COLUMBUS CROSSROADS

DENARIE ANNE KANE
KAREN OTTILIE KANE

LANDSCAPE ARCHITECTURE AND ARCHITECTURE THESIS

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ABSTRACT

Columbus Crossroads is a 40 acre development of shopping, recreation, offices, and housing. It was created to serve these needs for the upper middle class population of Columbus, Indiana, and surrounding Bartholomew County. As a multifunctional building it serves these needs by combining day to day shopping and working habits with recreation and specialty shopping.
INTRODUCTION

This thesis project is a joint design effort working to solve the problem of creating a multi-functional commercial development. Both the scale of the architectural program and the extensiveness of the site development warranted the input from both a landscape architect and an architect. With ideas generated by two members of a team, the project is also an exercise in compromising and working together. However, the initial recognition of a community need and the formation of objectives was a solid decision agreed upon by both team members.
DEVELOPMENT OF PROJECT

The project is located in Columbus, Indiana. The needs and problems of the city and county helped to formulate the objectives, goals, and program of this problem. The Columbus community is a unique small town industrial and agricultural base for Bartholomew County in southern Indiana. This area enjoys a higher per capita income than national averages which results in a higher disposable income for its upper-middle class, 53% of the population. Within the Columbus commercial districts, this clientele is not adequately served. As a result, this clientele is drawn outside of Columbus to the commercial districts of Indianapolis and Louisville.

According to statistics, the Columbus area is continuing to experience population growth primarily due to industrial expansion within Bartholomew County. Therefore, the potential need is high for additional middle to high income commercial, office, housing, and recreational facilities. The combination of these two unique situations helped to define the program and user needs for this project.

The majority of present commercial growth has occurred in the northern sections of the city. However it is the southern sections which are experiencing the upper middle class residential growth. This southern area lacks a major commercial area similar in services to a neighborhood shopping center. A site in this southern area had been examined by a local developer as a possible location for a PUD. In investigating the background on this proposal it was discovered that the site at one time in the late 1960's was reserved a a part of a major new town development scheme in southern Bartholomew County. Since that time this large-scale scheme has been postponed, but the economic potential for a successful commercial area still exists. The economic potential of the area is reinforced by the current highway strip development to the east of the site. The site location at the end of this strip began to suggest what the project's role could be in halt-
in the strip development and complimenting a future large residential area to the south of the site. The possibility of the residential development mandated that this site serve as a major entry off State Road 46 into this area.

Looking at the spatial organization of Columbus, this site and PUD development also serve as an entry into the Columbus downtown area. Similar in function is the entry into town from the north created by the North Christian Church and Washington Street. Therefore, this proposal will function as a node or landmark for the southwest side and serve as a terminus to the city. It will help smooth the transition from the urban growth of Columbus to the scenic hillsides of Brown County State Park located a few miles away.

1) This is the first view of Columbus experienced by the visitor. The cluttered visual appearance of State Road 46 east of the Columbus interchange does little to uphold the city's architectural reputation.
DESIGN OBJECTIVES

After examining the project's role and important related issues the following general design objectives were decided upon for the overall project.

1. to create a viable alternative to strip commercial development on a highway
2. to add to the architectural integrity of the Columbus area by the addition of a well-planned PUD
3. to create a "front door" via State Road 46 to the Columbus Business District
4. to create an entrance to future and existing residential developments south of the site
5. to provide a major transportation link from State Road 46 to the southern developments
6. to combine commercial, office, recreational, and residential interests on a specific site as allowed by PUD zoning

After general research into various commercial building types and multi-functional developments, an idea of what was to be included in the project emerged. Initially the emphasis for the project was to center on a specialty shopping area to cater to the upper income Columbus citizen. After looking at the acreage involved (40 acres) as well as community needs and economic potentials it was decided that recreational, office, and residential needs could also be incorporated. Gradually the commercial part of the project became more of a neighborhood shopping center that included specialty shops versus a specialty shopping area alone. At the same time these basic programmatic decisions were being reached the site analysis work was being done. General site conclusions and development potentials for the site were then recommended.
BRIEF

After establishing basic design objectives, the next step was threefold. First the site was analyzed in regard to a variety of natural and manmade criteria. This information was synthesized so that preliminary design recommendations could be made.

Building type studies were completed also. An overall look at multifunctional buildings was done in addition to in depth studies on eight specialty shopping areas.

The program was finalized at this time as well in order to provide the architect with an organization for user needs and building criteria. The architectural program is a mixture of large and small commercial spaces, recreation area, and office space. The landscape architectural requirements such as parking are also included.
SITE ANALYSIS & SYNTHESIS

The 40 acre site lies approximately a quarter of a mile west of the intersection of State Road 46 and Interstate 65. It is about two and a half miles west of the Columbus city limits. Fortunately, the area is one of the few along State Road 46 that is out of the flood plain. The site has recently been zoned for PUD development, and existing city water and sewer lines are available.

Topographically, the site is divided basically into a flat ridge area in the north central section which slopes gradually to the southern edge of the property. The eastern edge has more severe slopes which are covered with mature woodland vegetation. The western edge, although not as sloping, is also covered with woodland vegetation.

The analysis of environmental and physical characteristics of the site indicate that the site is suited for the development of a PUD. However there are some difficulties that will have to be considered. Basically these difficulties are related to the erodibility and/or poor internal drainage characteristics of some of the soils. A potential erosion problem can occur when vegetation is removed during the development and construction period thereby exposing the soil for long periods of time. The poor internal drainage of some of the soil will result in frost heave and increased water run-off. Deeper foundations for buildings, deeper bases for roads, and a storm water drainage system will help to solve these problems. In addition some of the severe slopes on the eastern and northern edges limit extensive development without large amounts of expensive grading that will destroy the existing vegetation. Lastly, the cut needed along the northern edge for the major road is a potential problem due to the abrupt drop from the flat ridge area of the site to State Road 46.
SITE LOCATION

Situated in the middle of Bartholomew County, Indiana, Columbus is in the southeast section of Indiana. Indianapolis, the state capitol, is approximately 50 miles away and an hour drive away from Columbus. The other close major city is Louisville, Kentucky, which is approximately 60 miles south of Columbus. Within Bartholomew County, Columbus is the major city with a population of 20,000; it also serves as the county seat. Interstate 65, which passes a few miles west of Columbus, serves as the major highway between Louisville and Indianapolis. The site is located approximately two and a half miles west of Columbus, a quarter mile west of the Interstate 65 and State Road 46 interchange.

2) Site Location Map
SITE CONDITIONS

Along State Road 46 the majority of property fronting the highway is currently zoned as highway business district. However the site property and another small property have recently been zoned PUD for Planned Unit Development. A copy of the PUD zoning regulations is in the appendix. Agriculture districts and Single Family Residential districts surround the site.

The site is bounded to the north by a primary arterial road, State Road 46, and to the south east by a county road, Two-Mile House Road or Youth Camp Road, which is designated a marginal access or local road. A design stipulation for developing this site is a provision of a major traffic link from State Road 46 to the south which will be designated as a secondary arterial road. After this road is built, the county road bordering the south-east part of the site will be deadended and retitled as a marginal access road.

3) Zoning and Right Of Way Map
The right-of-way for the primary and secondary arterial roads is 50 feet from the centerline, and for a local or marginal access road and right-of-way is 30 feet from the centerline. According to the Columbus Zoning Ordinance, Section 251.1, the following building setbacks are to be maintained. From the right-of-way along a primary arterial the building setback is 50 feet; 40 feet from the right-of-way along a secondary arterial; 25 feet from the right-of-way along a local street; and 20 feet from the right-of-way along a marginal access street. Essentially no part of any structure may be closer than 100 feet from the centerline of State Road 46, no closer than 90 feet from the centerline of the proposed secondary arterial road, and no closer than 50 feet from the proposed deadend county road.

Another factor affecting site conditions is the volume of traffic that passes near the site and the subsequent noise generated by the traffic. Interstate 65 from the south to the interchange carries the largest volume of traffic with 1840 vehicles per 24 hours. State Road 46 from

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4) Utilities and Site Conditions Map
Columbus to the interchange also has a high volume with 14,300 vehicles per 24 hours. Directly next to the site along State Road 46 heading toward Nashville, between 10,350 and 9,870 vehicles pass. The noise from these traffic volumes is currently muffled to some extent by the wooded slopes along the northern and northeastern borders.

Visually the site is located between a commercial highway strip development to the east of the interchange and the scenic highway leading to the hills of Brown County. The Ramada Inn, a Sunoco station, and a warehouse are the only commercial buildings west of the interchange. Farmland and a few scattered residences compose the remaining site surroundings.

Adjacent to the site along the southeast border is an existing 18 inch sewer trunk line. Currently however, the scattered houses in the area use either a septic system or a cesspool. This is only allowable in certain areas at less than one unit per acre, therefore a sanitary sewer link to the trunk will have to be installed in order to develop the site. Serving a commercial development and 100 residences will be feasible according to officials of the Columbus sanitary sewer system, providing the capacity of tertiary treatment at the existing plant is improved. However, if additional residential development occurs to the south in excess of 500 to 1000 units, then other alternatives such as a second treatment plant will need to be investigated.

City water is available in both quantity and quality for more than the next 25 to 40 years according to the city. The water lines are accessible to the site along the same southeast border as the sewer line. The lines belong to the Southwestern Bartholomew County Water Corporation which is a private water company that purchases water from the city to sell to its customers. The existing main along State Road 46 is 16 inches in diameter. According to the city water department the line that connects to the main and runs southwest has been sized to accommodate growth in this area.
The site is currently served by the Bartholomew County REMC, a rural electrification cooperative. An existing substation is southwest of the site. A 69,000 volt transmission line is within a few miles of the site and is tied to the Southern Indiana Power Grid which makes substantial increases in power easily available. Underground electric lines are possible and would probably be the most desirable in the new development.

Gas service is not available to the site. There is an existing 6 inch main with 25 p.s.i. pressure which parallels State Road 46 and ends east of interstate 65. Possibly new mains could be connected to this if gas was determined to be the best power source for the site development.

Storm sewers will be required on the site since the soils do not easily absorb runoff and are extremely erodible. Localized holding ponds in conjunction with the storm sewer system will take care of site drainage.
PHYSIOGRAPHY & BEDROCK GEOLOGY

The site lies on the eastern edge of the Norman Upland physiographic unit. This physiographic unit is characterized by flat-topped narrow ridges an V-shaped valleys. The Norman Upland is basically a low plateau underlain by shales and siltstones which are relatively resistant to erosion. This layer of resistant rock helps form the hills and slopes of the Norman Upland west of the East Fork of the White River. In the bedrock section these siltstones and shales comprise the Bordon Group of Mississippian age. This is underlain by New Albany Shale of Devonian and Late Mississippian age and then by Silurian age limestones. Within the immediate site area bedrock is found at around 40 feet or deeper and has good bearing capacity. The bedrock material is either New Providence Shale or New Albany Shale and is not exposed at the surface anywhere on the site. Water may be available in the Rockford Limestone formation at the base of the shale, however the supply would probably be limited and not of good quality.
SURFACE GEOLOGY

The region is blanketed by unconsolidated deposits of Pleistocene age. The site consists of glacial deposits of the Martinsville and Jessup Formations. The Martinsville Formation makes up the youngest unconsolidated formation in Indiana. Although derived from older deposits of glacial water and ice-laid drift, these largely silt, sand and gravel formations were laid down in late Wisconsin and Modern times along the channels and flood plains of modern streams after the final retreat of glacial ice. While it is found mostly along the White, Driftwood, and Flat Rock Rivers, some alluvium is present along virtually every stream. The Jessup Formation is the oldest unconsolidated formation recognized in Indiana. In most places it rests directly on the bedrock and consists mostly of glacial till. It also includes thin beds of gravel, sand, silt, clay, peat, and marl.
HYDROGRAPHY

The site is one of the few areas not in the flood plain of the Driftwood River. Site drainage is basically confined to three major areas. These areas include a valley in the northwest corner of the site, a steep slope in the northeast corner, and a series of swales that border the ridgeline draining south. The soils in the southern most corner of the site are subject to frequent flooding.

All present wells in the site area stop short of bedrock. This indicates the presence of gravel layers in the till thick enough to serve as aquifers and would not be of sufficient quantity to support a commercial and residential development as proposed.

8) Hydrography Map
TOPOGRAPHY

The topography of the site ranges from 0% slope to 30% slope. Basically there are three topographic areas. Areas of 0 to 4 percent slope are generally located along the north central ridgetop, areas of 4 to 12 percent slope occur mostly south, east, and west of the ridgetop area, and the areas of extreme slope of 12 to 32 percent are found along the northern most edge and the northeast slope. The highest point of the site is found at contour 668 in the northern ridgetop area, and the low point is found at contour 624 in the northeast corner of the site.

Topographically, the large, flat area from the 670 to 660 contours is the best suited for building or parking. The slopes from 660 to 650 contours however are buildable with good planning. Two major swales, one in the south central area and one in the southeast corner; appear to be feasible road locations.
SOILS

The Cincinnati-Rossmoyne-Hickory soil association present on the site is generally found on ridgetops, hillsides, and sideslopes along natural drainage systems. These soils formed in loess (wind blown silt) and the underlying leached loamy till. The major hazards of this soil association are runoff and erosion. The major limitations that would affect the development of the site are the slow permeability of the Cincinnati and Rossmoyne soils and the slopes of the Cincinnati and Hickory soils. The Wakeland soils are subject to flooding. From the interpretation of the soil data the Rossmoyne silt loam is probably the best to develop with the Cincinnati silt loam as a second choice. Bartle silt loam is a feasible location for a small pond or lake since it has qualities favorable for water retention with very little seepage.
Bartle- The Bartle series consists of deep, somewhat poorly drained soils that have a medium textured surface layer and a moderately fine textured subsoil. These nearly level soils developed in silty alluvium of mixed origin and occupy terrace positions. A firm, when moist, and brittle, when dry, fragipan is in the lower subsoil. The native vegetation was mixed hardwood trees. Bartle soils are low in organic matter and have a medium available moisture capacity. They have very slow permeability and runoff is moderate to rapid.

Cincinnati- The Cincinnati series consists of deep, well drained soils that have a medium textured surface layer and moderately fine textured subsoil. These gently sloping to strongly sloping soils are found on hillsides and sideslopes along natural draws. They developed in loess over loamy glacial till. A firm when moist, and brittle when dry fragipan is at depths of 24 to 36 inches. The native vegetation was mainly mixed hardwood trees. Cincinnati soils are low in organic matter and have a medium available moisture capacity. They have very slow

11) Soil Capability Matrix

<table>
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<tr>
<th>Cincinnati</th>
<th>Rosamont</th>
<th>Hickory</th>
<th>Harrison</th>
<th>Waterland</th>
<th>Bartle</th>
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<td>.37</td>
<td>.32</td>
<td>A3</td>
<td>.37</td>
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</table>
Henshaw- The Henshaw series consists of deep, somewhat poorly drained soils that have a medium textured surface layer and moderately fine textured subsoil. They developed in loess and lacustrine material and occupy nearly level and gently sloping lacustrine terrace areas. The mantle of loess over the lacustrine material is one to three feet thick. The native vegetation was mixed hardwood trees. Henshaw soils are moderate in organic matter and have a high available water capacity. They have moderately slow permeability and runoff is slow.

Rossmoyne- The Rossmoyne series consists of deep, moderately well drained soils that have a medium textured surface layer and medium to moderately fine textured subsoils. These nearly level to gently sloping soils are found on ridgetops and side slopes along the upper edges of natural draws. They developed in loess over loamy glacial till. A firm when moist, and brittle when dry, very slowly permeable fragipan is at depths of 24 to 36 inches. The native vegetation was mainly mixed hardwood trees. Rossmoyne soils are low in organic matter and have a medium available water capacity. Runoff is medium.

Hickory- The Hickory series consists of deep, well drained soils that have a medium textured surface layer and moderately fine textured subsoil. They developed in a 20 inch or less deposit of loess and material weathered from till. These strongly sloping to very steep soils are on hillsides and side slope along natural draws. The native vegetation was mainly mixed hardwood trees. Hickory soils are low in organic matter and have a high available moisture capacity. They have moderate permeability and runoff is rapid or very rapid.

Wakeland- The Wakeland series consists of deep somewhat poorly drained soils that have a medium textured surface layer and subsoil. They developed in silty alluvial materials washed in from adjacent uplands. These nearly level soils occupy bottomlands along streams. The native vegetation was mainly mixed hardwood trees. Wakeland soils are low in organic
matter and have a high available moisture capacity. They have moderate permeability and runoff is very slow. These soils are subject to flooding.

WILDLIFE

The site currently contains a variety of song birds, grouse, and some quail. Possum and rabbits and other small animals are also present. Because the succession from active farming to old field succession is relatively recent, the wildlife on the site is varied. With careful development, the site can continue to be inhabited by smaller ground animals and particularly by much of the current bird population.
VEGETATION

The botanic community on the site is presently the result of a manmade ecology rather than a natural ecology. Before settlement, the area was beech-maple climax forest association. Now the dominant species of trees found in the forest are yellow poplar, red maple, red oak and ash. Subordinate species include cherry, sycamore, and sweetgum. Generally a good understory of dogwood, spicebush, and sassafras have also developed in the forested areas.

The types of vegetation now found on the site are divided into five broad categories. Along the northern edge and part of the northeast sections is found what is termed old field succession with trees, shrubs, and grasses. A pine plantation of white pine is in parts of the eastern area of the site. Mixed mesophytic forest composed of maple, ash, oak, tulip, and sycamore is found in the northwest and southwest areas. Pasture land and cultivated cropland are found in the middle sections of the site.
MACRO & MICRO CLIMATE

There are a number of climatic features which can be identified based on the physiographic relief of the site. The landforms facing southwest to west-northwest, receive the maximum impact from the continental storm migration. The landforms facing due west and north-northeast receive the maximum precipitation and snow from winter storms. North facing slopes receive little or no solar radiation while slopes facing southwest receive the hot, humid, continental summer winds. Flatlands such as the flood plain and open ridgestops receive maximum summer radiation. The south to southeast facing slopes receive the minimum effect of winter winds and the maximum cooling effect of summer breezes without adverse effects of maximum radiation.

Snowfall varies greatly from winter to winter. The average total seasonal fall is 11 inches, but in a single month as much as 12 inches has fallen and as much as 8 inches in a single day.

Precipitation is rather evenly distributed throughout the year. Spring and early summer rains generally exceed fall precipitation. The spring rains generally are reliable. A severe drought has never been experienced in the county, but one or two dry spells generally occur every summer.

13) Macro Climate Map
SPATIAL ANALYSIS

Six different spatial identities have been identified on the site. These areas consist of Forested Ridgetops, Forested Slopes, Forested Valley Bottoms, Open Valley Bottoms, Open Ridgetops, and Open Slopes. These areas are illustrated on Map 14. Currently the most desirable views are those generally to the south looking across the rolling farm country. Other desirable views are directed inward toward various wooded areas of the site. Few good views are to the north where State Road 46 is located or to the southeast where the interstate can be seen.
SITE SYNTHESIS

In summarizing the site data, a few generalizations and conclusions can be made. First, the ridgetop area and surrounding slopes to the south are the best areas for site development including parking. The western and eastern edges are wooded with steeper slopes which would have to be developed with loss of vegetation and original topography. The southernmost areas are susceptible to flooding during rains so permanent structure would best not be located in this area. A small water body would be possible in parts of this area.

In examining the site for spatial qualities, the views to the south are presently good although they are uncontrolled. The existing vegetation buffer along the north, northeast, and northwest borders should be maintained to screen traffic, help reduce noise, control views, and serve as borders to the site. The pine plantation area is also an asset to the site and should be developed less intensely in order to preserve the vegeta-
tion. The extreme northeast corner of the site is basically cut off from the rest of the site by the 30% slope that leads down to this area. This small portion would be difficult to connect both physically and visually to the rest of the site.

The location of the roadway is a major problem that needs to be solved first before major master plan decisions can be decided. There is only one small area available for entry onto State Road 46 that would not involve considerable grading or retaining wall structures. This area is located along the northwest edge of the State Road 46 border. A curvilinear road which would follow the existing swales to the south-southeast would help to reinforce the idea of a scenic link to the Brown County portion of State Road 46 and reduce the "strip-drag" image of many commercial boulevards. Other possibilities for roads within the site are along the other major swales that come south from the ridgetop. Two swales in particular, one in the far southeast part and the other in the south central part, provide the longest runs upgrade and may be more feasible engineering-wise than the others. This road path is shown on page 10 on Map 4.
BUILDING TYPE STUDIES

Building study examples were first chosen from multifunctional buildings that were both new construction and renovations. This was done in order to avoid looking only at typical commercial developments. Such buildings included the Osawa Community Center in Tokoyo; the Boot Mill Cultural Community Center in Lowell, Massachusetts; and the Poggioreale Civic and Social Center in Italy. However, these attempts to look at such broad multifunctional projects were unsuccessful as not enough information on the projects and their relationship to commercial needs was available.

Since the initial inquires into the project's nature seemed to suggest specialty shopping, the next group of building studies looked at specific commercial developments which included specialty shopping. This attempt proved to be a more fruitful search as certain major commercial organizational ideas could now be examined.

The following examples were used as building type studies of specialty shopping areas.

1. The Prune Yard, Campbell, California

2. Old Town, Dallas, Texas

3. The Mercado at Rancho Bernado, San Diego, California

4. Trolley Square, Salt Lake City, Utah

5. The Bazaar in The Village Green at Heritage Village, Southbury, Conn.

6. The Courthouse Center and The Commons, Columbus, Indiana

Building type studies were also done for two large scale shopping, office, and living communities. These studies were very beneficial as they showed various ways of combining functions that were similar to the proposed Columbus project.

7. The Brunswick Center, London, England

8. Queen Anne Village, Reston, Virginia
THE PRUNE YARD: CAMPBELL, CALIFORNIA—

a 300,000 sq. ft. outdoor shopping area on a 30 acre site with a regional shopping center two miles away. The organizational concept of the Prune Yard is that of a node surrounded by shopping buildings. This node consists of a centralized internal outdoor plaza which also serves as an entrance area to most of the shopping buildings. The circulation is lineal at one end of the Prune Yard until it reaches the plaza; it then breaks off different directions going to surrounding buildings.

16) Building Type Study - The Prune Yard
OLD TOWN: DALLAS, TEXAS -

a 175,000 sq. ft. group of shopping buildings on a 15 acre site with 59 tenants. As a group of four building areas Old Town is organized in a lineal fashion along a city street. Although the total project follows this datum line of the street, within each building group an internally centered organization is followed.

17) Building Type Study - Old Town
THE MERCADO AT RANCHO BERNARDO: SAN DIEGO, CALIFORNIA

a 42,000 sq. ft. shopping area of 35 shops. The Mercado is composed of two major building masses focusing on each side of the main entrance. The larger group of buildings is focused toward a nodal plaza with circulation through and around the plaza area. The smaller group of buildings, however, are externally focused with circulation existing around the perimeter of the shops.

18) Building Type Study - The Mercado
TROLLEY SQUARE: SALT LAKE CITY, UTAH

A 150,000 sq. ft. group of interior shops within a converted trolley barn with a regional shopping center five miles away. Trolley Square shops are organized on both sides of a central lineal circulation path. This circulation path acts as a datum line with shops loading both sides of it. However, the main entry into Trolley Square occurs at a right angle to this path.
THE BAZAAR IN THE VILLAGE GREEN AT HERITAGE VILLAGE: SOUTHURY CONNECTICUT.

The Village Green development is organized along a datum line of circulation which uses the Market and Inn as anchors. The Bazaar is in the middle and is also organized by this datum line since its open stall shops load each side of the circulation. The three entrances, however, exist perpendicularly to this circulation path.
THE COURTHOUSE CENTER & THE COMMONS:
COLUMBUS, INDIANA

The Courthouse Center is an enclosed downtown shopping mall. A central interior circulation spine runs through the middle of the complex. This is anchored at one end by a major store and at the other end by The Commons, a public community space. Both these anchors extend outside the building via a main city street and a large parking lot which create a drawing through factor for the mall. The central circulation spine is also a path for HVAC and lighting, and it serves as a datum line organically, with shops loading each side.

21) Building Type Study - The Commons
BRUNSWICK CENTRE: LONDON, ENGLAND

This development is a multistoried housing and shopping complex. Shopping provides a rectangular core for the building with housing tiering upwards on both sides. A pedestrian plaza serves as a node within the shopping area which has shops on two sides. A large grocery store provides the anchor at one end of the shopping area; and the street side entrance with a sitting area serves as the opposite anchoring device. Private housing entrances exist on the street side of the street side of the complex and are thus totally separated from the central public entrance to shopping.
QUEEN ANNE VILLAGE: RESTON, VIRGINIA

The area of Queen Anne Village is a combination of a sheltered plaza of shopping and apartment living opening onto a lake setting of offices and townhouse living. Automobile traffic is limited to the perimeter of the development and entry occurs at only one place. Pedestrian movement radiates around the curved shopping crescent and continues down both sides of the lake. Organizationally, this pedestrian circulation path acts as a curving datum line with shops always loading one side of it. The left side of the path culminates in a high rise office complex which serves as an area landmark as well. The path of private and service circulation occurs on the back side of the buildings and also acts along the original datum line.
PROGRAM

Having examined some shopping and PUD developments, several preliminary programs were written for the Columbus Project before one was satisfactory.

The PUD was originally planned as a complex with specialty shops, professional offices, public recreation, and some public community buildings. After examining the site's role as an entry statement and possible microcosm of the living that would be occurring in the later development, the program was revised to include housing. This housing would cater to an upperclass socio-economic group of "empty nesters" and young adults. Once residents were included in the PUD, the shopping role also changed to include neighborhood shopping needs. This was economically sound as the neighborhood shopping traffic would generate business for the specialty shops as well. Recreational needs were also redefined to include small scale resident recreation as well as recreation which would draw the public into the shopping and recreational complex. Public community buildings were then dropped from the program definition as the role of downtown Columbus was more fully understood.

From the beginning it was felt that this project would have to be built in phases since this would be an economically sound plan for a possible developer. However, the division of program which would determine this phasing was not decided upon until the schematic design.

The program, presented on the following pages, is divided into the following four parts. The more specific program for the individual parts developed in the project is included in the appendix.
Commercial
Grocery:
- 25,200 sq. ft. gross
- 260 parking spaces of 90,720 sq. ft.
Specialty shops and neighborhood stores:
- 44,400 sq. ft. gross for 25-30 shops
- 222 parking spaces of 77,700 sq. ft.

Housing
Townhouses:
- 46,250 ground sq. ft. gross for 50
two story units
- 90 parking spaces of 31,500 sq. ft.
Garden Apartments:
- 27,500 ground sq. ft. gross for 50
two story units
- 80 parking spaces of 28,000 sq. ft.
Recreation

Indoor Recreation: Swimming
- 9,660 sq. ft., gross pool facility
- 50 parking spaces to 17,500 sq. ft.

Racquetball Club:
- 20,000 sq. ft., gross

Outdoor Recreation:
- 40 parking spaces of 14,000 sq. ft.
- 28,800 sq. ft.
- 16 parking spaces of 5,600 sq. ft.

Office:
- 28,800 sq. ft. for 15-20 offices
- 14/4 parking spaces of 50,400 sq. ft.
SCHEMATIC DESIGN

Schematic design involved two very basic and necessary decisions. The first was incorporating the site synthesis information into a rough land use plan to determine buildable and nonbuildable areas. The road and large parking lot were the most difficult to site so they took precedent over the building in site allocation. The building function organization was next determined with housing eventually becoming a separate area. With the sloping topography the building was able to complement these slopes with level changes. Essentially entry on the north side was on one ground plane and entry on the south side was one story lower.
SCHEMATIC 1

The first concern was to determine the best possible location for the major road. The most feasible entry from State Road 46 is along the northwest border as had been determined in the site analysis synthesis. By keeping the road along the western edge of the ridge the vegetation to the west of this area is preserved. The road then takes as "S" turn to the south along the south swale which borders the southwest boundary. By locating the road in the western area of the site, a major part of the site is left available for development. Connecting roads along several different swales of even across the ridgetop can become part of the circulation link to the major road.

While the road location was being determined, the architectural schematic design and site master plans were being formed. Originally in the first schematic design, the housing, recreation, office, and commercial needs were all to be located under the same roof. However, this scheme did not leave adequate area for the necessary parking. A conflict between the public-commercial area and the private-housing area was a problem.
SCHEMATIC 2

The next schematic design reversed the land use. The ridgetop was to be used for the major parking area and the slopes for the commercial development. In this stage of design, the schematic design took a major shift. It was decided that housing would become a separate area of the site and the three other functions be combined. By doing this the privacy of the housing section could be controlled. Site location for the housing was changed from the southern sections of the site to the eastern sections since the vegetation afforded a more pleasing existing environment and more privacy as well.

Nonetheless, the interaction between housing sections and the commercial development was still important to help maintain a total community feeling and look to the site. A link between the two areas, created by the recreation complex, was decided upon since both the private and public sectors would participate in such activities. Although the recreation complex would be a major link between the two areas, the connection to the housing would be non-vehicular along a system of pedestrian walkways.

Therefore, the schematic design conceptually begins to form along a datum line created by the physical form of the ridge. The commercial and recreational complexes dominate this line with housing as a separate but important area east of this development. This affords an appropriate break in the development of the property in order to incorporate phasing of the project. The commercial area can be built first with recreation and housing following.

In the commercial development, the major functions are a grocery store, neighborhood shopping stores, and specialty shops. The grocery is to be located at one end of the complex close to the entry in order to serve as an anchor to the scheme. It is also more readily accessible to the road. The neighborhood shopping stores are used as a link between the
The possibility of a pond in some of the southern area was incorporated to add variety to the housing area as well as serve as a holding pond for storm water.

The other road to the housing area became a separate system that ran in conjunction to the main road, followed the old country road to the northeast, and finally followed the swale to the housing development. This road will have spinoff roads leading to the individual clusters of apartments.
25) Schematic Organization of Pedestrian Circulation within Specialty Shops and Recreation

26) Schematic Organization of Office Area

27) Schematic Organization of Levels of Activities
PRELIMINARY DESIGN

The preliminary design incorporated the decisions reached in the schematic stage. The large parking area was left on the flat ridge area and the building was located on the slopes. The road which was a major site determinant remained in a curving form leading past the major entry into the shopping complex. The connection to the housing was undeveloped at this stage although it is diagramatically indicated on the preliminary master plan.
SITE

In the development of the preliminary design, the issues of parking, pedestrian flow, service, and actual architectural divisions of space were attacked. After the jury comments on this aspect of the project, many of the following design solutions changed. However, these changes will be discussed in the Final Design section.

The major problem from a site planning point of view is the incorporation of a large amount of parking spaces (575) into an understandable and physically attractive circulation system. The parking is broken into three major spaces which are penetrated by pedestrian fingers to help separate the mass of parking. Each area is not allowed to connect across the building edge in order to help prevent this pedestrian area from becoming a major traffic hazard.

The major entry to the complex is from the parking lot pedestrian finger that leads to the center of the specialty shopping area. Other entries occur at the recreation end and the grocery store end. The edge between parking and the building is a pedestrian way among a variety of landscaped areas.

One area of service is fed from the major road into an area west of the grocery. Additional service is brought to two parts of the building complex with loading ramps that try not to obscure pedestrian movement or views. These service dock areas feed into service cores that run along the back northern edge of the building.

Within the complex the pedestrian movement is along the south side of the building along the same datum line as the physical configuration of the building. The linear walkway is along a glass wall to the south which links visually the indoor and outdoor areas and provides natural light as well. This pedestrian flow culminates temporarily in the plaza area of the specialty shops and then continues through to the recreation area. From the east, this pedestrian system
begins outdoors in the housing area, flows past the recreation area looking into the pool area and racquetball courts, past the restaurant, and finally into the specialty shopping area plaza.

From there it continues past the neighborhood shopping stores to the grocery. The succession of different activities and the accompanying series of spaces will add variety to the linear pedestrian system.

The plaza area is also a link between the indoors and the outdoors with the inclusion of an outdoor eating area next to the restaurant as well as a walkway system to the outside. The development of recreation activities around the plaza help generate people and activities in this area. The addition of all these influences reinforce the anchor function of this area both indoors and outdoors.
BUILDING

The building form for the specialty shopping area is three levels, with the first two levels devoted to commercial use. The top level is for office use but has the potential to be converted if additional commercial area is needed. The plaza is semi-circular in form reflecting the valley landform that it rests in. The pedestrian walkways are along the periphery of the semi-circle with the major pedestrian core along the southern glass wall.

The recreation complex is basically divided into three parts. The swimming area is the main space with a lobby offset to the east side and raquetball courts to the north. The southern wall faces outside and is of glass. The restaurant lines the southwest side of the recreation complex.
FINAL DESIGN

The final design tried to blend the building form and the exterior spaces. The flowing curves of the parking lot are reflected in the stylized curves on the north side of the building form. The more rigid geometry of the south side is softened by the curvilinear pathway leading to the apartments and the planting framing the area.

The outcome of the final design achieves what we originally intended - a place to shop for fine wares in a nontraditional setting. We feel that although this development contains many of the same elements such as large numbers of parking, grocery store, and neighborhood stores as other shopping centers, ours is unique to this area in its blending of different users and building functions.

The main dissatisfaction in the project involved timing between partners. Different levels of development were needed at different times, often putting one member on "hold." This lead to some frustration when faced with deadlines.
SITE

The final master plan reflected several major changes resulting from jury comments. The parking lot "fingers" were reduced to provide more parking space and the drive-in bank became incorporated into the parking lot vehicular traffic pattern. The service connection to the store was removed from the parking lot side to a less pedestrian travelled area near the rear of the grocery. The service entry is now a loading dock area with a service core running the length of the complex underground. This change helped to eliminate the pedestrian/traffic/service difficulties evident in the preliminary plan.

The southern landscaped area was developed more extensively and used as a link between the outdoor plaza area and the housing development. It was decided to allow the residential road to link to the major road for convenience for the residents. Ambulances are also able to reach the pool area via this route.

BUILDING

Final design of the building included major exterior form changes as well as entrance relocation. The basic datum concept of circulation was kept intact with all vertical circulation and entrances originating from it. The facade was broken down with overhangs and window treatment.

The form of the building was altered from a stiff curvilinear pattern to a more flowing curve and straight line configuration. Where straight lines occurred to meet perpendicular walls, an entrance was usually formed. Entrances were also carved out of the

In the final design the building is made of brick walls, both bearing and non-bearing, with glass structure admitting light on the south side. This glass lights the datum line path and the pool area. The path through the recreation area is lit by a skylight. Steel beams and floor joists supported by columns provide the structural means.
37) Sections and Elevations  1" = 16'
38) Interior Perspective
APPENDIX

Zoning Ordinance for PUD Development

Gross Square Footage for Commercial Area
under said ordinance.

In the interests of the entire community, the Commission is concerned with the establishment of urban centers and the promotion of urban centers, and the Commission hereby approves the principle that urban centers should be developed in a manner that will be consistent with the best interests of the entire city. It is deeded necessary to meet these changes in a manner consistent with and subject to the Planning Ordinance. The Planning Ordinance is intended to provide a more comprehensive approach to land development.
Adoption and the best interests of the entire City. Interests as consistent with the land use Plan of current
implemented and the Commission shall make a finding that said
determined, and any Incentivity shall be

2. Before approval of a Preliminary Planned Unit Development,

Pany proposed, or equal to the requirements of this ordinance.

street patterns and areas for parking adequacy for the area
and must provide standards of open space, esthetics in
in keeping with the principles of good neighborhood design.

produce an environment of stable and desirable character

I. A proposed Planned Unit Development shall be designed to

Planned Unit Development may be designated.

- Provide, however, for the tract of 10 acres or over, not the tract
- needed to serve.

a. The basic land unit of a Planned Unit Development is the block,

3. No Commercial use, nor any building developed primarily to

the Planned Unit Development.

use and the convenience of the agricultural population of
uses shall be planned and located primarily for the use.
coordinated with the local planned unit. Such
part of a residential development located actually within
local or commercial character, which uses are an inter-
non-residential uses of a religious, cultural, recreation

2. Multi-story structures, or any combination thereof.

Detached, semi-detached, attached or

in detached, semi-detached, attached or
The preparation of a planned unit development shall be subject to the following procedures in addition to the procedures expressed hereinafter.

1. Proposed development shall be submitted for approval at least 30 days before the date of the hearing.

2. Proposed locations, amounts and types of non-residential use in relationship to the proposed area shall be subject to the following conditions:

   a. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   b. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   c. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   d. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   e. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   f. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   g. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   h. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   i. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   j. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   k. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   l. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   m. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   n. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   o. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   p. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   q. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   r. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   s. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   t. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   u. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   v. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   w. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   x. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   y. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   z. The area involved in the petition or upon a petition joint-located shall be subject to the following procedures:

   {218.3 Procedure}
2. An "Approved Development Plan" shall be submitted in accordance with the Substitution Procedure for the Planned Development Plan. The planning authority shall also review the "Approved Development Plan" for compliance with the applicable regulations and standards.

The approved development plan shall be submitted to the planning authority for approval at least 60 days prior to the date of filing the application. The application shall be reviewed by the planning authority, and the decision shall be communicated to the applicant within 60 days of submission.

The approved development plan shall be final and no major changes shall be made without the consent of the planning authority. Any changes made shall be submitted to the planning authority for approval.

The planning authority shall have the power to modify the approved development plan if it is necessary for the public interest. The modified plan shall be submitted to the planning authority for approval.

If the planning authority approves the modified plan, the applicant shall be notified, and the modified plan shall be submitted to the planning authority for approval.

The approved development plan shall be final and no major changes shall be made without the consent of the planning authority. Any changes made shall be submitted to the planning authority for approval.

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Appraisal by the Commission shall expire after a period of five years. A new application shall be submitted prior to the expiration of this period.

It is the responsibility of the developer to prepare and submit a detailed site plan and development plan to the commission.

The approved site plan shall be reviewed and approved by the commission. The commission shall have the right to refuse or modify the plan.

The approved site plan shall be subject to the regulations and zoning ordinances of the municipality. The commission shall have the authority to approve or reject the site plan.

In the event that the site plan is not approved, the developer shall have the right to appeal to the court of the land. The court shall have the jurisdiction to determine whether the site plan was approved.

The refusal of the commission to approve the site plan shall be final and not subject to appeal.
218.5 Recording

After approval by the Commission, all recorded or not recorded within two (2) years following approval or by the Commission, the appropriate plans shall be recorded in the appropriate plans for the appropriate parcels. All approved plans shall be recorded with development and modifications. The appropriate parcels shall be deemed to have occurred when no improvements have been made pursuant to the approved development plan or when the improvements for the parcel have been made and a certificate of completion has been provided. Upon the abandonment of a development or an authorized area, no improvements shall be subject to the procedure outlined under this section.

II. Design Standards.

10. Off-street parking and loading space.

9. Stairs.

8. Roof of structures.

7. Building separations.

6. Setback lines and minimum yards.

5. Open space.

4. Area in which structures may be built ("buildable area").

3. Part of floor space to land area.

2. Floor area.

1. Lot area.

The Commission may require the recording of covenants for any

Planned Unit Development,

some manner as approved detailed site plans for an entire.

detailed site plans, when approved, shall be treated in the
approved preliminary planned unit development. Such modified
approved preliminary planned unit development shall be approved by the
commission and consistent with the

autonomically formulated. If such formulation occurs, the

land within a specified period of time, the covenants shall

imposed do not proceed with application of the

county and other public and semi-public purposes, wherever necessary.

b. The Commission may require the recording of covenants for any

provided for in such provision.

C. Covenants and Exceptions.

218.7

Covenants and Exceptions.
imposed herein.

Development and proceedings in accordance with the time requirements
shall be in conformity with the approved detailed plan and plat,

and development of the property is conducted in a planned unit-

which constitute the property involved in a planned unit-

The plan commission shall not initiate any amendments to the zon-

8. All private streets shall be maintained by the aforesaid private

owner, no expense to any governmental unit.

be dedicated to the public shall be operated and maintained at

charge to the beneficiary thereof, common facilities not

maintenance at a reasonable and non-discriminatory rate of

be maintained to standards assisting condominiums and adequate

facilities which are not dedicated to the public shall

be provided which show that the facilities are a part of the

and such property owners if such facilities are part of the

includes private streets and shall be funded and maintained to

adequate provision shall be made for the operation and maintenance of all

d. The petitioner shall provide financial assurance for the sale—

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d. The petitioner shall provide financial assurance for the sale—
'Gross Square Footage for Commercial Area

Restaurant 7,000-10,000
Bakery and tea shop 5,000
Small department store 5,000
Furniture and kitchen shop 4,000
Interiors shop 4,000
Branch Bank 3,000
Women's wear 2,500-3,000
Men's wear 2,500-3,000
Shoe store 2,500-3,000
Bridal shop 2,000-2,500
Sporting goods 2,000-2,500
Toy shop 2,000-2,500
Gift shop 2,000-2,500
Jewelry store 2,000-2,500
Cheese and wine shop 2,000
Stationers 2,000

'Leather and luggage store 1,600
Hair salon 1,500
Florist 1,000-1,500
Record and Music shop 1,000-1,500
Hat shop 1,200
Candy and Ice Cream 1,200
Pet store 1,200
Bookstore 1,200
Fur store 1,000
Clothing boutique 1,000
Specialty Jewelry 600
Travel Agency 600
Plant shop 600
Print shop 600
Tobacco and news stand 450
Kiosk 200

Gross Square Footage 59,450 - 67,450