POSTSUBURBIA IN CARMEL, INDIANA :
DESIGN THROUGH AN AWARENESS OF ECOLOGY AND
SOCIAL NETWORKS

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POSTSUBURBIA IN CARMEL, INDIANA: DESIGN THROUGH AN AWARENESS OF ECOLOGY AND SOCIAL NETWORKS

LA 404
FIFTH YEAR LANDSCAPE ARCHITECTURE CREATIVE PROJECT
BALL STATE UNIVERSITY, MUNCIE, IN 47306
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Preface

Upon entering the College of Architecture, my understanding of the profession of landscape architecture was limited. I saw the landscape architect as an artist of the trees, flowers, shrubs, rocks for residents who wanted more than a stamped landscaped yard. This direction or career objective affected my choice of internships and interests for three years while in the college of landscape architecture at Ball State University.

Two summers were spent freelancing - drawing designs for several women in the Indianapolis area and gardening - mowing lawns, pulling weeds, planting flowers. Another summer was spent working as a salesclerk and maintenance woman of plant materials at Eaglecreek Nursery in Indianapolis.

After these experiences and a studio which was directed toward landplanning, I became interested in the landscapes of the larger contexts. Planning of larger contexts meant, I would begin to understand the role of the landscape architect/planner, engineer, architect, ecologist etc. This interest drove me to realize that in order to get experience of the larger landscape, I should work for a multi-disciplinary firm. Therefore, prior to the summer before my fifth year of school, I interviewed with firms, public and private, in which I would develop my understanding of landscape architecture.

During the summer before my senior year, I worked for a multi-disciplinary firm in Indianapolis. Through this internship I became aware of the role of the landscape architect, engineer, and the architect, individually and as a team. But most importantly, I learned that our environment is predominately dictated by the regulations imposed by our state government, by the perceptions of the developer, and by the landplanners. For example, land is zoned residential, commercial, special with little regard to the existing integrity - the old farmhouse, the wetland, the stream, the hardwood forest. It was difficult for me to complacently say this land with its proud, natural beauty now will became D-4, D-3 (Residential) and the design objective is to fit as many lots of a certain size onto a given parcel of land. Something was lost.
Foreward (Importance of the Following Thesis)

This thesis book is written with the belief that the existing fabric of suburban development will need to be reassessed. Thirty plus year have passed since the suburban development has been scrutinized and a new solution to community development, the new town, have been introduced. The premise of this project is that our existing suburban development needs to be reevaluated and new environmental resource realities and social networking will be the solution.

The proceeding pages will explain how our communities will become environmentally and socially sensitive relative to the suburban enclave.

*As you are reading, realize this project is hypothetical. However, if these ideas were to be implemented those in charge of community development would change their mindset. This project is meant primarily to spur ideas. An evaluation of the overall cost associated with this type of design, benefits, and marketability (which I touched on) would be my next step.
Acknowledgements

This thesis book, which has been a long time in the making and editing, would not be complete or near complete without the helpful advice and suggestions from the following professors, professionals of landscape architecture, friends, and my family.

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Mike Melchiori (brother)
Dave Wiley (brother's friend)
- for being a morale booster and saying, "Cool introduction."
CHAPTER 1 - INTRODUCTION
"Earth provides enough to satisfy every man's need, but not enough for everyman's greed." Gandhi

**INTRODUCTION**

Before the attitude of existing community planning is changed we must decide what the attitudes and problems are and design in a manner to change attitude or justify the change through the way in which we design.

In the recent past, inexpensive energy and accessible resources have allowed community planners to plan communities - the suburbs without acknowledging ecological limits and sociological changes. Suburban developments are evidence of inefficient, ecologically exploitive, and socially segregating living environments. Patterns of suburban development include suburban sprawl, traffic congestion, and rising land costs. Suburban sprawl has sparked the heavy reliance on the vehicle which contributes to the reliance on public facilities outside of the community. However, rationalized, the forms of the suburban development reinforce our mobile state and the instability of our families. The street with the traditional right-of-way separates neighbor from neighbor. Generic symbols such as the entry fountains, trite themes, dominate the suburban community. Our communities are zoned black or white, private or public, my space or nobody's.
Mobility and privacy have increasingly displaced the traditional commons, which once provided the connected quality of our towns and cities. Our shared public space has been given over to the car and its accommodation, while our private world has become bloated and isolated. As our private world grows in breadth, our public world becomes more remote and impersonal. As a result, our public space lacks identity and is largely anonymous, while our private space strains toward a narcissistic autonomy. The automobile destroys the urban street, the shopping center destroys the neighborhood store, and the depersonalization of public space grows with the scale of government. Social issues and development are elusive and complex, it must be addressed by a serious new theory of community planning. (Calthorpe, p )

Recent irresistible social, economic and technological forces for change have been building since the middle of the century. The current social and environmental pressures will be more resource efficient and will respect the landscape and human interactions of our rural environment. Rural development must come to be seen within the context of an urban policy which takes as its first premise the need to reshape human habitat to conform to new energy, resource realities, and human interactions.
The single family house which mushroomed in the 1950s and 1960s was built and designed for a family consisting of a husband, a wife and 2.5 children. This family size now represents 10% of all families in the country. The changes in family size will necessitate new perceptions of how we settle our environment for living.

Transformation from the industrial forms of segregation and centralization (suburbia) to the decentralized and integrated forms of the post industrial era. The urban village, which represents an unassuming symbol of a simpler more compact neighborly, civic-spirited America, has recently been relocated as a model for new suburban development or Planned Unit Development. The urban village, will bring homeplace, necessary services and amenities into balanced complete community. Postsuburbia or the urban village combines the most desirable features of the village, the city and the summer camp and the density, culture, and diversity of Broadripple, Indianapolis. (Calthorpe, p. 71)
In the Midwest the engineers and landplanners are responsible for community planning. Since the engineer focuses on the quantitative aspects of design, his concerns may not address the land's microclimates, topography, vegetation and human interactive systems. In most cases the land is developed into an environment which is ecologically exploitative and socially disfunctional.

**SITE IDENTIFICATION**

The site chosen for the following schematic design in the Midwest - Carmel, Indiana. This site is bound by 131st street, SpringMill Road, and US 31. Adjacent land to this site has been developed as middle to high class suburbia. Characteristic of this site of one hundred acres are varying sloped ravines, knolls and mature hardwood forrests. At this time, 1/4 of the site is being developed as commercial and residential (1/2 acre lots). This research will present a village solution adjusting itself to a new reality of community design which stimulates a resource efficient and sensitive human interactive systems within the existing fabric of suburbia.
Context Identification (Why people move to Carmel, Indiana)

"People move to Carmel, Indiana for the following reasons: good public schools, natural beauties, high house resale, and relative convenience to nearby services in Indianapolis." (Mary Hoagland, realtor for Century 21).

At this time the people moving to the rural environment of Carmel are given a limited choice of the house type and living environment in which they may live.

Average home cost in Carmel: 154,000
Profile Includes: 3 cars, 4 bedrooms, basement, pool site
Tax Rate: Property
Services Include: Gas, heat, Septic - now city utilities
Rawland cost: $9000 an acre
SpringMill Streams: 350,000 - 700,000, average 3/4 acre lots

However, compared to the adjacent developments, the residential districts are required to be at higher densities. The site chosen for this study was zoned as estate lots 1/2 to 1 acre - 12,000 square foot. However, at one time the developer (Developer, George Sweat) was looking into establishing the chosen site as multi-family apartments (Ann Parker, marketing analyst - George Sweat).
The following is an excerpt from the Carmel Plan Year 2000
The extent and quality of the public facilities and essential services the community provides are mainstays of a healthy community and principal factors that determine livability. The quality of the thoroughfare system, school system, recreational amenities, public utilities and other community services can often tip the balance of individual and corporate decision making in selecting a community for business or residence.

Education
The Carmel/Clay Schools are one of the major attractions that has drawn many people to live in the area. The Township and City are served by one senior high school, two junior high schools, and five elementary schools. Special education and kindergarten programs were implemented in 1985 within the public school system. Carmel also has a Catholic school and a Christian Academy. In addition, there are several nursery or cooperative pre-schools serving Carmel/Clay Township. Presently, none of the Carmel/Clay schools has enrollment over capacity. The school system, as of the spring of 1985, was operating at 80 percent of its optimum enrollment capacity.
ASSUMPTIONS
The following assumptions have influenced this project.

General
1. The public is showing a concern for pedestrian circulation than vehicular circulation in the community.

2. At this time, the desire to consume and live on larger parcels of land is being questioned and the market for smaller parcels of lots is increasing.

3. Today, more people are attracted to the culture and the convenience of the urban context.

Observations
Site specific
1. The typical house in Carmel, Indiana contains 2-3 car garages.
2. The access roads sprawl over the land, and consume a large percentage of the land. Therefore, the suburban environments in Carmel, Indiana are representative of a carbond society.

1. Culverts are built over streams to access houses.
2. Houses are built and lots are divided with relatively little consideration of the soils, slope, hydrology, and vegetation.
3. Profit is the goal of the community planners.

Therefore, the natural environment - the vegetation, the topography, the hydrology, microclimates are being squandered.

Goals
1. Promote landuses which provide sociobility.
2. Promote landuses which are sensitive to the ecology - topography, vegetation, and hydrological systems.
3. Promote an environment where social systems and natural systems respond to one another.

Thesis Statement
This research will present a village solution adjusting itself to a new reality of community design which stimulates a resource efficient and sensitive human interactive systems within the existing fabric of suburbia.


### POPULATION AND ECONOMY

Since 1940, the population in Carmel and Clay Township has increased dramatically when compared with state and national trends (Figure 1). Carmel Township experienced a greater rate of growth between 1950 and 1960. Carmel, on the other hand, experienced its highest growth rate between 1960 and 1970. These large growth outcomes, Carmel and Clay Township continued to grow but at slower rates. The largest percentage increase occurred in the 55-64 year age group in Carmel, Clay Township from 1970 to 1980. The second highest increase in Carmel’s population occurred in the 55-64 age group, and its smallest percentage increase was in the 0-4 age group.

The slower rate of growth in the 14 and under age group is the result of the declining birth rate and the accumulation of more single, professional people, married couples wanting to have children and older couples whose children have already left home. A summary of age composition for the City of Carmel’s Township is provided in Figure 2.

### DEVELOPMENT CONSTRAINTS/CONDITIONS

The percentage of the population in Carmel/Clay Township and Hamilton County that moved from a different county or state increased between 1970 and 1980. People moving to the area from within the state showed the largest increase. The majority of the Carmel labor force depends on employment opportunities in Indianapolis. In 1980, 72.6 percent of Carmel’s population worked outside the county or area of residence.

The Carmel labor force increased by more than 300 percent during 1970-1980 (Figure 3). The labor force of Clay Township also increased but not as much as Carmel. In 1980, managerial, professional and technical occupations, along with clerical sales and administrative support occupations, were held by 40.2 and 76.4 percent of those people employed in Carmel and Clay Township, respectively. Manufacturing had the second highest percentage of employment in Carmel in 1970 and 1980.

The housing stock in Carmel has experienced significant growth because the population has grown during the last 30 years. Between 1970 and 1980, the number of housing units increased by 128 percent. It is important for people per household developed. This trend shows that most of the population consists of single professional people, married couples wanting to have children and older couples whose children have already left home. A summary of age composition for the City of Carmel’s Township is provided in Figure 2.

The Comprehensive Plan Update examined how various growth alternatives would influence future population growth. Carmel/Clay Township is projected to grow at an average annual rate of two percent or to 46,713 residents by the year 2025. This was the alternative that best fit the pattern of Carmel/Clay Township’s growth.
CHAPTER 2 - DESIGN PROCESS
DESIGN PROCESS
The method used to solve the proceeding community design includes program development, inventory/analysis of the political, natural, and visual restrictions/elements of the chosen site, schematic design development of the first phase neighborhood/village.

Program Development
The following program development is written in order to create a social living environment where the landuses respond to the ecological systems of the site.

General landuses which will enhance sociability in a community are commercial, residential, recreational, cultural, educational, and economic. These landuses are general; therefore, theories, existing zoning ordinances, specify what type of landuses are included in the urban village.

These lists will then establish the Program - a list of landuses of SpringMill Ravines. Characteristics of the residential, commercial, and recreational landuses of this community are established from a comparison of characteristics of the urban village and the existing site zoning. Included landuses in the program are those which echo the spirit of the village explain the types of landuse represented in a village.
According to Pearson the new, new town (which influenced the program I have developed for the chosen site) includes the following criteria which establish the formula for a community of which their is no record of in the suburban context.

Character of Landuse of the urban new, new town (I am renaming the urban village)

1. Mixed use core - the village brings together a variety of uses to form a central hub for the entire community. (Concentric ring theory when laying out a village)

2. Pedestrian activity is critical to the success of the stores in the center of the village and to the village as a whole. All residents should live within a half-mile of the retail/civic core.

3. Mixing retail, multi-family dwellings (Usually condos and apartments above stores in the town center provides the village with a heterogeneity that contrasts with most Planned Unit Development's uniformity of uses and building types. Mixing variously priced single-family homes with rentals and condos blurs the class distinctions prevalent in many suburb, and enables extended families to live in closer

LandUses (Based on the existing zoning)

Church, temple or other place of worship
Delicatessen
Antique shop
Grocery store

Single family dwelling
Multiple family dwelling
4. Employment and civic centers

5. A sense of community - a sense of community - The problems of the Planned Unit Development is there lack of sense of place. Planners of new villages sometimes make up fictitious histories for them. Another way of giving a development an identity is to reserve prominent sites at the end of major avenues or on hills for landmarks such as historic monuments, public buildings, and churches. (Lynch)

6. Street life - Scale, architecture on the street - establish a close connection between buildings, sidewalks, and streets. In commercial areas, shops open directly onto the sidewalk; in the residential areas, elements such as porches and stoops tie private homes to the public realm of the street.

7. Connection - Woven together instead of isolating neighborhoods by income level or product type, planners of villages try to connect them to each other and to the central business district. Also, outside connections to surrounding developments are important if there are not enough residents in the village to support the retail components.
PROGRAM (Calthorpe's Theory - Hypothetical community)

Residential
Apartments -
Designed for individuals or childless couples. Affordable two - or three-story flats over parking. Parking requirements two per unit.

Townhouses /duplexes -
Two-story units with private yards and attached two car garages.

Single Family Detached houses -
Small lot family homes with garages on lots of a minimum of 2500 sf.

Elderly Congregate Living Facilities -
Typically two - story clustered housing with a centrally located community facility. Parking at one stall for four units.

Cultural
Civic facilities - 25,000 sf - a
Meeting Place with a place of worship, post-office etc.

Parks and Recreational Facilities app.
12 acres - A central public area that accommodates activities and features as defined by the sports teams. Does not include open areas common to an individual cluster of housing or a commercial complex.

Commercial
A variety of commercial uses in transitional locations throughout the community. Landuses include: antique shops, food places, service oriented related to resident hobbies - bicycle shop, camera shop.
INVENTORY/ANALYSIS
The following three inventory/analysis explain the site features - infrastructure, natural features, and visual analysis. Identification and evaluation of the infrastructure, natural features (vegetation, the slope, and soils) and visual qualities set the parameters for the development of the schematic design of the urban village.

A thorough inventory/analysis, typically is not a integral part of the design process of a developer, landplanner, or engineer. Therefore, the sites natural integrity is sacrificed, if the topography, soils, vegetation and existing infrastructure are understood and identified as vital determinants which set parameters for the site design.

For example, a developer, landplanner focuses on a limited set of criteria while he or she is setting parameters for a given program and design. In most cases he looks at a limited set of site determinants - floodplain elevations, building setbacks, right-of-ways, easement lines, and zoning restrictions. Most of these determinants restrict the environmental and economical innovation of design that a thorough site analysis would enhance.
Political Infrastructure - The following graphic shows the major arteries which encompass the site. West of the site is SpringMill Road, east is US 31, north is 131st street, and to the south is the property line. SpringMill Road and 131st street are secondary roads, while US 31 is a primary road.

Also, on the site is a collector road which bisects the road in half.

Both SpringMill Road and US 31 are major access roads to Indianapolis. Therefore, anyone living in the community travels these roads to and from work. Design considerations such as visual quality of the site experiences from these access roads influence the design quality.

Existing Landuse Regulations

B-3 Business District-The Purpose of this district is to provide a location for office buildings and general offices protected from encroachment from heavier commercial uses. This district is frequently found in close proximity to residential areas and/or intermixed with residential areas, it is the intention of this district to allow for a compatible mixture of the two uses with reasonable regulations.

The purpose of this district is to provide for a wide variety of commercial and office uses in transitional locations throughout the community. The intent is to establish somewhat more stringent requirements in order to better regulate businesses locating in primarily newly developing areas. (Carmel Zoning Ordinances p83)

R-3 One half of the site is zoned as residential. R-3 one type of zoning restriction of the 100 acres is allotted to larger scale parcels of land.

Therefore, a variance in which this district would be zoned multi-family, multi-use similar to a PUD would ensure versatility, diversity, maximum living amenities, and varying densities.
Natural Features - Soils, Vegetation, Hydrology

Soils on the site include Brookstone, Crosby silt loam, Miami silt loam, and Fox loam.

Building suitability of these soils is based on the following: shallow excavation, dwelling without a basement, dwelling with a basement, small commercial building, and local roads and streets.

Brookstone:
shallow excavation - severe, wetness floods
dwelling without basements - severe wetness, floods
dwelling with basements - severe, wetness, floods
small commercial buildings - severe wetness, floods
local roads and streets - severe wetness, low strength

Crosby silt loam
shallow excavation - severe, wetness floods
dwellings without basements - moderate wetness, shrink-swell
dwellings with basements - severe wetness
small commercial buildings - moderate wetness, shrink swell, low strength
local roads and streets - severe, frost action, low strength

Miami silt loam
- moderate to clayey
- moderate: shrink swell, low strength
- moderate: shrink swell, low strength
- moderate slope, shrink swell, low strength
- severe: low strength

Fox loam
- severe: cutbacks
- slight
- slight
- moderate slope
- moderate shrink swell

Vegetation
Vegetation is concentrated in the northwest corner of the site, along the ravines and along the fencerows of the once existing farmhouses. On the northwest corner, grow the hardwoods. Along the ravines, the water-loving vegetation - the Sycamore trees - predominate. Finally, along the fencerows are the Sugar Maples.

Hydrology
Drainage occurs along natural swales and empties into the ravines and lowlands.
Visual Analysis and Slope

Visual analysis is influenced predominately by the site's topography. The higher grounds, the knolls on the northeast and southwest corners, offer the most interesting panoramic views. From these higher elevations the woods, the ravines, and the entire rolling site may be viewed.

Slopes which are identified in three categories - 0-2%, 2-4%, 4-6% - enhance the visual quality of the site. These varying elevations provide interesting and surprising views based on their elevation and steepness.

Slope is also a determinant of the site's commercial and residential districts. In the proceeding schematic design of the urban village, observe how the three different types of residential district are included in the site based on topography.
Graphic 1
This sketch depicts the charm of the farmhouse, silo, and the vegetative cover indicative of the site. (View along 131st street)

Graphic 2
This view of the northeast corner fencerows, where the maples grow, is an example of the visual quality of several areas on the site.
Composite

The composite of the three analysis sheets identifies the most suitable areas on which the proposed urban village/neighborhood.

Graphic on the following page is a compilation of the infrastructure, the natural, and the visual. Areas on this site represented with lighter colors are the most suitable for higher intensity landuses, which will involve the most earthmovement and construction. The darker areas, which is undesirable land for building, represents the less intensive landuses of the community development. These areas will be represented by recreational facilities, path systems, and meeting places where a gazebo might be placed in the hardwood forrests.
CHAPTER 3 - SCHEMATIC DESIGN DEVELOPMENT
After identifying where the urban village communities will be located, I chose an area on the site, based on the inventory/analysis sheets which will be the most responsive to the community program. This area chosen on the southwest corner of the site, topographically offers a range of slope quality which is aesthetically and ecologically the most suitable for the three types of residential - single, multi-family, elderly conglomerate, and finally commercial/cultural areas. Also, located on this portion of the site is access to nearby hardwood forests, existing maples, and an old farmhouse. Infrastructure of this portion of the site also determined why I chose this portion as a first phase. SpringMill Road is a quiet, back road which would positively affect the landuses of the urban village.
**Schematic Design Development**
The first phase of design development are the relationships of the landuses listed in the program. The following bubble diagrams and matrices say what landuses should be adjacent to one another. (Refer to matrix and Schematic plan)

**Schematic-conceptual whole community-conceptual village-vinettes of village emphasizing the two goals sociability and ecology.**

**Schematic Plan**
Graphic representation identifies where commercial, residential, and road systems will be arranged on the site.

[Diagram of residential areas showing multi-family, elderly congregate, and single family with access and visual pathways.]
Goals
- to promote landuses which provide sociability.
- to promote landuses which are sensitive to the ecology - topography, vegetation, and hydrological systems.
- to promote an environment where social systems and natural systems respond to one another.

Graphic 1
The above perspective illustrates multi-family, apartment districts, and pedestrian and automobile experiences through the site. A main street character in which the street width is relatively narrow 18' wide and lined with natives will be introduced in order to increase sociability in the residential neighborhood.
Graphic 2
The perspective on the top of the following page represents the character of the elderly congregate homes along the 2-6% slopes. These residential units will overlook the ravines and proposed path system.

Graphic 3
The section represents the relationship of the residential - multi-family, and elderly congregate homes to the natural environment - the topography, the exiting vegetation, and hydrology.
Graphic 1
The above graphic is a schematic plan of the mixed use core. This mixed use core, which is identified as a commercial/civic area is sited where landuses will be most sensitively responsive to the topography, vegetation, and hydrology.

Commercial - Northwest portion where the topography is relatively flat, 0-2% slope, and where vegetation is minimal.

Cultural/Civic - Southwest where the slopes face the ravines

Graphic 2
The graphic on the opposite page is a conceptual design development which illustrates the massing of the commercial, cultural, and potential automobile access.
Graphic 1. Perspective on the top of the next page is an example of how pedestrian circulation will link itself into the compact commercial/cultural district. Cobblestone bicycle/walking/jogging paths line the streets beneath the existing sugar maple trees.

Graphic 2
The perspective on the bottom of the opposite page is an example of the character of the commercial district - courtyards, small shops etc. (Refer to the program).
Graphic 1
Axonometric above shows the relationship of existing topography, vegetation and proposed building massing and pedestrian access.

Graphic 2
Perspective on the bottom of the opposite page illustrates how sociability will be promoted - the clustered shops, places for vendors etc.

Graphic 3
Perspective drawing on the top of the opposite page illustrates the path systems (connections), areas which will establish tradition - the orchard, the silo.
CHAPTER 4 - CONCLUSION
CONCLUSION
After the completion of this thesis book, which I have titled, Postsurbia in Carmel, Indiana, I have learned the following.

1. Earth should be restored to a state of health and balance through the reduction of our demands for material growth and expansion and through selective application of technologies that sense the purpose of life. The urban village will select and develop technologies which emphasizes the need for a social living environment, adapting to its context - the natural environment. These technologies of the city - its mixed use, active pedestrian streets, public transit systems, and public spaces will add a human dimension which will be of a future environmental necessity.

2. Thesis projects are complex. There are several lives or parts to a thesis. Firstly, you have to find a topic in which the focus is narrow (This is very important). While narrowing the focus, the following must be established: limitations, criteria, goals (what I want to achieve), and objectives (how I will do this). After the preceding are established, then the thesis statement is written. Writing in order to organize your thoughts and document everything you have done is also vital to the final compilation of the thesis book. . . . . The list goes on . . . . .

3. Theoretical goals may only be achieved in a thesis paper, where money is not the driving force.

4. Finally, - to reiterate my statement in the forward, in which I talked about opening my mind by thinking about the whole landscape and all which affects it - I have learned a sufficient amount about the complexity of a relatively large landscape of 100 acres. However, now I want to pursue the design of smaller landscapes, which was my previous goal upon entering this college.
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