

THE VISUAL ANALYSIS OF NEW TOWN

DESIGN: COLUMBIA, MARYLAND

by

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ABSTRACT

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Submitted to the Department of City and Regional Planning on August 23, 1965, in partial fulfillment of the requirement for the degree of Master of City Planning.

As new towns begin to proliferate here in the United States, more objective techniques regarding the improvement of their physical design should be investigated. This thesis attempts to provide answers to one facet of this challenge -- that of better shaping the "visual form" of these new areas.

Specifically the thesis formulates a method, as well as a set of criteria, by which to judge the visual form of a city. This method is tested by applying it to a recently designed new town -- Columbia, Maryland. This mode of analysis is however, primarily intended to provide the basis for a more systematic approach to new town planning as well as to provide the designer with a more sophisticated tool by which to test design alternatives at this scale.

Using the plan of Columbia as a background, the visual analysis is evolved through several steps: the first is the completion of a visual survey. Seven particular aspects of the city are investigated and the results presented graphically. Selected examples of the means by which these decisions were reached are included. Secondly, a list of criteria is formulated. These criteria judge the results of both the visual survey and the design of the general physical plan. Thirdly, as these criteria are applied to both the visual survey and the plan, a set of "Problems" and "Assets" diagrams are produced. Problems of particular importance at the town and city center scale are elaborated upon. Finally, a schematic re-design for Columbia is proposed, utilizing the conclusions derived from the survey and the application of the criteria.

The method of visual analysis tested here is held to have been a reasonably successful device to aid in the physical design of the city. It suffers to some degree, primarily from the lack of adequate and detailed information on site planning and architectural design covering the entire plan proposal. Had these, or perhaps a large scale model of the entire project been available, more accurate and definitive results could have been achieved.

Thesis Supervisor: Kevan A. Lynch
Title: Professor of City Planning

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I. INTRODUCTION

I. INTRODUCTION

For the past few decades the term "new town" has been something of a magical phrase in city planning and architectural circles here in the United States. The thought of building an entirely new city has long challenged the imagination and capabilities of a wide range of developers and professionals alike. To many it has been the fleeting dream of providing the solution to the many urban problems which have so long plagued the American City.

Although a few pioneering examples of new towns are to be found in this country (i.e. Radburn, the Greenbelt towns, etc., circa 1930's),¹ the idea has somehow never really gotten started despite the fact that the new town movement has always received widespread attention among both city planners and civic designers alike.

Within the past 2 or 3 years, however, serious new town proposals of relatively large magnitudes have begun to proliferate. Reston, Virginia (pop. 75,000) and

¹See: Stein, Clarence S., "Toward New Towns for America," N. Y., Reinhold Publishing Co., 1957.

Columbia, Maryland (pop. 110,000) are among the best known here on the east coast.² Reston is already under construction and Columbia is soon to be started.

Undoubtedly this proliferation has been largely due to two significant factors: the pressures of a rapidly increasing population as well as a rising level of economic affluence coupled with corresponding demands for more interesting and efficient living environments. I think this demand will increase markedly in the coming years, much of it being satisfied in the form of the construction of new towns.

The new town becomes an expression of an entirely new approach to the problems of urban growth in this country. Their proper design becomes an important challenge to the urban designer. Perhaps many would take it for granted that the design for the new town would be fairly perfect and would assume it to automatically alleviate many of the problems, inconsistencies, etc. which are to be found in our existing urban environments. Of course the new town will alleviate some of these problems; however, the principal concern here is to project an even more rational method of design - a method having to do with bettering the visual form and structure of the city.

²At last count there were over 75 "new communities" being planned in over 30 states. See "New Communities in America," Urban Land, January 1965.

II. OBJECTIVES OF THE THESIS

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As new towns begin to proliferate here in the United States - or even as existing ones are added onto - more objective techniques regarding the improvement of their physical design should be undertaken. This thesis attempts to provide answers to one part of this challenge - that of better shaping the visual form of these new areas.

This study is principally concerned with this visual form, or "look" of new towns, and how that form can be better designed, utilizing visual design principles and criteria. (In general the visual form may be defined as how the city appears visually or is perceived by an observer or user and how he "images" or structures that form.)

The primary objective of the thesis, however, is to project a method of visual analysis which will enable the designer to more systematically approach the physical design of the city, as well as to strengthen its visual form. This method should also allow the designer to adequately test various design alternatives during the course of the planning process and to make rational decisions

regarding their choice.

The methods which are evolved here are tested by applying them to a real case - that of the recently designed new town of Columbia, Maryland. Although it is not my primary purpose to criticize Columbia's design (a design now being widely acclaimed), this method of analysis will point out the deficiencies in its physical planning and serves to underscore the need for a method of design utilizing visual principles.

Using the plan of Columbia as a background, the visual analysis will be evolved through the following steps:

1. A visual survey of the plan for Columbia will be conducted. Seven aspects of the physical plan are investigated. These are: Topography, District Character, Nodal Character, Sequence Character, Presumed Visual Form, Transit Visual Form, and Transient Visual Form. The results of this survey are presented graphically and selected examples of the methods by which these decisions were reached are commented upon.
2. A set of criteria by which to judge the survey and the physical design will be formulated.
3. The results of the application of this criteria will be expressed in a series of "Problems" and "Assets" diagrams. Special problems, at

the town and city center scales, revealed in this process will be commented upon.

A re-formulation of the Columbia design will be suggested, utilizing the conclusions derived from both the survey and the problems and assets diagrams.

More generally the thesis will also present a brief descriptive analysis of the design for Columbia and will explore the broad spectrum of concepts which influenced the planning process. As a background to the visual analysis, this description will also endeavor to convey to the reader some sense of the "look" of Columbia as well as the characteristics of its physical design.

III. ANALYSIS OF THE PLANNING PROCESS

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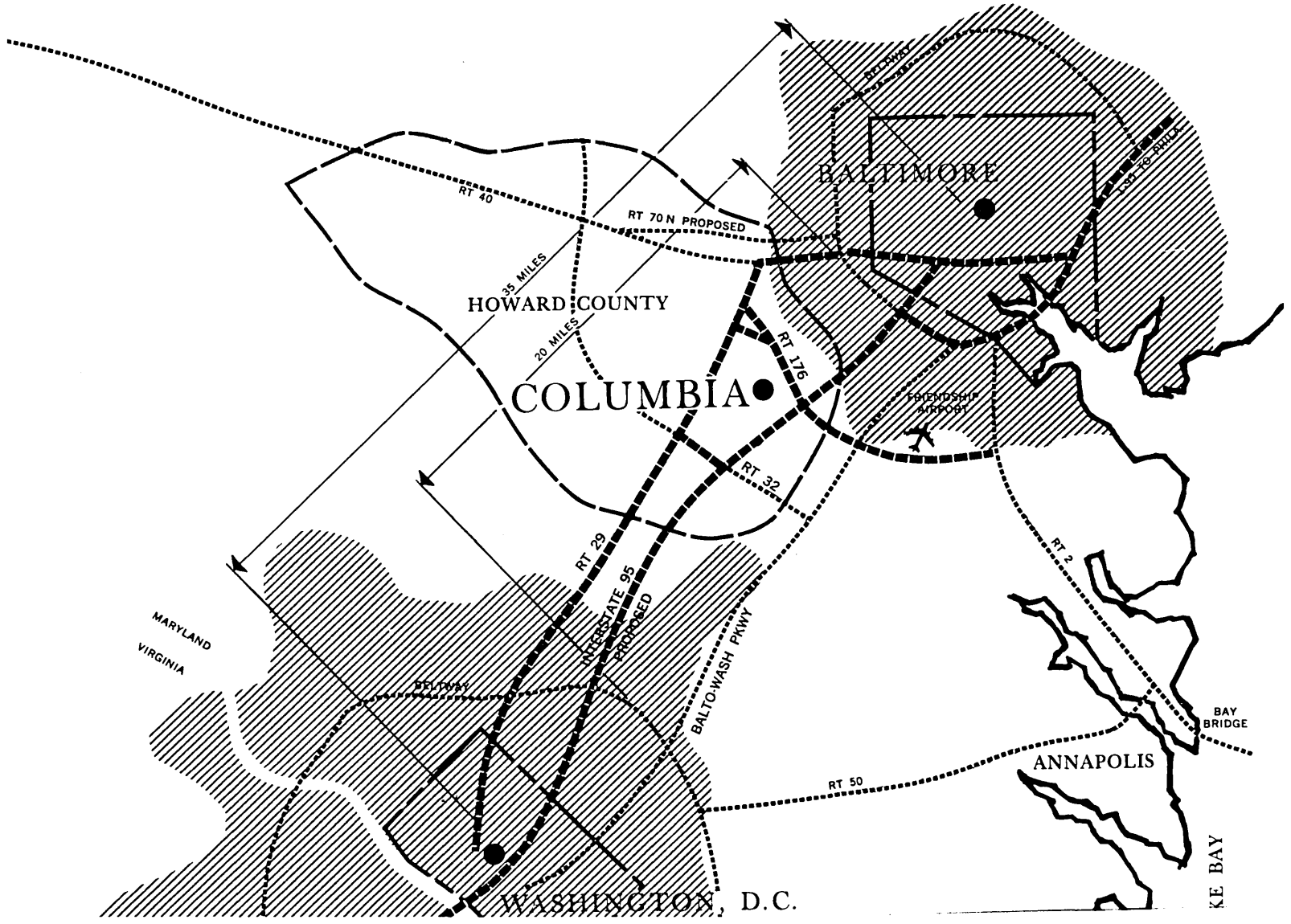
Columbia is located in the middle of one of the most unique urban areas in the United States today. (See Fig. 1.) Washington, D. C. is the fastest growing large metropolitan area in the country - Baltimore ranks ninth. Nowhere else in the United States are two cities of such size and of such dynamic growth potential located so closely together. From downtown to downtown these centers lie only 36 miles apart - their urban fringes are now less than 15 miles distant.

It is estimated that the entire Baltimore/Washington metropolitan area will double its population in the next 35 years, adding more than four million people to those already living in the region.³ Perhaps in answer to the challenge of these statistics, two new towns, Columbia, Maryland and Reston, Virginia have recently been proposed. Columbia with its projected population of 110,000 people lies almost directly within the Baltimore/Washington corridor while Reston, a town of about 75,000, lies a few miles west of the Capital.

Both towns were investigated as a prerequisite to this thesis but Columbia was finally selected for a variety of compelling reasons. The history and planning behind Columbia possessed many unique aspects. Not only had the town center been designed in some detail, but two village

³ See: "Columbia Brochure", p. 4.

Regional Area Map
FIG. 1



centers and their surrounding neighborhoods were also in similar stages of completion. A detailed building program had also been set forth, and densities and circulation patterns firmly established. One of the most interesting aspects - a large scale model of the center and two villages - was also available and aided greatly in making the visual survey analysis.

Another unique aspect which Columbia possessed was its tremendous emphasis upon social planning. Teams of experts had been brought in to advise upon the social aspects of physical planning and the results of that approach are quite evident in Columbia's plan. Apparently the effort which had gone into the Reston design had taken little of this into account.⁴ I felt also that it would be of some significance to test visual design against social planning considerations.

In order to set the background then for the visual analysis which is to follow later, I felt it would be necessary as well as beneficial to convey to the reader some "sense" of the physical plan for Columbia, as well as to explore a broad spectrum of information which influenced the various philosophies and decisions behind the physical planning process.

James W. Rouse, president of one of the largest

⁴For a rather complete description of the Reston plan, etc., see "Architectural Record," July 1964, pp. 119-126.

mortgage banking firms in the country, is the developer behind Columbia. He is the man chiefly responsible for the new Charles Center in Baltimore as well as an impressive list of shopping centers, housing, suburban developments, etc. developed under his subsidiary, "Community Research and Development, Inc." (CRD). Columbia, however, is the first "new town" he has undertaken to develop.

CRD planners went on the premise that a new town located within 50 miles of 2 major metropolitan centers of employment would ensure the town's economic success. In addition to the Baltimore/Washington area the Boston/Providence corridor was also investigated briefly.⁵ Because of cheaper land costs an area in Howard County, Maryland was finally settled upon and beginning in 1962 over 140 separate land parcels were purchased by CRD under a cloak of utmost secrecy. By 1964 they had assembled a 24-square mile, 15,200 acre tract of nearly contiguous parcels in the eastern part of the county, at an average cost of \$1485 per acre. This meant a total investment of over \$22½ million dollars, a burden which Rouse shares with the Connecticut General Life Insurance Co.

Aside from creating a legitimate profit on the Columbia undertaking, Rouse's one absolute goal is to make

⁵Tannenbaum, Robert, "Planning Determinants for Columbia," Urban Land, April 1965, p. 3.

sure that the new town is designed "for people." This concern for sociological objectives is reflected in his statements regarding the initial planning objectives for Columbia. He states that, "It seemed to us that the right point of beginning for planning a community should be to try to determine what might be the best environment for the growth of people. -The biggest hole in the planning process is right at the beginning. Planning deals with highways, land uses, etc. but it almost never deals with people. Isn't it time to ask what we are planning for?" This concern for the individual permeates the planning process from start to finish in Columbia.

Rouse went about convening a "work group" of professionals and experts⁶ in such fields as sociology, government, recreation, economics, education, health, housing, transportation and communications, with a social psychologist as its co-ordinator.

This work group was to decide upon the pertinent goals as they related to each of the above fields and were in turn to decide upon policies which would dictate to the physical planning process as well as general policies CRD should pursue as they went about in their task of setting up the community.

⁶Such well known names as Herb Gans, Alan Voorhees, Robert Gladstone, etc. Significantly Rouse precluded architects from the work group. Said Rouse, "There has always been too much emphasis on the role of the architect as an artist - and not enough on his role as a social servant."

From the outset CRD sought 3 types of information from the "work group." These were:⁷

1. To gain knowledge and insights about people and institutions as a basis for the design of physical facilities.
2. To facilitate in the evolution of community institutions and administration arrangements both within and without physical components.
3. To provide the developer and the evolving community with a reservoir of awareness and wisdom in order to enable them to act wisely over the long-term development process as problems or potential opportunities arose.

The output of the work-group was not the formulation of specific proposals but rather the evolvement of a range of guides for physical planning. Much of this output was followed in some detail by CRD's designers however.

The recommendations of the work group are of interest to our endeavor of seeking out those influences which have principally affected the physical planning process. It is also of interest to note that this group of experts has produced seemingly little in the way of truly innovative thinking with regard to the function and design of this new town effort.

The highlights of these recommendations are presented as follows:

⁷See Michael, Donald, "Report on the Planning and Programming of Physical Facilities, etc.", September 1964, p. 9.

1. That the town make it a goal to provide a job for each of its employable residents and a place to live for each of its workers.
2. That the community has one principal root and focus - education. Therefore education and its related facilities should be physically and symbolically part of the community.
3. The fundamental planning unit should be the neighborhood with an elementary school as its focus.
4. There should be ways to communicate a "sense of community." Therefore the town should be arranged at three levels of physical complexity and social activity: the neighborhood, the village, and the community as a whole symbolized by a "downtown."
 - (a) The Neighborhood should contain 350-600 families housed in various types and sizes of dwellings. Dwellings should be clustered so that relative homogeneity will be encouraged in a cluster, but the neighborhood as a whole should be relatively heterogeneous. Heterogeneity will be enhanced if the families live in a variety of dwellings ranging from single-family housing to garden apartments, to apartment buildings. Distances from the periphery of the neighborhood to the center should be on the order of $\frac{1}{4}$ mile. There should be no internal through traffic so that all children may have a safe walk to and from school.
 - (b) The Village should serve from 3,000-5,000 families and should be a "collection" of neighborhoods clustered within a $\frac{1}{2}$ mile radius. In this way the neighborhoods would find as their common focus the resources of the village center. Some high density should be located around the village centers. The village should be the locus of mass public transportation. It should support elaborate facilities not available in the neighborhood centers, thereby offering more opportunities for interaction and joint social activities.
 - (c) The Town Center should provide the one-of-a-kind resources which require at least 100,000 population. It should be the operating and symbolic core of the community.
5. A Tivoli type recreation center should be provided where people can discover new ways to enjoy their free time.

6. The community should be linked by a closed circuit TV system.
7. The community should also be linked by a rapid, convenient and cheap mass transit system in order to impart a new sense of freedom to the residents. The system should run on its own right-of-way, free from automobile interference.
8. The town should be a separate financial entity. The work group proposed a "fiscal fence" to be thrown up around the community. This would allow the town to enjoy the benefits of its own tax system and would shield the rest of the county from the burden of providing facilities, etc.
9. The town should have adequate schools, churches, libraries, and playgrounds to meet the residents cultural and recreational needs.

From the array of recommendations presented to CRD, 3 had paramount influence over the concepts which went into the making of the physical plan:

1. Educational system - The idea here of the elementary school being the focus of the neighborhood and that each village should contain its own Junior and Senior High School meshed well with the neighborhood and village concepts. Each places particular emphasis on the community "center" and social orientational ideas.
2. Village and Center Concept - The 3 scale hierarchy of the Neighborhood, Village and Town Center. This decision probably had the most to do with the design of the physical plan.
3. Small Bus Concept - The idea of linking the Villages (and some Neighborhoods) with the town center by the use of mini-bus system as well as the policy to concentrate high density housing within 500' of the bus right-of-way also has much affect on the physical plan.

The general development goals which CRD set for itself are reproduced in Appendix A. Undoubtedly a few were direct reflections of the recommendations of the work

group but in general they are the high-sounding, idealistic objectives which are to be found prefacing any planning brochure. At least four (#2, 3, 4 and 6) have general visual implications, while #2 and #3 presumably had direct relation to the design process. Interestingly enough, goal #4 is in direct conflict with Rouse's own attitude toward architecture in general. He has stated: "I don't think we are going to create anything new in Columbia. There has been too much emphasis on the role of the architect as an artist - and not enough on his role as a social servant."

What was the resultant "look" of the new town when the recommendations were applied? The final design is presented here at two scales: the small map (Fig. 2) gives an overall impression of the major circulation patterns, the village centers, and the location of the town center in relation to the rest of the city. The larger Land Use Map (Fig. 3) gives a more highly detailed account of the placement of the various densities of housing, locations of employment centers, commercial areas, and the network of open and green spaces. This map also indicates those properties which CRD does not own and shows the pattern of planning in and around these existing areas.

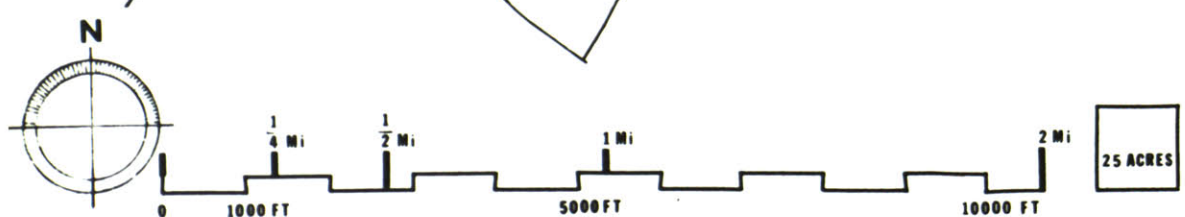
Following the work group recommendations the town is divided into 10, mile-wide villages with each village usually sub-divided into 5 satellite neighborhoods. Thin sinews of green areas connect each of the neighborhoods



Small Plan of Columbia

FIG. 2

LARGE LAND USE MAP
FIG. 3



LEGEND

- | | | | | | | |
|--|---------------------|--------------------------|--|----------------------------------|--|----------------------------------|
| | RESIDENTIAL | maximum of | | SCHOOLS | | LAND OWNED BY OTHERS |
| | APARTMENTS | 15 Dwelling Units / Acre | | COMMERCIAL | | EXISTING RESIDENTIAL DEVELOPMENT |
| | SINGLE FAMILY - MED | 4 Dwelling Units / Acre | | EMPLOYMENT CENTER | | EXISTING SCHOOLS |
| | SINGLE FAMILY - LOW | 2 Dwelling Units / Acre | | PARK, RECREATION, AND OPEN SPACE | | EXISTING CHURCH |
| | NEIGHBORHOOD CENTER | | | BUS ROUTE | | EXISTING EMPLOYMENT CENTER |
| | VILLAGE CENTER | | | ARTERIAL ROADS | | PARK LAND PROPOSED BY COUNTY |

A GENERAL PLAN FOR COLUMBIA
A NEW TOWN FOR HOWARD COUNTY, MARYLAND

COMMUNITY RESEARCH AND DEVELOPMENT, INC.
 14 West Saratoga Street
 Baltimore, Maryland 21201

to the village center. The town center is located roughly in the middle of the 6 by 9 mile area and is accessible by ring road from Route #29 and other internal paths.

The bus route running on its own right-of-way connects 8 of the village centers to the town center which in turn will have connections to Baltimore and Washington. The "Employment centers" (Industrial and Office uses) are generally concentrated in a belt running along the southern part of the town and are usually separated from the residential areas.

At least 7 basic uses of the land may be discerned here and a brief explanation of each is presented:

	<u>Acres</u>
1. <u>Low Density Residential</u> - 1-10 acre range	1,500
2. <u>Medium Density Residential</u> - Homes on lots from $\frac{1}{4}$ to $\frac{1}{2}$ acre	4,200
3. <u>High Density Residential</u> - Town- houses, garden and elevator apartments. Average Density 15 D. U./acre	1,500
4. <u>Commercial Areas</u> - Stores, shops, and business offices. Includes most of the town center	500
5. <u>Employment Centers</u> - Research and science oriented industries, warehouses, offices, etc.	1,800
6. <u>Permanent Open Spaces</u> - Lakes, parks, streams, valleys, recreation areas, golf courses, etc. (one acre out of four devoted to open space)	3,600
7. <u>Roads, Bus System, Miscellaneous</u>	<u>1,780</u>
Total	15,000

Columbia will provide housing for over 29,000 families by the year 1980. At completion the average overall density of the community will be about 2 families per acre. Densities will range from very low (0.4 D.U.'s per acre) to very high (25.0 D. U.'s per acre) which will be high-rise rental apartments. (See Appendix B for a breakdown of densities and housing types. Housing will be priced from \$10,000 - \$100,000 and Rouse hopes to attain as great a mix - from high to low incomes - as the market will allow.

The neighborhood is the primary "planning unit" in Columbia and the elementary school is the focal point of the neighborhood. The work-group considered the neighborhood center to be the basic device for drawing residents into the life of the community and suggested various physical facilities be placed in the center in order to optimize the potential for social interaction. In addition to the elementary school a small store coffee-shop/soda fountain will also be provided (See Fig. 4). A swimming pool and tennis courts are also located closeby.

The village center is similarly built up around the educational focus - the junior and senior high schools will be located here, as well as a variety of commercial and institutional activities. CRD hopes that the Village Center will be the "heart" of each community, providing a wide choice of services and activities for the residents surrounding it as well as those from the satellite neighbor-



Neighborhood Center View

FIG. 4

hoods. The focal point of the center would be a parklike square or plaza around which the principal buildings are to be located (See Figures 5 and 6.). Commercial uses such as a small supermarket, drugstore, bakery, gift shop, etc. would be here as well as a medical office building, a library, and churches of various denominations.

It is to the "Town Center" that the entire city would focus most of its attentions however. It is here that the large shopping mall and office complexes are to be located, as well as various cultural and entertainment facilities.

A glance at the plan of the center (Fig. 7) gives some idea of the magnitude and relation of these facilities. Figs. 8 and 9 are presented in order to give some idea of the spatial and textural character of the area.

At the heart of the center lies an enclosed shoppers mall which is to be heated and air-conditioned. The mini-bus rider will be able to exit or board here, when coming into or leaving the center.

A complete Tivoli type recreation area is to be located on the lakefront and will contain a band shell, concert hall, restaurants and related recreational and cultural activities.

Various office and commercial buildings surround the main shopping plaza. South of this area is a large park and stadium as well as a Community College and Special



Bird's-eye View of the Village Center

Fig. 5



Perspective of the Village Center

FIG. 6

LARGE SCALE TRAN/
CITY CENTER

FIG. 7.



BIRDSEYE VIEW - CITY CENTER

FIG. 8

36



Perspective of the City Center

FIG. 9

Offices area which is to contain a large $2\frac{1}{2}$ million square foot U. S. Patent Office Building.

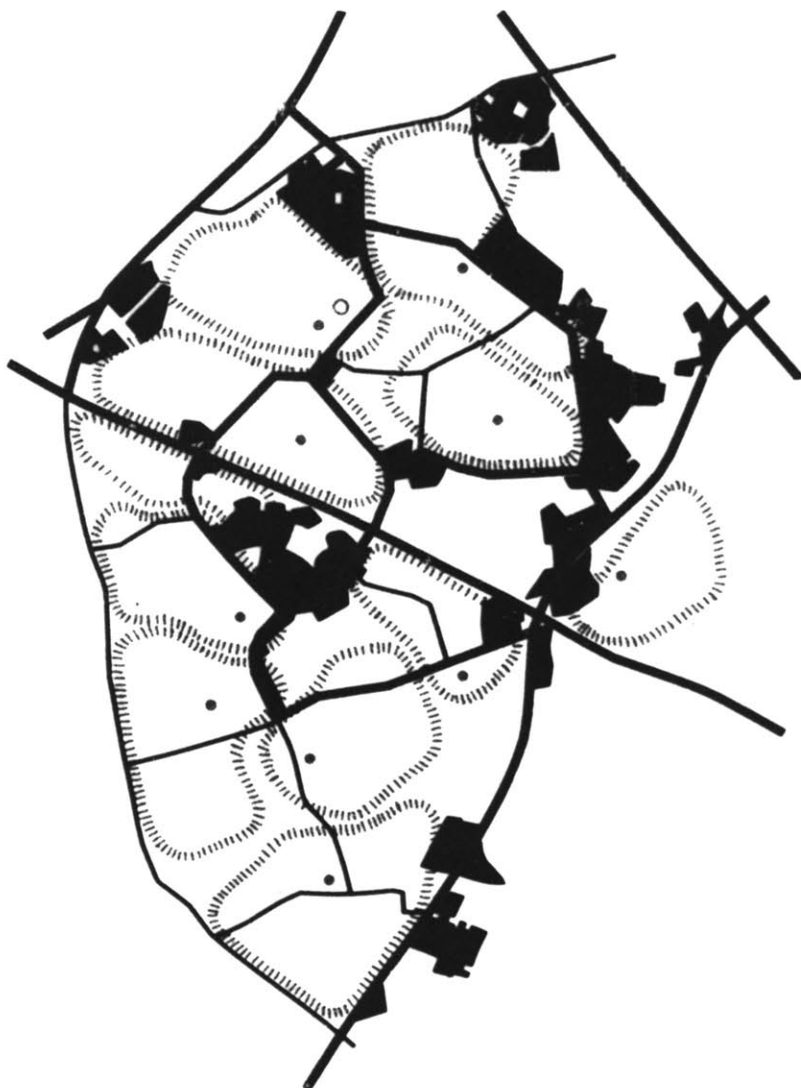
CRD designers placed the town center beside route #29 and this was done so for several reasons. First this location is roughly in the middle of the 9 by 6 mile area. The center is given good visual access from Route 29 (soon to be widened to 6 lanes) across the large lake which is being dammed to create amenity for the center and the Tivoli recreation area. The center also lies opposite two rather prominent knolls which will allow commanding views into the "center" from apartment towers to be located there.

Topographical configurations as well as the fact that CRD's holdings were not contiguous have also been important determinants upon the physical plan. The existence of the islands of land not owned by CRD precluded, according to Hoppenfeld, any geometric or homogeneous solution. These and other characteristics of the land (irregularities, location of building areas, etc.) began to mesh with the work groups (and Rouse's) concepts of breaking the town up into the village centers with satellite neighborhoods.

The new innovation of "cluster" development has also had wide affect upon the plan. A glance at the design for the center (Fig. 8) gives an indication of what the planning of the first two villages would be like and is an example of the Cluster Development Technique.

The attraction of business and industry (See Fig. 10 for pattern and location of sites.) to Columbia will be of primary importance to the success of the town. CRD has launched a nationwide effort to seek out and convince potential industries and research firms that Columbia will possess the advantages they are looking for as well as providing the necessary "total environment" for their executives and employees. (The U. S. Government Patent Office has already tentatively agreed to locate here.) CRD claims that within 4 years of its beginning Columbia will possess at least 41 of the 45 most important criteria for industrial location. The 1800 acres set aside for industry is expected to generate 8,000 primary jobs while community services will create 22,000 secondary ones.

Another strong attraction to both Industry and the person seeking a home in Columbia will be the proposed Community Improvement District. This device will in effect place a "fiscal fence" around the new town and will apply only to those lands which are now a part of Columbia's property. The formation of such a district will require a special act of the Maryland Legislature and when passed will allow tax revenues from the new towns projected assessable tax base of \$900,000,000 to be used mostly for the benefit of the businesses and residents inside Columbia, while some will go to the rest of the county. CRD claims that by the time the town is fully developed it will generate \$6 million



Locations of Business
and Industry

Fig. 10

more in revenues per year than it will require in services.

Only recently - just last month - has Rouse been able to secure an official approval for Columbia from Howard County officials. CRD now plans to call for development of about 3,000 dwelling units a year, most of which will be developed by private developers, with CRD probably taking on the construction of the commercial areas and some of the high-rise apartment structures. Theoretically builders will not have to worry about getting zoning changes, utilities, roads and what have you - as all this will be accomplished beforehand for them. Rouse plans to impose a few design controls but most of them will be at the site planning level. CRD hopes that Columbia will be a complete and thriving community by 1980.

Reviewing this analysis of the planning process for Columbia it has been fairly easy to see the heavy emphasis which has been placed on social and economic determinants. While this type of approach seems to have been fairly standard in the planning of new towns in Europe, Columbia has been the first time to my knowledge that so much attention has been paid to social considerations in this country. Seemingly little consideration, outside that of the urban designers' intuitive senses, has been paid to the aspects of visual perception and planning in the design for this new town. It is a hopeful sign, however, that a new city of this magnitude with planning innovations of the

sort which are being proposed here, is being undertaken in this country.

Even though the age old "village" planning concepts are being utilized in Columbia (the same in Reston), it will be interesting to see how successfully they adapt to use in a new, planned community in this country. It seems a shame that at least one "neighborhood" could not have been used for experimental purposes to test more sophisticated sociological and design theories.

I would certainly also plead the opposite case with regard to the importance of the need for "good" design for Columbia's building program. Why, one may ask, after the tremendous effort expended here to produce an innovative entity such as new town, would its developer and designers fail to recognize the additional benefits which good design can contribute to the environment. This is precisely the thing we have been seeking in our cities - an orderly as well as a choiceful and aesthetically pleasing environment. I am not sure Rouse is going to accomplish this, given his present attitude toward design. What will prevent another Levittown from springing up around the well designed neighborhood center? This is not a pleasant prospect and could do much to negate the impact of the new town. Contrary to Rouse's goal, something "new" must be accomplished in the new town or else it would not seem to be worth the effort. But in a way this is what this thesis is about -

the design for cities and how that design can be better accomplished visually.

It will, of course, be interesting to see what both Reston and Columbia accomplish in the future. Both should provide a rich field for future research in every realm of the urban environment.

IV. THE VISUAL ANALYSIS OF COLUMBIA

IV. THE VISUAL ANALYSIS OF COLUMBIA

A. THE PHYSICAL PLAN

Although some of the elements which make up the Columbia design have been previously discussed, additional comments regarding the general structure of the plan should be briefly touched upon.

From a design standpoint the Columbia Plan is actually a rather straightforward one. The entire city is planned around a strong focal point - the town center. Here is located the large shopping area, tall office buildings, the bulk of the major institutions and a large recreational complex. Most of the major roads have been planned to feed into this center. A series of 10 satellite villages and their attendant centers are spread at varying intervals within the 6 x 9 mile area.

Columbia is ringed on 3 sides by major inter-regional auto routes. Route #29, a major north-south route bisects the town and divides it into 2 areas of approximately equal size. The major internal auto circulation routes tend to wander through the plan and

usually have not been systematically planned due mostly to the developers' desire to use the existing roads.

High density housing seems usually to follow the public transit routes as they wind through the system of village centers and industrial areas. In general the low density housing areas have been grouped together in the western section of the town and in the extreme southern part across Route 32. (Both these areas are auto-oriented and are not served by the transit system.) Medium density housing is then generally used to infill between the high and low density areas. The plan contains little or no "mix" of land uses.

Trees and vegetation abound throughout the area, as do rivers and streams and lakes. The largest of these man made lakes is located in the western part of the town and is part of a strong valley which runs the entire length of the Columbia area. Other lakes have been created at the town center and in the eastern section of the city.

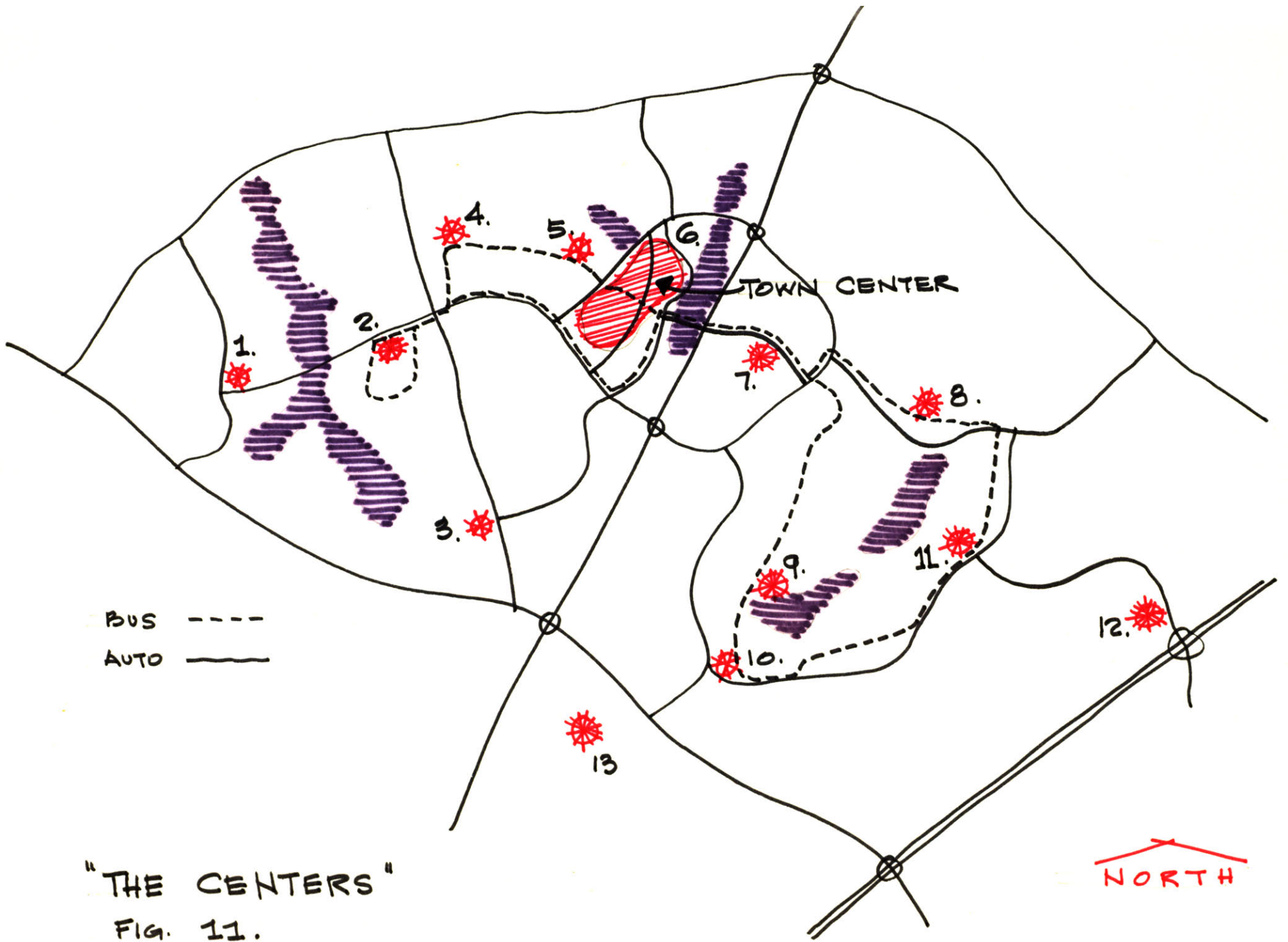
Attention should be called to those areas within the town which the developer was unable to obtain. These "holes" appear as part of the overall network of the design. Two are fairly sizable existing subdivisions - one near Route 32, the other off Route 108 (See Fig. 2.).

Has the plan been well designed and is its visual form well structured? Could the city have been given additional "meaning" had its designers been able to apply a better set of visual design criteria?

B. THE VISUAL SURVEY

The initial step to be undertaken in making a visual analysis is to conduct a survey of the major "elements" which make up the design of the new town. I am interested here in investigating and recording those things, both visual and physical, which make up the entire visual structure and character of Columbia. This entails a variety of considerations, but in general I am trying to determine the following: the location as well as the characteristics⁸ of the principal centers of activity in the town (nodal points); the location and characteristics of the main districts of the town; the topographical aspects - things such as strong valleys and peaks and their locations, the presence of rivers or lakes, etc.; the determination of the major paths and what is seen along them; and finally a prediction as to how the main visual form of the town is perceived from the main automobile and transit routes. This procedure then will be termed a visual survey.

⁸These characteristics would include for example: An investigation of the kinds and types of activity in the node (people and auto); spatial character (the configuration of buildings, their heights, etc.); the types and kinds of buildings present; characteristics of topography and vegetation; views (panoramic or directed); as well as the nodes' relationship, either functional or visual, to other nodes, etc. (These will be explained in greater detail on the visual survey drawings which appear in the following pages.)



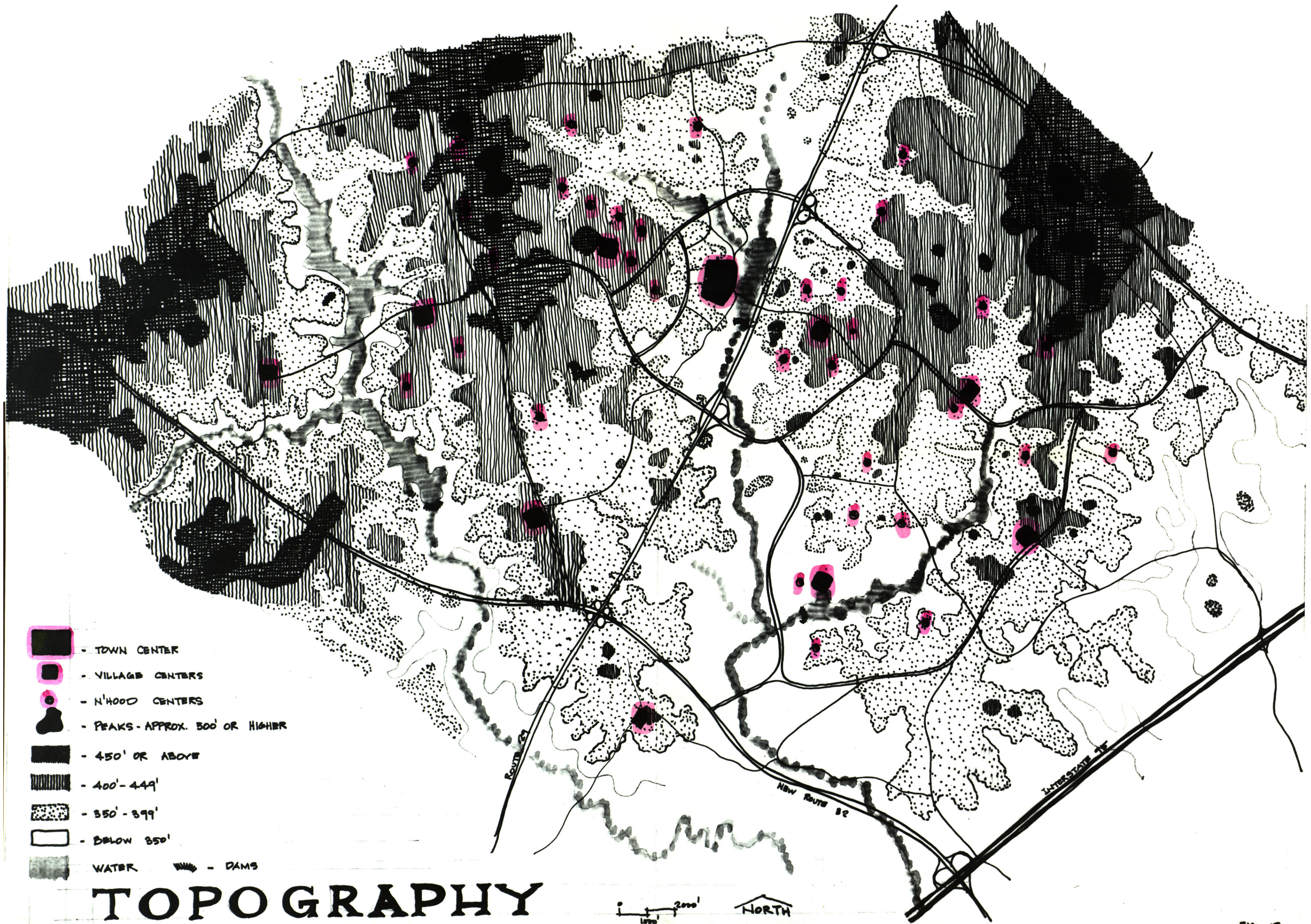
"THE CENTERS"
FIG. 11.








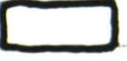


NORTH

A visual survey can be carried out with relative ease for an existing city, but for a design in the planning stages the job becomes more difficult. However, an adequate visual survey can be accomplished for Columbia - or indeed for any design proposal so long as information regarding topography, land use, vegetation, road design and layouts, site planning, building heights, etc. are available. In the case of Columbia an adequate topographic map, a detailed site plan showing land uses, a large scale model of the "Center Area," and detailed site designs of the City Center and Villages #5 and #7 (See Fig. 13 and Fig. 7) were available.

As each of the main "elements" of the town were investigated and their characteristics determined a set of visual survey drawings are produced. These diagrams graphically symbolize the judgments which have been made with regard to each of these analyses. Seven distinct categories of the visual form are investigated here and a brief explanation of each is presented. Examples of each judgment have been selected from each drawing and a brief explanation rendered in conjunction with the general explanatory comments.

1. Topographic Diagram (Figure 12) The first is a diagram showing the major topographic features of the Columbia site. It also includes road patterns and the locations



-  - TOWN CENTER
-  - VILLAGE CENTERS
-  - N'HOOD CENTERS
-  - PEAKS - APPROX. 500' OR HIGHER
-  - 450' OR ABOVE
-  - 400'-449'
-  - 350'-399'
-  - BELOW 350'
-  WATER
-  - DAMS

TOPOGRAPHY



of the village centers and neighborhoods. Most apparent in this drawing are the many strong hills and peaks which ring the town on its northern perimeter. Also indicated are the pattern of lakes and rivers which course their way through almost every part of the area. Equally strong from a visual standpoint is the "valley" formed by the Middle Patuxent River near the western edge of the town. Its steep banks combined with the dense vegetation prevailing on them provide (in addition to the hills and peaks) one of the most powerful topographical assets of the town.

2. District Character (Figure 13) The second diagram gives an indication of the character of the major districts (those areas which are recognizable as having some common identifying character) which are likely to be visually prominent at the town-wide scale. It also conveys a sense of the interplay of building densities and their heights and bulk, tree cover and topography, the role of water and hills, and the intensity of activity within each of the districts. Apparent also are the areas which are anticipated too weak or not well



DISTRICT CHARACTER ,
FIG. 13

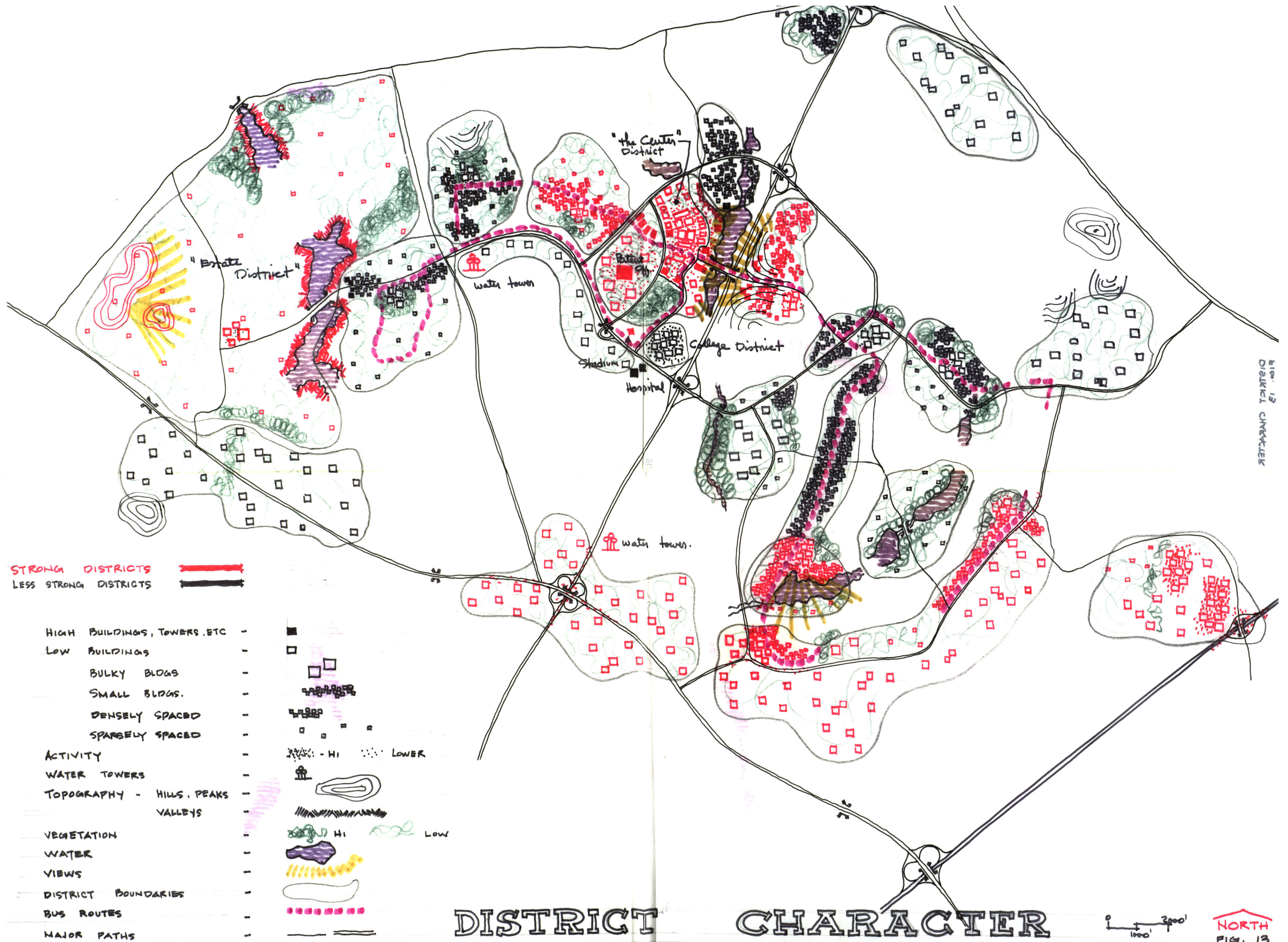








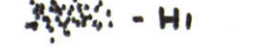










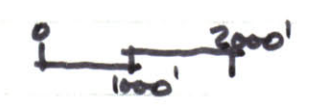


FIG. 13
DISTRICT CHARACTER

- STRONG DISTRICTS 
- LESS STRONG DISTRICTS 
- HIGH BUILDINGS, TOWERS, ETC 
- LOW BUILDINGS 
- BULKY BLDGS 
- SMALL BLDGS. 
- DENSELY SPACED 
- SPARSELY SPACED 
- ACTIVITY  - HI  LOWER
- WATER TOWERS 
- TOPOGRAPHY - HILLS, PEAKS  VALLEYS
- VEGETATION  HI  LOW
- WATER 
- VIEWS 
- DISTRICT BOUNDARIES 
- BUS ROUTES 
- MAJOR PATHS 

DISTRICT CHARACTER



remembered by the residents of the town.

Although it is not a prerequisite that every area in a town be visually strong, a coherent patterning of districts should exist - as the visual analysis will attempt to show later in the report.

In order that the method behind these evaluations may be further clarified the Town Center "district" is selected as the first example. Why is it a strong district, while others are likely to be less strong or not perceived at all?

The Town Center, as has been explained previously, is the principal focal point of the community. The major shopping area is here, the tallest and most important buildings are located here, so are the bulk of the major institutions, and so is an important recreational area. Activity levels are high without, at the same time, being unpleasant. The town center is well exposed to the major paths so that those who are travelling by car or transit are well aware of its presence and function. The large lake at its eastern edge adds a powerful topographic asset - one which is easily remembered and one which allows superb views into and out of the district. The district is adequately contrasted to the areas and functions going on around it. In short, the entire district is "meaningful" both visually and functionally to every resident in the town.

The residential district across from the town center is another example of an area which should be strongly perceived. Undoubtedly its chief asset is the strong peaks which rise above the lake front and allow commanding views of the center. Its tall residential towers act as prominent landmarks to the viewer from both far and near. The district also acts as a gateway to the city center for many who enter the town from the east. Its village center is prominently displayed to the path system and is visually well differentiated from the rest.

The district around center #4, however, is not likely to be as strongly perceived. It is not well exposed to the major path system (two pass close by) nor has it taken advantage of a strong piece of topography (a hill to the north) which could have been a powerful perceptual asset.

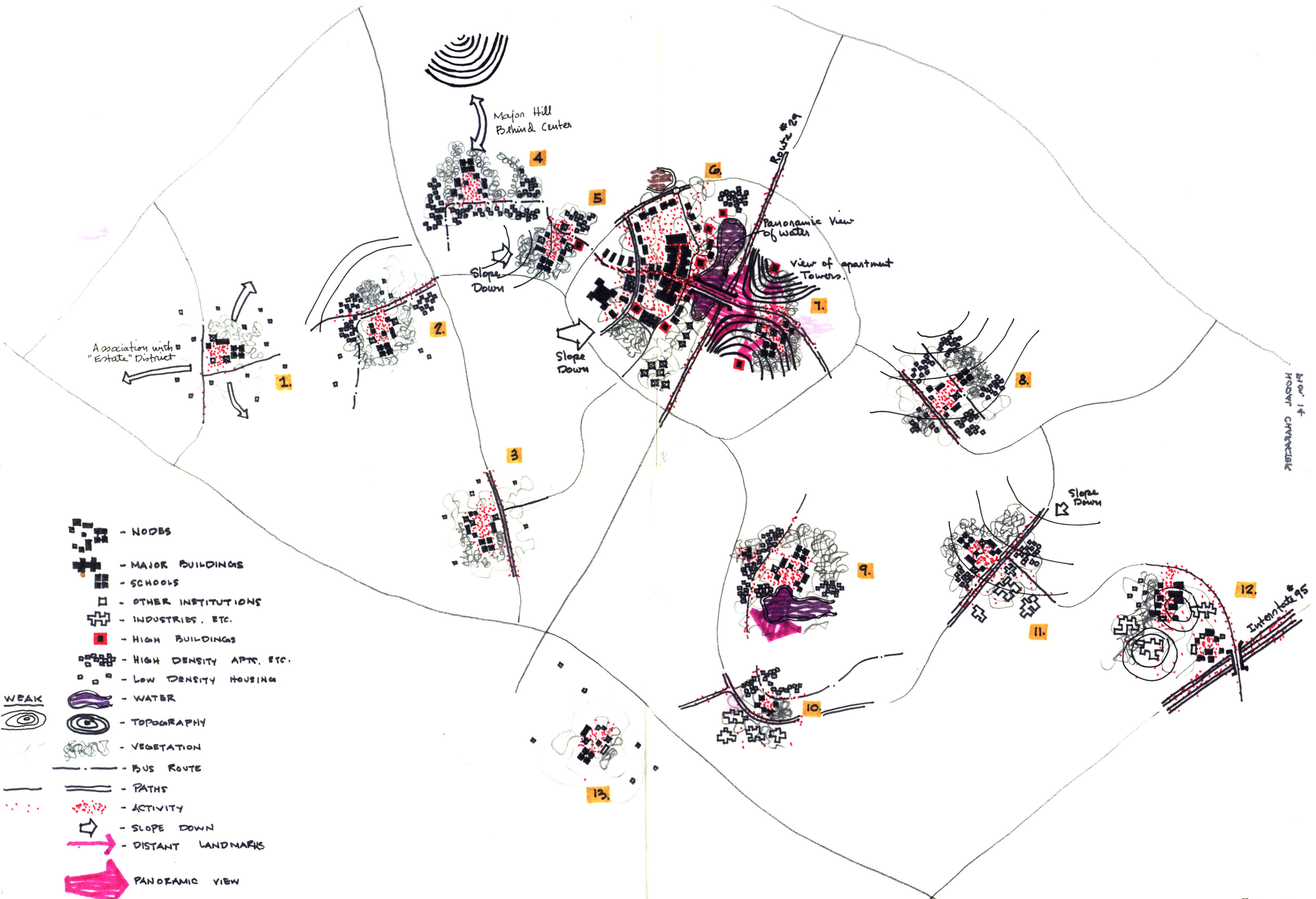
In general, those areas which are expected to be well perceived are those which are: well exposed to the major paths, those which possess a great deal of "meaning" (such as the city center or the "estate district"), those in which activity levels are fairly high (without being uncomfortable or having perceptual overload), those which contain adequate contrasts to surrounding areas, and those which contain one or a group of strong topographical assets.

3. Nodal Character (Figure 14) Nodes are the principal activity centers within the town. This drawing like the previous District Character diagram gives us an indication of the "personality" or characteristics of each node and how they differ from the others which make up the pattern of activity points throughout the town. Evident here is the strong character of the "Town Center" as well as the similarities of the most of the "Village Centers." Neighborhood centers are not considered to be major nodes.

Apparent here also is the problem of the "special" commercial area located along I-95 at the northernmost interchange. This node is principally oriented toward the highway and has little connection with the city itself. Both the Nodal and District character diagrams illustrate the basic pattern of the town, locating areas of strong character, and to some measure indicates the presence of possible ambiguities in the design (i.e. the lack of clear differentiation between the centers, etc.)

A glance at the legend of the Nodal Character diagram should serve to adequately explain the traits which

NODAL CHARACTER
FIG. 14



- NODES
 - MAJOR BUILDINGS
 - SCHOOLS
 - OTHER INSTITUTIONS
 - INDUSTRIES, ETC.
 - HIGH BUILDINGS
 - HIGH DENSITY APTS, ETC.
 - LOW DENSITY HOUSING
 - WATER
 - TOPOGRAPHY
 - VEGETATION
 - BUS ROUTE
 - PATHS
 - ACTIVITY
 - SLOPE DOWN
 - DISTANT LANDMARKS
 - PANORAMIC VIEW
 - DIRECTION
- WEAK

NODAL CHARACTER

(MAJOR NODES)

should be assessed in order to derive the "character" of each node. In general I am here determining spatial configurations of buildings, their uses, heights, bulk, etc., as well as levels of activity, prominent views, topographic attributes and vegetation, and finally "meaningful" connections which may impart additional character to the node (i.e. Center #1's connection with the estate district).

Information regarding the relative visual strengths of each particular node may be derived from the District Character diagram which was previously presented. As can be noted from that diagram all the centers, with the exception of #3 and #13 are predicted to be well perceived - some, however, will be more strongly perceived than others. (See Diagram Fig. 13.)

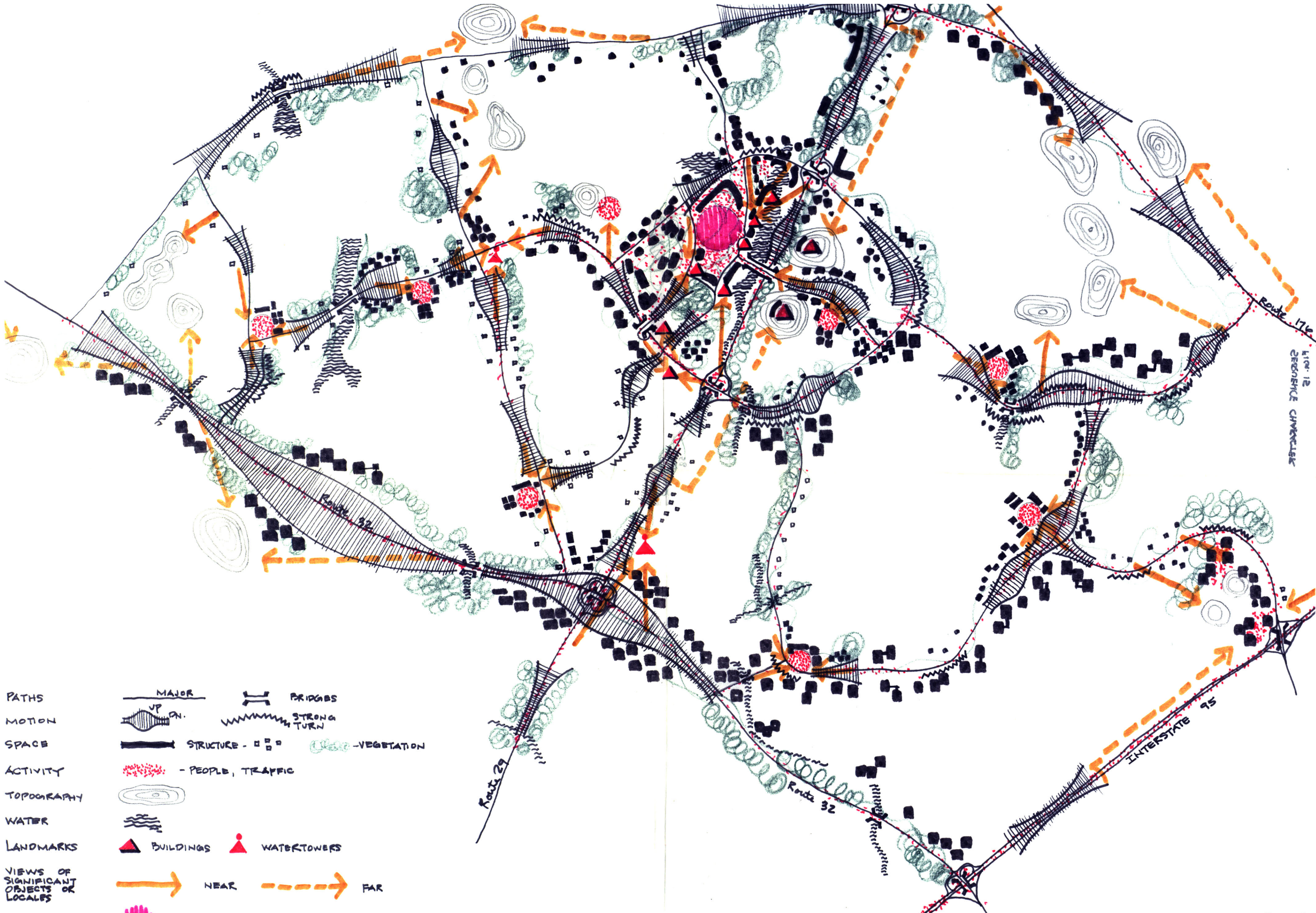
Much of the same criteria as was applied to the districts can be applied toward assessing the visual strength of the nodes. The reasons for the strong perception of the town center has already been touched upon. Center #12, for instance, is certain to be a strongly perceived node principally because of its excellent exposure to I-95 and its prominent position marking one of the major entry points into the Columbia. Since it is to be a regional shopping center (second in size to the town center), probably containing some high buildings, and undoubtedly high levels of activity, its "meaning", therefore, will be quite pronounced in the minds of many of the town residents.

Center #9 may also be predicted with equal confidence principally because of its prominent position overlooking the lake, as well as its close proximity to another center of equal visual strength.

Because of Center #13's relative isolation, from both a visual and functional standpoint, it is likely not to be perceived as part of the visual structure. This may in the end suit the residents who have sought the exclusiveness of the area - but it will not aid in the total perceptual structure of the city.

4. Sequence Character (Fig. 15) This diagram conveys something of a different aspect of the town. It indicates how the townscape is presented to the moving viewer and analyzes the sequence of visual impressions from the network of major paths. The strong visual character of the town center as presented from its adjacent routes becomes quite evident here. A close inspection of the drawings will also reveal the many weaknesses of the visual sequence. Poorly structured sequences exist along most of the important inter-regional paths and other internal circulation routes. Examples of these sequential deficiencies will be elaborated upon in the following paragraphs.

SEQUENCE CHARACTER
FIG. 15



SEQUENCE

CHARACTER

(MAJOR PATHS)



Fig. 15

Fig. 12
SEQUENCE CHARACTER

In testing the sequence character along Columbia's major routes, what are the elements which are likely to make that journey a memorable experience? In general two distinct types of perception are being assessed here. The first are the major elements which can be "seen" from the road and the second is self-motion. Self-motion is simply the perception of the sensation of going up or down hill or turning from one direction to the other. A look at the legend on the diagram will give a more complete picture of the range of items which make up the impression of the visual sequence.

The strong sequences which are presented to the viewer from the major paths in and around the town center become quite evident here. As the center is approached from Route 29, for instance, the motorist is given many visual hints of the center. Its high buildings can be seen from the tops of hills from some distance away. As the viewer passes under the ring road interchanges he is suddenly confronted with spectacular views of the center, further accented by the lake, the high buildings and the activities which are going on there. His view is also directed toward the center by the presence of the two strong hills which rise up on the eastern side of the highway. His view of the center continues virtually uninterrupted until he again passes under the ring road at the far end. If he is travelling

south he is confronted with a group of sequences of lesser magnitude but none-the-less his interest is still maintained by the frequent sighting of the water towers and his arrival at the Industrial area and the intersection with Route 32.

The sequences along Route 32, on the other hand, lack a sufficient amount of elements spaced closely together enough to hold the motorist's attention so that the path could be well remembered. The view here is mostly of industrial areas spaced too far apart to be perceived as a clear or well-remembered sequence. The sequence presents a poor contrast of elements (principally ones of industrial areas to green spaces) while no visual hint of the city itself can be obtained (This could have been alleviated by re-routing 32 closer to center #10 or #13.). This device as well as the use of bridges and better views of the rivers along the route could have provided an adequate level of contrasts, etc.

The last three diagrams depict the presumed visual form or "image" of the total city from the major paths - both automobile and transit. They represent predictions of those areas and elements which are likely to be strongly perceived in the minds of both resident and transient alike. In reality these are the things which convey the structural form or "pattern" of the city to both observer and user.

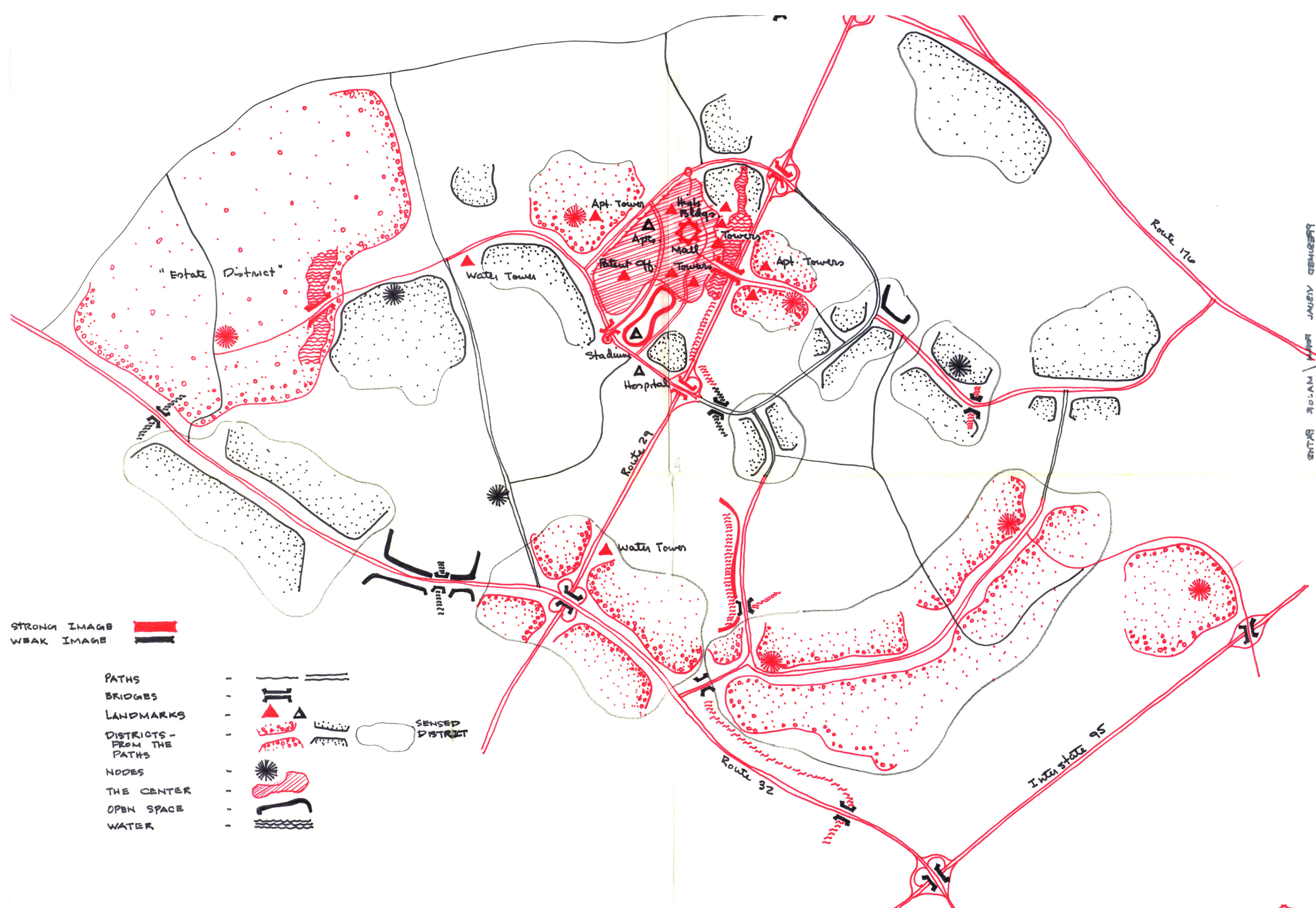
5. Presumed Visual Form From The Major Paths

(Fig. 16) This drawing represents a prophesy of the perceptual "image" of Columbia from the major automobile path systems. The principal "elements" of the city (landmarks, topography, activity, districts, etc.) which are likely to make up that image are here predicted in two degrees - strong and weak. Areas and centers which are likely to be strongly perceived from the paths can be quickly recognized on the diagram. The same applies for the major paths themselves. Particularly weak areas which are anticipated to have no visual impact at all can also be noted.










It is not a prerequisite that each element making up the city be strongly perceived. What should be generally striven for, however, is a coherent patterning or succession of objects and events which presents a strong visual image to the viewer. In many cases, for instance, it is desirable that a weaker element surround or be placed adjacent to a stronger one in order to reinforce the stronger element's "meaning" to the viewer or its position in the pattern. A good example may be pointed out for Route 29. It would be desirable to place strong districts or landmarks at the north and south entry points into the town. Between that point

PRESUMED VISUAL FORM / MAJOR PATHS
FIG. 16

FIG. 16
PRESUMED VISUAL FORM / MAJOR PATHS



STRONG IMAGE 
 WEAK IMAGE 

- PATHS 
 - BRIDGES 
 - LANDMARKS 
 - DISTRICTS - FROM THE PATHS 
 - NODES 
 - THE CENTER 
 - OPEN SPACE 
 - WATER 
-  SENSED DISTRICT

PRESUMED VISUAL FORM FROM THE MAJOR PATHS

Fig. 16
 NORTH
 0 1000' 2000'

and the ring road a succession of less strong elements (perhaps industrial or office areas or even high density housing units [but not high-rise]) could be placed along the route. This would set up a strong perceptual pattern or rhythm (strong to weak, weak to strong [city center]) as the driver progressed toward the center and through the other side of the town.

The criteria for judging the strengths of the various elements indicated on this diagram previously have been explained in the comment on the District Character Drawing. A brief explanation regarding the criteria for the paths will be then commented on.

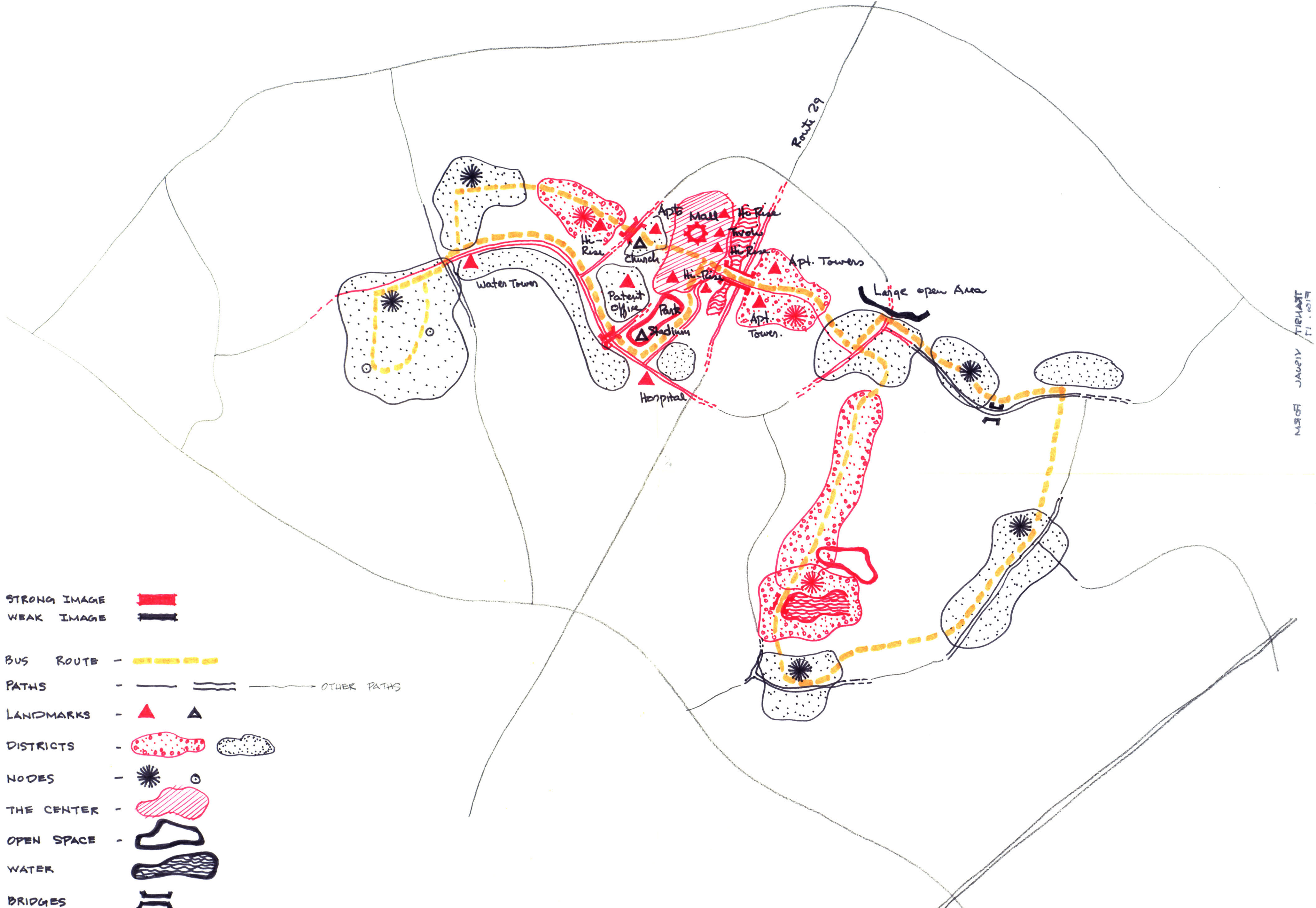
The principal inter-regional paths (Routes 32, 29, 176 and I-95) should be perceived quite strongly, not only because of their importance to regional traffic movements but also because they can be remembered in a general grid pattern. Interval routes present a different case however. Generally speaking, the perceptual strengths of these internal routes can be judged by their exposure to the "elements" (districts, landmarks, nodes, topography, lakes and rivers) or "meaningful" areas (i.e. estate district, town center, etc.) of the city. Usually if a path passes through "elements" which are strong then the path will be strongly perceived. This may be generally corroborated by a glance at the diagram. There may be cases though where a path may perhaps have symbolic meaning which may be stronger than the elements

through which it passes. An example of this would be the main entrance route into the town from Route 176 (old Montgomery Road). Here the tendency would be to remember the route as being one which allowed entry into the city rather than the remembrance of the elements along it. This image would weaken, however, as the route intersects the ring road. The eastern segment of the ring road is a good example of a weak path. While the western part of it is well exposed to the town center, the eastern segment is hidden from it by the twin peaks and general topography existing in this area. Districts and landmarks along the route are weak or non-existent. This path could have been strengthened a great deal by carefully taking advantage of the views, etc., offered by the Little Patuxent River, the crossing of the bus route, and the potentialities which existed in making the high density residential areas and the employment centers a strong district at the intersection with Old Montgomery Road. One of the weakest of the paths is the southern segment of Cedar-Lane and Freetown Road. Here the designer could have manipulated elements and activities to have provided a more coherent succession of events. I would suggest that an employment center be substituted for the medium density housing area there, and that high density housing be placed around center #3 which is located on the route.

6. Transit Visual Form (Fig. 17) The visual form of Columbia as seen from the transit system is quite likely to be a good deal stronger than that conveyed from the major paths. Herein lies one of the principal visual ambiguities of the town in that ideally both systems should be equally well perceived. However, this strong visual perception is due to several important factors - the lack of the complexity of the transit routes (as compared to the confused nature of the auto paths), the general concentration of high density housing along the routes; and the direct exposure to most of the town's major institutions and centers of activity. Some orientational difficulties can be expected, however, from the fact that both "loops" cross each other at awkward points along the system, thus tending to weaken the strong pattern which could have otherwise been produced.

Apart from its better exposure to the Town Center, the western transit "loop" is less likely to be as strongly perceived as its eastern counterpart. This is due to several factors. Since the transit route takes on the general form of the figure 8 the perceptual image of

TRANSIT VISUAL FORM
FIG. 17



- STRONG IMAGE
- WEAK IMAGE

- BUS ROUTE -
- PATHS - OTHER PATHS
- LANDMARKS -
- DISTRICTS -
- NODES -
- THE CENTER -
- OPEN SPACE -
- WATER -
- BRIDGES -

TRANSIT VISUAL FORM

FIG. 17
 TRANSIT VISUAL FORM

the total system will be more difficult to grasp when compared, for example, with a route which follows a simple circular path. This orientational difficulty will be accentuated by the fact that the route will be served by busses travelling in opposite directions, thereby increasing the chances for visual and orientational ambiguity. The crossing point of the figure 8 also occurs at a visually weak intersection. Once this route leaves the Town Center the districts through which it passes tend also to be relatively weak. The visual experience could have been greatly enhanced by exposing the route to the lake west of center #2, by allowing better views of the high peak behind center #4 and by replanning the route to conform more closely to a circular configuration.

The eastern route, as the diagram indicates, is likely to be perceived more strongly than the western one. This is due to the fact that the "centers" along the route will be rather strong visual experiences, with good exposure to natural elements. The route passes through a "corridor" of high density housing and employment centers, usually quite well contrasted with village centers, green areas, views, and natural topographic features. The experience of entering the town center from this eastern loop would be a magnificent experience. The view of the center is framed by the two peaks and the raised bridge over which it passes

would provide exceptional views of the city and lake front activities.

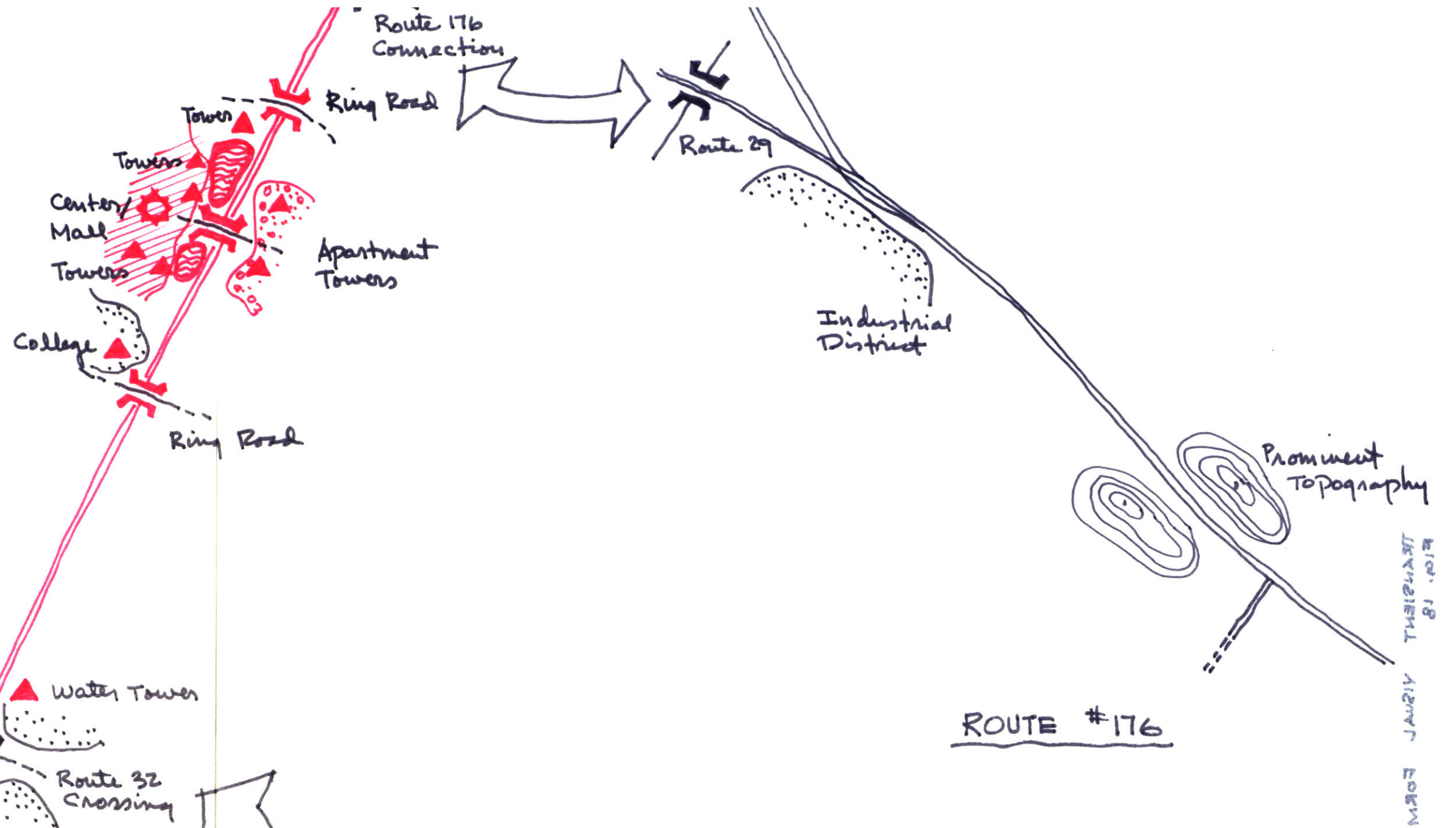
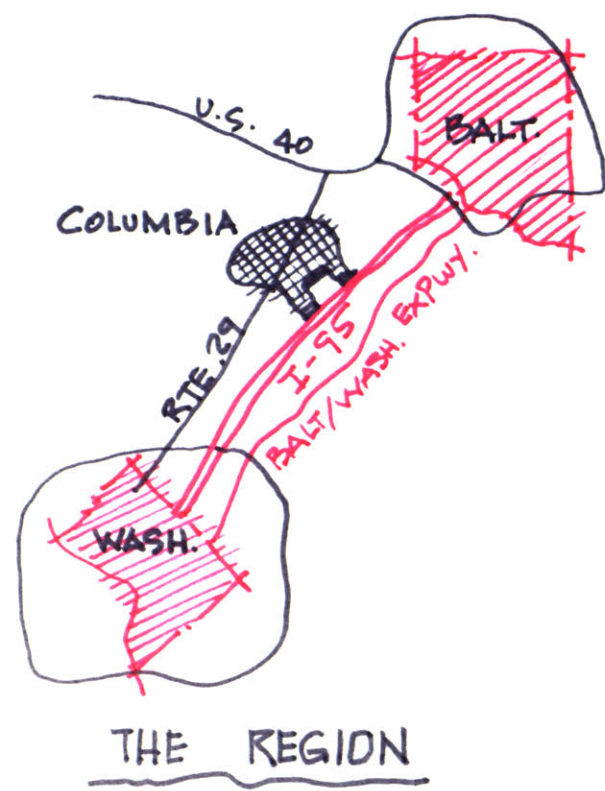
The routing of the system is much less a problem from an orientational standpoint. However it could be improved by re-routing the path so that it formed a more pronounced circle.

7. Transient Visual Form (Fig. 18) The last diagram attempts several things. First, it undertakes to convey a sense of Columbia's position with regard to the surrounding region (from the transient's point of view). Secondly, it strives to give an impression of the outsiders view of the city from the inter-regional path systems. With the exception of Route 29, which exposes the town to the outsider quite well, the "transient's eye-view" of Columbia can be forseen to be relatively weak as none of the major elements of the city can be viewed from these paths.

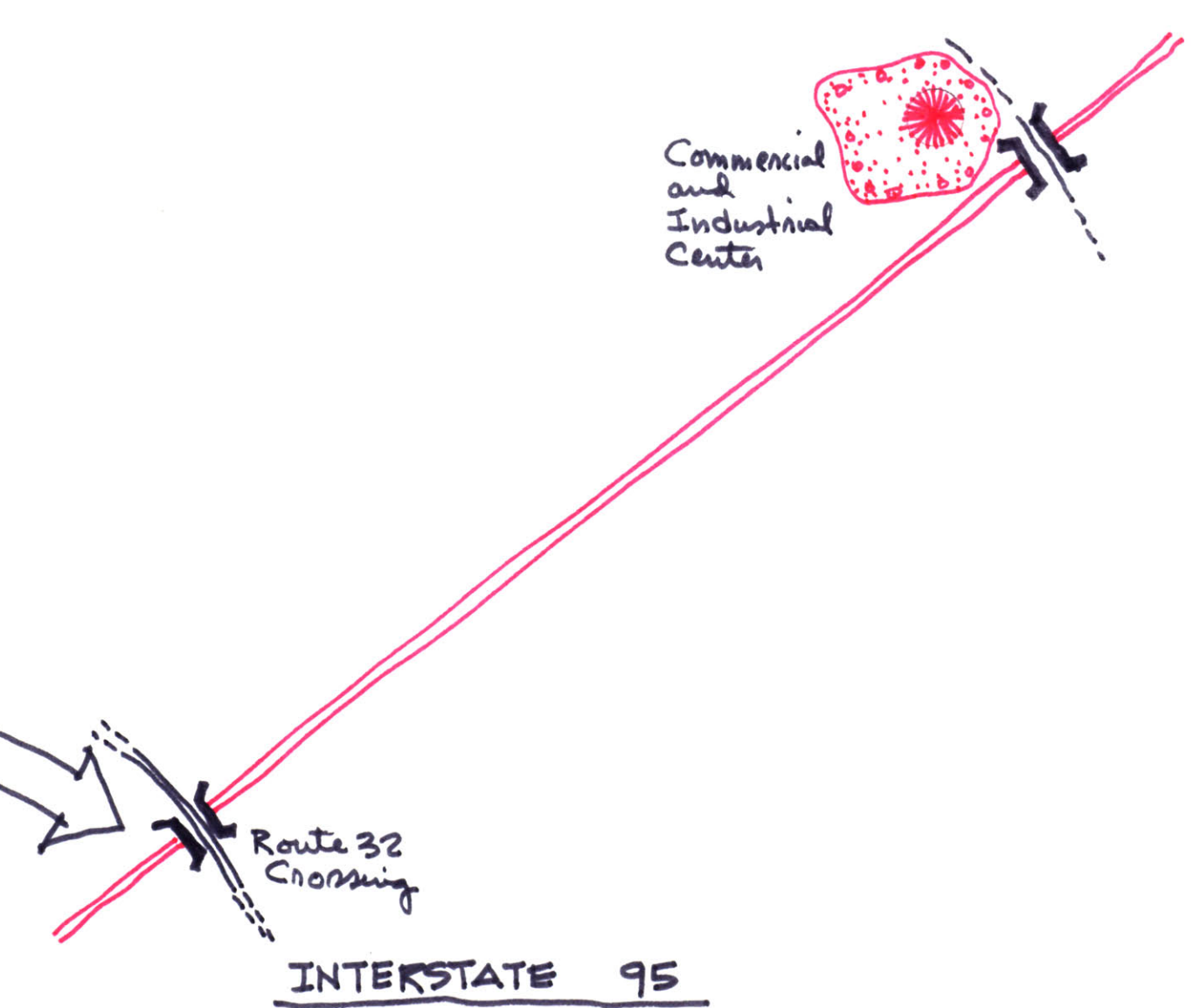
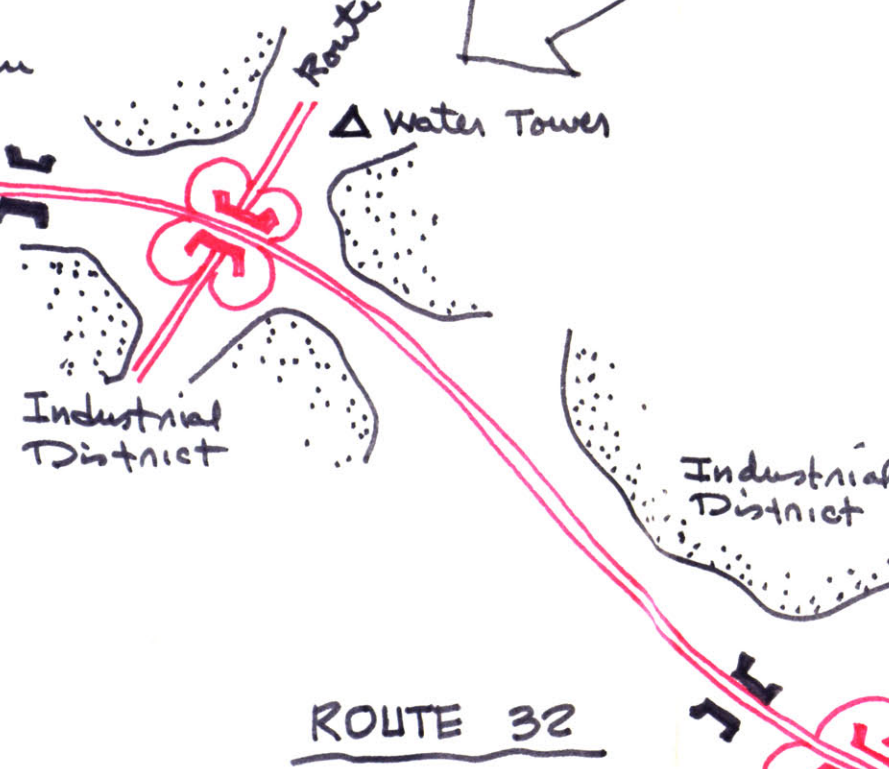
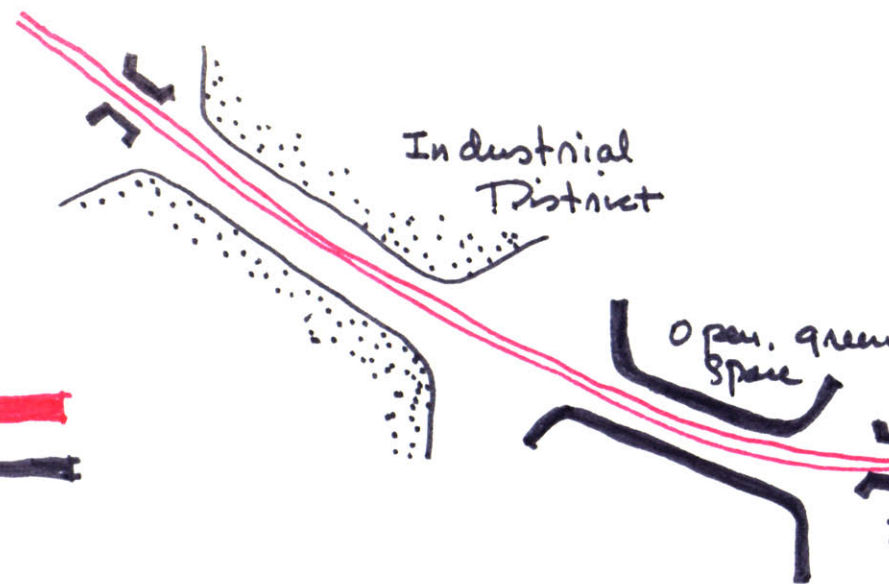
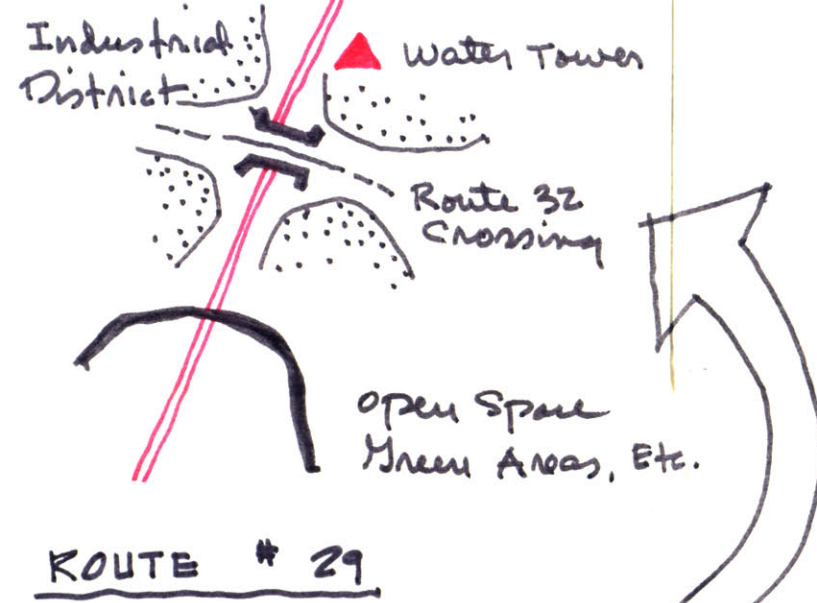
Most of the reasoning regarding the relative strengths of these paths has been touched upon to some degree in previous paragraphs; therefore it should not be necessary to include a lengthy, detailed explanation.

In general I think that the information regarding the visual form and its probable perception,

TRANSIENT VISUAL FORM
FIG. 18



MARCH JANUARY 81 1978



STRONG IMAGE
WEAK IMAGE

- PATHS
- LANDMARKS
- DISTRICTS
- NODES
- THE CENTER
- OPEN SPACE
- WATER
- BRIDGES

TRANSIENT VISUAL FORM

(FROM INTER-REGIONAL HIGHWAYS)

which is derived from these drawings (Figs. 12-18) may be relied upon as a reasonably accurate tool by which to conduct a visual survey of a city still in the planning stages. I have been able to test and hypothesize upon nearly as many elements which would normally be analyzed in the existing city. Greater accuracy perhaps can be expected from the topographic and character survey drawings than can the predictions which have been made of the visual form. The first four diagrams (Topo., Nodal, District, and Sequence Character) are dealing with a more factual subject as well as having been produced by more tangible information. Image prediction, however, becomes more subjective, but in the end must also be relied upon by the designer in order to aid in the process of design.

Previous attempts at image prediction have been relatively successful when compared with actual interviews taken of long time residents or users of a particular city.⁹ It is to be pointed out, however, that these predictions were made from actual cities and not from plans, as has been the case here. Until an adequate amount of research is accomplished toward the resolution of this problem, the designer must rely upon the type of visual form predictions which I am proposing here.

⁹See those which are presented in Professor Lynch's book "The Image of the City." Similar successes have also been achieved in studies of Rome and Guayana.

C. CRITERIA

The data produced by the Visual Survey is of little value unless we are able to evaluate it. What can it really tell us about the problems, as well as the potential assets, of the design for Columbia? Some of these problems have already been briefly hinted at in the previous description of the Survey Drawings. What is needed now is to develop a specific set of criteria by which to judge the Survey data which has been produced, as well as a means to determine problems of the visual form of the plan for Columbia itself.

What are the broad considerations to be taken into account before making such a list?

1. First I would want the city to be "known" in the region in which it is a part. It should be well exposed to the major routes in the region as well as adequately linked to areas of regional significance.

2. It is important that the town should appear to the observer or user as a recognizable whole whose individual parts fit together in a memorable and coherent sequential pattern. This aids the observer or user of the city in finding his way about with ease and confidence and allows him to use his environment in a meaningful way.

In general the framework or structure of the town should be basically a simple one. Its public

places or principal points of activity should be easily accessible and well linked visually and functionally. I would also ask that major centers and districts of the town be visually strong, differentiated one from the other and above all should possess an adequate "sense of place" - a fundamental quality of every desirable living environment.

Since the entire town is basically comprehended from the major paths, I would want to make sure that the pattern of these principal ways could be easily remembered, and that the sequential views of the town along these paths adequately exposed the major "elements" of the city.

3. Finally I would want to be certain that the design or arrangement of the entire range of these "elements" acted in concert to produce a strong and coherent public image for both the resident and the worker in Columbia.

So that I might proceed more quickly to the specific problems of Columbia's visual form, the criteria (57 in number) by which I have judged that visual form are listed in Appendix C and may be checked by the reader if he wishes.

Many other criteria - perhaps several hundreds - could have been added to this list to help further

clarify or refine the original set. This simply becomes a question of the desired level of detail however. I felt that the group of criteria presented in Appendix C represents the principal ones which will allow an adequate as well as a comprehensive judgment regarding the visual structure of Columbia.

D. APPLICATION OF THE CRITERIA

Problems and Assets

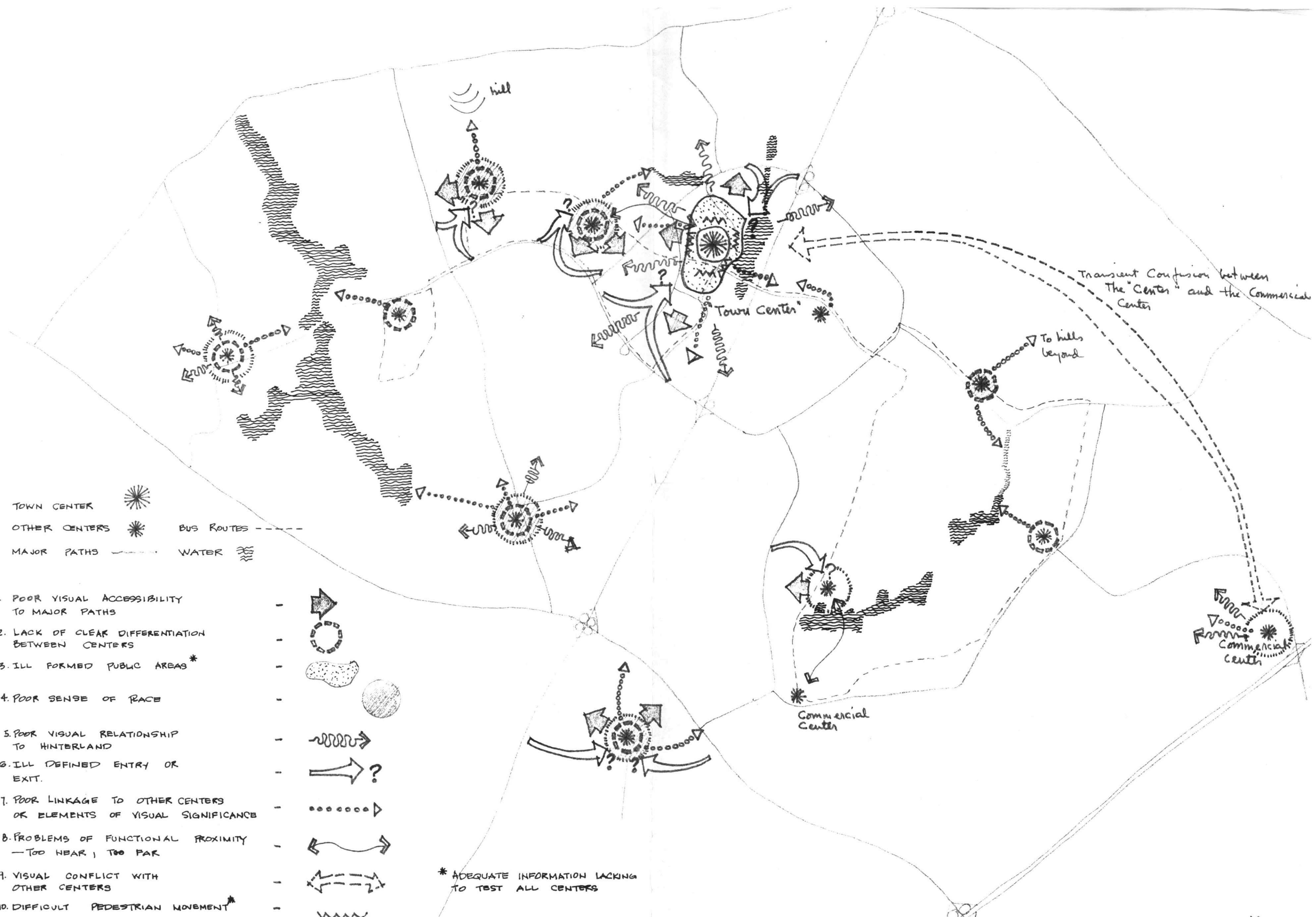
With the criteria established, the means is possessed by which to judge the entire design proposal for Columbia. As these groups of criteria are applied to the districts, centers, paths, etc., a second group of diagrams are produced, graphically symbolizing and locating the problem areas throughout the town. Figures 19-22 indicate the results of this evaluation in some detail.






Figure 19 - gives an indication of the problems which appear in the Major Focal Points and Centers. The lack of differentiation between centers and the lack of visual accessibility become quite clear in this diagram.












Figure 20 - notes the problems which are appearing in the various important areas and districts. The weak districts become quickly discernible as do locational problems and ones of structure and legibility.

PROBLEMS OF THE CENTERS:

FIG. 19



TOWN CENTER 
 OTHER CENTERS 
 MAJOR PATHS  BUS ROUTES 
 WATER 

1. POOR VISUAL ACCESSIBILITY TO MAJOR PATHS 
2. LACK OF CLEAR DIFFERENTIATION BETWEEN CENTERS 
3. ILL FORMED PUBLIC AREAS* 
4. POOR SENSE OF PLACE 
5. POOR VISUAL RELATIONSHIP TO HINTERLAND 
6. ILL DEFINED ENTRY OR EXIT 
7. POOR LINKAGE TO OTHER CENTERS OR ELEMENTS OF VISUAL SIGNIFICANCE 
8. PROBLEMS OF FUNCTIONAL PROXIMITY - TOO NEAR, TOO FAR 
9. VISUAL CONFLICT WITH OTHER CENTERS 
10. DIFFICULT PEDESTRIAN MOVEMENT* 
11. AMBIGUITY BETWEEN AUTO & TRANSIT 

* ADEQUATE INFORMATION LACKING TO TEST ALL CENTERS

PROBLEMS OF THE CENTERS

0 1000 2000
 NORTH
 FIG 19.

PROBLEMS OF THE AREAS
& DISTRICTS

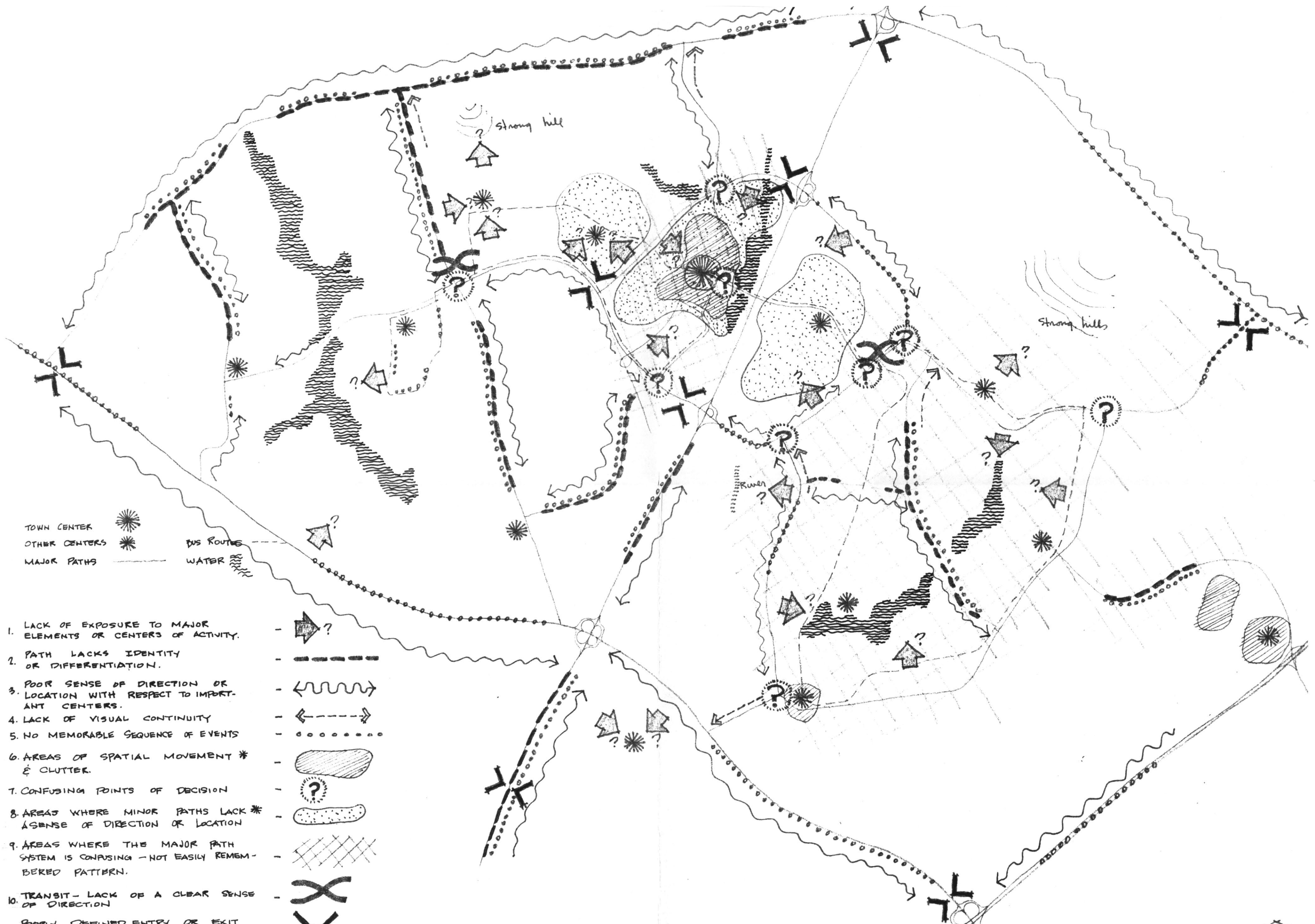
FIG. 20



PROBLEMS OF THE AREAS & DISTRICTS

PROBLEMS OF THE PATHS
& TRANSIT ROUTES

FIG. 21



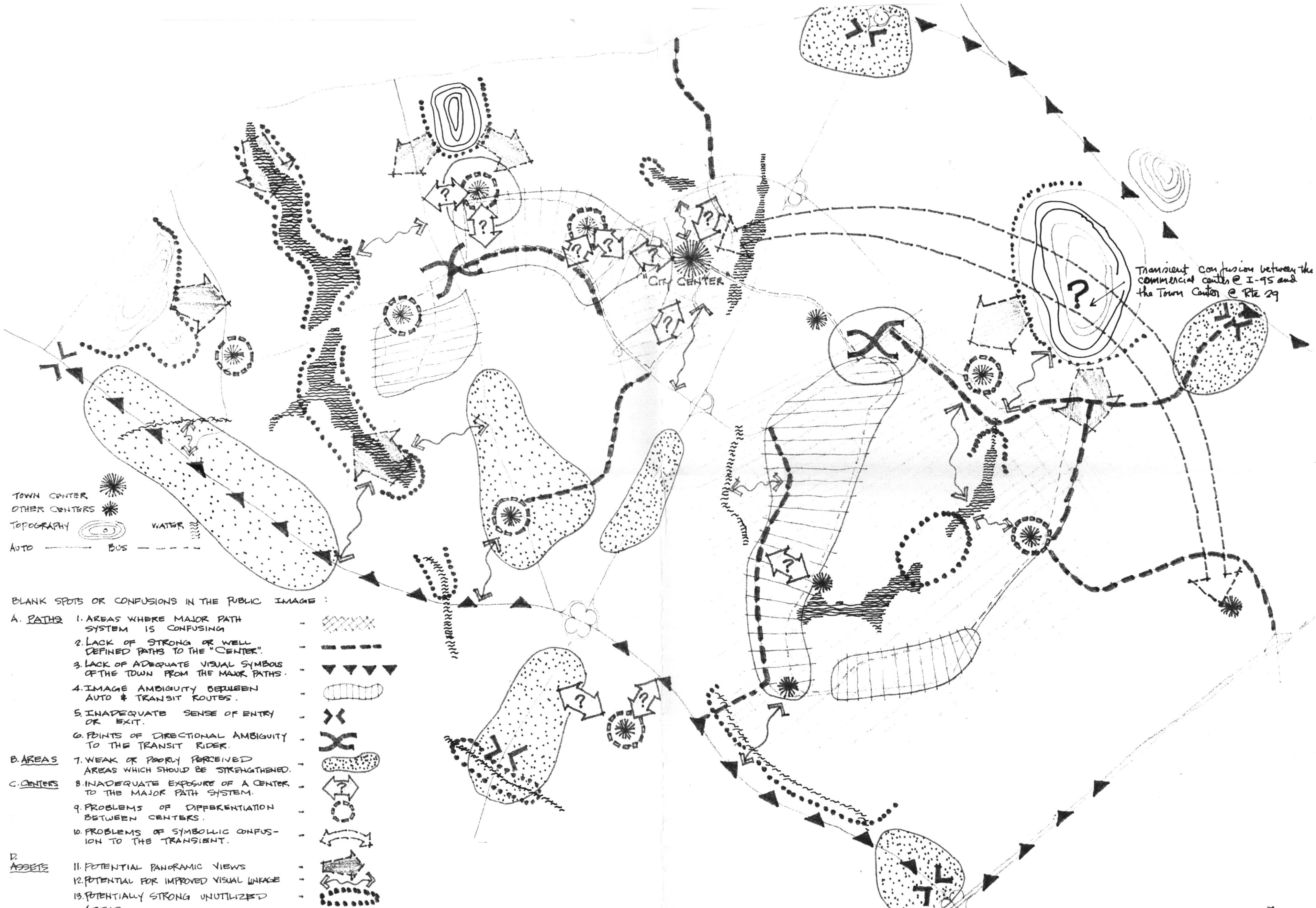
PROBLEMS OF THE PATHS AND WAYS

0 1000 2000'






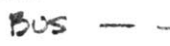
NORTH
FIG. 21

VISUAL FORM PROBLEMS
& ASSETS














FIG. 22



Transient confusion between the commercial center @ I-95 and the Town Center @ Rte 29

TOWN CENTER 
 OTHER CENTERS 
 TOPOGRAPHY 
 WATER 
 AUTO  BUS 

BLANK SPOTS OR CONFUSIONS IN THE PUBLIC IMAGE :

- A. PATHS**
1. AREAS WHERE MAJOR PATH SYSTEM IS CONFUSING 
 2. LACK OF STRONG OR WELL DEFINED PATHS TO THE "CENTER". 
 3. LACK OF ADEQUATE VISUAL SYMBOLS OF THE TOWN FROM THE MAJOR PATHS. 
 4. IMAGE AMBIGUITY BETWEEN AUTO & TRANSIT ROUTES. 
 5. INADEQUATE SENSE OF ENTRY OR EXIT. 
 6. POINTS OF DIRECTIONAL AMBIGUITY TO THE TRANSIT RIDER. 
- B. AREAS**
7. WEAK OR POORLY PERCEIVED AREAS WHICH SHOULD BE STRENGTHENED. 
- C. CENTERS**
8. INADEQUATE EXPOSURE OF A CENTER TO THE MAJOR PATH SYSTEM. 
 9. PROBLEMS OF DIFFERENTIATION BETWEEN CENTERS. 
 10. PROBLEMS OF SYMBOLIC CONFUSION TO THE TRANSIENT. 
- D. ASSETS**
11. POTENTIAL PANORAMIC VIEWS 
 12. POTENTIAL FOR IMPROVED VISUAL LINKAGE 
 13. POTENTIALLY STRONG UNUTILIZED AREAS. 

VISUAL FORM PROBLEMS AND ASSETS

Figure 21 - shows the problems of the paths and transit routes. A variety of difficulties and ambiguities become evident in this part of the analysis. Lack of identity, poor exposure to major elements and poor sense of direction are among the most common problems.

Figure 22 - is a composite diagram of the most important Visual Form Problems as well as the Visual Assets which have been poorly exploited. The results of these diagrams speak for themselves but it may prove useful to discuss some of these points in more detail as well as to draw attention to a few problems which were inconvenient or difficult to indicate clearly on the diagrams.

1. Town Scale

- a. Problems of the Centers:

Columbia is "characterized" by a variety of elements; the strong town center, the pattern of its open spaces, its hills, lakes, the major paths, the quality of its residential areas, etc., etc. In all probability, however, the most important of these elements will be the "look" as well as the "placement" of the system of "centers" throughout the town. The pattern of these foci of activity scattered throughout Columbia will do much to convey the visual character of the town to the resident and occasional visitor. Adequate

visual differentiation of these centers becomes of primary importance to the success of the visual structure. This is the most serious problem in Columbia as few are likely to be visually prominent enough in the urban landscape. (We are here speaking of the "Village" center system since the larger town center is automatically differentiated by size and magnitude of activity, etc.) Available plans and descriptions indicate that each center will contain approximately the same land uses, harbor the same sorts of activities and functions, and will have the same type of relationships to its hinterland. Only minor differences in the site planning and building design within the centers can be discerned.

The public spaces in each center seem to be well formed and pleasant, but strong visual differentiation between the centers is rare. Only two, centers #7 and #9,¹⁰ are well differentiated. This is principally because each possesses an important topographical asset which does not occur in the other centers. (Village 7 is nestled between two visually prominent hills while No. 9 enjoys the visual amenity of fronting directly on a large lake.) These strong topographical assets also impart another element which seems to be lacking in the majority of centers, that of a strong "sense of place."

¹⁰Because of the lack of appropriate titles the village centers will, from this point onward, be referred to by number. The reader is asked to refer to the Village Center Map (Fig. 11) for their locations.

Topography is not always a prerequisite for conveying this as it may be accomplished by the juxtaposition of a contrasting natural feature or activity with the center itself. In general, however, the town may be said to have the foundations of a strong visual form if each center is designed to be pleasant and unique as well as possessing an adequate sense of place.

Through better "visual planning" many of the centers could have been strengthened immeasurably by repositioning them to take advantage of natural topographical features or points of activity. Villages #2 and #8 are good examples as both could have been re-situated slightly to take advantage of views, etc. offered by nearby lakes. Village #4 could have been moved northward and positioned at the base of the strong hill located there.

In order to further strengthen the visual form and "image" of each center perhaps each could be known for some activity, commercial enterprise, professional activity or institutional location which was entirely unique to that center. Another method would be the placement of one or a group of high-rise buildings of individual design in or around the center, to aid in the center's differentiation with the surrounding cityscape, as well as to aid in the need for improved inter-visibility between the centers.

"Naming" could also play an important role. perhaps each center could be assigned a name compatible with its particular function or topographical asset. Thus center #7 and its surrounding neighborhood could be known as "Twin Peaks East" (so named because of its proximity to the two peaks overlooking the city center and East because of its position east of Route 29, the principal bisector of the town). Village Center #1 and its surrounding area could be known as "Estate Views West", for instance, because of the fact that it will probably become the "estate area" of Columbia.

Actions of these types would also help alleviate locational "image" problems as some centers without a strong sense of place or location (Village 3 a primary example) would tend to "float" or be poorly located on anyone's image map of the town.

Centers 4, 5, and 9 lack proper exposure to the major paths due to their principal orientation to the transit system. Most auto-oriented residents would be unaware of their existence. This should be a fundamental policy then, that each center should be well exposed to the major paths, but not necessarily located directly thereon. (Access to the center could take place from secondary streets leading off the major paths.)

The decision to provide only 10 village centers seems wise as in all probability, had the number been increased significantly, the ease of structur-

ing the city from a visual standpoint would have become more difficult. In order to add further strength to this system I would recommend a policy of "hiding" the neighborhood centers from the major paths (transit and auto) as their presence tends to confuse the more important system of village centers. (This principally affects the two neighborhood centers on the extreme western end of the transit system.)

Center #1 is likely to maintain a strong image because of its association with the low density, prestige area which surrounds it. Its counterpart, village #13, is not likely to enjoy a similar degree of success, however. Its location is both visually and functionally isolated from the town, a situation which is further reinforced by the industrial area bordering Route #32. It should therefore be moved to a location within the "circle" of inter-regional routes surrounding the town.

While the close proximity of centers #9 and #10 may in the end prove successful, serious attempts should be made from a design standpoint to ensure their differentiation. It is to be noted that center #10 does not contain the educational function which is characteristic of the other centers. It is also partially oriented toward the industrial area which may, in conjunction with the surrounding residential areas, present difficult visual and activity incongruences. Perhaps this center should be located along Route 32. This would be

advantageous from several points of view. It would help provide the needed differentiation and orientation which the center needs; and it would substantially contribute a much needed visual "experience" along Route 32.

Center #12 has a special function in relation to Columbia. It is here that the developer intends a regional shopping and employment center to attract transients from I-95 and surrounding areas. In both scale and design this center should be differentiated from the villages and main town center. It should also provide a strong identifiable symbol of Columbia as well as a strong sense of entry into the town for both resident and transient alike.

b. Problems of the Areas and Districts

The plan for Columbia (like most new town planning thus far in the United States) tends toward a rigid segregation of land use functions and patterns. While in general this allows easier as well as stronger district perception, a certain "richness" which is now prevalent in some of our mixed-use, existing cities, seems to have been lost in the drive to provide more aesthetic and pleasing living environments.

A re-inspection of the District Character drawing (Figure 15) gives the reader an indication of the form, character, and intensity of the principal visual districts in Columbia. This diagram also attempts to predict which areas are likely to be perceptually

strong and less strong, as well as those areas which are likely to receive little or no recognition at all. (The latter are more clearly indicated on Fig. 22 Problems of the Visual Districts).

Columbia has several districts which have strong visual identity and structure: the "Estate Area," the Town Center, the Industrial-Residential belt which sweeps through the south and eastern part of the town, and the Commercial Center along Route I-95. The ride along the public transit system also presents a relatively strong series of districts due to the concentration of high density residential areas along the route and its good exposure to both activity centers and employment areas.

The principal visual district problems of Columbia lie mainly within the realm of its weak districts and those areas which lack a sense of identity or relationship to the path system, or the town as a whole. Although, as mentioned previously, it is not a prerequisite that each area in a town be perceived as a well-formed legible district, it is desirable that certain areas contribute to a recognizable pattern.

So that a more coherent image pattern may be achieved, it is desirable that a few of the "less strong" districts be strengthened as well as a selected few which do not appear on the present district map. Those "less strong" districts to be strengthened include:

(1) the Industrial Area along Route 32 on the western side of Columbia. Since this district heralds one of the main entry and exit points of the new town, careful consideration should be given to the design and placement of buildings there. Perhaps greater use could be made of the rivers flowing through the district.

(2) The high density residential area at the northern edge of the town (along Route 29 and 108) should be considerably strengthened as it marks one of the most important entry-exit points into the town. This could easily be accomplished by more closely grouping the residential structures (high-rise buildings especially) more closely to the road. (3) The internal district along Oakland Mills Road should also be strengthened. If costs would permit, the two lakes now planned in this area should be made larger, and brought closer to the road, thus enhancing the visual experience and providing a stronger sense of place to the area.

Many bare spots appear on the district map. Perhaps the most serious of these is the lack of identification of the residential area lying between Old Montgomery Road and New Route 176. This could be alleviated by allowing the principal point of entry to Columbia (from Route 176) to occur at the present intersection of existing Routes 108 and 175. A new access route running the entire distance from 176 to the Town

Center could effectively expose this district as well as to alleviate a host of other visual planning problems en route.

Another problem area exists in and around Center #3. A more active and direct sense of connection to the town center would do a great deal to relieve this deficiency.

Since it is difficult at this point to predict what the residential areas in Columbia will look like it is hard to assess their visual impact upon the "image" and other elements of the visual process. A very strong policy of architectural differentiation should be followed for all the residential districts. It would be visually disastrous to build the same type of building or to repeat similar designs over and over in these residential areas. With Rouse's dictum that "nothing new is to be accomplished in the way of residential design in Columbia," the concern here is obvious.

c. Problems of the Paths and Sequences

One of the most crucial aspects of new town design is the patterning or layout of its major road system. It is from here that the town is essentially presented as a moving sequence to both resident and occasional visitor. Much of the total image perception of the town depends upon the design and manipulation of

elements and activities which can be seen from the paths. This is perhaps the most serious of all of Columbia's visual planning problems.

In general the design of the major paths tends to present an unnecessarily complex pattern to the user, thereby making comprehension of the image structure of the town confusing and ambiguous. The paths can neither be remembered as a grid system nor a clear system of radials converging on the town center from various points on the periphery (although the latter is the general form which the paths take in the present plan). This may have been caused by the developer's desire to utilize those roads which were existing in the area. Many of the routes are new, however, and could have been more wisely planned, taking visual principals into account.

Columbia's one strong major path is Route 29. It bisects the town almost in half and also displays the Town Center and other elements along its length to good advantage. Sequences do, however, need strengthening at points north and south of the ring road however. Entry points into the town along this route need careful consideration. (Suggestions for the northernmost one were previously given.) The industrial area at the southern end of the route will also need much attention. Perhaps the triplet water towers now planned for the

north side of the Route 29/32 intersection could be repositioned at the southern periphery of the industrial area along Route 29. If it was imperative that the residential area surrounding center #13 remain, perhaps high-rise or at least high density housing could replace the low density housing now planned for this location. It could be brought closer to Route 29, thus further clarifying one of the major entry points into Columbia.

Sequences along all the other major inter-regional paths seem to be quite weak however. With the exception of Route 29 these paths do little to expose any variety of visual elements to the transient. The impression along Route 32 is principally one of employment centers while little or nothing is done to take advantage of the rivers or river crossings along this path. The design of bridges and their potential for views of lakes, rivers, etc. could do much to strengthen the visual form in every part of the town. The major inter-regional and inter-state Route I-95 touches the town briefly at two points. It provides what will probably be the two most important entry points into Columbia. An excellent opportunity has been overlooked to provide a direct road connection from I-95 into the Town Center. The presently planned route is both devious and indirect, thereby making easy visual and functional access to the town difficult. The commercial center planned at this important intersection

should be designed to visually "announce" Columbia from I-95. This could easily be accomplished in that the developer has planned a major regional shopping center to be located here as well as office and industrial uses. High-rise buildings plus good visual exposure into the area from the highway and access road into Columbia could do much to accomplish this goal.

In order that a clearer sense of entry (and exit) be provided for the town center, Route 29 should pass over the ring road and not under it. This would also allow more commanding views into the town center. Route 176 also exposes little of the town but could perhaps be bettered by changing the principal point of entry into the town as was previously suggested in another section.

The so-called Ring Road surrounding the Town Center may also be briefly criticized. In reality it does not display the Center as well as Route 29. Entrances into the center from the ring seem too numerous and visually complicated in that the actual center is hidden from view at each point of intersection. The eastern half of the ring exposes nothing of the city center and acts as a confusing circumferential hard to image, and to make matters worse conveys an inadequate sense of direction. The right angle intersection at its extreme western edge negates the

apparent form of the ring road. Transit routes, as explained previously tend to present a strong image but are weakened by confusing overlaps. My general policy would be to re-design both transit routes and major automobile routes so that they run parallel with each other most of the time. The gain in visual amenity would be more beneficial than separating them as has been done. In general Columbia lacks a really coherent major path system - one that can be easily imaged in the minds of its residents. Many opportunities of using potential views into major centers of activity, views of rivers and lakes, and other topographical advantages which could strengthen the view from the road, have been overlooked.

Additional problems such as lack of identity, poor visual continuity, poor sense of location, etc., etc. are indicated on Fig. 21. Many of the paths suffer from problems of lack of identity. Broadly defined, this is a lack of differentiation with other paths (no distinguishing characteristics - all look alike, etc.). A path with a poor sense of location may generally be described as one where little or no visual hint is given regarding the direction of major centers, or, important intersections with other paths. Poor visual continuity is where visual attention or perception abruptly or rapidly terminates as the driver or rider approaches an activity point or major point of decision. It is an

anticlimactical visual experience and may also come about where a well-formed span suddenly becomes ill-defined. An example may be found where the ring road is approached from the south along the major path paralleling the Little Patuxent River. Here the driver approaches the intersection along a well-defined visual corridor (Industrial Buildings) only to look ahead to see nothing but a few small houses, etc.).

d. General Visual Problems

In spite of the fact that Columbia is virtually "ringed" by inter-regional paths (one of which is an important inter-regional and inter-state connection - I-95), the town's exposure to the metropolitan area is relatively weak. Other than Route 29 (whose importance as an inter-regional path is likely to diminish in coming years), I-95 is the only inter-regional route which conveys an adequate but specialized symbol of the town (accomplished through the location of the regional shopping center and office area) to the metropolitan resident. The transient's impression along Route 32 is predominantly one of an industrial complex and exhibits no hint of the town's primary function as a residential community. The same is true for Route 176. (Various solutions to these problems have already been discussed but are pointed out here to emphasize Columbia's inadequate visual exposure to the regional path system.) Conversely,

the town has a relatively good functional linkage from inside the town to the metropolitan area, but the visual connection from inside to outside is poor with the exception of the town center's linkage to Route 29.

Columbia is richly endowed with a variety of topographical features. For the most part the area is gently rolling countryside punctuated at intervals by hills, valleys, lakes and small rivers. Many of these natural features seem hidden and obscure - some have been poorly utilized in the Planning Process. A principal example are the 3 major hills which lie along the north and western edge of the town. Through extensive re-design of the use of these areas each hill (or group of hills) could be given a distinctive character of its own. With good differentiation, well-handled views, the control of development, and the placement of tall buildings (or closely grouped low-rise buildings), each hill could become one of a network of the basic visual symbols of the town.

The strong "valley" and lake area in the western section are also potentials which have not been fully exploited. At present the greater part of this valley is hidden from the major paths. At least one and probably two "village" centers should have located along its banks, taking advantage of its views and other amenities.

Much the same may be said for the two lakes

now bisected by Oakland Mills Road. If costs permit, these lakes should be expanded so that adequate views of them could be attained from the road. Exposure of the lakes from the major paths - even at limited points along its length - would have greatly aided the visual form in this area.

The network of open spaces (green areas, parks, etc.) seem in general to be well formed and in many places will provide welcome contrasts to what may otherwise prove to be continuous or dull ribbons of development along both major or minor paths. The smaller "sinews" of green areas connecting the neighborhoods to the village centers follow devious and confusing routes - some of which connect to nothing at all.

Fig. 22 provides a summary of the general visual problems. The confusing road patterns, the lack of adequate differentiation of the centers, poor visual exposure or connection to the major paths, the failure to utilize topographical assets, and the poor sense of boundary of the town are the most general. There are many instances where the slight manipulation of a road, land use, on the placement of a particular building or land mark would have greatly enhanced the visual form.

2. The Town Center

The importance of the town center and its functional relationship to the rest of Columbia have been

discussed at some length in previous paragraphs. (See Figs. 7, 8 and 9 for plans and views). The following discussion will focus upon the problems of its visual structure.

The location of the town center seems to me to have been fairly well chosen - and I can suggest no alternative location which would better suit visual as well as functional criteria. From a functional standpoint the centers' present location allows for good accessibility from all parts of the town. Visually it is well exposed to one of the principal inter-regional traffic routes. Its location beside one of the town's large lakes and its close relationship to the two hills across Route 29 allow superb views into the center, as well as imparting a strong "sense of place" and meaning to the entire center area. The approach toward the town center from the east across the bridge and lake would undoubtedly be a powerful visual experience. The town center does have many visual problems however. Unfortunately, the numbers of people who would use this eastern approach route are somewhat limited as it does not have a good connection with the main paths which lead into Columbia from the peripheral regional roads. It must also be a frustrating experience for the transient or occasional visitor to find his way into the inviting town center, which he sees from Route 29, not to be able to cross the bridge at the lake. Instead

he must continue on for almost a mile, negotiate a clover-leaf (completely losing sight of the center), and approaches the center from the ring road (where he also loses sight of the center frequently) which offers a confusing number of alternative entry points into the center itself.

The journey along the northwestern segment is relatively well structured because of its exposure to a variety of elements: the high density housing area, the lake, the commercial structures (actually the most vivid visual hint of the center area), the churches, etc. This is further reinforced by occasional views of the high-rise buildings in and around the center. This visual tie to the center is not as strong as it should be however. It could be corrected by re-routing the ring road more closely to the center to allow better views or by replacing the maze of commercial buildings along the route with one or two high-rise towers similar to the ones which are proposed on the south side of the office area.

The southwestern segment of the ring road offers no visual tie at all with the center. It does have a relatively coherent set of visual sequences (the college, the stadium, the overpass, etc.) but the center remains entirely hidden from view. The number of entry points into the center from both segments of the ring road should be limited to one. These roads should lead

easily and directly into the shopping mall/office area and be generally oriented toward one of the tall buildings for better orientation.

The visual coherence of the center suffers greatly from the many paths which wind their way through the area. The main lakefront road (See Fig. 7.) is particularly weak in this respect because of its confusing intersections, its few strong focal points, constant changes of direction (presenting orientational difficulties) and its lack of visual contact with the lake itself. The second main route (the four-lane thruway west of the lakefront road), although a good deal simpler in plan, is little better. Sequences along it need to be greatly strengthened. Its only major focal point is the high tower located adjacent to the park. The office buildings which crowd its eastern edge allow inadequate views toward the shopping plaza while exits into the large parking lot behind them seem awkwardly placed and difficult to see. The buildings which flank the transit path on the west side closest to the shopping mall conspire to completely block any views into the mall from this major traffic route. These buildings should be "splayed" at a wide angle to allow better views into the shopping plaza.

With the exception of the strong entry from the east the center lacks good visual connections from the other parts of the city. The route running southward

from Route 108 loses itself into a mazy network of roads in the high density residential area on the north side of the mall, thereby lacking a clear visual and functional connection to the center. The driver taking the southern route from village #3 is confronted with a devious winding path and does not become aware of the center until he sees the high tower at the edge of the center after he rounds the bend in the road opposite the park. The important major path coming in from the west is little better. Views of the high-rise office buildings come into view only for a few seconds as he passes village #5. The path then veers southward and all visual contact with the center is lost. No visual connection at all exists between the center and village #5 which is located so close by.

While the high-rise buildings along the lake front present a powerful and exciting skyline to the viewer along Route 29, few landmarks of equal importance are exposed to the other sides of the town. I have already offered the suggestion of eliminating the maze of commercial buildings at the north end of the mall and replacing them with two towers, thereby duplicating the pattern existing at the opposite end. These buildings would act as peripheral space definers for the center and would also indicate a build up of intensity and activity as the center was approached from its hinterland.

The vast bulk and size of the Patent Office is not being used to its fullest advantage. If its bulk could be shrunk and its height increased, a better position for it would have been to replace the high density housing west of the shopping mall. This would have provided a better focal point to the surrounding area and considerably strengthened the sequences along the ring road.

A real potential point of confusion is likely to exist at the intersection of the lake front road and the route approaching the center from across the bridge. After a dramatic entry across the lake, automobiles will be forced to turn left or right immediately plunging into the confusion and anticlimax of the large parking areas surrounding the mall. The amounts of auto activity and confusion at this point tend to isolate the library and the adjacent "town square" from the mainstream of "people" activity. The cultural and Tivoli recreation areas also suffer from a visual and pedestrian cut-off from the main area of activity - the shopping mall.

While the proximity of the office buildings to the mall is commendable, the attempt to place parking facilities for both into one huge lot seems deplorable. The walk through the visual clutter and the unpleasant micro-climate (both winter and summer) of these parking areas is indeed unfortunate.

Confusions in naming also exist. A prime example are the naming similarities between the "town square" and the "civic square." One is located to the east of the mall, the other to the west. A more meaningful solution would lie in providing a town square on the lakefront near the cultural and recreational center while replacing the present one in front of the mall with an inlet from the lake - thereby increasing the awareness of the lake and its activities when viewed from the shopping plaza.

Many other visual problems of the town and the center exist, but I have here striven to touch upon the principal ones in these discussions presented in the past few sections. The problems which have been exposed here should allow a re-formulation of the Columbia design to be attempted and this proposal is presented in the following chapter.

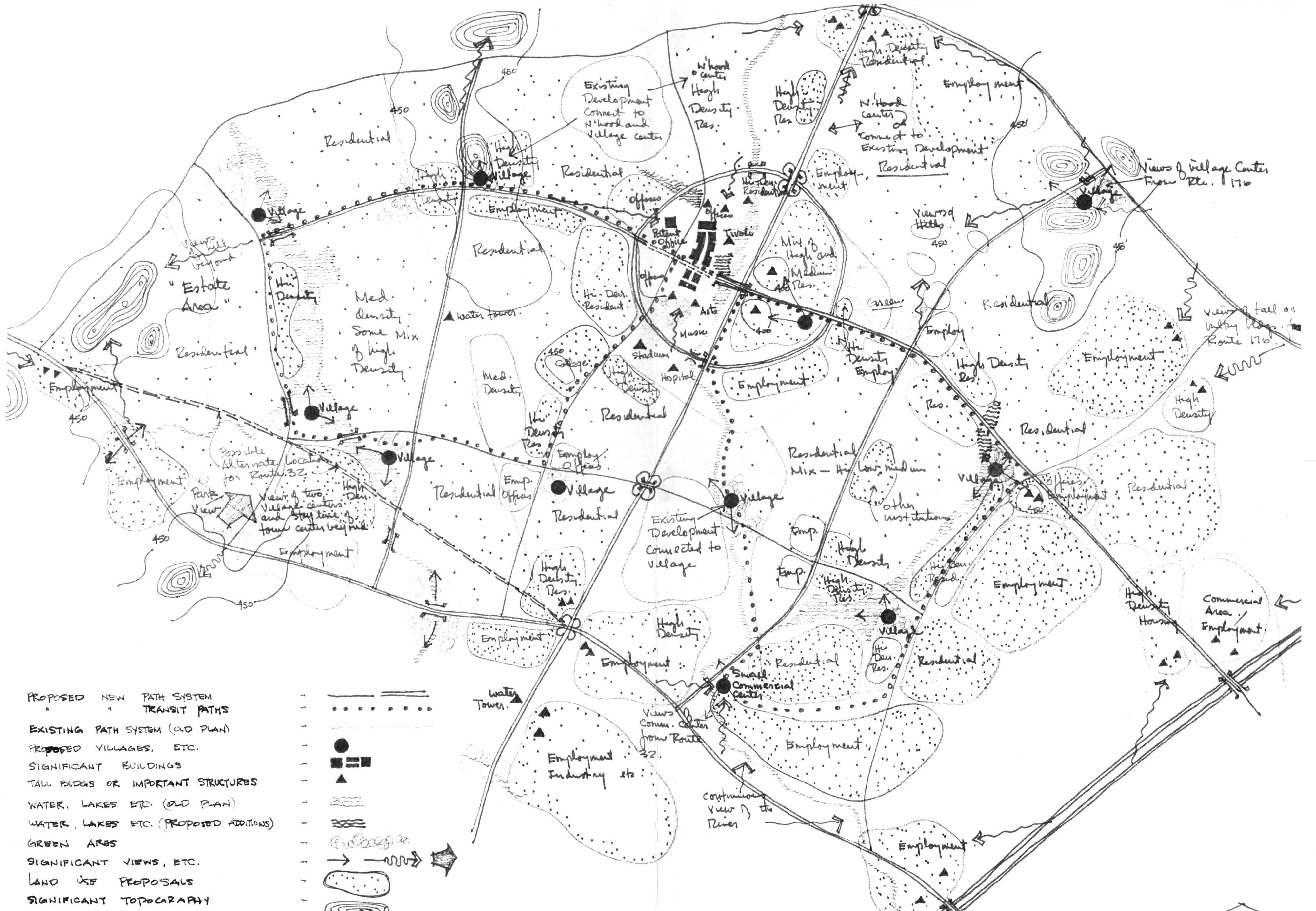
V. THE RE-DESIGN

V. THE RE-DESIGN

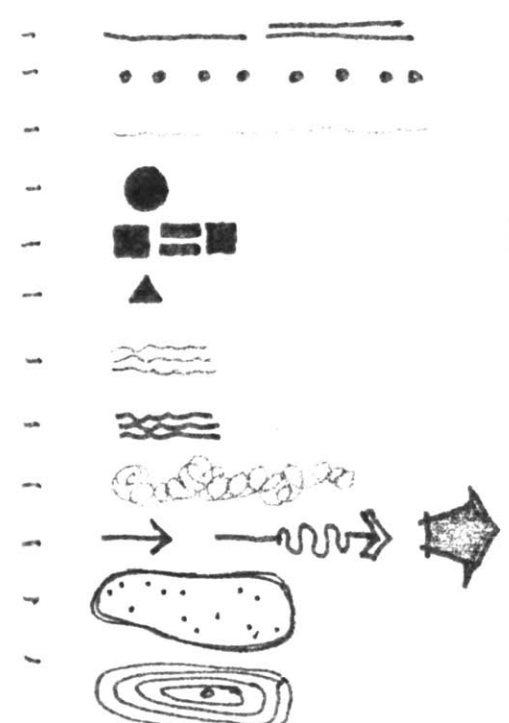
What do these problems tell us about the visual form of Columbia? If given the opportunity, how would this information be used toward correcting the deficiencies which have been brought to light by the analysis?

The new design proposal which is presented here (Fig. 23) is more of an endeavor to cure basic visual form problems at the broad scale rather than to alleviate each specific one which was exposed by the analysis. (Usually prescriptive proposals were offered as various problems were uncovered throughout the text.) This proposal represents only one of many of the possible solutions which might be taken to strengthen the visual form of Columbia's plan. The general objectives which are set forth here are to re-design the town around the basic structure of its strong topography; to provide a greater sense of differentiation between the town's major activity points; to make all the important elements of the town more accessible visually and to improve linkages between them; to project a more coherent and easily remembered system of major paths; and finally to ensure

SCHMATIC RE-DESIGN
FIG. 23



- PROPOSED NEW PATH SYSTEM
- TRANSIT PATHS
- EXISTING PATH SYSTEM (OLD PLAN)
- PROPOSED VILLAGES, ETC.
- SIGNIFICANT BUILDINGS
- TALL BLDGS OR IMPORTANT STRUCTURES
- WATER, LAKES ETC. (OLD PLAN)
- WATER, LAKES ETC. (PROPOSED ADDITIONS)
- GREEN AREAS
- SIGNIFICANT VIEWS, ETC.
- LAND USE PROPOSALS
- SIGNIFICANT TOPOGRAPHY



SCHEMATIC RE-DESIGN

0 1000 2000'

NORTH
FIG. 23

that points of entry and exit for the town are vivid and clear. Although the design which is presented here is relatively schematic, it should serve to indicate how the above objectives may be brought about.

The new plan has been structured around the strong topographic assets of the area - the hills, the lakes, rivers, green spaces, etc. These elements have been used extensively to strengthen the path sequences as well as to impart a strong sense of place to major points of activity or districts. The major paths have been simplified to form a basic grid pattern, planned to give optimum exposure to the major elements (landmarks, nodes, institutions, etc.) of the town.

A simple and direct east/west route connecting I-95 with the town center and beyond is also proposed. Advantage is taken of the powerful entry into the center through the twin peaks and across the lake. Sequences along this route should be quite strong as it is well exposed to major centers of activity, strong topography, lakes, open areas, and commercial, residential and employment centers.

The ring road has been contracted allowing better views into the center from its western segment. One access road from each side of this segment provides the connection from the ring road to the center and also provides a better connection to the hinterlands beyond. The bus routes are re-routed to run, for the

most part, parallel to the major paths and now follow a simple, easily imaged circular path.

The village centers have also been structured around the strong topographical elements (lakes, hills, etc.) and each is now well exposed from the path system. Attempts have also been made to strengthen the sequences along the peripheral interregional routes by changing their courses to include views of a center, to enhance the vistas of lakes, rivers, and green areas, or to obtain better exposures of activity centers or landmarks.

Major points of entry have also been enhanced and made clearer by placing major elements of varying sizes and types at the boundaries of the town. (i.e. Views of a village center at Route 176, larger industrial/employment areas and an apartment complex at the southern end of Route 29, etc.)

In proposing this design, I have endeavored to adhere to the general methods, etc. of planning which Columbia's designers have proposed. However, I think it would also have been interesting to have explored a wide range of solutions which took entirely new and different approaches to the redesign of Columbia.

VI. CONCLUSIONS

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The primary objectives of this thesis were to formulate a method and set of criteria by which to judge the visual form of a new town, thereby providing the designer with a more advanced and systematic tool by which to approach the design of new urban areas. Have the methods which have been proposed here, as well as the tests to which they have been put, proved successful?

On the whole I think the method proposed here has met with reasonable success. To my mind it provides the city designer with a method which is more competent and rational than anything he has been accustomed to in the past. I have here been able to apply this method against a recently proposed new town, and have been able, through this analysis, to objectively point out its many deficiencies - both visual and functional, and further to suggest in a schematic way how the plan proposal could have been re-designed in a better way, utilizing the principles which have been set forth in the thesis.

To be sure, however, the method has many shortcomings which could be corrected in subsequent research.

In the particular case of using the Columbia design as a background, the analysis was handicapped by the lack of complete design data. Although complete information was available on the town center only the site layouts for villages #5 and #7 had been completed. In the analysis I have had to make the assumption that the other villages and their centers are going to be somewhat similar in design and layout. (This can generally be corroborated by comparing the designs of villages 5 and 7.)

Another problem which was difficult to overcome was the lack of information regarding the specific architectural character of all the housing in Columbia. Of course the design had not progressed that far, but it is to be noted that some residential areas may be unique because of good design (or even the lack of it) and therefore be strong districts. On the other hand all residential areas may tend to look alike, therefore blurring district or nodal boundaries.

It is also difficult to attain a completely intimate knowledge of the terrain and its features from a topographic survey. When possible the designer should be able to study the actual site at great length and test design alternatives against actual conditions. In general the greater the level of detail which is available the greater will be the accuracy of the analysis. It is always more difficult to analyze a design which has been

made by someone else, and I would presume that if the individual designer were checking his own design, using the methods set forth here, the more reliable the results.

I thought that the survey drawings were useful tools in analyzing the visual form. I am on somewhat less firm ground in the findings presented on the last three "presumed" visual form drawings. Although a relatively high degree of accuracy has been obtained from assuming visual form characteristics in the existing city (when checked with actual surveys), little or no research has been done to test similar presumptions on the visual form of towns which do not yet exist, as is the case here.

With regard to the criteria, I am sure that this list can be refined and further clarified but I think that the group which is presented here will allow for adequate tests of the visual form.

The problems and assets drawings were successful but means should be found to combine information contained on each. A more detailed criteria should be set forth to allow the designer to make more specific judgments regarding the various categories which were tested on them.

For future analyses such as this I am sure that far greater degrees of accuracy could be obtained if a large scale model of the design proposal were built - complete with the individual design of each building.

This would allow aids such as the photographing of sequences and the testing of various alternatives to be easily facilitated.

I look forward to having the opportunity to test the method which I have set forth here on an actual new town proposal of my own design.

APPENDIX A

COLUMBIA:

GOALS

1. Columbia would not create an additional tax burden on residents of the County.
2. Columbia's plan would respect the land, providing major areas of permanent open space, lakes, parks, and scenery. Trees, stream valleys and other natural amenities would be preserved, enhanced and cultivated to the maximum extent possible.
3. Columbia would be a complete and balanced community, providing a broad range of opportunities for housing and employment, and including major institutional, recreational and cultural facilities.
4. Columbia would set the highest possible standards of beauty, safety and convenience, extending to strict control of signs, commercial areas, architecture and landscaping.
5. Columbia would provide for its residents major utilities and services, including roads, sewers and water, at no additional cost to the County.
6. Columbia would provide the best possible environment for the growth of people.

APPENDIX B

The residential acreage will be planned for the following densities, housing types and dwelling unit distribution:

	<u>Number DU</u>
a. <u>Ownership</u>	
1. Very low, 0.4 DU/Acre, detached	568
2. Low, 2.2 DU/Acre, detached	1,875
3. Medium-low, 3.5 DU/Acre, detached	11,360
4. Medium, 10.0 DU/Acre, Townhouses	4,866
b. <u>Rental</u>	
1. Medium, 10.0 DU/Acre, Townhouses	2,220
2. Medium-high, 15.0 DU/Acre, Garden Apts.	5,672
3. High, 20.0 DU/Acre, Medium-rise Apts.	1,985
4. Very high, 25.0 DU/Acre, High-rise apts.	<u>851</u>
Total	29,400

$$\text{Gross Density} = \frac{\text{Total Dwelling Units}}{\text{Total Planned Acres}} = 2.1;$$

$$\text{Net Density} = \frac{\text{Total Dwelling Units}}{\text{Total Net Residential Acres}} = 4.3$$

APPENDIX C

APPENDIX C - CRITERIA¹¹I. METROPOLITAN VISUAL FORM

1. Is the town, or symbols of it, adequately exposed to the inter-regional path systems?
2. Are there adequate visual and functional linkages from inside the town to significant metropolitan patterns or areas?

II. THE MAJOR FOCAL POINTS OR CENTERS IN THE TOWN

1. Is each focal point clearly differentiated from the others? Does it convey a strong "sense of place" to the viewer or user? Are its public areas spatially well formed?
2. Is each center well exposed to the major circulation systems, both automobile and transit, and connections to these systems made clear?
3. Is there a congruence or "fit" between each center's activity and character? At the town scale is there a congruence between major centers of activity and the pattern of dominant visual spaces?

¹¹This group of criteria has been derived from sources too numerous to document here. In addition to my own contributions, principal sources were a Visual Survey for Brookline, Mass. (Course 4.18 - fall semester). Most helpful was Professor Kevin Lynch's own, as yet unpublished, Visual Survey for the same city.

4. Is each focal point visually well related to its surroundings? Are its entrances and exits clearly legible? Are there adequate visual linkages to other centers or objects of visual significance (i.e. panoramic or directed views, landmarks, etc.)?
5. Has adequate provision been made for rest, shelter and comfort in each center?

III. DISTRICTS

1. Does each district possess a special sense of identity and place? Do they convey to the observer or user a sense of general location with respect to the town center or other centers of importance?
2. Is each district well structured? Are entries and exits made reasonably clear?
3. Is there a congruence between the districts' activity and character? (i.e. Do residential areas look like residential areas and do industrial areas "look" their part?)
4. Is there adequate choice in the visual environment within easy reach of every resident? Are there adequate "contrasts" - particularly in regard to areas of high or low perceptual stimulus (open woods to village centers for example)?
5. Is there an adequate visual diversity in each district, especially in the residential areas?

6. Where "mixes" of use or function occur is their dichotomy adequately exposed? Does this "mix" contribute to the "meaning" or character of the district?
7. Do the residential areas convey a sense of quiet, calm, and comfort?
8. Is the "naming" system clear and meaningful and does it aid the resident or worker to make a coherent structure of the town?
9. Are the environmental sensations within the comfort range especially with regard to noise, glare, microclimate, and perceptual overload?

IV. MAJOR PATHS (Streets, Footpaths and Transit Lines)

1. Have the major paths been planned so that the major districts, focal points, institutions, and landmarks of the city are adequately exposed in a meaningful way to the observer? Is the means of access to each clearly communicated?
2. Are the major paths well differentiated?
3. Is there a clear sense of entry or exit into and out of the town along the major paths?
4. Is there a good sense of visual continuity maintained while travelling on the path? Does each path have a good sense of direction as well as location, especially with respect to the town or important focal points? Is spatial and movement clutter eliminated?

5. Is there a memorable sequence of events along each of the major paths? Is there a coherent succession of views, spatial contrasts, motions, visible activities, or the frequent sighting and approach to visible goals? Is there a build-up of activity and spatial form as the viewer nears major centers or important decision points?
6. Are intersections clearly identified, with the intersecting path exposed and the necessary maneuvers clearly evident? Are confusing decision points avoided?
7. Does the transit system convey a clear and coherent structure of the town to its riders? Does it expose the major centers and districts? Is there adequate heirarchy differentiation between centers along the transit route (i.e. adequate contrasts between the Town Center, Village and neighborhood centers)? Are the transit lines easily accessible to both resident and worker?
8. Are there conflicts between the visual structure of the town presented by the transit system and automobile path systems?
9. Are there areas or places where minor paths lack a sense of continuity or direction? Is access to the major path systems made clear?

V. VISUAL STRUCTURE

1. Is there a strong and coherent public image of the town as a whole? Can the major paths, centers and districts be remembered as a map or pattern of sequences? What common confusions or blank spots exist in this public image? As the town is developed over time can a coherent image be maintained throughout each step of development?
2. Can the observer, from the major routes and public places, develop an image of the Town which matches its basic social, functional and physical character? Are these points accessible to him from which he can at least symbolically see the town as a whole?
3. Has the topography and other natural elements (i.e. lakes, wooded areas, valleys, peaks, etc.) been used to their greatest advantage in strengthening the visual form of the community?

VI. FUNCTIONAL CRITERIA WITH VISUAL IMPLICATIONS

1. In both districts and centers can the pedestrian move about with ease, efficiency and safety?
2. Can the Village Centers be reached quickly and conveniently and are the neighborhood centers located within easy walk of its residents?
3. Are the "centers" (i.e. the Town, Village, Neighborhood and commercial centers) well located with respect to their functions and surrounding populations? Are they functionally as well as visually accessible?

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