming focal points for residential units
- Major green spaces are for recreational purposes, such as playing fields
- 65 acres of lakes with extensive shorelines separate development into smaller scaled neighborhoods
- Extensive use of tree-lined streets

Additional Features

- 2 phase development plan
- An additional 200 acres across from the development site are scheduled for office development



Location: Lexington Park
Proximity: Polk County, FL
Size: 10,000 Acres
Density: 1.98 DU/Acre

Status: Preliminary planning phases.
Public approval process has begun and is partially completed

Population: 32,000 persons

Residential Units:

5,856 units in Phase 1: 4,000 single family,
980 multi-family, 876 elderly units.

14,100 units in Phase 2: 8,500 single family,
5,600 multi-family

Retail: 300,000 s.f. Phase 1,
1,400,000 s.f. Phase 2

Office: 590,000 s.f. Phase 1,
1,480,000 s.f. Phase 2

Industrial: 3,000,000 s.f. Phase 1,
2,000,000 s.f. Phase 2

Open Space: 5000 Acres

Transit Plan: Yes, it is integral to the development's plan.

Transit Feasibility: Strong. Initial feeder bus system to develop into express bus/com-muter rail line as demand increases.

Developer: Flag Development Corporation

Master Planners: Calthorpe Associates

Land Use

- Six separate village developments are included within the plan, each of which function independently
- Each village contains its own retail main street which provides for daily shopping needs
- Each main street focuses on a village green or town square
- A central retail/office center is the major focus of the project

Transportation

- The majority of the commercial and office development is separated from the residential areas, yet is readily accessible by transit
- The access routes allow for development of an integrated system which links individual residential areas and allows for transit access between them
- Radial roadway patterns adhere to an overall pattern with variations which respond to natural elements and provide variety
- Cul-de-sacs are used for commercial applications only
- Alleys are used for service and rear garage parking
- Extensive surface parking lots with landscaping are provided in commercial and retail areas behind buildings

Amenities

- Wetlands and existing groves of cypress trees separate/distinguish the villages and act as buffers between development areas
- Lakes become a buffer for different areas and double as recreational amenities
- 35% of development is covered by water, 70 % of open space is covered by water

Additional Features

- Significant green spaces define the development into distinct elements
- Formal patters in built up areas occur in the form of street patterns, green spaces and blocks.



Location: Lake Park Village
Proximity: Union County, NC
Size: 540 total acres
Density: 1.81 DU/Acre

Status: Infrastructure in place to support first phases of construction. Land sales have started for the first 65 housing units.

Population: 2200
Residential Units: 1000 +
Retail: 2.3 acres *
Office: 7.8 acres *
Industrial: 15 acres*
Open Space: 69 acres

* Figures are preliminary. The market will determine actual mix of these components.

Transit Plan: None indicated in the initial planning stages.

Transit Feasibility: Good. Easy access is provided as most residents will use ring road. There will be some difficulty in getting transit to the users, given the lack of through routing and the difficult turns that would be required. The linear town center provides for easy access in that location.

Developer: The Mathisen Co.

Master Plan: EDI Architecture/
Planning

Land Use

- Creation of a thematic town center of mixed uses and pedestrian orientation is intended to serve both the development and a larger market
- Town center is located in middle of development for easy site access
- Village center is expanded into a services corridor
- The creation of a major public plaza serves as a village focus
- Residential and office spaces are placed over retail facilities in this center
- Other office spaces are placed within walking distance of the town center
- Design is market based. Started as a typical suburban development, it will include solely residential units with minimal support facilities. Commercial functions will be included once there is a sufficient population base which can support them
- Development employs a continuous facade real-estate approach. Individuals or companies can purchase portions of this facade and develop behind this wall to suit their own needs. A specific street appearance is maintained while allowing flexibility for users
- Development is intended to grow in much the same manner as traditional villages have in the past, design will reflect this image
- "Zones" of commercial/office/industrial activity are designated so that a village complex will be allowed to develop over time
- Various housing types are used within residential districts
- Sidewalks on one side of the street only in some residential areas

Transportation

- Town center provides for a 60' R.O.W. with one side of street parking
- Residential streets consist of a 50' R.O.W with a 26' driving lane
- A gridded street pattern with curvilinear aspects is established, becoming less formal as it is further from the town center
- All roads were planned to meet state specifications

Amenities

- Services to be included are a church, private school, and public YMCA-type facility
- Public space is provided for day care centers, recreation, cultural and entertainment functions
- Extensive use of tree-lined streets

Additional Features

- 10 year build-out is envisioned
- Height restrictions established at 75' maximum.
- Provisions for street furniture are made to encourage pedestrian interaction



Location: Sutter Bay
Proximity: Sutter County, CA
Size: 25,000 acres
Density: 1.80 DU/Acre

Status: Design of first 6000 acres has begun

Population: 90,000-120,000
estimated
Residential Units: 45,000+ units
Retail: 70 million sq.ft.
Office: 50 million sq.ft.
Industrial: 20 million sq.ft.
Open Space: Unspecified

Transit Plan: Yes, including both a light rail system and an integrated, water based transit system. The plan proposes to integrate a wide variety of movement opportunities within the development

Transit Feasibility: Very High. Given the high net density of the development and the number of people in these locations, the development can use and access a variety of transit options. A transportation center is planned to link Amtrak and cars to light rail, water buses, and bicycle rights of way to offer alternative modes of transportation.

Developer: Sutter Bay Associates

Master Planners:
EDI Architecture/
Planning

Land Use

- Seen as a "low rise New Town" with a six story maximum height limit
- Fourteen separate neighborhoods are planned, creating a "Global Village" concept with "family scale neighborhoods"
- To facilitate the population of the project, a CBD is supplemented by regional business districts.

Transportation

- Extensive transit opportunities are included but automobiles can also be used
- A dedicated pedestrian streets and pathways link individual districts and mass transit locations
- Reduced parking requirements with 2 spaces/1000 sq.ft. in CBD as opposed to 4 spaces/1000 sq.ft., the typical standard (still under review)
- Dedicated bicycle pathways - considering the concept of placing bikes, which belong to the community, throughout the site for anyone's use
- Water transit modes are to be included as a mass transit alternatives within town center

Amenities

- Inclusion of regional open space districts to preserve natural resources
- Drinking fountains and pedestrian pocket parks are provided for comfort
- Extensive water amenities, including a riverfront park system
- Inclusion of 200+ slips for private boats, many at individual homes.
- 2 18-hole golf courses planned for the initial development phase
- A University / community college is planned
- Industrial park "communities" are planned as part of the larger whole

Additional Features

- Developer has concern for quality of life vs. density in this development which will direct the overall design orientation to meet the desires for environmental/community improvement and orientation
- The development of thematic neighborhoods creates a life-style approach to serving the project users
- Controlled architectural development and urban spaces generated through strict guidelines
- A wide variety of housing types and price ranges planned are planned to serve the mix of inhabitants
- Concern for work-at-home issues as well as for live/work environments
- High tech infrastructure providers such as PacBell and Motorola are being included in the design process (ex. a fiber optics program)

Location: Greendale
Proximity: Milwaukee, Wisconsin
 (12 miles SW)
Size: Originally planned at 3,400 acres, 180
 acres developed according to 1935 plans.
Density: 3.17 DU/Acre
Status: Initial planning begun in 1935,
 construction in 1936.
Population: 2794 at completion
Residential Units: 572 units
Retail: None in original plans
Office: None in original plans
Industrial: 40 Acres
 (as developed)
Open Space: 1370 Acres
 (as planned)
Transit Plan: None in the original plans
Transit Integration: Free shuttles to public
 transportation were provided. No other public
 transit proved successful until the 1950's. The
 area is currently served by bus.
Developer: The United States
 Resettlement Administration
Master Plan: Jacob Crane/
 Albert Peets

Land Use

- Developed as 1 of 3 garden cities nationwide, where the landscape becomes a driving force in the location of amenities and movement through the development
- Short, cul-de-sacs with pedestrian pathways and automobile access link residential street with the larger community while affording privacy for residents
- An extensive pedestrian path system connects back yards and cul-de-sacs with the greenbelt system and the development's school sites
- Village center developed with civic buildings surrounding retail and entertainment concerns.
- All units planned within a 1/4 mile distance of center.
- Significant amounts of open space/public spaces were included.
- A mix of housing types are included but detached single family houses predominate

Transportation

- No overall street grid is followed, streets respond to the topography and provide for a scenic experience through the development
- Collector streets are used for access and orientation, and order movement around the site
- Pedestrian paths are still well-used for circulation

Amenities

- Houses to have 5,000 sq.ft. yard space per dwelling unit
- Major living spaces face the rear yard
- Main living quarters are oriented to the south for sun access
- 5 playground areas serve a dual purpose as school recreational facilities

Additional Features

- All dwelling units followed similar construction methods; concrete block walls, asphalt or tile roofs, slab on grade foundations
- Rural farms were an integral part of the village planning and layout and supplied fresh food
- Within 1 year, the development was able to function as a self-sufficient entity.
- Subsequent development through the 1950's is based upon 1935 principals with modifications to respond to later market influences (eg: larger houses, greater setback requirements)
- Village center is a strong retail focus and doubled its retail area

I. ICDC COMPETITIONS: THE SUBURBAN EDGE

The International City Design Competition (ICDC) was held in 1988-1989 to provide an opportunity for experts in urban design to present concepts for cities in the future. The competition was conducted by the University of Wisconsin-Milwaukee, School of Architecture and Urban Planning, and generated over 250 entries from more than forty countries. Entrants were “challenged to create innovative and credible visions” for cities in the year 2020. The Milwaukee region was used as a case study, representing cities experiencing a transition from a manufacturing-based economy to one based on services and new technology. The competition dealt with three areas — the city center, an older residential neighborhood, and an emerging suburban area. We analyzed the suburban portion of the competition to determine how (or if) public transit was considered and to identify the state of the practice of land-use planning as it relates to transit.

The suburban element of the competition involved the design of a primarily agricultural portion of the City of Oak Creek, south of the City of Milwaukee. An area of land approximately three-fourths of a mile square, with an existing mixed land use of some residential development, a large agricultural area, and open space, was used as the competition site. Approximately 70% of the land was in non-urban use. The area was chosen to represent suburban areas with potential for development. It is located near a major freeway corridor, is served by a freight rail line, and has several arterial roadways passing through it.

Competitors were asked to outline their own vision of the area in terms of expected changes in land use, rate of development, relationship to the metropolitan area, size of project, degree of replacement of existing development, and preservation of the natural environment. This program for the future would then provide a basis for the physical layout of land uses and infrastructure for this area. Entries were submitted on standard-sized boards which contained a written and graphic presentation of the designs. The provision of public transit was up to each of the competitors.

J. ANALYSIS AND EVALUATION OF ICDC SOLUTIONS

Characteristics of Entries

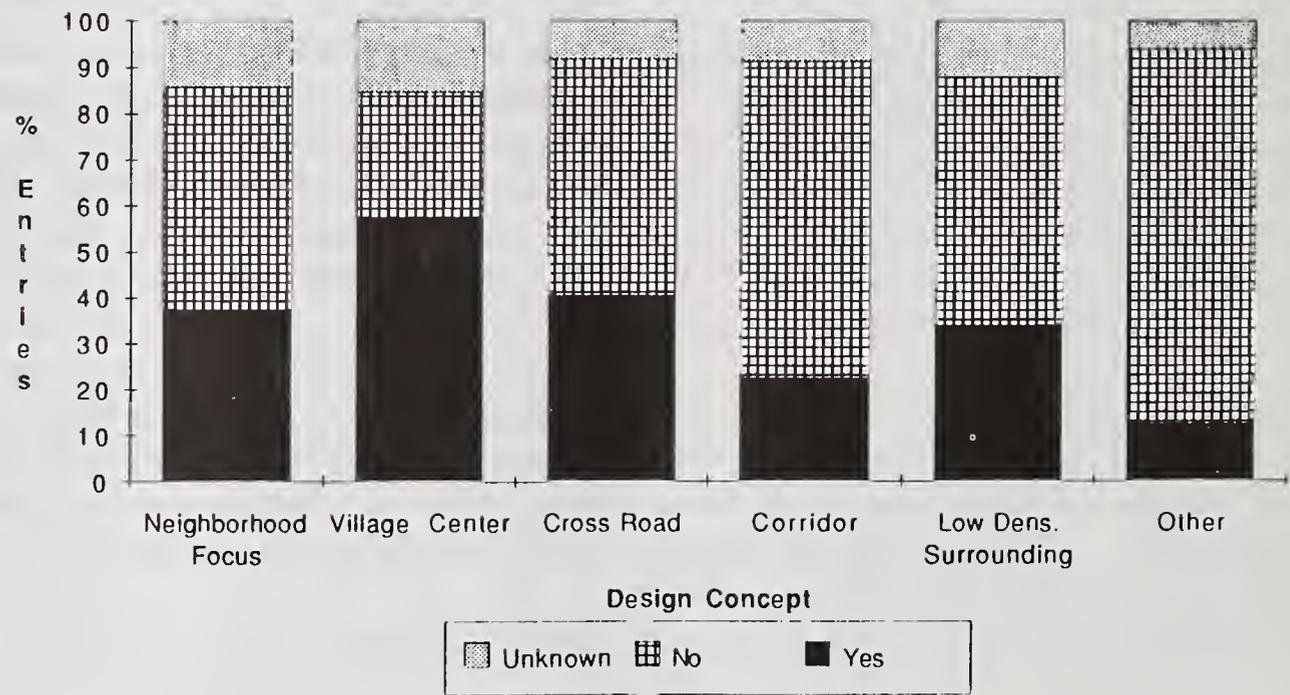
The over 250 entries were received represented entries of architects, planners, and engineers from forty-five different countries. The United States contributed 81 participants; other North American countries had 22; Western Europe, 44; Eastern Europe, 49; South America, 13; Asia/Ociana, 29; and other (Africa/Middle East) had 10 entrants. A number of submittals had several countries represented on the same team. The competitors were a diverse group composed of professionals and students, academics and practitioners, first-time competitors as well as winners of a number of previous competitions. Typical team size was two to four members with 75% of the participants practicing professionals and 20% students. Architects were represented on 83% of the teams, urban planners on 42%, engineers on 8% and landscape architects on 11%. Private firms contributed 38% of the entries, public agencies 11%, university faculty 27% and students 39%. Competitors were urged to form interdisciplinary teams and many of the high-ranked solutions came from international teams composed of architects, engineers, planners and artists. Overall, three teams won gold medals and shared a prize of \$75,000, four silver medal teams shared \$50,000 and fifteen teams won honorable mentions. Collectively, the winning entries represented Argentina, Australia, Austria, Brazil, Canada, China, India, Japan, Poland, and the United States.

A total of 182 entries were analyzed to determine their approach to suburban land-use design using the survey form shown in the Appendix. These entries were those that planned for growth in the area and excluded ones that proposed removal of existing development or did not address the suburban portion of the competition. The general characteristics of the designs are shown in Figures 1 through 4.

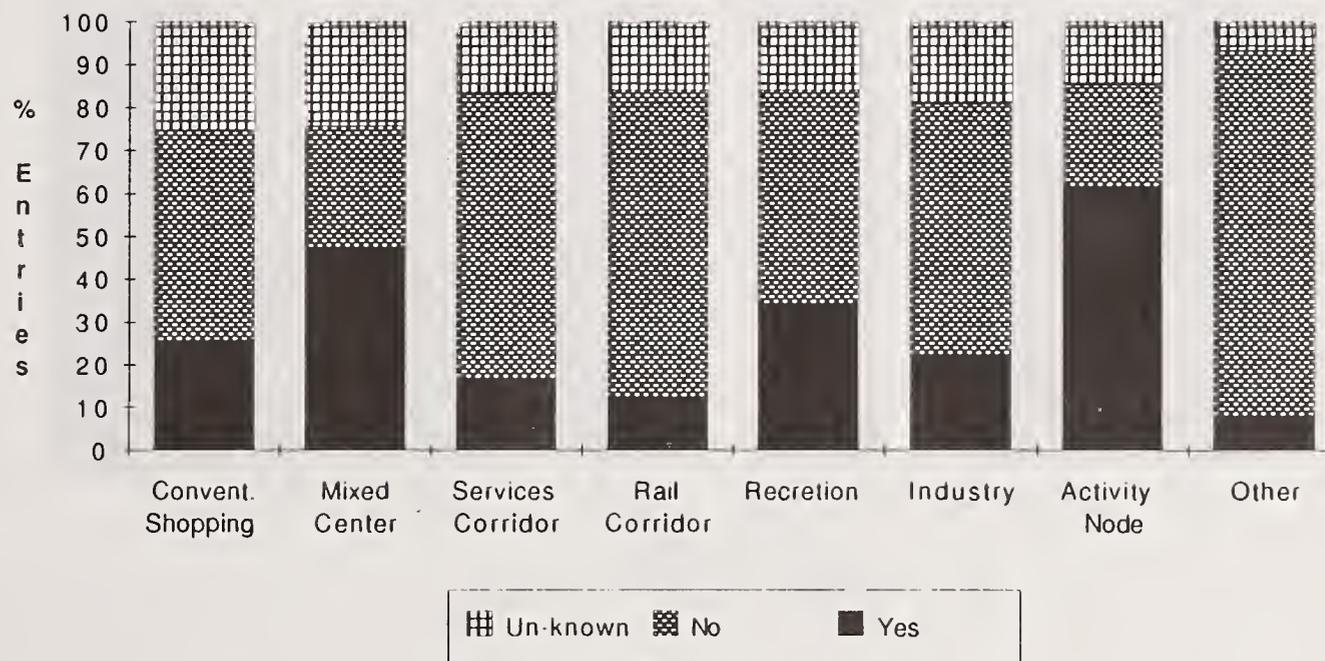
Design Approach

A summary of the design approaches used by entrants is given in Figure 1. The most frequently used concept, seen in over half of the submissions, was the village-center approach. These designs attempted to create a center with multiple activities. A similar concept, though at a smaller scale was to create several smaller neighborhood centers or to use a crossroads development pattern. This was used by about 40% of the entries (a number of proposals used both concepts). Development along transportation corridors was used by

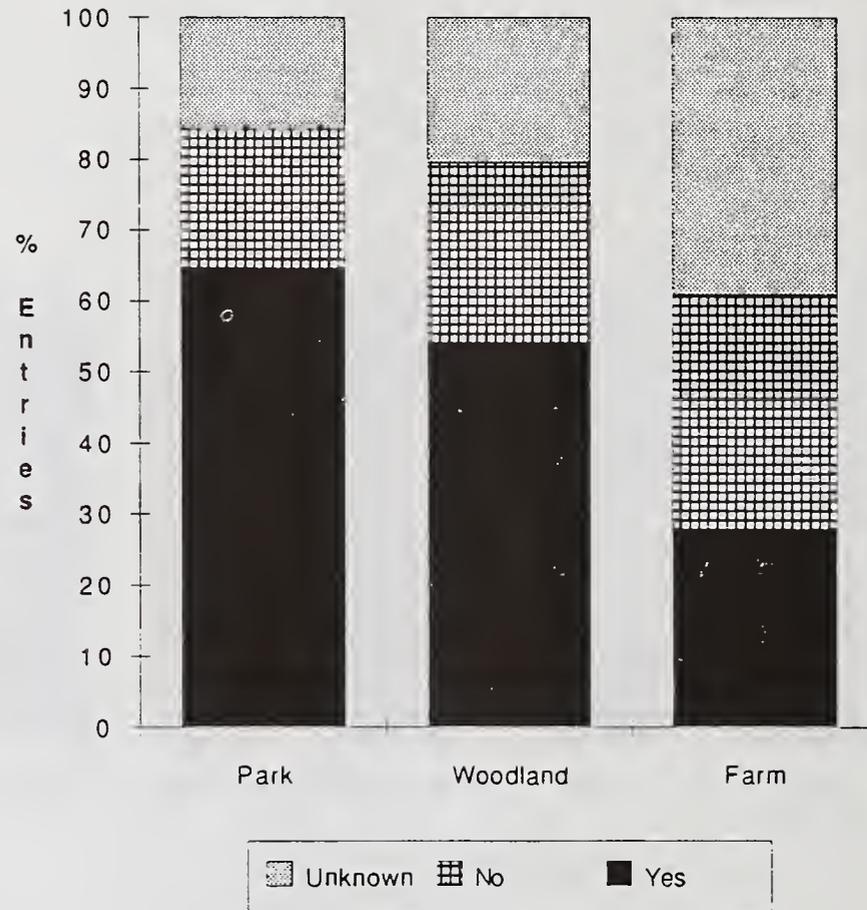
**FIGURE 1:
ICDC SUBURBAN ENTRIES:
DESIGN APPROACH**



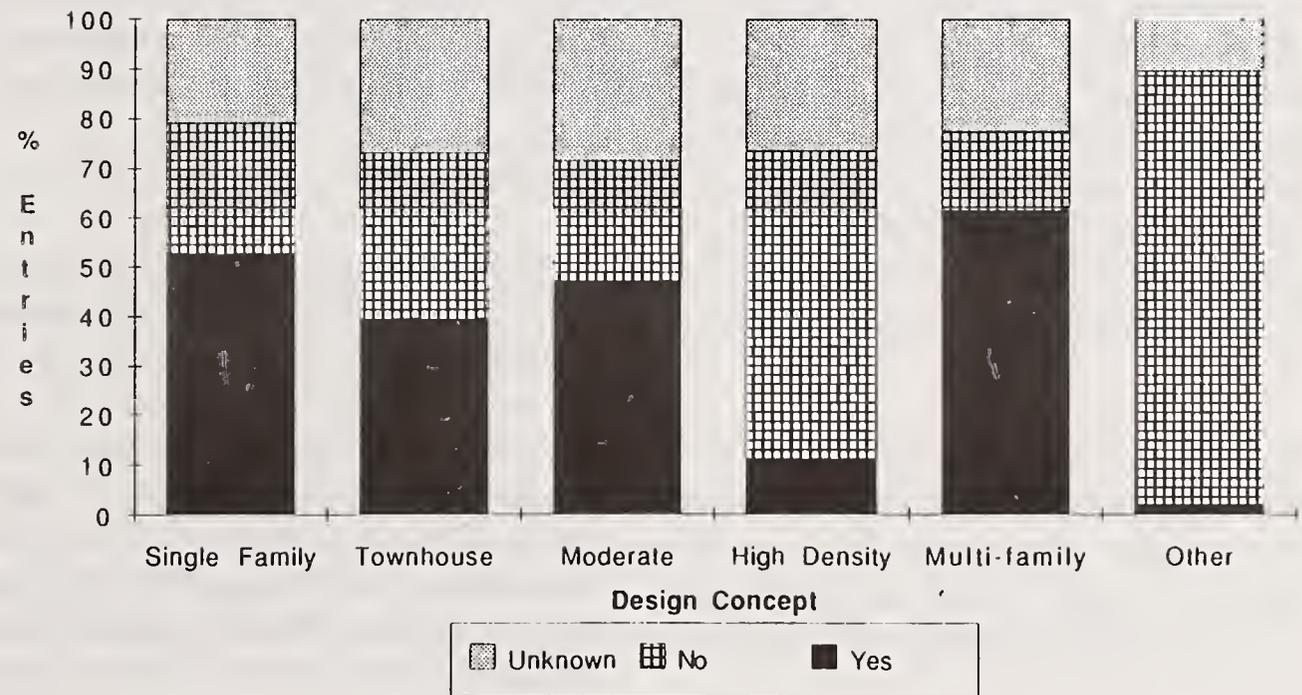
**FIGURE 2:
ICDC SUBURBAN ENTRIES:
COMMERCIAL DEVELOPMENT
PATTERNS**



**FIGURE 3:
ICDC SUBURBAN ENTRIES:
USE OF OPEN SPACE**



**FIGURE 4:
ICDC SUBURBAN ENTRIES:
HOUSING TYPES**



about 20% of the entries. Typically, the designs would include mixed land uses with a central area for shopping and/or employment. Many proposals concentrated development on a portion of the site and left substantial open space.

Commercial Land Use

Entrants also favored a centralized approach for commercial development (Fig. 2) with 62% of the entries utilizing a high-activity node and 49% using a nonconventional activity center, both mixed use concepts at different levels of intensity. Entertainment/recreational concepts were included by 34% of the entrants and conventional shopping center concepts were used by 26%. Development along corridors either as a strip commercial area or along the rail corridor was rare with less than one-sixth of the entries employing such approach.

Transportation

A major portion of our analysis was concerned with whether transit was used and the quality of its use in the proposals. These results were disappointing for those who hope that the 'credible visions' of design professionals for the future will include public transportation. The majority of entrants (57%) did not mention public transit either in the text or the graphics of their presentation. Of those that did include transit in their submissions, by far the most popular mode of transportation was light rail (Fig. 6), which was included in 31% of the entries. Bus, perhaps the most likely mode for suburban areas, was mentioned by only 8% of the entrants, while park and ride was mentioned by only 4%. Other modes of transit were used by less than 10% of the entrants. Few proposals included transit as an element of their design, and those who did include transit used light rail as the preferred mode. Use of bus, park and ride, and commuter rail — the most commonly used modes of travel in the suburbs — seldom entered the 'vision' of the future in the minds of the design teams.

Land-Use/Transit Sensitivity

The criteria for analyzing the innovative development projects were also used to determine if the ICDC entries were sensitive to factors that could lead to successful transit services. These were related to the categories of population concentrations at trip ends, pedestrian

access to transit, and their responsiveness to transit operations. Each entrant was assessed on these criteria on a 0 to 5 scale and an overall rating was developed as shown in Figure 7. Approximately 25% of the entrants proposed designs that had land-use patterns that were analyzed as having a "good" sensitivity to transit, with a rating of 4 or 5; about 50% were judged "fair," with a rating of 3; and about 25% of the proposals were judged as "poor," with a rating of 1 or 2. Those entries which explicitly mentioned transit were only marginally better in providing design attributes conducive to transit success than those that did not include transit.

Only 12% of all entrants both used transit and submitted designs that were evaluated as satisfactory in their sensitivity to transit as a land-use design factor. In terms of the specific criteria for transit (Fig. 8), entrants who mentioned transit did best at providing sufficient rights-of-way (73% judged good) and poorest at minimizing walking distance (28% judged good). Results were similar for those who did not mention transit; 63% did a satisfactory job of having opportunities for providing rights-of-way and only 18% provided short walking-distances to potential transit routes. In general, those who did not mention transit did poorer on pedestrian and transit operational criteria, but better in criteria related to concentrations of trip ends than those who did mention transit.

A comparison of the origins of participants versus their sensitivity to transit is shown in Figure 9. Entrants from the United States and North America designed land use for transit marginally better than entrants from elsewhere in the world. Interestingly, entrants from countries that have extensive transit systems (Eastern Europe, Asia/Pacific areas) employed public transit concepts less frequently than entrants from other areas such as North America.

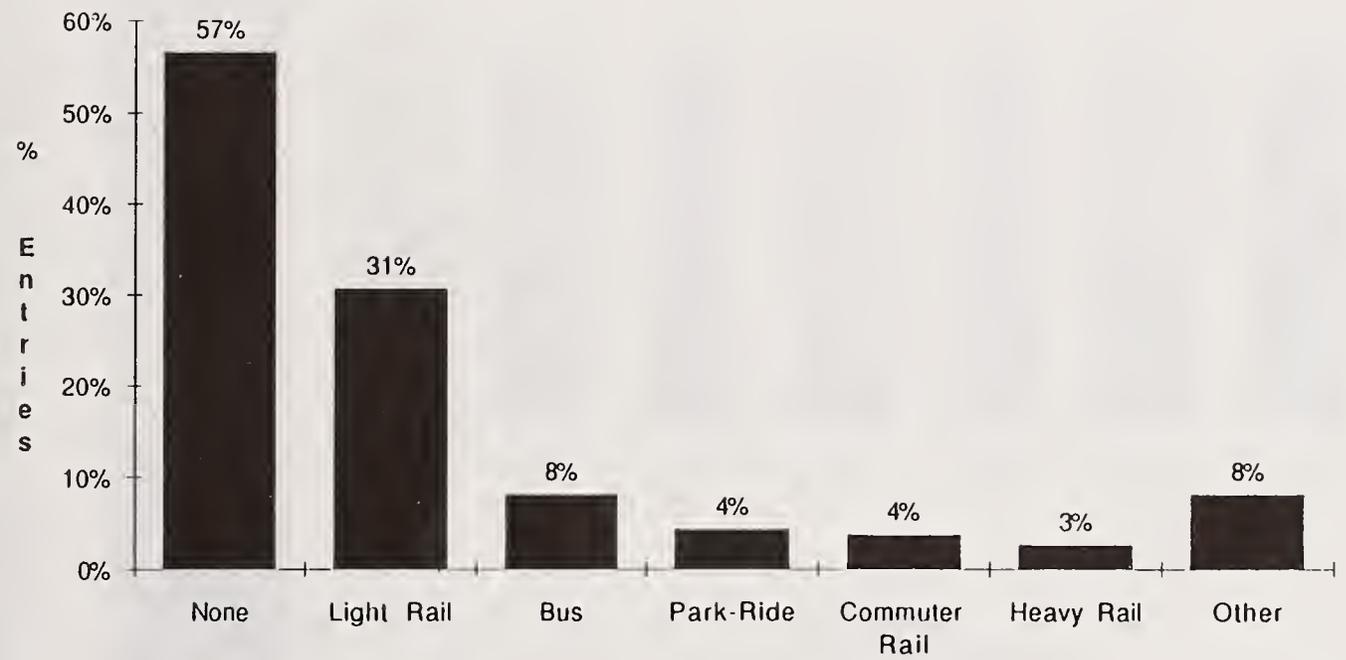
Conclusions and Implications

In terms of the use of transit in future suburban planning, the results were disappointing. About two-fifths (43%) of the proposals evaluated explicitly used mass transit as an element of suburban land-use design; however, only 12% of the competitors included mass transportation and had a land-use design which used transit appropriately. In the 'credible visions' of most of the entrants, it appears that the automobile will continue to be the dominant form of future transportation in suburban areas. Entries from the United States professionals were

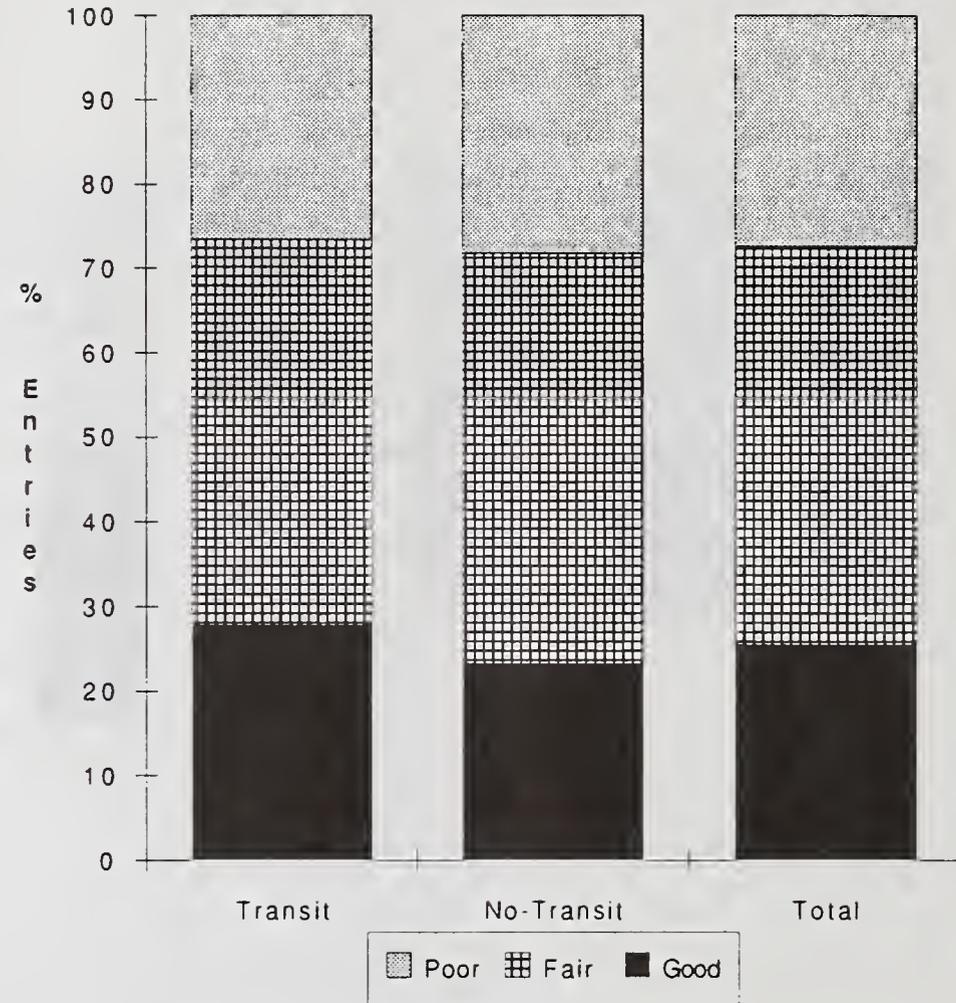
**FIGURE 5:
ICDC SUBURBAN ENTRIES:
TRANSPORTATION
RELATED CHANGES**



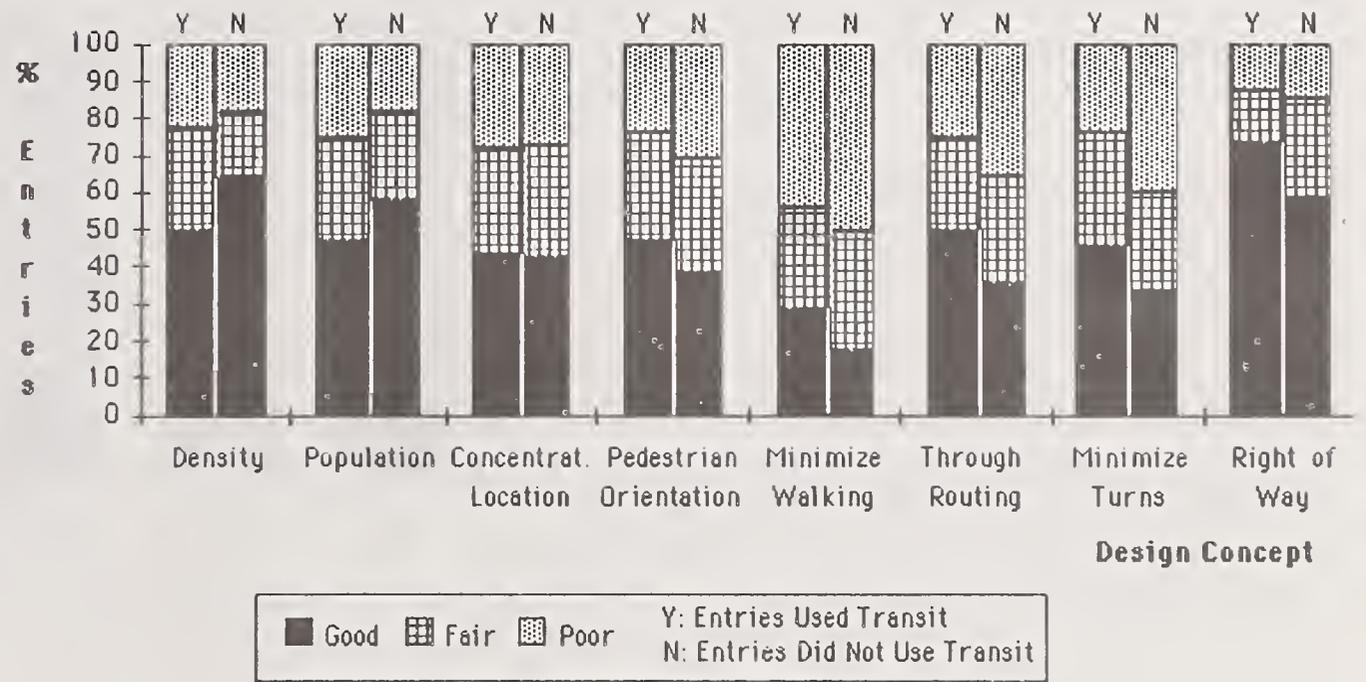
**FIGURE 6:
ICDC SUBURBAN ENTRIES:
TRANSIT MODES USED
BY ENTRIES**



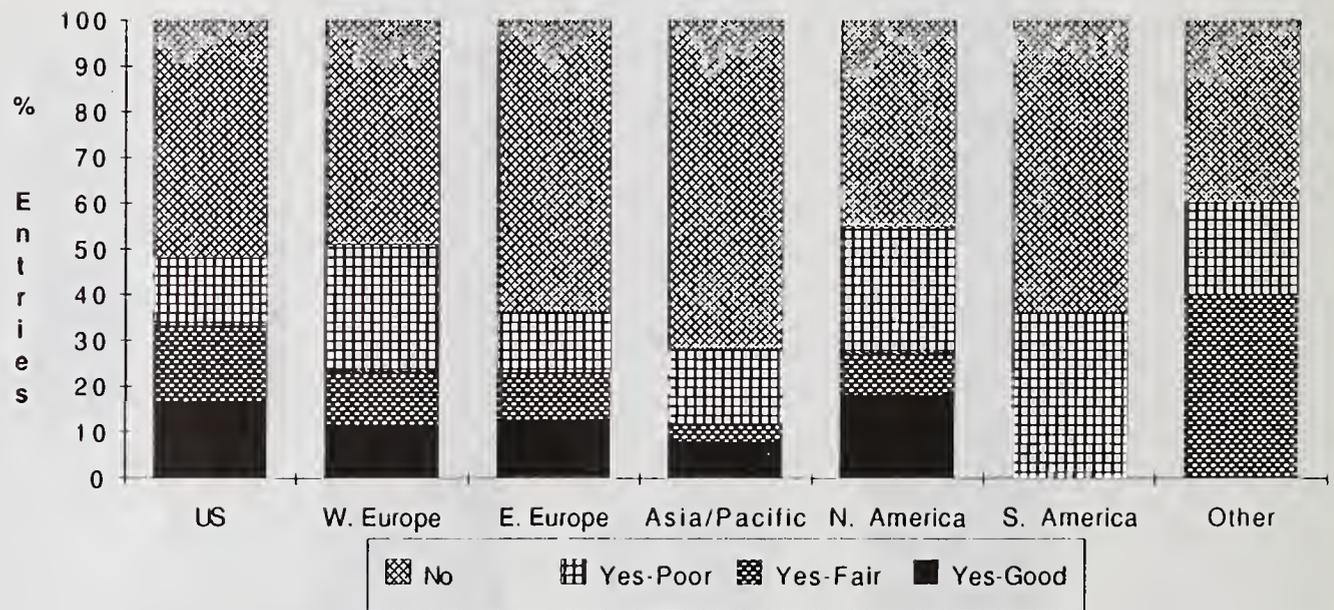
**FIGURE 7:
ICDC SUBURBAN ENTRIES:
LAND USE AND
TRANSIT SENSITIVITY**



**FIGURE 8:
ICDC SUBURBAN ENTRIES:
TRANSIT EVALUATION**



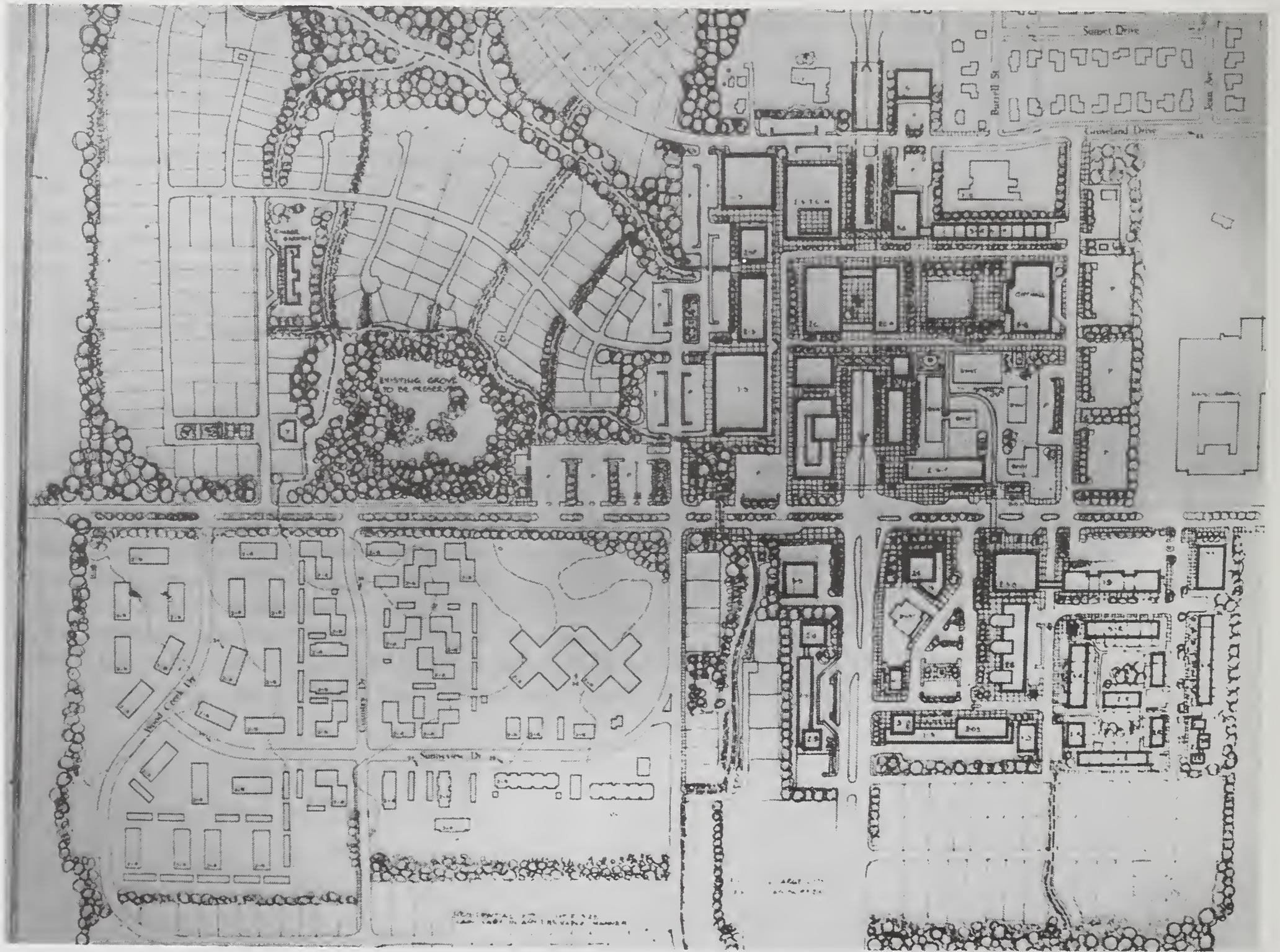
**FIGURE 9:
ICDC SUBURBAN ENTRIES BY
GEOGRAPHICAL AREA AND
TRANSIT SENSITIVE LAND USE**



comparable to foreign entries in their ability to use transit. A parallel review of commonly-used handbooks and guidelines as well as accreditation criteria for academic programs in architecture, planning and engineering showed little, if any, concern for public transit as a land-use design consideration.

The entries to the ICDC competition are a selected sample of planners and architects and does not represent a careful sample of these professions. However, the goal of the competition in encouraging 'visions of the future' and the makeup of the competitors would suggest a progressive outlook. Furthermore, the design competition was free of many constraints which could limit creativity in design. In view of these factors, the analysis of the projects is particularly frustrating in terms of the competitor's perception of the role of transit. Not only did relatively few competitors use mass transit in their designs, but a good portion of those that included transit did not use it appropriately.

The consequences of this analysis are disturbing. Public transit does not seem to be a strong part of the vision of the future by those who will make many of the design decisions for the suburbs. Furthermore, it is not strongly considered in the basic resources, written or educational, which provide the fundamental body of information that these professionals use. In a future with finite resources, an auto-dominated world is assumed. Planning decisions are made with little thought of the potential role for other modes, especially transit or walking. Unless such trends are changed, we will face serious problems in the future to attempt to adapt and retrofit our suburban communities to changes in future resource availability. To provide a future in which transit plays a role, those involved in transit must make the others, who are largely responsible for land-use design, aware of the benefits of transit and create a vision of the future which includes a broad set of transportation alternatives.



Entrant: Ryszard Hajnosz

Country: Poland

Discipline: Architecture

Land Use

- Village center located at the crossroads of two arterials
- Develops the use of a commercial center and of the high activity node development concept
- Schools become the focus of a neighborhood within the development
- Higher density housing is located at the village center with densities decreasing as distances from the center increase
- Arterials are located under the village center to maintain a connection between all areas of the development

Transportation

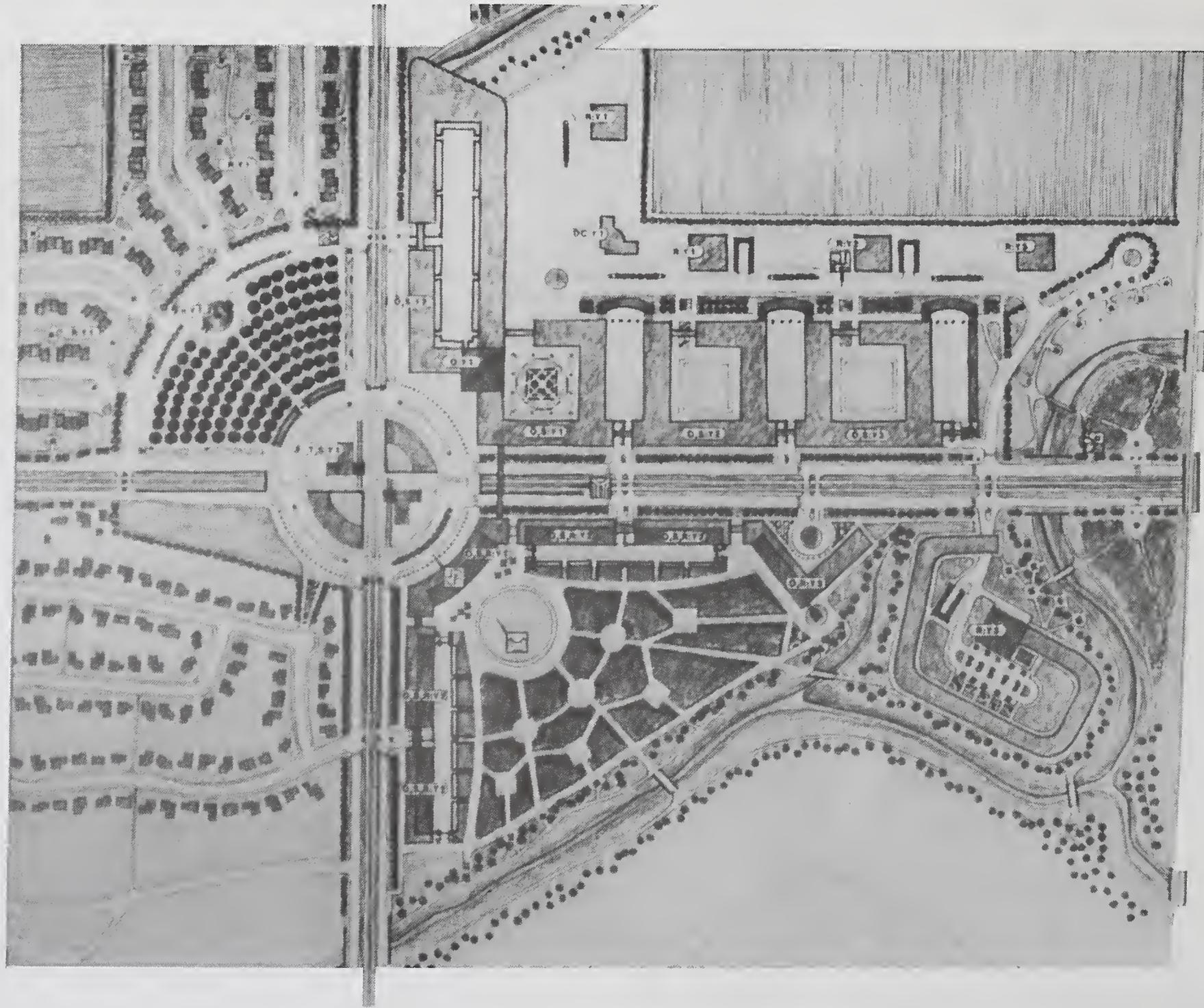
- Mass transit includes commuter bus service and the provision for light rail access
- A road hierarchy is based on connections to the village center
- Substantial parking lots are located to the rear of buildings

Amenities

- Employs the use of both parks and woodlands to provide public space
- Woodlands used to reinforce pedestrian/bicycle pathways to the center
- Pedestrian orientation addressed by locating all activities within a 10 minute walk of the center

Additional Features

- Green spaces function more as buffers between distinct areas
- Pedestrian access is hindered by the lack of direct routes, although bridges are provided for access over major roads
- Most public spaces are paved areas
- A wide variety of housing types are provided



Entrant: Gregory M. Friesen

Country: United States

Discipline: Architecture

Land Use

- Village center located at the crossroads of two existing arterials
- A number of multi-story buildings, accessible by automobiles, are developed along the arterials
- Concentration of mid-rise residential units
- Single family residences radiate out from this center in neighborhood developments
- Houses are arranged along radial boulevards

Transportation

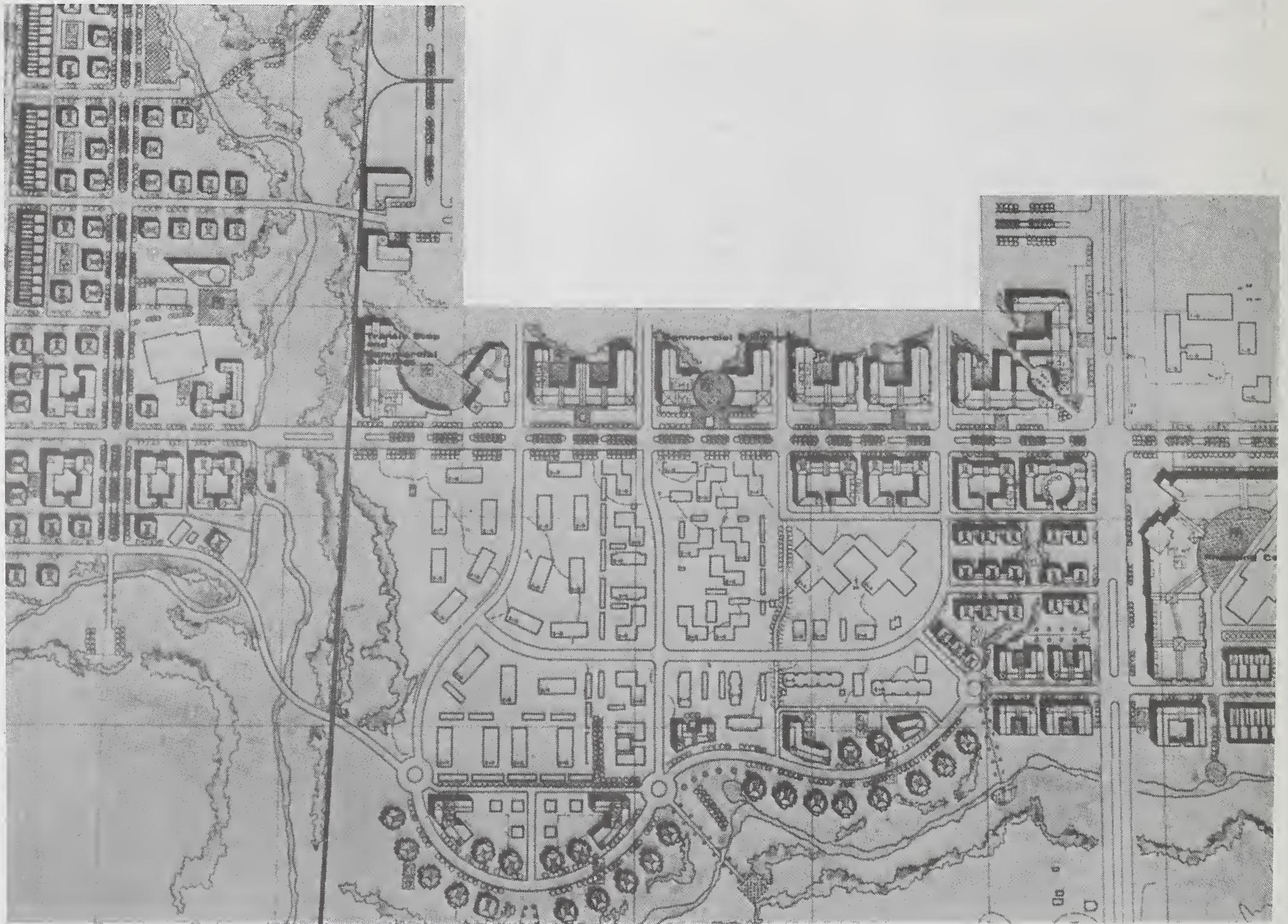
- Transit is provided using two intersecting lines (north-south; east-west)
- Transit station occurs within the intersection arterial
- Transit raised above the roadway allows for access to all quadrants of the development
- Parking occurs within building forms

Amenities

- A variety of green spaces are included as formal parks, woodlands, or waterways, and some are smaller neighborhood strips
- Extensive pedestrian parkway system

Additional Features

- Internal courts in commercial projects are created for public use
- Walking distances between parts of this project are long, precluding a pedestrian orientation
- The density around the transit station is satisfactory, but open space surrounding residential neighborhoods makes a pedestrian access to transit problematic



Entrants: Santiago Abasole
Wayne Attoe
Simon Atkinson
Robert Mugerauer

Countries: United States
Argentina

Discipline: Architecture

Land Use

- A corridor is established which serves as the main focus for the development
- Development occurs on both sides of the rail line, although commercial services are developed on one side only
- Contains both mixed use and single use areas
- There is a mixing of residential types and some housing located on the shopping center site
- There is the inclusion of "suburban villas" along a greenway which is mixed with moderate housing buildings
- Areas of activity are concentrated to allow for the use of and demand for mass transit

Transportation

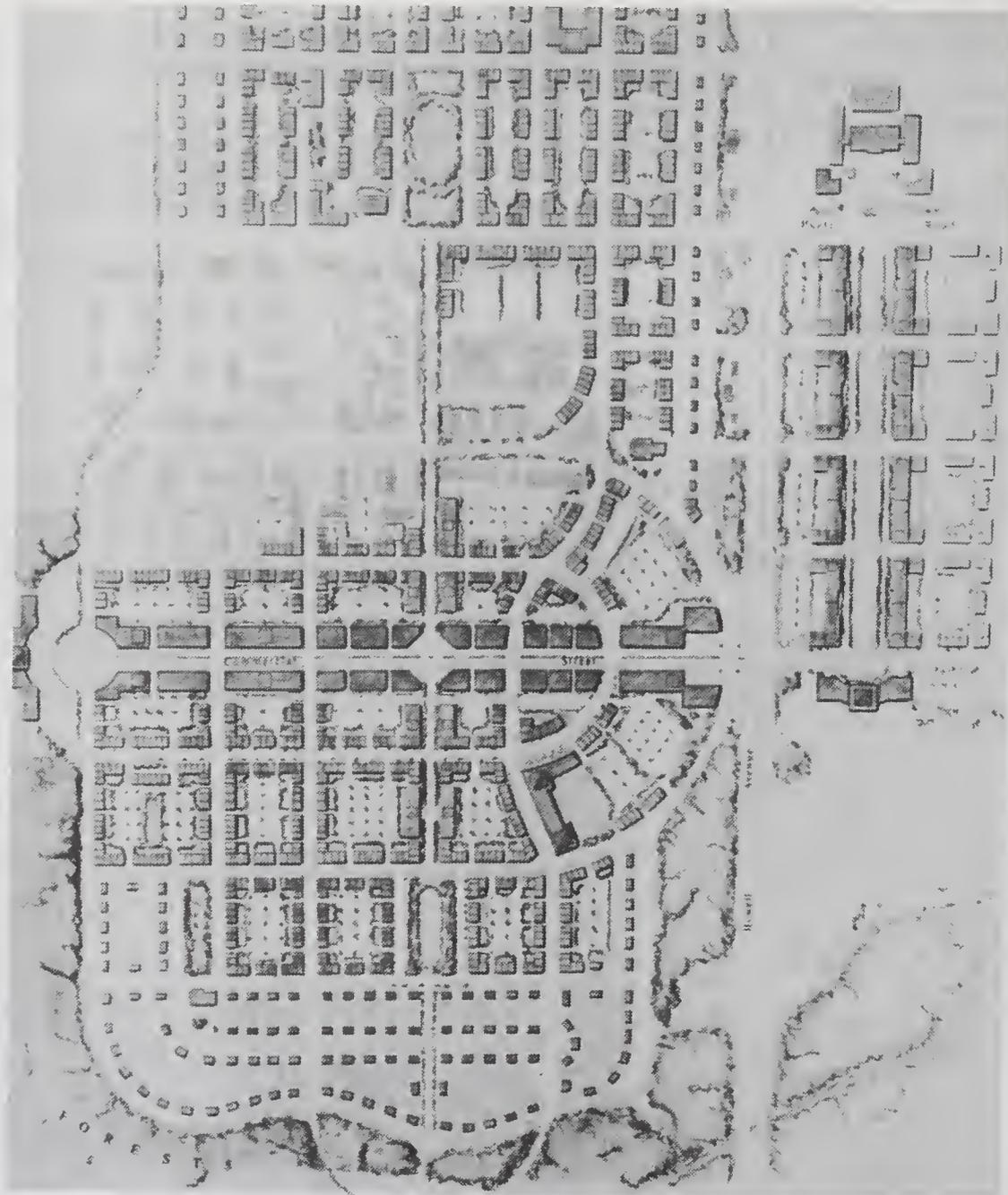
- Light rail line stop is proposed
- Access within the site for mass transit modes other than light rail is good given the existing through routing and rights of way available
- Street development is primarily linear with a gridded system being used for residential development
- Boulevards and scenic streets provide an image for the development

Amenities

- Tree-lined boulevards are used extensively on major roadways
- Pedestrian access is provided along roadways on sidewalks
- An industrial area is provided for within a walking distance from the central corridor

Additional Features

- An extensive greenway system is designed with water and woodland strips acting as buffers between sections of the development
- Given the spread out nature of this scheme walking to all services becomes more difficult



Entrant: Christopher Stienon
Country: United States
Disciplines: Architecture
Urban Planning

Land Use

- High density development
- Focus of the development is internalized some distance from the main arterial route, which includes no commercial activity
- Development occurs only on one side of the rail line
- A village center is located with neighborhoods surrounding this center
- Provides a mixed-use, linear shopping street with the rail station anchoring one end
- Residential areas surround the center with densities decreasing as the distance from the center increases

Transportation

- A rail station terminates one end of the commercial street
- A generally gridded street system is proposed
- Residential streets are reduced in width, restricting traffic flow
- Parking is located in the center of the blocks, hidden from view by surrounding buildings
- Park and ride facilities are planned into the development

Amenities

- Formal public parks as well as woodlands are proposed for green spaces
- Public parks are scattered throughout the site, with both small scale green spaces and large linear parks included
- Tree lined streets and boulevards are extensively used
- There is a strong pedestrian orientation established with 80% of the scheme being located within a 10 minute walk of the rail station

Additional Features

- Expansion is defined and limited to the current confines. Additional growth would be handled by creating new similar areas along the rail line
- The areas surrounding the development are left for low density development
- Public/outdoor spaces use formal design vocabularies
- Walking distances and pedestrian access becomes problematic as the design moves beyond the arterials. These barriers separate these areas as independent entities



Entrants: Hans Asplund
Maria Udreit

Country: Sweden

Disciplines: Architecture
Urban Planning

Land Use

- Commercial development is located along the mass transit route in a continuous strip of development
- Extensive residential cul-de-sacs extend from these commercial strips

Transportation

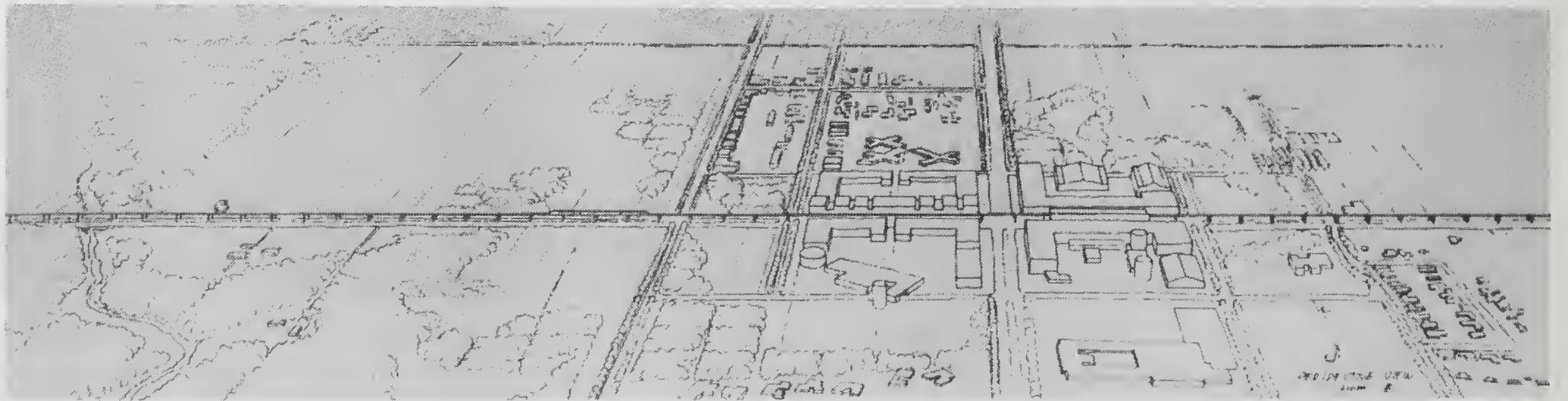
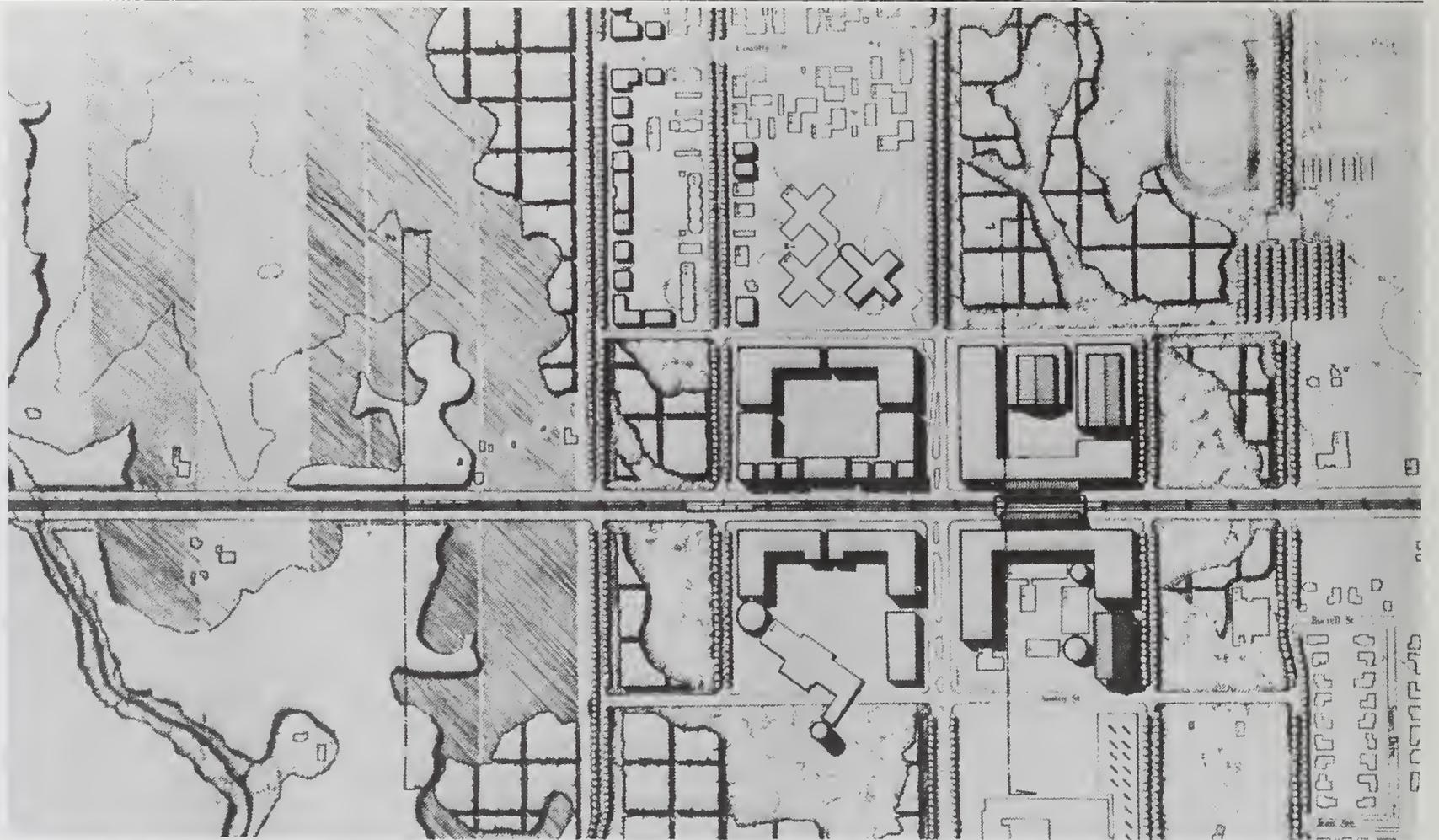
- Mass transit and traffic arterial roads are located under commercial spine
- No development beyond 1/4 mile of transit corridor
- All automobile movement occurs underground where parking and building access are also provided
- "No cars are visible anywhere above ground"

Amenities

- Above ground, an extensive pedestrian/bicycle system is established which shares facilities with a mass transit line
- An extensive pedestrian path system allows for access between the separate developments and to the recreational facilities
- Large bicycle sheds are provided in the middle of each residential "neighborhood" to promote their use
- Numerous courtyards are created within the area of public and commercial buildings
- Public parks occur to the rear of residential structures

Additional Features

- Housing types are relatively separated from commercial areas with the primary typed being the single family home
- Areas surrounding residential streets are treated like traditional suburban developments, with much landscaping and attention being paid to the natural environment
- Rail line is eliminated from this development



Entrants: Marco MaHeini
Nichola Perio
Antorella Venchiarutti

Country: Italy

Discipline: Architecture

Land Use

- Development of a strong rail corridor. Commercial buildings are located along the rail line with housing behind those activities
- Low density proposed behind transit corridor
- Strong order of streets

Transportation

- Skyways over major roadways facilitates walking
- Station is centrally located and linked directly to major buildings

Amenities

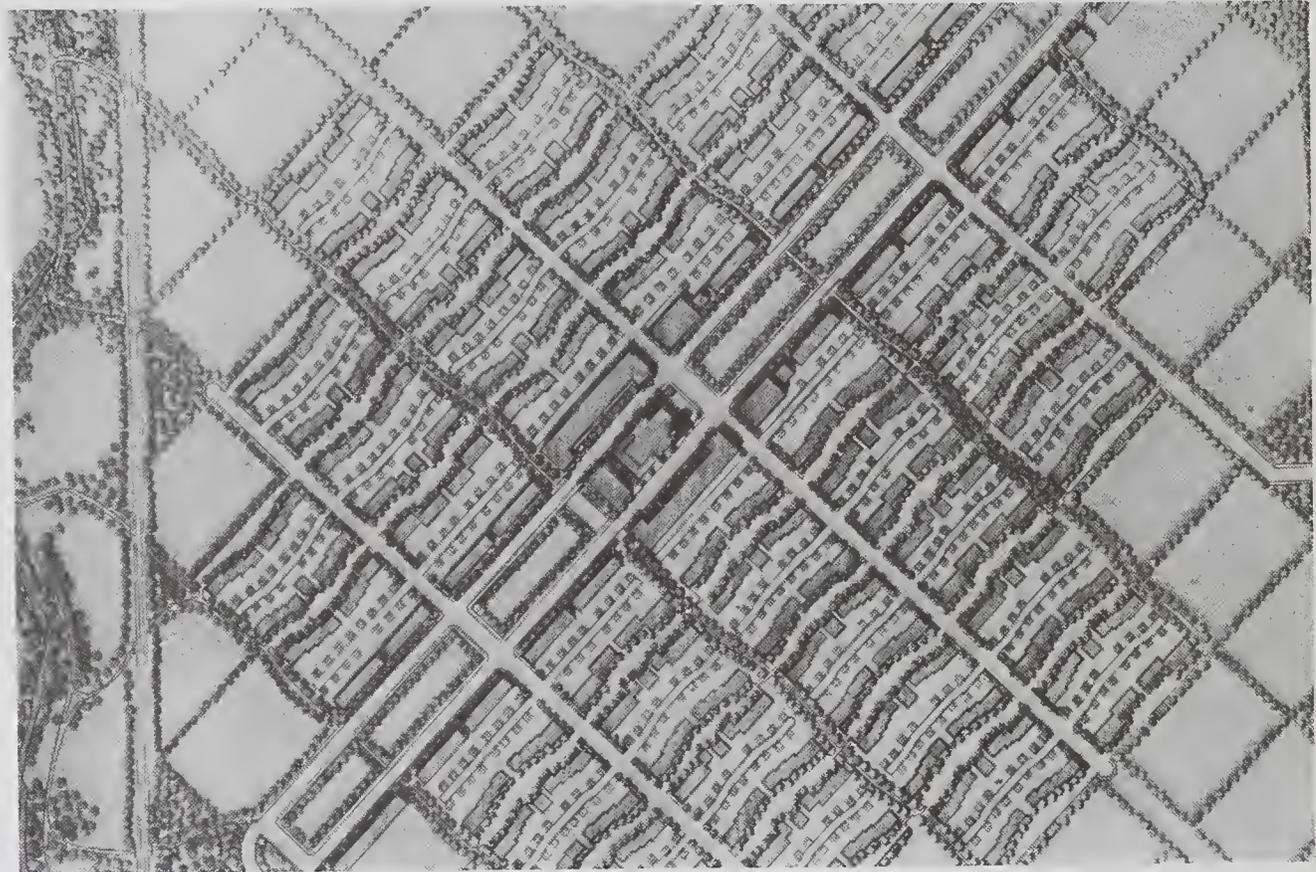
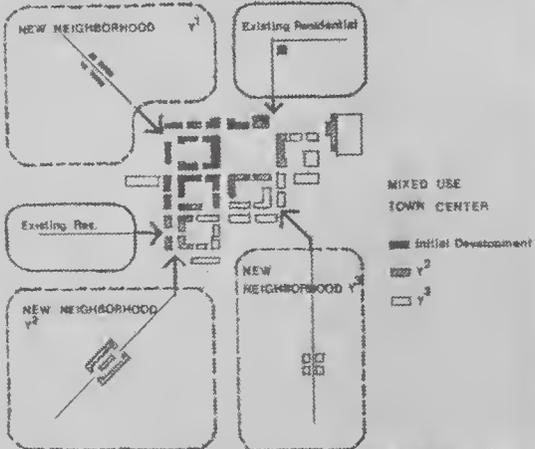
- Uses are within a 1/4 mile of one another, facilitating pedestrian movement
- Recreational facilities are included
- Tree-lined boulevards and streets are extensively used

Additional Features

- Boundaries for the site are defined by extensive natural and woodland areas
- Buildings are situated to create internal courtyards
- Few new residential structures are added



PROPOSED DEVELOPMENT and PHASING PLAN



Entrant: Timothy Gawronski
County: United States
Disciplines: Architecture
Urban Planning

Land Use

- Commercial activities are located in a central village center and in high-activity nodes in those neighborhoods surrounding it
- Village center has a true mixed use, given that residences are located above offices and commercial outlets
- Development is designed to be built in a phased approach

Transportation

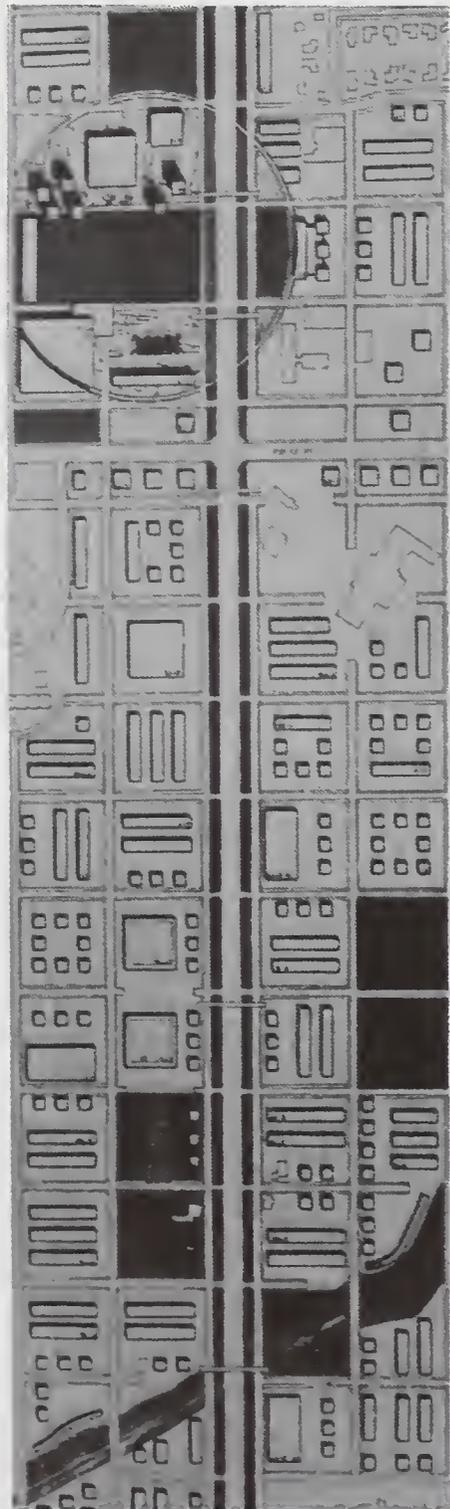
- A light rail line is included in the form of light rail. The station becomes a focus in the village center's main square
- Road patterns are based on a rotated grid with satellite development radiating out from the center
- Residential streets undulate while main roads are straight, encouraging automobile movement on these streets
- Parking for commercial uses is hidden in the middle of publicly used blocks in the town center

Amenities

- Open spaces are a mix of intimate local parks, larger neighborhood parks and woodlands, agricultural lands, pedestrian walkways, and regional recreational spaces
- A large park is included in the center of the development
- Residential neighborhoods include woonerfs which not only allow for auto access when necessary, but also provide additional public space
- A variety of housing types are included, although they are somewhat segregated. Most single family units are attached units
- Residential townhouses are included around the main square
- Residences although attached have private garages and yards
- Pedestrian ways link the separate neighborhoods to the development center and to one another
- Residential areas are directly adjacent to agricultural lands

Additional Features

- There are distinct patterns of density concentration and open space
- Areas surrounding the development are low density
- The issue of landscape is important to the scheme



Entrants: Andrew Gerhardt
Marc Gerhardt
Klaus Humpert

Country: West Germany

Disciplines: Architecture
Urban Planning

Land Use

- Strong linear core development is located along an existing arterial
- All development occurs within two block distance from the transit line
- Development is focused into mid-rise and high-rise structures, to allow for higher density concentrations with landscaping surrounding

Transportation

- Mass transit access is provided through the center of the development through this services core
- Gridded street pattern for automobile access
- Pedestrian bridges are used for access over arterials

Amenities

- Use of tree-lined street with buffer zone of green to protect development along the arterial from noise
- Public green spaces are blocks which are left open for either woodland growth or as recreational areas

Additional Features

- Structures are rather nondescript, with most taking the shape of rectangular boxes

Entrant: Timothy Smith

Country: United States

Disciplines: Architecture
Urban Planning

Land Use

- Village center development occurs along a central spine which is terminated at one end by the transit station and at the other end by a town square
- Mixed use town square includes high-density residential, commercial, government, public space, day care, religious, office, parking, and educational facilities to make it the focus for the village
- Conventional shopping center is linked to one corner of the town square to make it accessible and part of the development's life
- Government/public uses are grouped together in one area adjacent to the town square
- Perimeter open space is designated to control sprawl and to encourage higher density development within the site

Transportation

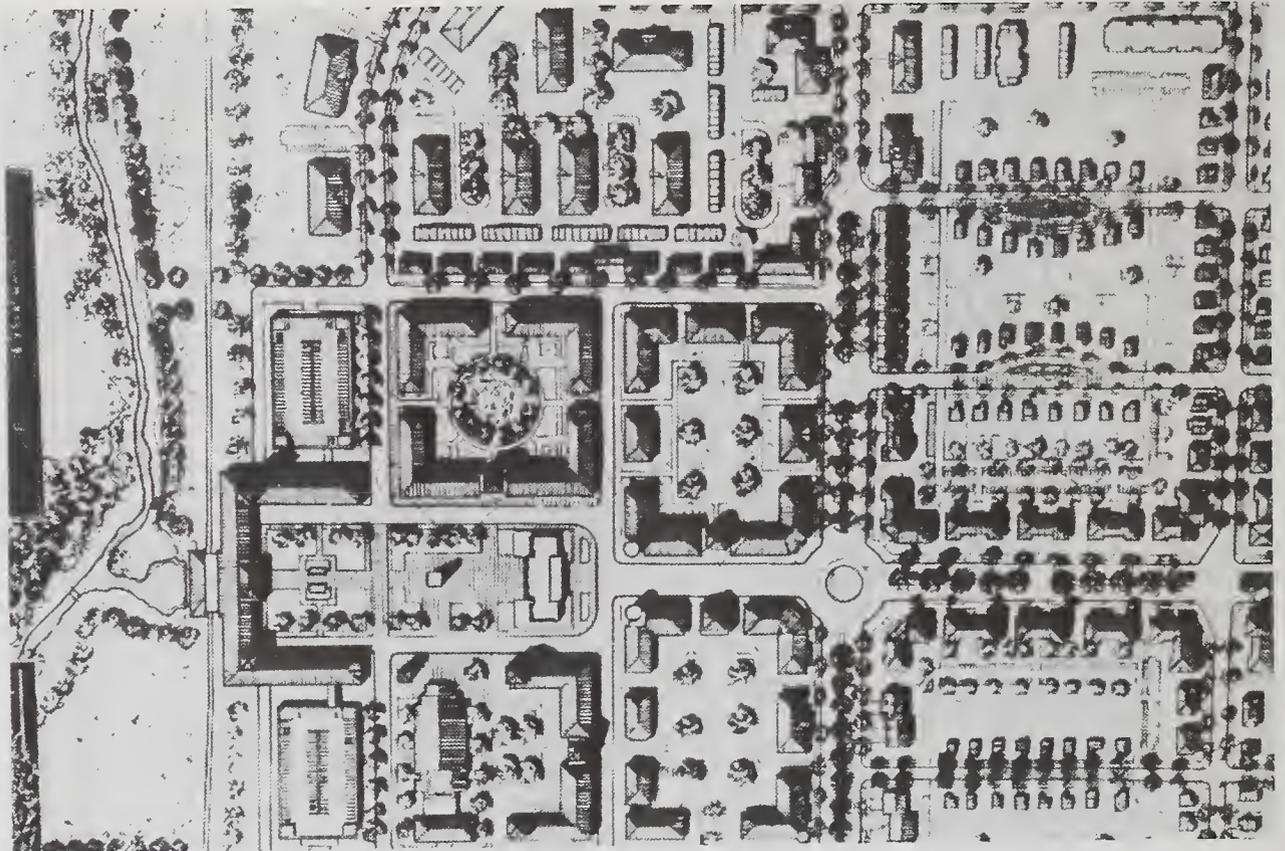
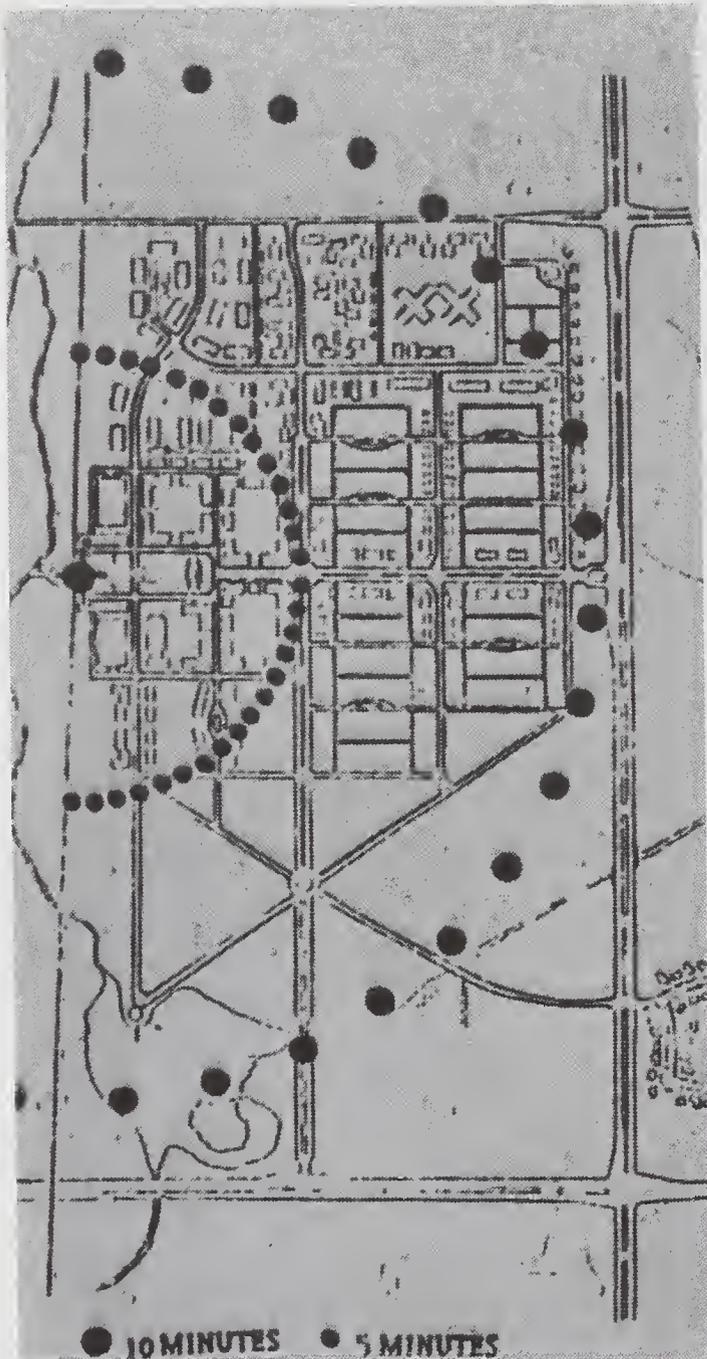
- Loop roads are used to provide access through the site
- Rail transit services are supplemented by park and ride facilities and bus service to surrounding areas
- Commercial blocks are served by alleys
- Residential blocks are inward looking, with parking areas behind buildings

Amenities

- Industrial areas are provided for along transit ways for shipping access. Zones are separated from residential areas with natural buffers
- Parkways/pathways are used to link outlying residential areas with the town center and are intended to discourage strip development
- Greenbelts of water and woodland growth are intended to encircle the site and to provide a link to the urban center park system
- Extensive use of tree-lined streets

Additional Features

- Woodland growth is allowed beyond the site borders for public use and to restrict sprawl



Entrants: Simon Atkinson
Mauricio Villamarin
John Bertsch

Country: United States

Disciplines: Architecture
Urban Planning

Land Use

- Development is located on one side of the rail line
- The main access through the site is terminated by the rail station
- Residential units consist of mostly low to mid-rise structures of attached and detached single family buildings

Transportation

- Entire development is located within a 10 minute walk of the transit stop
- Mass transit is provided by the use of a light rail system which is tied into the entire metropolitan area. Stops would be located at 1-2 mile intervals which would become the basis for new town developments in the future
- Park and ride facilities are provided for by structured parking at the train station which can be easily accessed from the arterials
- Major arterials form the perimeter of the scheme, instead of the development being organized around them
- The scheme's street pattern is a manipulated grid with variations being used to adapt to natural conditions or existing structures
- Residential streets are constricted in size to reduce the amount and speed of vehicular traffic
- Parking is handled in the center of blocks for both residential and commercial uses. A series of alleys are the means by which this parking is accessed

Amenities

- Boulevards and tree-lined streets become the pedestrian routes and are extensively used
- There are large amounts of green space provided on the site
- Meaningful "places" are located throughout the development. These take the form of parks, plazas, and intersections
- Residential blocks which do not include parking develop a common green space for the use of the residences

Additional Features

- Boundaries are further defined by the use of agricultural lands and woodlands which double for recreational spaces for the site
- A continuous flow of architecture and landscaping is developed.
- Emphasis on the creation of place, rather than a distinct rigid plan. The creation of vistas for public view reinforces this idea
- New town developments will not be initiated until existing ones are at least 75% full
- The density gradient for the site remains constant throughout the entire defined boundaries of the scheme.

**PART IV:
SUMMARY AND CONCLUSIONS**

"Based on the ICDC proposals which we have examined, one cannot be optimistic for the utilization of transit in planning for future suburbs".

What is the outlook for suburban land use in the future? Will transit play a relevant part in planning for the suburbs? What is the state-of-the-art for planning a suburb with integrated transit and land use? This report has scrutinized a large number of designs which has provided sufficient data to indicate critical trends in this area.

The Role of Transit

While transit may be a consideration in planning the suburb of the future, it is generally not part of such projects. The few solutions which included transit were all influenced by a single planner and are relegated to a specific area (California). The 'visionary' solutions, proposed in the International City Design Competition, were less constrained, yet these proposals did not, on the whole, include transit as part of their strategies. Many of the contemporary real estate projects, though innovative, were modest in size and thus did not have the critical mass to either develop transit services or attract existing transit. The ICDC solutions however did not have such limitations — the proposed site was quite large, could contain a large population, and was served by an existing rail line and arterial streets. Furthermore, the competition called for 'credible' and 'visionary' planning and design. Nonetheless, most solutions depended solely on the private automobile.

Furthermore, the relatively few proposals which did utilize transit were often problematical, particularly in their considerations for transit operations. Based on the ICDC proposals which we have examined, one cannot be optimistic for the utilization of transit in planning for future suburbs. Some specific localities in areas affected by congestion, problems with air quality, and legal requirements, will probably mandate transit solutions. Some local governments are already doing this, but most will not. Metropolitan areas which are not yet affected by suburban problems will also rely on the automobile unless forced to change.

Perhaps the role that transit can play is beyond the purview of many planners. The inclusion of transit is a metropolitan and regional concern and beyond the scope of developer's projects unless the projects themselves approach this scale. Planners, unless they have had some experience with transit, may also be loath to use this strategy. Although new transit lines have been successfully developed in a number of cities and their suburbs, information on the number of recent and innovative proposals for suburban planning and for appropriate design strategies for transit are not readily available.

The Role of Land Use Planning

Notwithstanding the infrequent provision of transit in the innovative suburban projects which we examined, many of the proposals did include land-use strategies which could be appropriate for mass transit.

The proposed development projects and a number of the ICDC entries provided the basic attributes necessary for the inclusion of transit: reasonably high densities in concentrated areas, a mix of uses, available rights-of-way, and a pedestrian orientation. Since transit was not provided, however, why were these characteristics incorporated in these schemes?

"If these examples are successful, they will be widely copied and . . . a new generation of suburbs will be created".

The precedent for many of these designs is an earlier era of suburb that provided a strong, traditional architectural vocabulary, civic spaces and an overall theme. They seem to have more meaning and to be more appealing than the anonymous, conventional suburb. One group of designers has begun to develop a set of underlying principles and guidelines for the planning and design of such suburbs.

What the new proposals are missing, and what these precedent suburbs included, is mass transit. The station, its connections to other stations, the civic buildings, stores around the station, and the pedestrian paths connecting the station to the home were important in making these villages successful. This area is also beginning to be addressed by architects and planners. For the first time, guidelines are being formulated for the design of suburbs based on the provision of transit. This should familiarize planners with transit-based land-use solutions and facilitate transit in their proposals.

After some 40 years of phenomenal growth, the fundamental nature of the suburb may be changing. The strongest case for the success of transit-sensitive land-use planning may be the increasing number of proposals, both development and theoretical proposals, for innovation in suburban planning and design. There is growing interest in the field of suburban design; innovative projects are now in construction and legislation for requiring such planning is being seriously considered. If these examples are successful they will be widely copied, and with the added stimulus from perturbations in energy supply or air quality legislation, a new generation of suburbs will be created.

The Role Of Market Factors In The Design Of The Suburb

The suburb has been successful as a place to live because, on the whole it is an attractive environment. Notwithstanding the ability to provide access to a place to work and its pattern of land use planning, the suburb essentially offers a way of life that contains good schools, many opportunities for recreation, local amenities and services, a decided image of landscape and planting and often a uniform character of design, perhaps primarily due to the era in which it was built, and a relatively small scale which allows for participation in local affairs.

In the original development of the criteria with which to analyze the ICDC and exemplar projects there were no criteria included for market factors. The issue of integrating land use, transit and access concerns were the priority issues. Market issues, however, are crucial to the success of such developments and must also be addressed as an integral aspect of design. Notwithstanding the success of the three categories of factors examined, the design must also contain the necessary elements which would create a strong attraction to the new suburban environment.

Other market factors which must be examined include the provision of commercial space in the development. Only limited retail and service square footage can be supported by the size of the suburban population.

Although market-based criteria were not used in our analysis of these proposals the guidelines and the prototype design developed and reported in the second report of this project do reflect our consideration of market issues.

APPENDIX

K. SELECTED READINGS

SELECTED READINGS

The readings included in this section apply only to the information which was deemed significant in developing this report. The full bibliography developed for 'Study of Land Use and Transportation in the Suburbs' is contained in report number 2, "Guidelines for Transit Sensitive Suburban Development".

The Anglo-American Suburb. An "Architectural Design Profile"; Robert A.M. Stern Editor. Architectural Design. London, England. 1981

This special issue of "Architectural Design" presents an excellent and well illustrated summary of 54 important suburban projects including prototypical, railroad, streetcar, resort and automobile suburbs as well as industrial villages.

Bourgeois Utopias: The Rise and Fall of Suburbia; Robert Fishman, Basic Books. New York. 1987.

This book is an excellent complement to Crabgrass Frontier. It is particularly valuable for its coverage of the 18th century English suburb.

Crabgrass Frontier; Jackson, Kenneth T.; Oxford University Press, Inc.; 1985.

This book is the definitive source for the history, development and information on the suburbs. Very readable, comprehensive, and detailed.

International Cities Design Competition, Competition Program; University of Wisconsin-Milwaukee, School of Architecture and Urban Planning. July 1, 1988.

The program which provided the basis for the ICDC proposals which are analyzed in this

report. The entries to this competition were also available to the authors. There are plans to publish the winning entries as well as other selected schemes in the future.

“The Kentlands Charrette, Producing a Town Plan in a Week,” Hamblen, Matt, Urban Land, September 1988, pp. 10-15

“Urban Land” has published 7 additional articles on innovations in suburban design since 1987 as well as a number of articles on transportation management which have application to suburban planning. The Urban Land Institute also distributes readings from various journals on new suburban communities including “Neotraditional Planning” and “New Towns/Planned Communities”.

The Pedestrian Pocket Book; Kelbaugh, Doug, Editor; Princeton Architectural Press, 1989.

This slim volume provides excellent background and rationale for the current movement to redesign suburban environments. A number of designs are promulgated using the principles promoted in this book.

Sandy Spring Charrette, Alfandre, Joseph & Co., Inc., January, 1990.

This is an example of a number of brochures documenting designs of the suburban developments that are included in this report. Further information on these and other developments are available through either the developers or master planners of these projects whose names and addresses are provided in the appendix of this report.

Seaside; Project Reference File, Urban Land Institute, Washington, D.C. (videotape-18 minutes and description)

Documentation of the project that stimulated much of the current interest in rethinking suburban planning. Though it is an second home community and does not include transit, it is based on a pedestrian-orientation and urban design principles and is a significant precedent for much of the subsequent work in this area.

Transit-Oriented Development Design Guidelines; Calthorpe Associates, (prepared for Sacramento County Planning & Community Development Department), September, 1990.

A recent and detailed version of the application of innovative suburban design principles to a specific situation in rapidly growing Sacramento County, California. A comprehensive set of guidelines.

L. LIST OF NEW SUBURBAN DEVELOPMENTS

<u>Designers</u>	<u>Project Name</u>	<u>Location</u>
Duany/Plater-Zyberk	Bedford	New Hampshire
Duany/Plater-Zyberk	Belmont Forest	Leesburg, VA
Duany/Plater-Zyberk	Blount Springs	Birmingham, AL
Duany/Plater-Zyberk	Charleston Place	Boca Raton, FL
Duany/Plater-Zyberk	Deerfield	Merrillville, IN
Duany/Plater-Zyberk	Folsom	Sacramento, CA
Duany/Plater-Zyberk	Friday Mountain	Austin, TX
Duany/Plater-Zyberk	Mashpee Commons	Hyannis, MA
Duany/Plater-Zyberk	Playa Vista	Marina Del Rey, CA
Duany/Plater-Zyberk	Riverfront	Manchester, NH
Duany/Plater-Zyberk	Kentlands	Gaithersburg, MD
Duany/Plater-Zyberk	South Hill	Ithica, NY
Duany/Plater-Zyberk	Sandy Springs	Washington, DC
Duany/Plater-Zyberk	Seaside	Walton County, FL
Calthorpe & Associates	Laguna West	Sacramento, CA
Calthorpe & Associates	Lexington Park	Polk County, FL

<u>Designers</u>	<u>Project Name</u>	<u>Location</u>
Calthorpe & Associates	North Park Village	Merced, CA
EDI/Peter Brown	Montgomery Vil.	Princeton, NJ
EDI Architects	Lake Park Village	Newtown Township, PA
EDI Architects	Sutter Bay	Sutter County, CA
EDI Architects	West Main Street	Bucks County, PA
EDI Architects	Crystal Lake	Bordentown, NJ
The Berkus Group	Hampton's Cove	Pine Valley Town
The Berkus Group	Maralisa	Livermore, CA
The Berkus Group	Northbank	San Angelo, TX
Sasaki & Associates	Brambleton	Loudon County, VA
Sasaki & Associates	Cascades	Loudon County, VA
Landon Wilson	Estrella	Phoenix, AZ
Robert Stern	Grand Harbor	Vero Beach, CA
Peets/Crane	Greendale	Milwaukee, WI
Big Valley Corp.	Grand Targhee	Alto, WY
Becket/Kump	Las Colinas	Dallas, TX

Designers

Project Name

Location

Liedstrand Associates

Mountain House

San Francisco, CA

Jack Dillon

Owings Mills

Baltimore County, MD

**M. DEVELOPER/DESIGNER
ORGANIZATIONS**

<u>Developer/Designer</u>	<u>Contact Address</u>	<u>Telephone Number</u>
Calthorpe Associates	246 First Street, #400 San Francisco, CA 94105	(415) 777-0181
Duany/Plater-Zyberk	1023 SW 25th Avenue Miami, FL 33135	(305) 644-1023
EDI Architects	3731 Briarpark Drive, Suite 300 Houston, TX 77042-5207	(713) 789-0395
Joseph Alfandre & Company, Inc.	P.O. Box 5569 1355 Piccard Drive, Suite 450 Rockville, MD 20855	(301) 670-0343
Kettler & Scott	8081 Wolftrap Road, Suite 300, Vienna, VA 22181-5100	(703) 641-9000
Sasaki & Associates	64 Pleasant Street, Watertown, MA 02172	(617) 926-3300
The Berkus Group	223 East De La Guerra, Santa Barbara, CA 93101	(805) 963-8901

N. SURVEY FORM

ICDC COMPETITION EVALUATION FORMAT

ICDC # _____

1. Focus of solution (answer "yes" for all that apply, "9" if not applicable):
- ___ I-94: (1) yes; (2) no
 - ___ (Presently) built up land: (1) yes; (2) no
 - ___ (Presently) open space: (1) yes; (2) no
2. New subdivisions (answer "yes" for all that apply, "9" if not applicable):
- ___ Mixed use: (1) yes; (2) no
 - ___ Segregated use: (1) yes; (2) no
 - ___ Highly distinct patterns of density concentration/open space: (1) yes; (2) no

 - ___ Grid/lattice road patterns: (1) yes; (2) no
 - ___ Tree/hierarchy road patterns: (1) yes; (2) no
 - ___ Linear/main street patterns: (1) yes; (2) no
 - ___ Satellite suburb development: (1) yes; (2) no
 - ___ Other: _____

3. Project Attributes (answer "yes" for all that apply, "9" if not applicable):

Commercial

- ___ Conventional shopping center (retail): (1) yes; (2) no
- ___ Non-conventional activity center (mixed use): (1) yes; (2) no
- ___ Services corridor development: (1) yes; (2) no
- ___ Rail corridor development: (1) yes; (2) no
- ___ Entertainment/recreational concept: (1) yes; (2) no
- ___ Industrial center: (1) yes; (2) no
- ___ High activity identity node: (1) yes; (2) no
- ___ Other: _____

Open Space

- ___ Park/open green space: (1) yes; (2) no
- ___ Woodlands: (1) yes; (2) no
- ___ Agribusinesses/farms: (1) yes; (2) no
- ___ Other: _____

Relevant Design Concept

- ___ Neighborhood focus (<10 block area): (1) yes; (2) no
- ___ Village center (10 < 40 block area): (1) yes; (2) no
- ___ Crossroads development: (1) yes; (2) no
- ___ Corridor approach: (1) yes; (2) no
- ___ Agriculture: (1) yes; (2) no
- ___ Recreation: (1) yes; (2) no
- ___ Low density surroundings: (1); yes; (2) no
- ___ Other: _____

Project "title": _____

Housing

- Single family housing: (1) yes; (2) no
- Townhouses: (1) yes; (2) no
- Moderate housing: (1) yes; (2) no
- High density housing: (1) yes; (2) no
- Multi-family housing: (1) yes; (2) no
- Other: _____

4. Does the solution contain a specific written (paragraph of major title) or graphic concept (diagram or vignette) related to the following:

- Significantly different new suburban housing models: (1) yes; (2) no
- Multi-family housing: (1) yes; (2) no
- Suburban/rural centers: (1) yes; (2) no
- New suburban employment: (1) yes; (2) no
- New forms of suburban industry: (1) yes; (2) no
- New forms of suburban agriculture: (1) yes; (2) no
- New forms of suburban recreation: (1) yes; (2) no
- Preservation of existing natural areas: (1) yes; (2) no
- Addition of "new" natural areas: (1) yes; (2) no
- Energy use/conservation: (1) yes; (2) no
- Waste management: (1) yes; (2) no

- Number of verbal concepts regarding suburban development.
- Number of individual drawings with regard to suburban development.

5. Is there evidence of mass transit? (answer "yes" for all that apply, "9" if not applicable):

- Text: (1) yes; (2) no
- Graphic representation: (1) yes; (2) no
- Assumptions made from presentation: (1) yes; (2) no
- None in evidence: (1) yes; (2) no

If answers were "no" for all of the above, skip to question #8.

- Worth another look: (1) yes; (2) no Photographs requested: (1) yes; (2) no

6. If there is an evidence of mass transit, is the solution a feasible one (on a 0 to 5 scale, 0 as none, 5 as excellent, 9 as not applicable):

- Density of land use: (0 as none apparent, 5 as excellent)
- Number of people: (0 as none apparent, 5 as excellent)
- Concentrated locations: (0 as none apparent, 5 as excellent)
- Pedestrian orientation: (0 as no access, 5 as deliberately planned/articulated)
- Minimize walking: (0 as none apparent, 5 as excellent)
- Through routing: (0 as none apparent, 5 as excellent)
- Turns required: (0 as none apparent, 5 as excellent)
- Rights of way available: (0 as none apparent, 5 as excellent)
- Overall feasibility: (0 as none apparent, 5 as excellent)

7. What forms of transportation does the solution utilize (answer "yes" for all that apply):

- Bus: (1) yes; (2) no
- Light rail: (1) yes; (2) no
- Heavy rail: (1) yes; (2) no
- Commuter rail: (1) yes; (2) no
- Park and ride: (1) yes; (2) no
- Other: _____

Skip to question #9.

8. If there is no evidence of mass transit, could the program support it: (1) yes; (2) no

If yes, what is the submission's capacity for transportation (on a 0 to 5 scale, 0 as none apparent, 5 as excellent, 9 as not applicable):

- Density of land use: (0 as none apparent, 5 as excellent)
- Number of people: (0 as none apparent, 5 as excellent)
- Concentrated locations: (0 as none apparent, 5 as excellent)
- Pedestrian orientation: (0 as none apparent, 5 as excellent)
- Minimize walking: (0 as none apparent, 5 as excellent)
- Through routing: (0 as none apparent, 5 as excellent)
- Turns required: (0 as none apparent, 5 as excellent)
- Rights of way available: (0 as none apparent, 5 as excellent)

- Overall feasibility: (0 as none apparent, 5 as excellent)

9. General Transportation Questions (check most appropriate answer)

- Pedestrian access: (1) noticeable increase; (2) noticeable decrease; (3) no change
- Mass transit: (1) noticeable increase; (2) noticeable decrease; (3) no change
- Street expansion: (1) noticeable increase; (2) noticeable decrease; (3) no change
- Parking: (1) noticeable increase; (2) noticeable decrease; (3) no change
- Strong mass transit link: (1) yes; (2) no
- Major change to existing street structure: (1) yes; (2) no

10. Employment (if building keys used, indicate major new sources of employment or mark "9" to indicate that answer is missing or not readily discernable):

- Services/retail: (1) hi; (2) med; (3) low
- Industry: (1) hi; (2) med; (3) low

11. Approach to transit statement: _____

12. Innovative solutions: _____

13. Other comments: _____



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