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DESIGN AND CONTROL OF LAND DEVELOPMENT IN SUBURBAN COMMUNITIES

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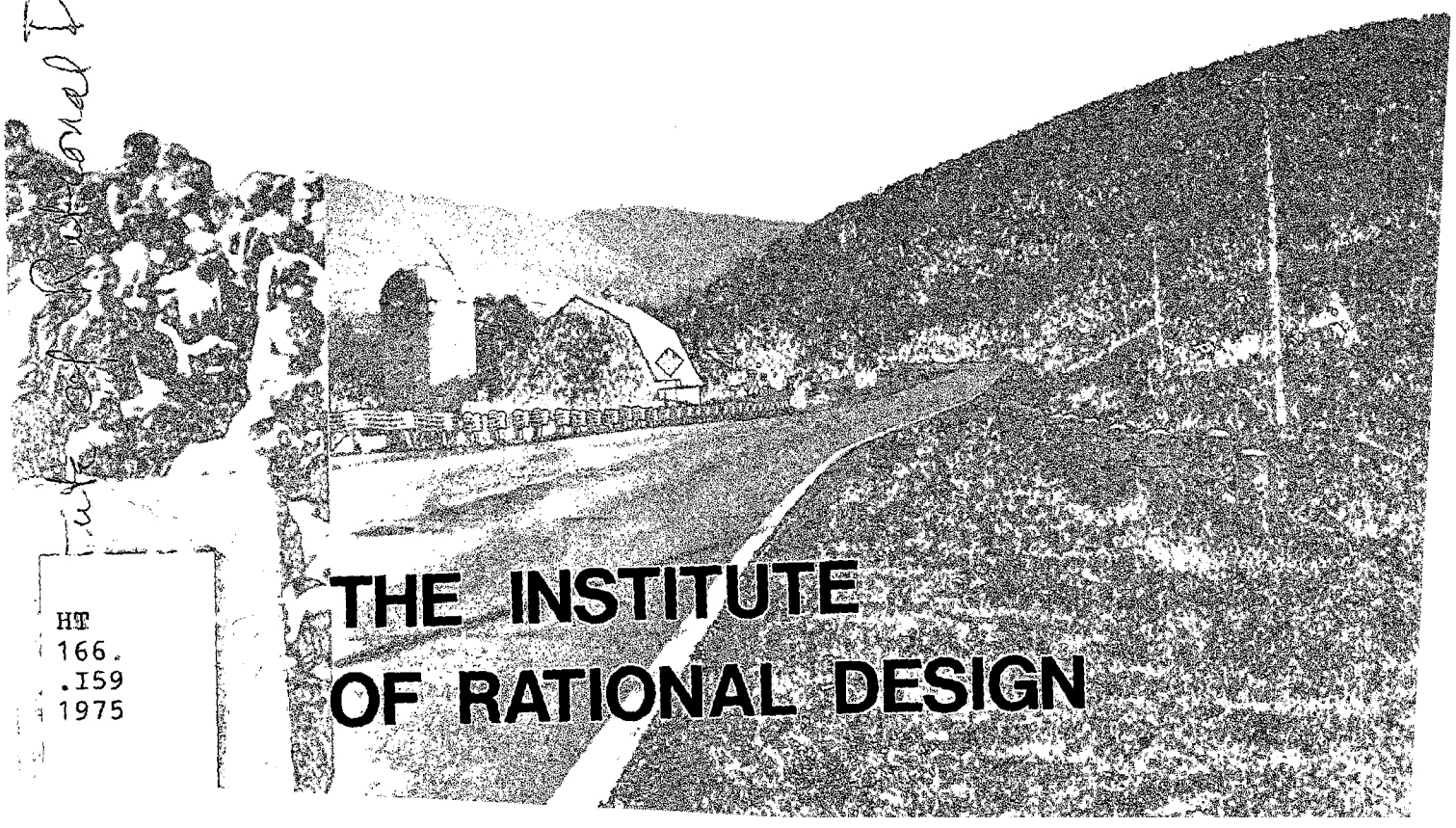

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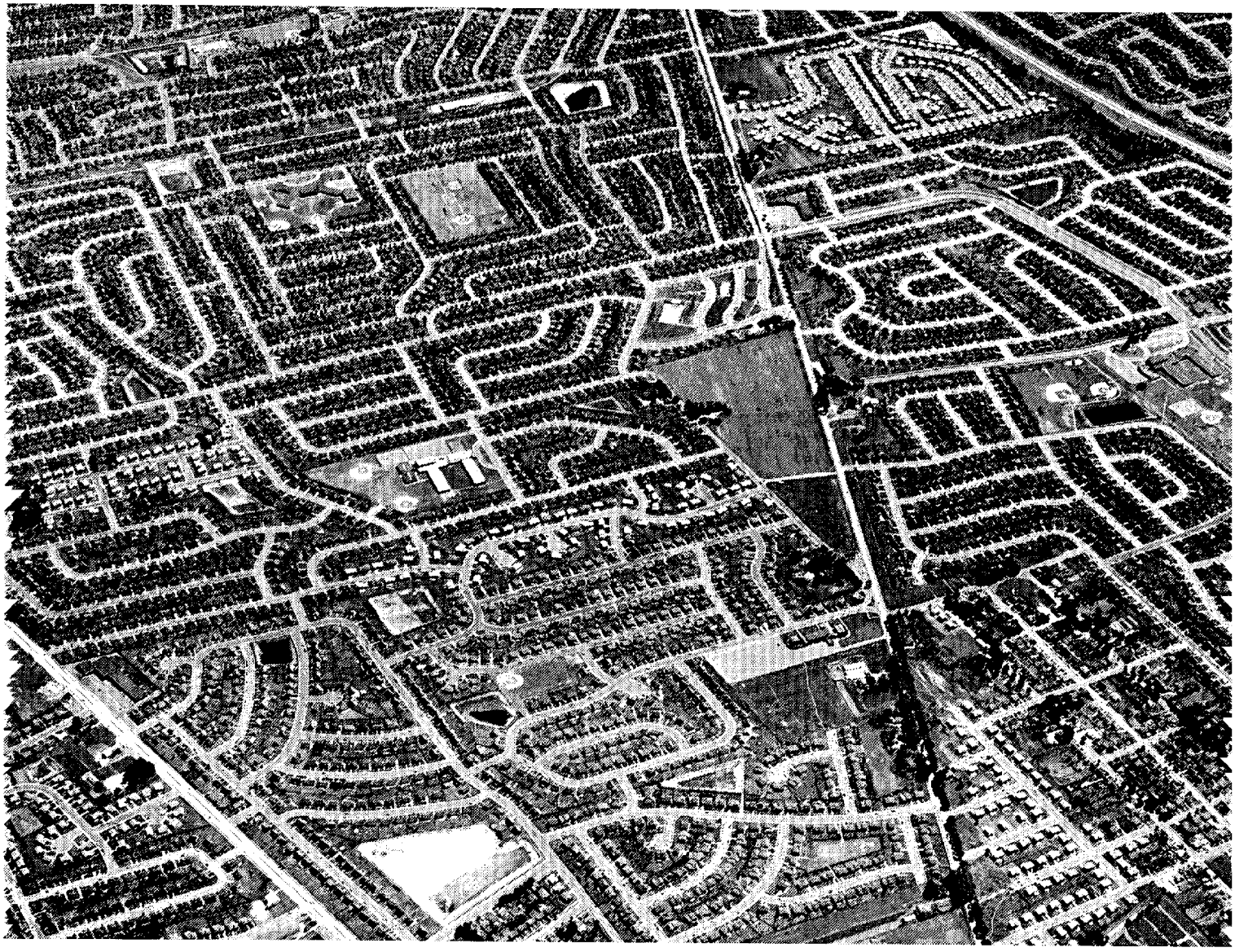


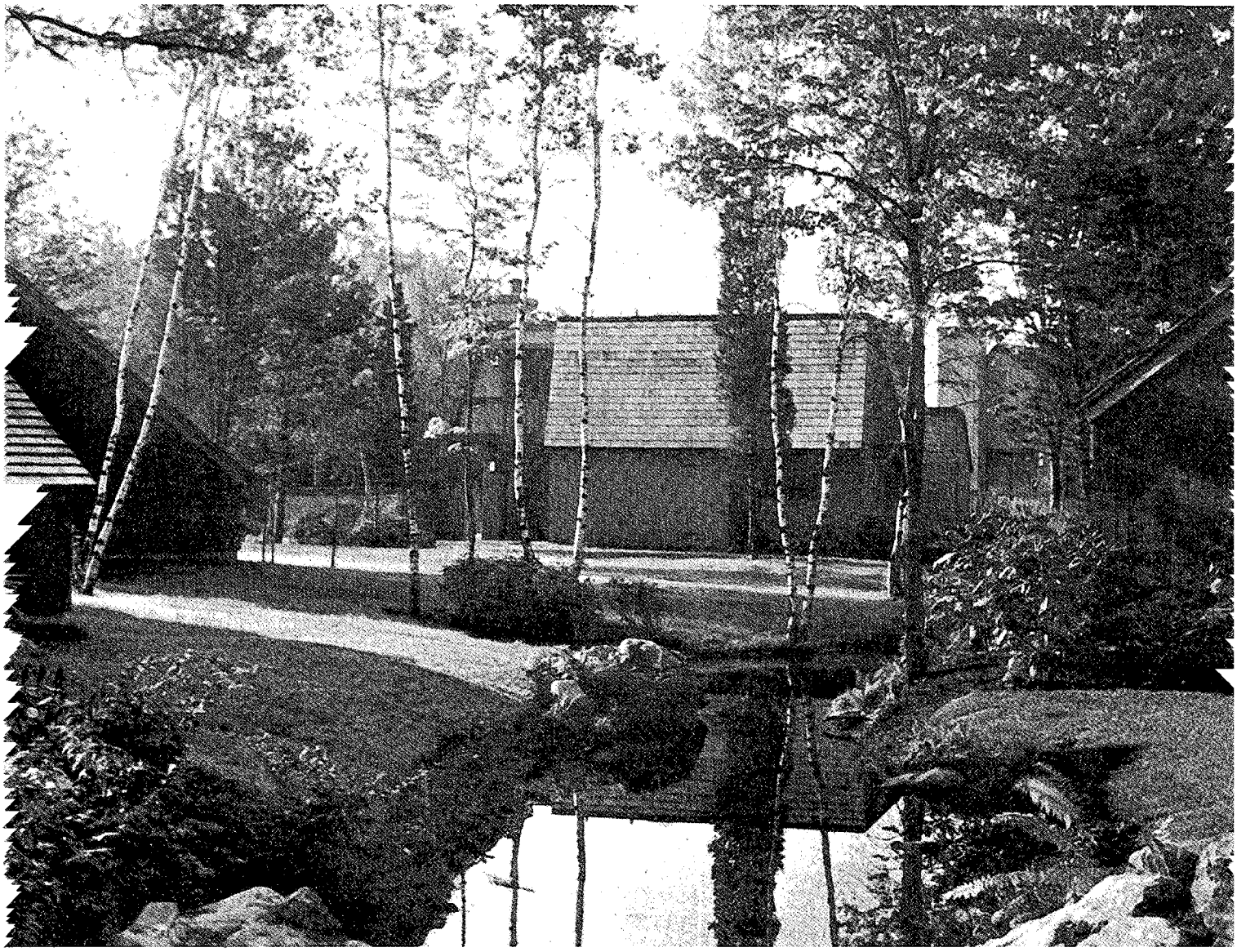
INTRODUCTION

This report is intended to serve as a guide for all persons interested in the problems of controlling land development. It has been developed in response to conditions in the New York metropolitan area; these are fairly typical of conditions on the outskirts of all large cities, so the report is generally applicable to most areas experiencing or anticipating pressures for land development. The discussion of the problem and the methods propounded comprise a general manual for the conduct of land development in suburban communities.

The need for such a guide has come about as a result of many basic social and physical changes taking place throughout the country, including:

- improved transportation between central cities and outlying suburban and rural areas
- decentralization of many functions formerly provided only in central cities
- the general shortage of adequate physical facilities such as housing and recreation space in established cities
- the availability of new living environments in the suburbs
- the economic feasibility of developing raw land in peripheral areas as opposed to rebuilding deteriorated central areas

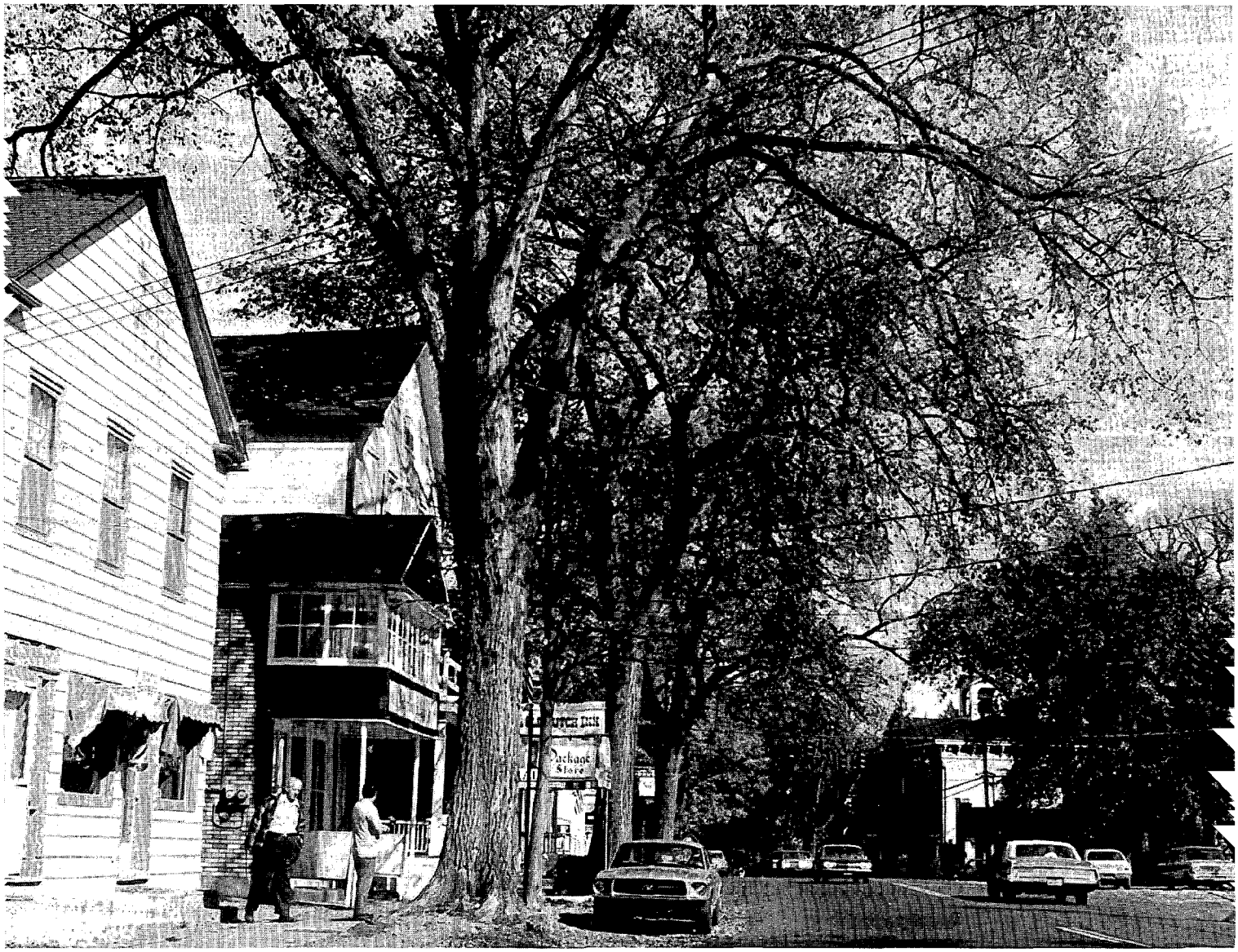
These changes have brought considerable pressure by real estate developers on many strategically located, small, suburban and rural communities to accept major land development projects. Such projects can have a significant impact on the environment, the population make-up, the finances and the general functioning of these communities. The advantages and disadvantages of a proposed project are often so great as to be incomprehensible to the community officials. Local laws and regulations are geared to handle the existing and historical land development demands of the community and cannot effectively control and take advantage of the development pressures that are now common. The pressure for change has challenged the responsibility of local government in controlling land use. It is essential for local governments to exercise greater initiative and positive control in critical issues of land development.



The pressure for major, new development tends to be concentrated in certain areas of a community. These can be identified by a logical analysis of the environment, and the community can then prepare itself for future development and cause this to take a desirable form. Less critical areas of the community can be handled as always, but special planning studies and procedures should be established for dealing with the strategic areas, for these hold the potential of determining the future character of the community.

This manual analyzes the problems confronting all who are concerned with land development, particularly local officials. The present process of local government review is examined to see where it can be streamlined and improved. A procedure is outlined for planning and decision-making in the strategic areas that will coordinate all interests: elected officials, planning boards and other agencies and their professional staffs and consultants, land developers and their consultants, and private citizens. This process will provide a common denominator for communication between the various groups and will provide each with a definite role. By better organizing the responsibilities and communication of the groups involved, many of the problems caused by unilateral action can be avoided. The process advocated will permit the community to provide guidance to the land developer instead of passive or negative reaction. The manual instructs the community in identifying and evaluating its strategic land resources and in determining how these lands can be developed to benefit the community. The land developer, with all his ambitions, can then be the means for implementing community objectives, instead of an antagonist.

Ultimately, the quality of the physical environment is the responsibility of local government. Where regional projects and systems affect the local environment, situations often develop which are impossible to manage with traditional techniques. The premise of this report is that such situations are opportunities for improving the ability of local government to determine and manage the quality of its environment.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SECTION 1

THE PROBLEM

UNPRECEDENTED DEMANDS FOR CHANGE CONSTITUTE A COMMON BUT VERY COMPLEX PROBLEM OF LAND PLANNING AND PUBLIC ADMINISTRATION FOR LOCAL GOVERNMENTS. THIS SECTION OUTLINES THE FACTORS THAT ARE BASIC TO UNDERSTANDING AND CORRECTING THE PROBLEM. THE FACTORS ARE ARRANGED IN A SEQUENCE WHICH SUGGESTS THAT ELEMENTS OF THE PROBLEM CAN BECOME THE BASIS OF A SOLUTION. IN SUMMARY, FORCES OF TECHNOLOGY AND POPULATION ARE ADVERSELY AFFECTING THE QUALITY OF THE ENVIRONMENT OF URBAN FRINGE AREAS, AND LOCAL GOVERNMENTS ARE IN THE CENTRAL POSITION WHERE CONTROL SHOULD BE EXERCISED. BY LEARNING HOW TO MANAGE THIS CHALLENGE, LOCAL GOVERNMENTS CAN GREATLY INCREASE THEIR EFFECTIVENESS.

1

DECENTRALIZATION OF URBAN AREAS HAS CAUSED GREAT DEVELOPMENT PRESSURE ON SUBURBAN AND RURAL COMMUNITIES, RESULTING FROM:

- normal population increase
- decreased working hours, making desirable quick and easy access to recreation facilities in order to take advantage of leisure time
- high volume transportation systems
- reliance on the private automobile, enabling greater personal mobility
- relocation of industries and offices outside of central cities
- development of large, regional shopping areas
- electronic communications, making it less necessary to have face-to-face contact in conducting business
- general dissatisfaction with cities because of old, crowded, dirty neighborhoods and high crime rates
- overcrowded city schools
- desire to own land and a home
- desire to live in a small, comprehensible community

Decentralization and the resultant pressure for land development is a national trend of massive proportions. It is unrealistic for the small community to attempt to ignore or stop this movement.

2

INCREASED DEVELOPMENT PRESSURE HAS MADE CERTAIN AREAS OF LAND WITHIN EACH COMMUNITY STRATEGIC TO SHAPING THE FUTURE GROWTH PATTERN OF THE COMMUNITY, BECAUSE OF:

- access to expressway interchanges
- high property values
- accessibility to shopping, schools, recreation, jobs and population centers
- high scenic quality or visual interest
- flat, vacant, easily developed land
- unzoned or underzoned land
- existence of public sewer and water systems
- easily obtainable development permits
- lack of determination or direction by local officials

The application of standard zoning techniques in strategic areas usually fails to achieve optimum results in terms of a new development pattern more suited to greater development pressures, capital improvements and environmental protection.

3 DEVELOPMENT OCCURS ON A PIECEMEAL BASIS IN MOST COMMUNITIES WITHOUT EFFECTIVE COORDINATION OR PLANNING, BECAUSE:

- communities consist of numerous properties, most owned by private individuals with little inclination to consider factors beyond their immediate self-interest
- local governments rely heavily on the property tax for financing public services, so property owners are often taxed into an unrealistic position where they must commit their land to development immediately
- local governments are forced to respond to each property owner on an individual basis, therefore cooperation between property owners or developers is very difficult
- the responsible agency of local government, the Planning Board, is under pressure to respond very quickly to each proposal; therefore the depth of its consideration and the possibilities for coordination with other projects are very limited
- because most revenue for the community is derived from the property tax, the project with the highest tax return and the lowest service cost usually seems to be the most desirable

In strategic areas the piecemeal development of single parcels of land precludes many of the possibilities of good community planning and environmental design which must be based on larger areas which can be treated as entities.

4 ENVIRONMENTAL RESOURCES ARE BEING CONSUMED AT AN INCREASING RATE AND CERTAIN COMMUNITY RESOURCES, SUCH AS DEVELOPMENT LAND AND OPEN SPACE, ARE THREATENED. THIS IS BECAUSE:

- development standards were established when environmental resources were plentiful and are not applicable to a situation where they are scarce
- in particular, land suitable for major development has not been considered a scarce or even important resource in many communities

Suitable land is a basic resource for all development. The management of this resource determines the quality of the community's environment.

5 THE ROLE OF LOCAL GOVERNMENT IN DIRECTING, PLANNING AND CONTROLLING THE GROWTH OF COMMUNITIES IS DECREASING, BECAUSE:

- decisions on the type of development are made by the property owner and the real estate market, and zoning is often changed to accommodate this unilateral decision
- the lay Planning Boards that must review and approve all projects meet only one evening a month, and are considerably overworked
- the local government review process is cumbersome and ineffective; both communities and developers fail to achieve maximum benefits
- because of the complexity of environmental planning, lay Planning Board members tend to focus their concern on very small-scale issues and ignore major issues
- advances in industrial technology have resulted in reliance on the developer's own justification and analysis of projects

This is a disastrous tendency that can lead to a completely ineffective, or even corrupt government. The following situation is typical: Confronted with decisions of overwhelming complexity and uncomprehended significance, the lay planning board attempts to duck the issue -- it stalls for time hoping something will change the situation, and takes refuge in bureaucracy and pettiness. The developer attempts to bring political, economic and legal pressure on the government to act (in his favor). Private citizens, other interest groups, and aspiring politicians enter the fray at a time when they can make little contribution. The resulting situation has no beneficial solution and often ends up in court.

6 ENVIRONMENTAL VALUES HAVE BEEN DISREGARDED, CAUSING UNNECESSARY WASTE, DEPLETION AND VISUAL BLIGHT OF NATURAL RESOURCES. THE CONTRIBUTING FACTORS ARE:

- property boundaries often are unrelated to units of the environment
- land has not been considered a scarce resource
- development land and residual parcels cannot be coordinated with natural processes

- development that is inconsistent with natural processes results in visual blight
- technical experts have not been consulted or have not made an adequate input
- the environment as a complete, interdependent system has only begun to be a focus for planning and design
- planning studies are typically too limited in scope and not based on a total range of environmental determinants; the studies and methods required to incorporate environmental values are new and completely untried in many communities

Environmental values are fundamental to comprehensive planning, which should be the basis for permitting development of strategic areas.

7

THE INVOLVEMENT OF TECHNICAL EXPERTISE IN PLANNING FOR COMMUNITIES HAS NOT BEEN EFFECTIVE, BECAUSE:

- traditionally, the concept of planning in a free society has been unacceptable; therefore master plans are seldom adopted by communities, and even more rarely implemented by zoning
- the Planning Boards are unaware of the importance of environmental analysis and of how it should apply to planning decisions
- the Planning Boards have a limited comprehension of how to use technical resources
- the Planning Boards have insufficient time and funds to spend on technical assistance
- in the past, less complex processes of construction did not require reliance on technical expertise in decisions on land development
- the practice of environmental planning at a site scale has not existed before

The technical expertise of environmental planners and designers in resolving community development issues is potentially the most effective tool available to local governement.

8 MANY COMMUNITIES HAVE REACHED OR EXCEEDED THEIR CAPACITY TO PROVIDE ESSENTIAL SERVICES, SUCH AS SEWERAGE, WATER, STORM WATER DRAINAGE, SOLID WASTE DISPOSAL, ENERGY AND TRANSPORTATION SYSTEMS. NEW GROWTH IN THESE COMMUNITIES POSES MANY PROBLEMS, BECAUSE:

- requirements to expand or rebuild basic systems, often to serve an entire region
- in the past, resources from the local area were, for the most part, capable of providing the necessary services, but a much larger base of resources and area of impact is involved in developing regional utility systems now required
- development of regional systems requires the efficient performance of higher levels of government, which is often not the case

Regional systems are, in many cases, a more efficient means of organizing services and controlling some adverse impacts. Where these are required, the development of strategic areas requires an active role by higher levels of government in the planning and construction of essential services.

9 DUE TO THE INCREASED INVOLVEMENT OF COUNTY, STATE AND FEDERAL GOVERNMENTS, LOCAL ADMINISTRATIONS HAVE LITTLE CONTROL OVER MANY OF THE MAJOR FACTORS THAT DETERMINE NEW DEVELOPMENT. THIS IS BECAUSE:

- public works projects, such as sewage treatment facilities and highway construction and improvement projects, which are essential to well organized growth are controlled by centralized agencies that do no recognize local needs
- complex bureaucratic procedures, such as A-95 and Environmental Impact Statements, which are required for many types of projects
- innovative land management programs for dealing with areas such as flood plains, coastal zones, wild and scenic rivers, farmland, forestland and wetlands

These factors tend to reduce local autonomy in land use decisions, but they provide a great range of tools for coping with the requirements of strategic areas. The ability to work productively with higher levels of government is essential.

10

SINCE THE ORIGINAL PUBLICATION OF THIS MANUAL, SEVERAL FACTORS HAVE BECOME EVIDENT WHICH ARE CHANGING THE PRESSURES ON LOCAL GOVERNMENTS FOR LAND DEVELOPMENT. THESE ARE:

- the energy crisis, which is making long-distance auto commuting difficult and possibly an undesirable basis for organizing society
- the decrease in population growth, which is reducing the demand for new housing due to expanded households
- the slowdown in the economy in general and in the housing construction business in particular, which has made land development an undesirable form of investment and home buying very difficult
- a general attitude among local governments of limiting community growth and development to the smallest possible level, which has stimulated major legal challenges of local land use perogatives
- the suspicion of local government toward land speculators or packagers who want zoning changes or preliminary approval in order to affect an increased land value which can be realized by selling the "package" to a developer or builder. (However, due to general economic conditions most builders and many developers do not have the resources to package their own projects, so the packager, if properly directed, could play a significant role in preparing the way for development.)

These factors have had a definite effect of reducing the pressure for land development. However, rather than resolving any of the problems localities face, they will complicate the picture in the long run. All of the forces which were causing severe crises in the control of land development in 1970 are still present. The need for economic growth will eventually lead to a revitalization of the construction industry. People still desire different living environments and personal economic growth. Local governments still have to tax heavily to provide services, making high tax-yielding land uses inevitable. The net result of these recent developments is to bring even more pressure on the strategic areas -- those areas where development is most logical and least speculative and most easily served by utilities and high-volume transportation systems usable for mass transit.

AEROTEK SERVICES, INC.

SECTION 2

GOVERNMENTAL REVIEW PROCEDURE

THE ONLY CAPABILITY FOR MANAGING THE PROBLEMS OUTLINED IN THE PREVIOUS SECTION AT PRESENT IS IN THE ADMINISTRATION OF LOCAL GOVERNMENT. THERE IS CURRENTLY MUCH DISCUSSION OF IMPOSING PLANNING BY HIGHER LEVELS OF GOVERNMENT AND REQUIRING HIGHLY DETAILED BACKGROUND STUDIES FOR ALL TYPES OF PROJECTS. THESE IDEAS HAVE MERIT, BUT THE MORE IMMEDIATE ISSUE IS THAT LOCAL GOVERNMENTS HAVE THE AUTHORITY TO PLAN AND CONTROL COMMUNITY DEVELOPMENT NOW, AND THERE IS NO REASON WHY THEIR ABILITY TO DO SO SHOULD NOT BE ENHANCED, PARTICULARLY AS THE DEMANDS ON THEM ARE INCREASING. THE REMAINDER OF THIS REPORT DISCUSSES HOW THE ADMINISTRATION OF LAND USE CONTROLS BY LOCAL GOVERNMENT CAN BE MADE MORE EFFICIENT. IN SUMMARY, THE TWO KEY PROBLEMS THAT LOCAL GOVERNMENT SHOULD RESOLVE ARE:

- INEFFICIENCY AND LIMITATIONS OF THE PROJECT REVIEW PROCEDURE. THIS IS LENGTHY AND LACKING IN COORDINATION AND IN TECHNICAL INPUTS.
- LIMITATIONS OF THE LOCAL PLANNING PROCESS. THIS IS OFTEN OUTDATED AND INFLEXIBLE AND USUALLY OVERLOOKS MANY ASPECTS OF THE ENVIRONMENT, ESPECIALLY THE DEVELOPMENT POTENTIAL OF STRATEGIC AREAS.

PARTICIPATION IN THE REVIEW PROCEDURE

In order to understand and correct the difficulties of local governments in controlling land development, it is necessary to study the role of each participant in the process of making decisions regarding land use and development. The following chart lists all participants involved in the process in New York State, their function or the objective of their activity, and the background they bring to the planning process.

It is apparent on the chart that there is a great range of participants involved in or having an opportunity to make an input into the planning process. The combined scope of all those involved in the process is sufficient to cover the majority of concerns. Representation is not a problem; however, the relationships and communication between the participants often are.

	PARTICIPANT	FUNCTION	ACTION	QUALIFICATION	AUTHORITY
PUBLIC	INDIVIDUAL CITIZEN	EXPRESSES PERSONAL VALUES	□	LAY PERSON	VOLUNTARY
	AD HOC CITIZENS' ORGANIZATION	PROMOTES GROUP OBJECTIVES	□	LAY & EXPERT PERSONS MOBILIZED FOR SPECIFIC ISSUES	VOLUNTARY
	ESTABLISHED CITIZENS' ORGANIZATION	PROMOTES GROUP OBJECTIVES	□	LAY & EXPERT PERSONS ON AREAWIDE ISSUES	VOLUNTARY
LOCAL GOVERNMENT	MUNICIPAL GOVERNING BODY	ENACTS ZONING ORDINANCE	▥	LAY PERSON	ELECTED OFFICIALS
	BUILDING INSPECTOR	ZONING & BUILDING CODE ENFORCEMENT OFFICER	■	EXPERIENCE IN BUILDING CONSTRUCTION	EMPLOYED BY GOVERNING BODY
	MUNICIPAL ENGINEER OR CONSULTANT	ADVISES PLANNING BOARD/TOWN BOARD	■	PROFESSIONAL	EMPLOYED BY GOVERNING BODY
	PLANNING BOARD	REVIEWS SUBDIVISIONS & APPROVES CONFORMING PROJECTS	■	LAY PERSON	APPOINTED BY GOVERNING BODY
	PLANNING STAFF OR CONSULTANT	ADVISES PLANNING BOARD	◪	PROFESSIONAL LAND PLANNER	EMPLOYED BY GOVERNING BODY OR PLANNING BOARD
	PLANNING BOARD ATTORNEY	ADVISES PLANNING BOARD/TOWN BOARD	◪	PROFESSIONAL	EMPLOYED BY PLANNING BOARD
	ZONING COMMISSION	PREPARES DRAFT ZONING ORDINANCE & AMENDMENTS	▨	LAY PERSON	APPOINTED BY GOVERNING BODY
	ZONING BOARD OF APPEALS	GRANTS VARIANCES FROM ZONING ORDINANCE	■	LAY PERSON	APPOINTED BY GOVERNING BODY
	ZONING BOARD OF APPEALS ATTORNEY	ADVISES BOARD OF APPEALS	◪	PROFESSIONAL	APPOINTED BY BOARD OF APPEALS
	CONSERVATION COUNCIL	ADVISES PLANNING BOARD/TOWN BOARD	▨	LAY PERSON	APPOINTED BY GOVERNING BODY
	ARCHITECTURAL REVIEW BOARD	REVIEWS HOUSING PLANS & APPROVES CONFORMING PROJECTS/ADVISES PLANNING BOARD	▨	LAY PERSON	APPOINTED BY GOVERNING BODY
PROJECT SPONSOR	DEVELOPER	SECURES REQUIRED APPROVALS PRIOR TO DEVELOPMENT	◪	LAY PERSON WITH/WITHOUT BUILDING EXPERIENCE	ENTREPRENEUR
	DESIGN CONSULTANT	ADVISES PROJECT SPONSOR	◪	PROFESSIONAL ENGINEER, LAND PLANNER, ARCHITECT OR LANDSCAPE ARCHITECT	EMPLOYED BY PROJECT SPONSOR
	LEGAL CONSULTANT	ADVISES PROJECT SPONSOR	◪	PROFESSIONAL ATTORNEY	EMPLOYED BY PROJECT SPONSOR
	LENDING INSTITUTION	FINANCIAL AID TO PROJECT SPONSOR	○	EXPERT IN REAL ESTATE FINANCING	ENTREPRENEUR
	PROPERTY OWNER	PROVIDES DEVELOPMENT SITE	○	LAY PERSON	ENTREPRENEUR
GOVERNMENT AGENCIES	COUNTY PLANNING DEPARTMENT	REVIEWS PROJECTS WITHIN 500 FEET OF MUNICIPAL BOUNDARIES & CERTAIN COUNTY OR STATE LANDS	▥	PROFESSIONAL LAND PLANNERS	EMPLOYED BY COUNTY GOVERNMENT
	COUNTY DEPARTMENT OF PUBLIC WORKS	REVIEWS PROPOSED EGRESS TO ABUTTING COUNTY ROADS	▥	PROFESSIONAL ENGINEERS	EMPLOYED BY COUNTY GOVERNMENT
	COUNTY/STATE DEPARTMENT OF HEALTH	REVIEWS WATER & SEWAGE PLANS	■	PROFESSIONAL SANITARY ENGINEERS	EMPLOYED BY COUNTY/STATE GOVERNMENT
	STATE DEPT. OF ENVIRONMENTAL CONSERVATION	REVIEWS ENVIRONMENTAL IMPACT OF PROPOSED PROJECT	▥	PROFESSIONAL BIOLOGICAL RESOURCES	EMPLOYED BY STATE GOVERNMENT
	STATE DEPARTMENT OF TRANSPORTATION	REVIEWS PROPOSED EGRESS TO ABUTTING STATE ROADS	▥	PROFESSIONAL ENGINEERS	EMPLOYED BY STATE GOVERNMENT
	U.S. SOIL CONSERVATION SERVICE	ADVISES COUNTY PLANNING DEPT. & LOCAL PLANNING BOARD	◪	PROFESSIONAL SOIL SCIENTISTS	EMPLOYED BY FEDERAL AND COUNTY GOVERNMENT

■ MANDATORY APPROVAL
◪ MANDATORY ADVICE
□ VOLUNTARY ADVICE
▥ MANDATORY APPROVAL IN SOME CASES
▨ MANDATORY ADVICE IN SOME CASES
○ INDIRECTLY INFLUENTIAL

It is also apparent that only two of the participants are required to make official decisions on any project: one is the State Department of Health, which is limited to water supply and sanitary engineering; the other is the local Planning Board, which makes the only comprehensive decision concerning land development and the quality of the environment. The Planning Board, therefore, is the focus of the review process. Its inherent weaknesses are to some extent responsible for the problems in controlling land development; its strengths should be the basis for resolving these problems.

The Planning Board is an appointed, usually unstaffed lay body with the responsibility for advising on the community's development pattern and the adequacy of proposed site development plans. It reports to the Town or Village Board on matters of land use policy and to the building inspector, who determines conformity to the municipality's zoning laws and regulations.

The individuals on the Board represent widely divergent backgrounds and points of view. The Board tends to lack a systematic approach to its function, and it often lacks adequate technical resources. In addition, Planning Boards differ greatly in their decision-making abilities relative to the various advisory and occasional participants. Lacking technical understanding and professional commitment, the Planning Board cannot be expected to provide competent guidance in the extremely complex difficulties that arise in the course of nearly all major real estate developments. If the public is to benefit from such projects, the local government must be actively involved. The Planning Board is in the key position to make a major input, but in the areas of greatest development pressure it is not properly constituted to be the key environmental control and improvement agency.

On the positive side, the Planning Board is in a position to coordinate all of the interests involved in land development. Its action is not limited to a single functional criterion, so it can be concerned with the larger issues of development, not just the details. It can consider the variations of physical form within the requirements of a zoning ordinance, so it can deal directly with many problems of environmental impact. Perhaps its most important aspect is that, in addition to being the one common point of contact for all parties, it provides the only means for public involvement. The Planning Board can provide desperately needed leadership, which would be a valuable service to all parties. It can generate a great deal of respect and power. But its role is largely undeveloped, potential rather than actual.

COMMUNITY PLANNING OBJECTIVES

The Planning Board is in a critical position with regard to administering the community's planning policies. If it is to provide leadership in physical planning as well as administration it must function more effectively. As suggested in the previous discussion of the strengths and weaknesses of the Board, this requires:

- increasing its role as coordinator and organizer
- improving its technical and professional capabilities

In developing its function as coordinator and overseer of community development, the Planning Board should establish the municipality's special interest in strategic areas. In these areas it should play a central role in the land development process. Through its own consultants or staff the Board should work out the general aspects of the development pattern for strategic areas, including:

- suitability of land for development
- distribution and intensity of activities
- road pattern
- open space
- public utilities and facilities

The Board will then be in a position to deal offensively with developers to achieve its objectives. It should formulate its own development concepts and even initiate projects and solicit developers to help realize its goals. In addition to a more aggressive attitude toward development, the Board can take positive steps to encourage proper development. In its own procedures and through its relationship to the other offices of local government it should suggest and actively promote:

- establishment of special development districts encompassing strategic areas
- designation of special development districts on official map
- adoption of flexible and realistic zoning that permits innovative development
- scheduling construction of public utilities and facilities
- acquistion of strategic lands and leaseback or sale to developers
- expediting the review process

Not to take some such approach is to concede the municipality's initiative in directing its destiny. A developer takes decisive action to achieve his ends; the municipality should do the same. It cannot realize its potential by only reacting defensively.

The Planning Board should also take the initiative in coordinating its development concepts and all concrete proposals with other concerned groups in the municipality. It should increase its contact with community groups and leaders and with other local departments and agencies. In addition to the Public Works Departments, the list should include:

- School District officials
- Fire District officials
- Environmental Conservation Commission
- Parks and Recreation Commission
- Architecture Review Board
- Citizens' groups

The Planning Board should advise them of its planning activities and proposed projects at a very preliminary stage, so they can make constructive input rather than simply react. Their contribution to the planning and design process will tend to avoid arguments and opposition to its results.

The support and involvement of as much of the community as possible is an essential ingredient to a sound development policy. The groups listed are seldom involved in an organized fashion. With a minimal expenditure of effort, the Planning Board could greatly increase the success and effectiveness of the planning and design process for which it is responsible.

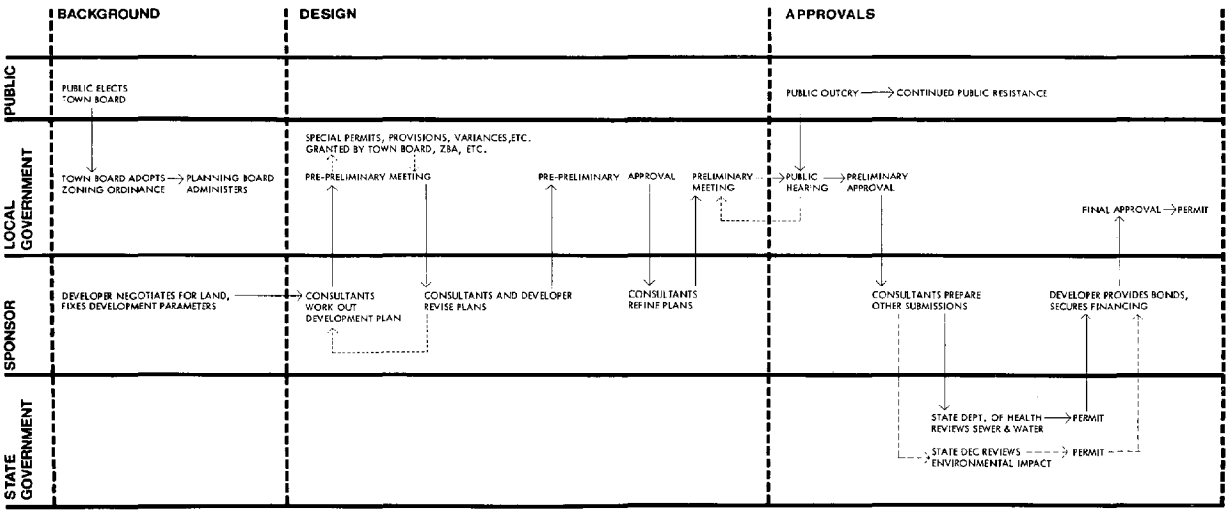
The following analyses of the review procedure for projects will show how the role of the Planning Board can be developed within the context of the existing planning process.

EXISTING REVIEW PROCEDURE

Significant aspects of the review process apparent on the diagram are:

- There is no direct continuity on the Planning Board between the background and design stages of the process. The ordinance and plans and technical studies may have been prepared years earlier by forgotten individuals and may be quite irrelevant to the administrative policies of the Planning Board at the time of any particular project. When the Planning Board enters the process, it is to react to a proposal by a developer, not to implement an element of a community or area development plan.

- In contrast, the developer's background work is directly relevant to his activity in the design stage. This immediacy of goals to design gives the developer a definite advantage over the Planning Board. He is much more prepared to discuss the project in all of its aspects, and he is more cognizant of his goals than the Planning Board is of how the interest of the community will be served.



- The process is a straight line of many steps with little coordination. At each of the meetings with the Planning Board, the project is either approved and advances along the line, or it is rejected and the preceding step repeated until approval is gained. Thus the process can be extended indefinitely. One year is the minimum time period involved for local government review.

- The public participants are admitted to the process at a relatively late stage and can make little input. Their frustration is usually registered as a continued resistance to the project, regardless of the merit of the issues they have found. This resistence can lead to further delays and more complications such as political intervention or judicial action.

Experience has pointed out several additional problems in the present process which are not apparent on the diagram:

- The developer has the upper hand in negotiation with the Planning Board. The developer usually commands greater professional resources, and it is the developer that initiates the process; the Planning Board reacts to his proposals. As minimal leadership emanates from the Board, ongoing community planning becomes a defensive strategy rather than a means to a more desirable environment. In many cases the developer's goals assume a greater importance than those of the community. The Planning Board then becomes uneasy, and attempts to avoid its responsibility by deferring its decisions on various pretexts and taking a very restrictive attitude. The result is a project which attempts to cause the minimum change to the community (and usually fails in this, having achieved only a temporary illusion of maintaining the status quo). In many cases a more productive attitude toward a major project would be to seize the opportunity to change and improve the development pattern and to develop new potentials in the community.

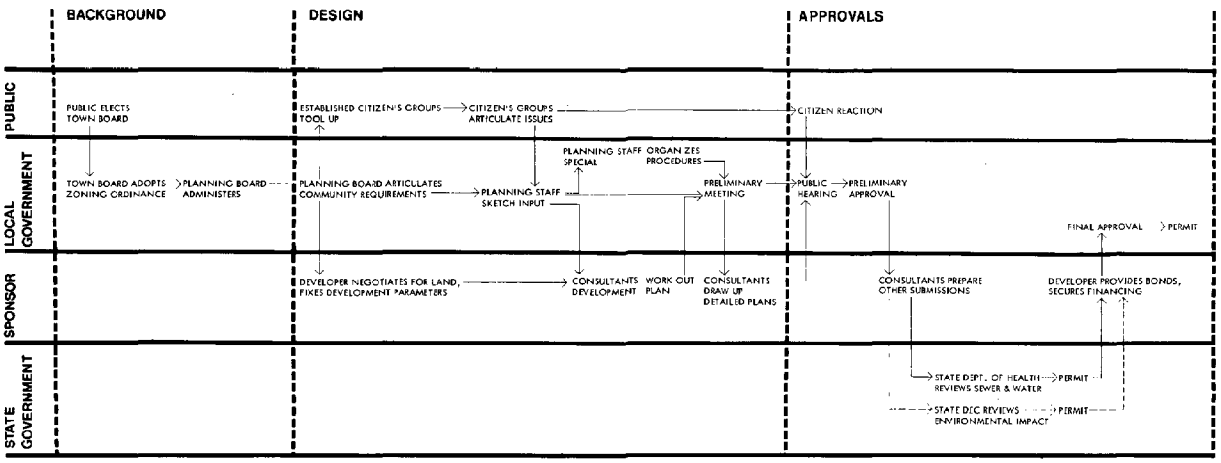
- The eventual development plan for a parcel of land is the result of a trial and error process involving numerous submissions by the developer and critiques by the Planning Board. It is quite possible for this process to be protracted over several years with little constructive communication between the groups of participants. Such delay accounts for a significant cost in the price of housing units and the inevitable friction leads to a reluctant and minimal adherence by the developer to the regulations and goals of the community.

SUGGESTED REVIEW PROCEDURE

Revisions to the review process in the design stage can result in a process with greater efficiency and coordination. The changes suggested in the diagram on this page are all procedural; they can be instituted by Planning Boards without seeking new powers.

Significant differences in the process with the suggested revisions are:

- In the design stage the process is more concentrated and coordinated. It is focused on the Planning Board, which is in a position to fully coordinate all inputs to the project. Rather than occupying a decision point on a line, the Planning Board occupies a central position in organizing and preparing the preliminary submission for review. The bulk of the Planning Board's work is done at the same time as the sponsor's - during the design stage. The Planning Board is responsible for soliciting and receiving useful inputs during this period from all interested groups in the community.



- The Planning Board establishes the community's interest in the project at the outset. The developer of a strategic area must come to the Planning Board for guidance before he begins. His initial negotiations and economic concepts are therefore part of the design stage, and not a fixed factor established in advance, as part of the project background.

- The entire pre-preliminary proceeding is eliminated and replaced by an informal exchange on a staff level between professional representatives of the Planning Board and the project sponsor. Rather than the present hit-or-miss approach to developing a concept plan, the Planning Board assigns its professional staff or consultant to work out an acceptable concept with the developer's planning consultant.

- The Planning Board must have professional expertise. It cannot function as a lay group with occasional technical advice. The technical staff or consultant should have a major responsibility in advising the Board. It is essential that the staff or consultant be fully competent in the fields of environmental analysis, planning and design in order to discharge the required responsibility. The same requirement pertains to the sponsor's consultants.

- The Board should, after issuing appropriate direction, assign all matters of physical planning and design to be resolved by the professional staff. The Board should concentrate on the political and other aspects of the project. This simple delegation of authority will save months during the design stage, customarily spent on trial and error presentations before the Board and on official requests by the Board for the input of other agencies.

- The approval stage will become much more routine than in the present situation. Preliminary approval would constitute an endorsement of the plan worked out jointly by the Board's and the sponsor's professional staffs. The Board should be able to comprehend and approve such an application with a minimum of deliberation. Review by agencies of State government will constitute the greatest built-in delay. The total process could be easily completed in six months, or half the time required at best under the present process.

PROFESSIONAL CONTRIBUTION TO THE REVIEW PROCEDURE

The corollary to an improved coordinative strategy is an improved technical and professional capability. While the Planning Board's role in coordinating and organizing should be increased, its role in technical matters should be reduced to a policy-making and supervisory one. The responsibility for conducting technical studies and making technical judgements should be delegated to competent physical planning professionals.

This delegation of authority will remove the Planning Board's greatest problems: The issues where it is technically over its head. These are usually critical issues, and decisive leadership requires a competent grasp of them. A typical project in a strategic area might require technical consideration beyond the capabilities of the Board in each of the following areas:

- implications of and alternatives to the proposed development pattern
- sewer and water systems
- land drainage and storm water management - use of data provided by the Soil Conservation Service
- requirements of the National Flood Insurance Program
- access to transportation systems and organization of traffic
- analysis of the effect on school populations
- special land use control provisions, such as Planned Unit Developments, cluster designs, transfer of development rights and the use of homeowner's associations to manage commonly held land and facilities
- evaluation of environmental impact

The Board should be well informed and capable of negotiating with a developer on each of these issues. It should not assume that it should have the knowledge or experience to deal with such issues, but should organize a technical capability it can use: either its own staff, staff "borrowed" from a higher level of government, or outside consultants. The organization of such technical resources will greatly increase the Board's strength.

Some cities and larger villages have a full-time, professional planning staff, but most villages and towns are without staff, and hire consultants to advise on specific issues before the Board, or use their own best judgement. These villages and towns contain the majority of potential development land adjacent to metropolitan centers. Many of these municipalities have excellent transportation facilities and populations sufficient to support major public improvements, such as water and sewer systems. The bulk of new development is taking place in such areas, where the Planning Boards have only minimal professional staff resources to formulate and implement new development ideas.

The physical planning staff or consultant should work according to a procedure set up by the Planning Board along the lines suggested on the previous pages. The planners should have the latitude to work out realistically the parameters and concepts of development. Special zoning and other provisions, in most cases, can be worked out by the staff, or at least organized, in advance of the project. The staff can also carry out all contacts with other branches of the local government and agencies of the county and state. They should work with the developer's consultants directly, on an informal basis, and resolve all technical problems before the Planning Board's required review begins. The separation of technical and policy problems will result in much greater efficiency for the developer and for the Board. In addition, the Planning Board's input will be more effective because it will be implemented by the Board's planner, not by the developer.

This approach to overcoming the weaknesses inherent in the local Planning Board obviously will entail greater costs. From a community's standpoint, the purpose of development in a strategic area should be a positive one: to improve the community by enhancing its development pattern, its choices of activities and environments, and its resources. Since the community will benefit by controlling the development, it is appropriate for the local government to invest its funds in planning. Local funds can be supplemented by grants from state and federal agencies. For example, both regular services of a planning consultant and special area studies are now reimbursable under the "701" grant program, as reconstituted by the Community Development Act of 1974. While the cost of planning may be significant to the local budget, it is relatively insignificant compared to the total value of a developer's investment. It is, therefore, also reasonable for the developer to contribute to the cost of planning, which is a constructive service done for him by the municipality that improves his efficiency.

COMPREHENSIVE APPROACH

The preceding sections have developed the idea that the process of land planning and design in strategic areas is crucial to the achievement of a high quality physical environment. This process should include environmental studies by land developers, and a much greater role than is customary for the Planning Board in the area of physical planning. It is essential for the process to be comprehensive. Not only must the proper expertise be used at the right time, but the studies that are called for should be logically organized to lead to the required decisions. The basic steps in such a process are:

- comprehensive environmental analyses
- formulation of community's objectives
- formulation of developer's objectives
- coordination of public and private interests with environmental conditions

The process should be organized to focus community and environmental objectives on a particular site. This requires that study of the regional and local context of the site precede site planning studies. Such large-area studies should be initiated and carried out by the Planning Board, possibly in conjunction with county or regional Planning Boards. The purpose is to ensure that analysis of the environment is comprehensive and well organized, and that it provides adequate understanding of the physical realities of the area. With this background, development of a site can be directed so that it furthers the community's land use objectives and enhances the physical environment.

SCALE	RESULT OF STUDY	RESPONSIBILITY
REGIONAL	IDENTIFY STRATEGIC AREAS	PLANNING BOARD
LOCAL	COMMUNITY DEVELOPMENT PLAN	PLANNING BOARD / DEVELOPER
SITE	PROJECT SITE PLAN	DEVELOPER

In order to be comprehensive, analysis of the environment should cover several geographic scales and all pertinent resources.

SCALES

The area should be examined in a sequence of scales showing progressively smaller areas and greater detail. This provides a good insight into how a site or an area fits into its environment and which determinants should be used in planning for its development. The preceding diagram shows a sequence of scales that should be used, the product of each scale of study and who should be responsible for each.

RESOURCES

In addition to the perspective of different scales, the study should consider the environment to be comprised of a number of interrelated systems. These can be organized into two groups as shown below. All of these factors are not necessarily relevant to every project, but most have some bearing on strategic areas, so they should be understood, if only to be dismissed.

NATURAL RESOURCES

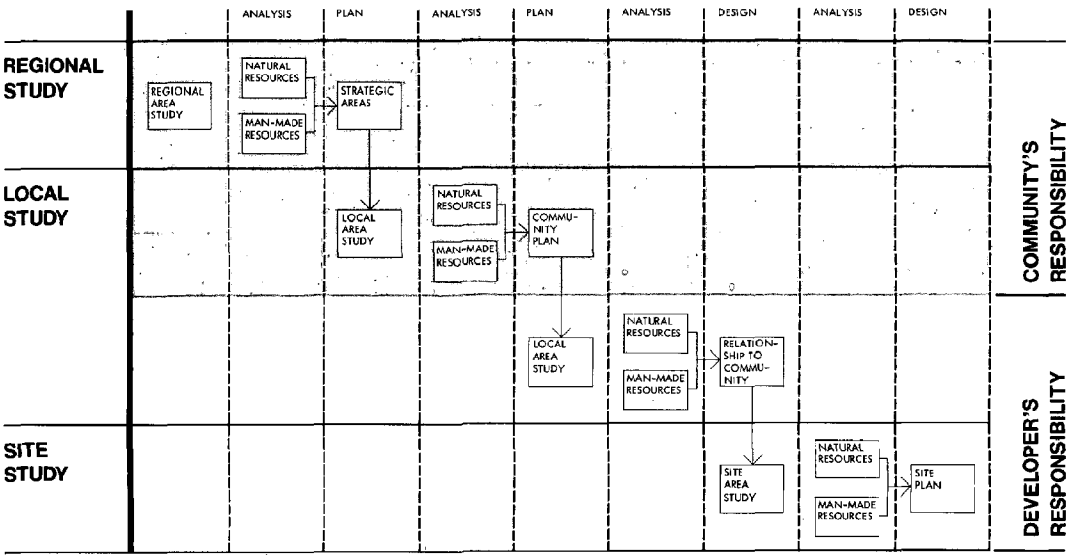
- LAND - geology, landforms, soil, slope, aspect
- WATER - surface drainage network, ground water, soil drainage conditions, watersheds
- VEGETATION & WILDLIFE - vegetation types and condition, wildlife habitats
- AIR - climatic factors, weather conditions, air quality

MAN-MADE RESOURCES

- MOVEMENT - road network, rail, sea, air, pedestrian
- ACTIVITY - land use, density and intensity, history
- SERVICES - sewerage, water supply, solid waste disposal, energy

COMPREHENSIVE PLANNING & DESIGN PROCESS

The basic elements of a comprehensive physical planning and design process are diagrammed below. The diagram indicates a sequential study and decision-making process beginning at a regional scale, suitable for community and local planning, and leading to a large scale, appropriate to the design of a single site. At each scale of study there is an analysis phase in which the most significant factors affecting the situation are determined. All data and conclusions necessary to decisions at that scale are generated during the analysis. The analysis is followed by a synthesis in which issues are resolved and a concept or direction established for more detailed study. At the regional and local scales this result is based on rather general information and abstractions and is meant to provide direction; at the site scale it is based on more detailed information and is meant to show a realistic arrangement of all the elements of the environment. At the regional and local scale the process should be directed by local or county planning staff. The developer's staff should become involved at the local scale and carry the process through the site scale.



At each scale the study that is conducted should be within the context of decisions reached at previous scales. This provides a continuity of information of logic and of decisions that enables a site plan to be consistent with community objectives.

The preferable sequence of steps shown on the diagram is often difficult to achieve because of the Planning Board's historic lack of initiative in directing development. Traditionally, the process begins with the developer's work at the site scale, which then must be modified to reflect the Planning Board's suggestions on local area planning. A look at the diagram shows that this amounts to beginning a logical process in the middle and working backwards and forwards simultaneously. This is a highly inefficient and uncertain procedure. In strategic areas, the initiative in planning, scheduling and designing development should come from the local Planning Board.

The physical planning and design process should be organized and conducted on a professional level, in contrast to the review procedure, which is a function of lay citizens. It is important that background analysis and design studies receive full professional and technical treatment, with an input or synthesis by the Planning Board at each scale. This process minimizes or eliminates the need for negotiations and compromises during the formal review period.

In developing the professional and technical studies, several disciplines should be involved. Whereas in many areas an engineer may handle all aspects of project planning and design, it is generally felt that a single discipline (particularly one whose fees are tied to construction costs) cannot obtain sufficient perspective of community and environmental conditions to produce the best possible plan. Architecture and landscape architecture provide essential contributions to a planning and design effort. As the situation may require, they should be augmented by hydrology, geology, meteorology, aquatic and terrestrial biology and engineering. Other disciplines in the economic and social sciences, public administration and the law may also be required. Architecture and landscape architecture are fundamental to a comprehensive process because they are geared to coordinating diverse types of information and translating it into physical form.

PLANNING AND REVIEW CHECKLISTS

The following checklists include all steps required to develop and review a site plan that is responsive to community needs and to the environmental conditions of a strategic area. The first list is divided into those steps that are the responsibility of the land developer and those that are the responsibility of the local government. The coordination required between the parties is discussed in the previous sections and is not reflected in the list. The second list is a matrix which enables the identification of all potential types of impact from a project. Ideally, all issues will have been anticipated and resolved during the planning studies. The list enables the Planning Board to have a comprehensive view of all the issues and to determine their relative importance.

DEVELOPER RESPONSIBILITY
CONSULT WITH THE FOLLOWING GOVERNMENT AGENCIES

TOWN	
TOWN BOARD	
PLANNING BOARD	
BUILDING INSPECTOR	
PLANNING CONSULTANT	
TOWN ENGINEER	
TOWN TAX ACCESSOR	
CONSERVATION COUNCIL	
ARCHITECTURAL REVIEW BOARD	
SPECIAL DISTRICTS	
school	
sewage	
water	
fire	
PRIVATE CITIZEN GROUPS	

COUNTY	
PLANNING DEPARTMENT	
DEPARTMENT OF PUBLIC WORKS	

STATE	
DEPT. OF TRANSPORTATION	
DEPT. OF HEALTH	
DEPT. OF ENVIRONMENTAL CONSERVATION	

FEDERAL	
SOIL CONSERVATION SERVICE	
NATIONAL FLOOD INSURANCE PROGRAM	

RETAIN CONSULTANT TO PREPARE PLANS	
DEVELOPMENT OPTIONS	
PRE-PRELIMINARY PLANS	
PRELIMINARY PLANS	
FINAL PLANS	

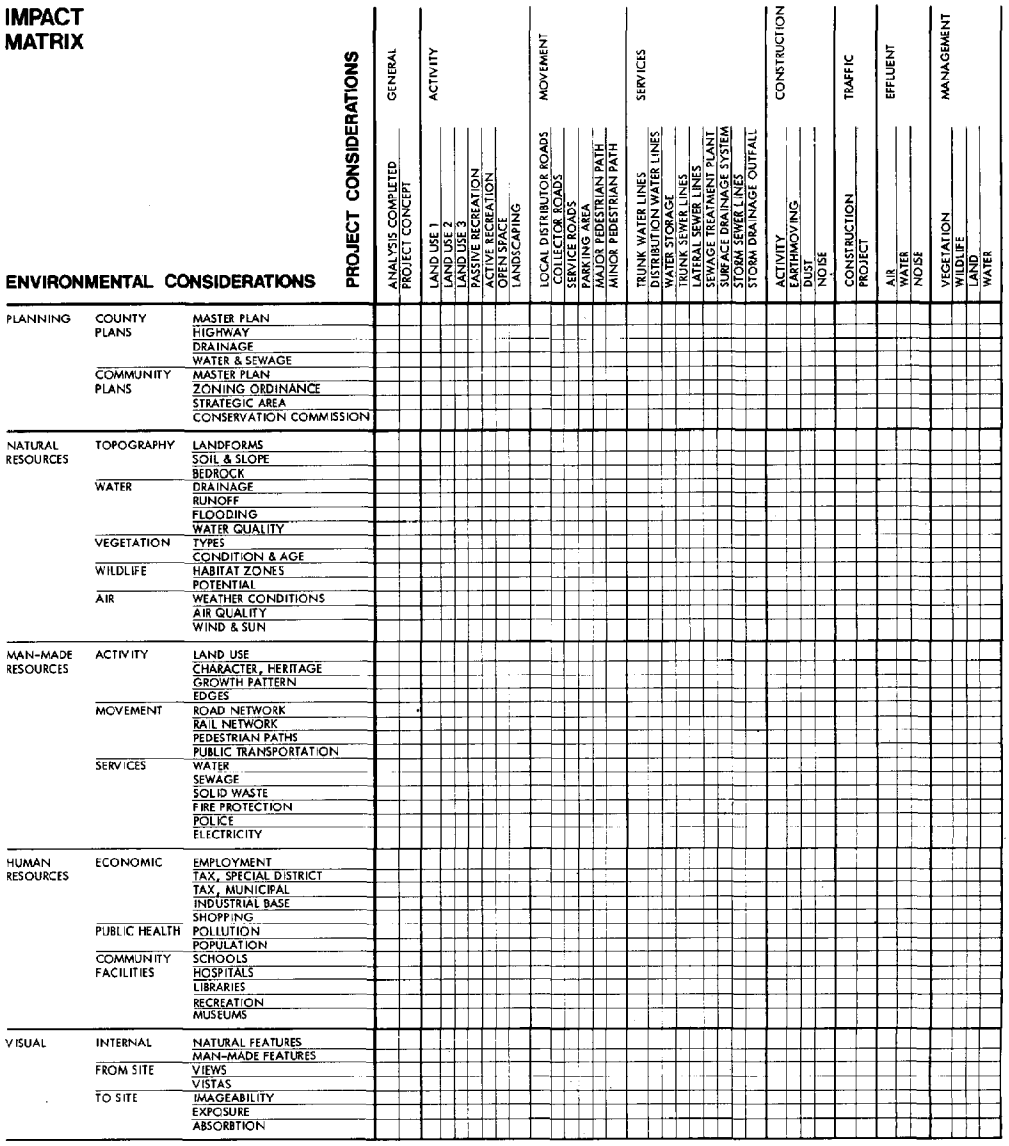
COMMUNITY RESPONSIBILITY
COMMUNITY PLANNING OBJECTIVES

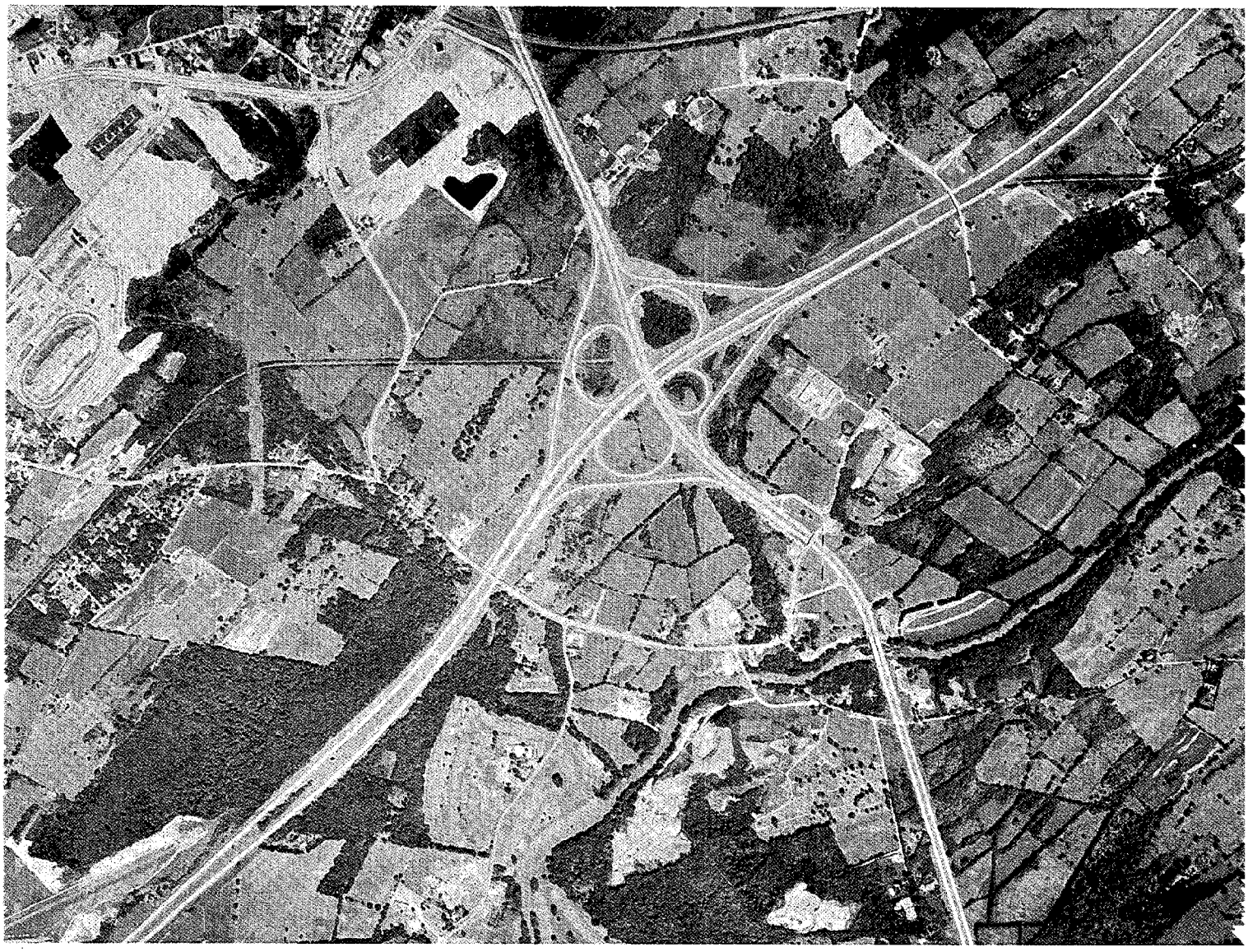
ADOPT TOWN MASTER PLAN	
ADOPT TOWN ZONING ORDINANCE	
ADOPT TOWN SUBDIVISION REGULATIONS	
ADOPT TOWN BUILDING CODE (STATE STANDARD)	
RETAIN TOWN PLANNER OR PLANNING CONSULTANT	
RETAIN TOWN ENGINEER OR CONSULTANT ENGINEER	
IDENTIFY STRATEGIC AREAS WITHIN TOWN	
PREPARE PLAN FOR STRATEGIC AREA INDICATING:	
A. BUILDABLE AREAS	
B. OPEN SPACE AREAS	
C. PROPOSE DESIRABLE ACTIVITY (USE)	
ADOPT SPECIAL ZONING PROVISION FOR STRATEGIC AREA	
REQUIRE PROPERTY OWNERS TO CO-ORDINATE DEVELOPMENT OBJECTIVES BY COOPERATING ON A JOINT PLAN	

REVIEW PROJECTS ACCORDING TO THE SUGGESTED REVIEW PROCEDURE

PRE-PRELIMINARY REVIEW	
PRELIMINARY REVIEW	
FINAL REVIEW	

IMPACT MATRIX





U.S. DEPARTMENT OF AGRICULTURE

SECTION 3

CASE STUDY

ENVIRONMENTAL DESIGN PROCESS

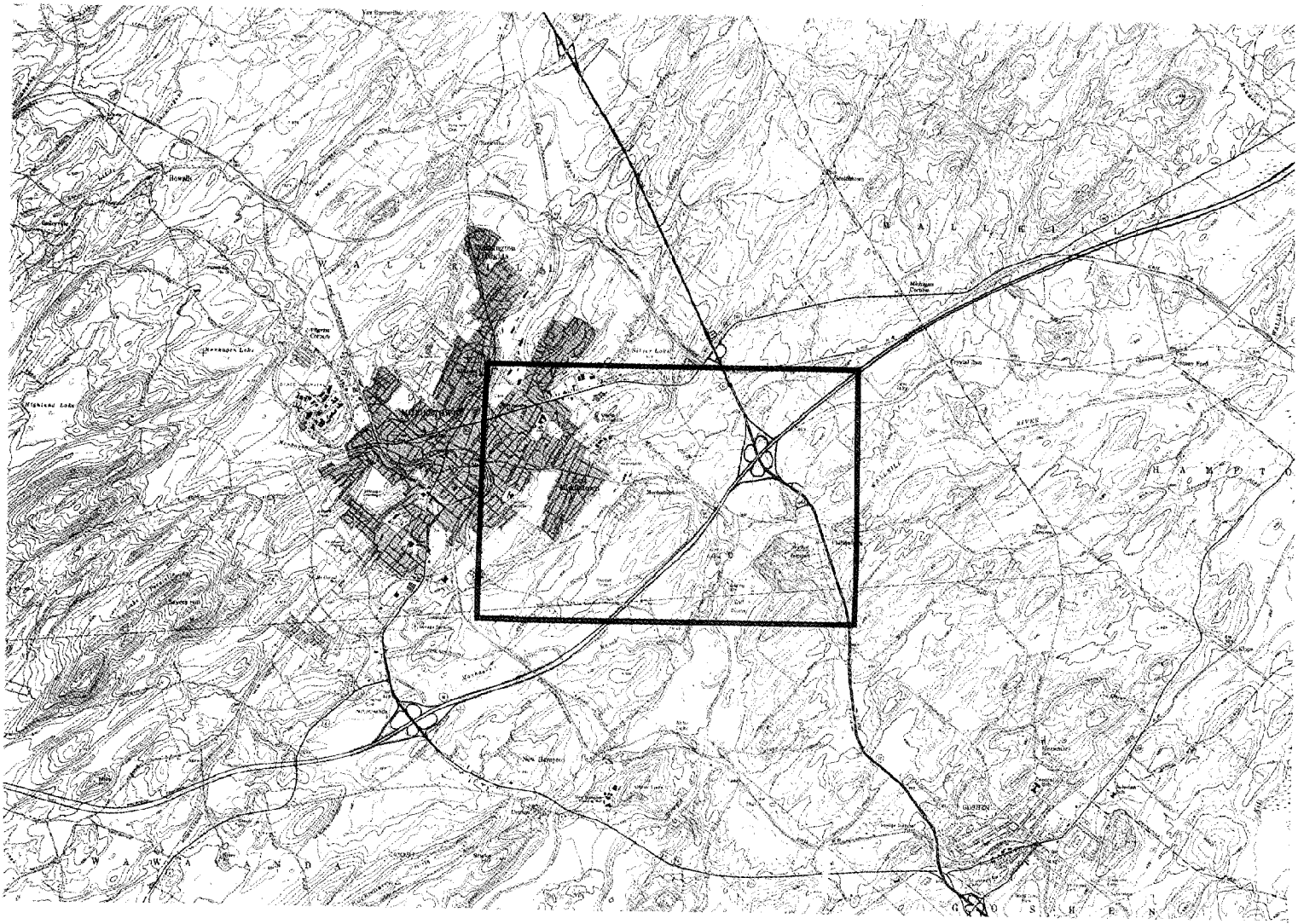
THE FOLLOWING CASE STUDY IS AN EXAMPLE OF HOW ENVIRONMENTAL PLANNING AND DESIGN FOR STRATEGIC AREAS SHOULD BE CARRIED OUT. IT DOCUMENTS STEP-BY-STEP THE ANALYSES, PLANNING AND DESIGN STUDIES FOR AN ACTUAL PROJECT LOCATED IN A STRATEGIC AREA IN ORANGE COUNTY, NEW YORK.

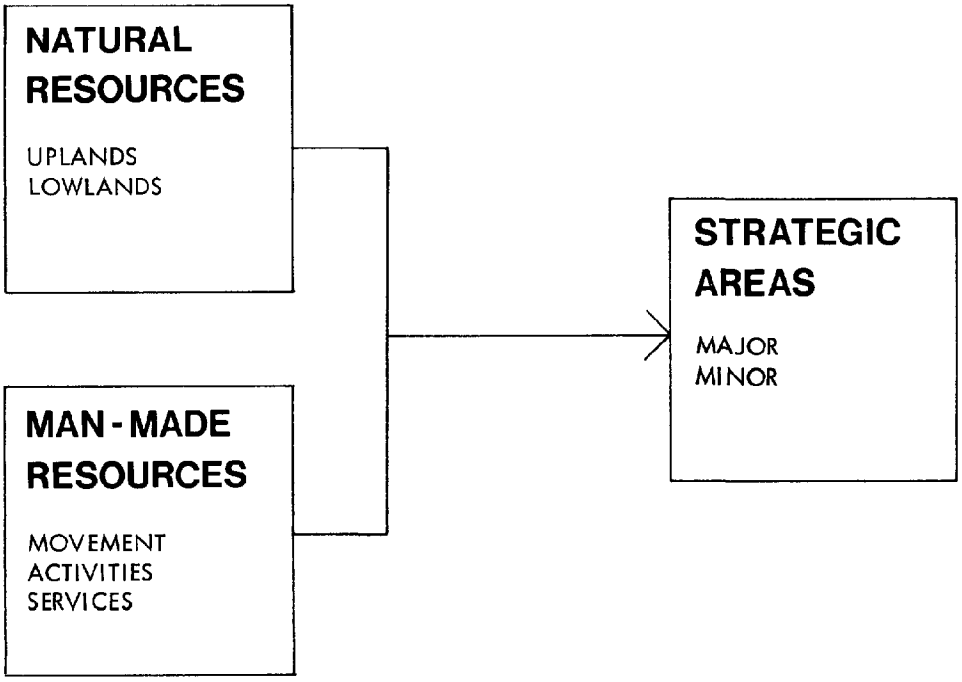
REGIONAL SCALE

LOCAL SCALE

SITE SCALE

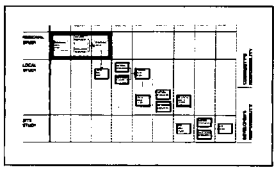
- NATURAL RESOURCES
- MAN-MADE RESOURCES
- DESIGN PROCESS





The purpose of regional study is to establish the main functional relationships of each area of the Town: it's relationship to the natural and man-made resources that determine accessibility to transportation and utilities. These factors should be the initial determinants of strategic areas. If an area cannot be demonstrated to have at least the potential for these significant advantages, it is probably not a candidate for major intensive development.

The regional study should be Town-wide in scope, or should encompass the main forces influencing development in the Town. It should be carried out by the Planning Board in conjunction with the County Planning Department. The result should be a map showing the location and extent of all major factors with conclusions drawn as to the areas that should receive the greatest impact and require more detailed study.



REGIONAL SCALE

NATURAL RESOURCES

UPLANDS

LOW HILLS & TERRACES

LARGE HILLS

RIDGELINES

LOWLANDS

FLOOD PLAIN

TERRACES & DEPRESSIONS

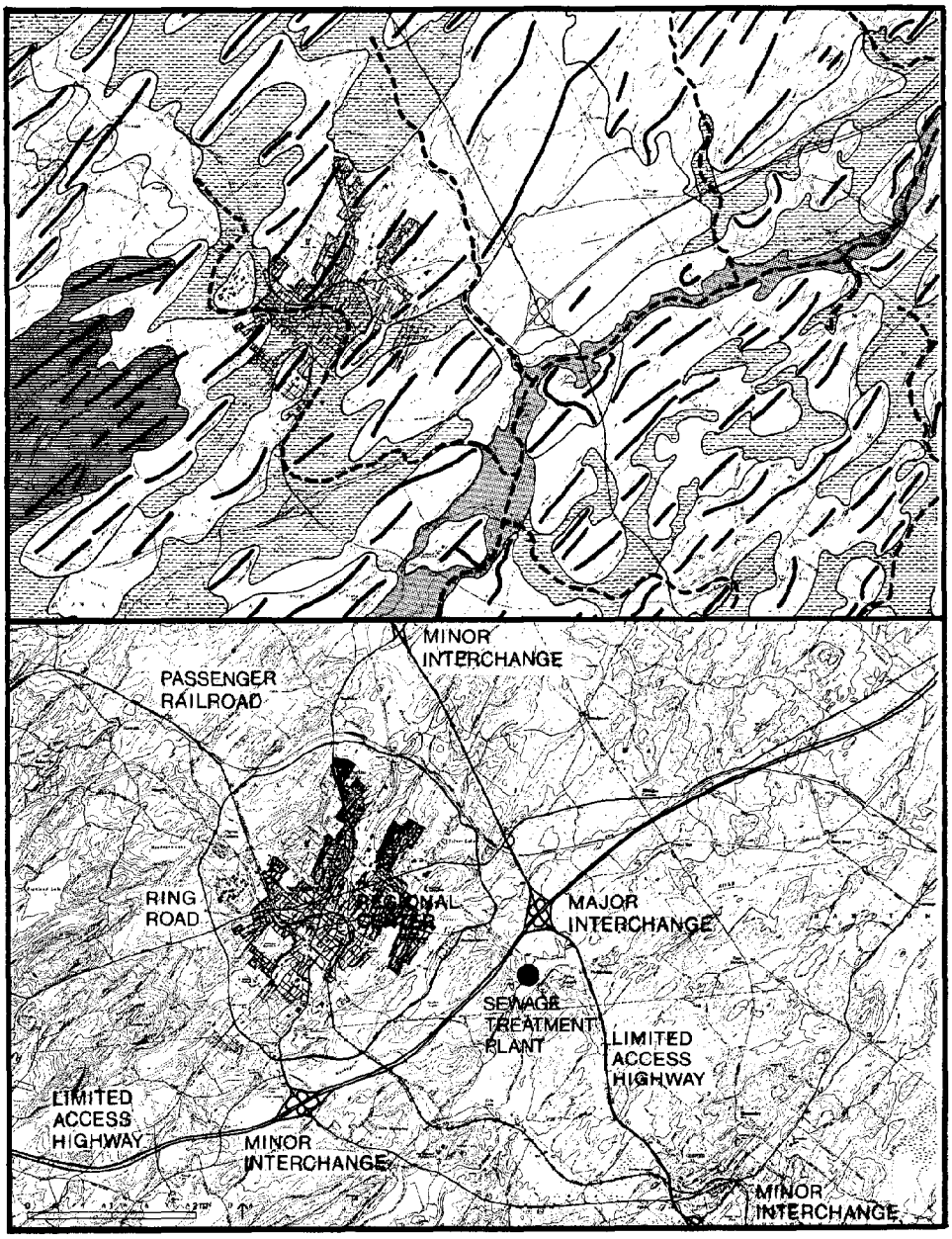
DRAINAGE LINES

MAN-MADE RESOURCES

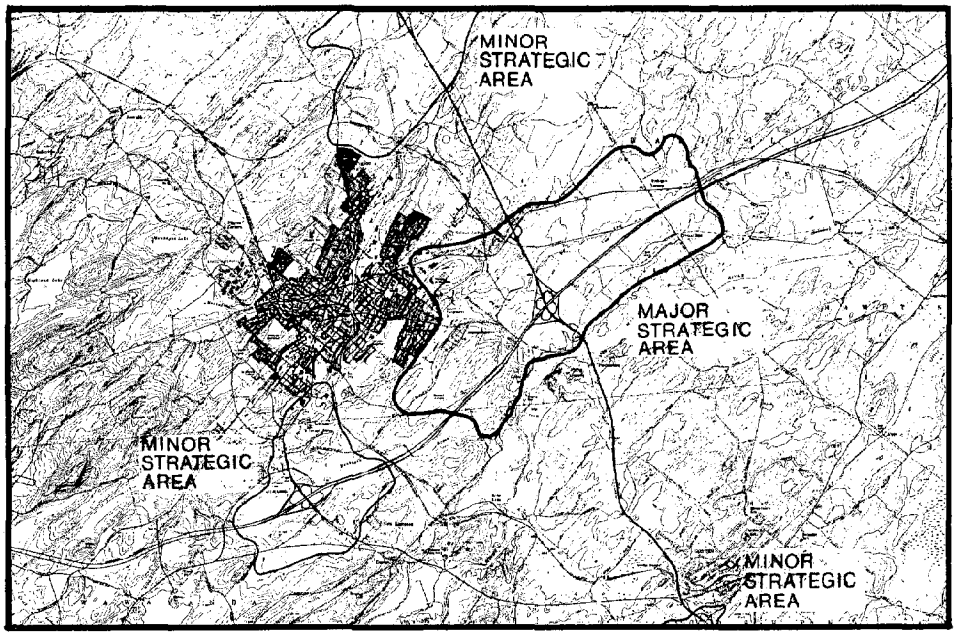
MOVEMENT

LIMITED ACCESS HIGHWAY

ARTERIAL



STRATEGIC AREAS

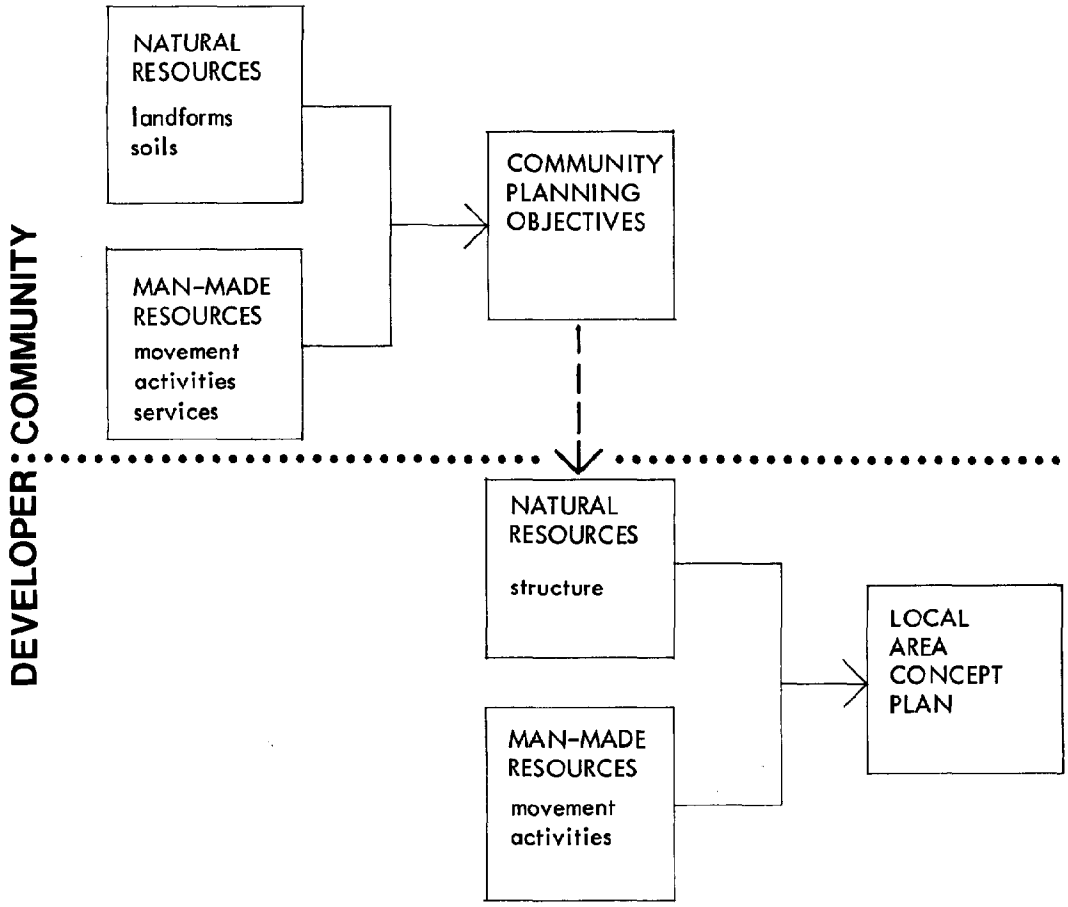


STRATEGIC AREAS

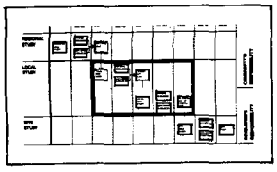
The strategic area is designated primarily on the basis of topography and accessibility - the land is of a type that is largely suitable for development and located so that it can be well served by roads and utilities. The area is in an undeveloped part of a Town, between a highway interchange and a city. The Town has experienced intensive and somewhat unorganized commercial development around another interchange and a great deal of scattered residential development. There is considerable pressure for additional development in locations that are difficult to service. The growth projected seems formidable to the Town even though the densities set by zoning are relatively low. The Town has unintentionally encouraged development of commercial strips and residential sprawl which are destroying its rural image. It has not channelled development into logical areas and a well organized framework. This project offers the opportunity.

The project site is located within a strategic area. Its development will be significant to the character of the community and will set the framework for the expected future development of adjacent parcels. Rather than starting with a site plan, the strategic area will be studied as an entity to understand the problems and possibilities that should determine the physical planning of all parcels within it. The eventual site plan for each parcel will then be a component in an overall concept for the strategic area.

NEW YORK STATE ROUTE 211
Shopping Center
Cem
St Josephs Sch
High Sch
Veraldi Jr High Sch
County Fairgrounds
Masonic Creek
East Middletown
Horton Hospital
CITY OF MIDDLETOWN
OLD RAILROAD GRADE
SCHUTT ROAD
Randall Airport
INTERSTATE ROUTE 84
Golf Course
WALLKILL RIVER
Wallkill Cemetery
NEW YORK STATE ROUTE 17
TOWN OF WALLKILL
TOWN OF GOSHEN
TOWN OF WALLKILL
TOWN OF WAWAYANDA
BM 482
BM 485
BM 453
500
540
560
400
421
365
504



Because of their development potential, strategic areas are the most significant lands in a community from the standpoint of planning. Their proper planning is vital to the public interest because they will be the nucleus of new development: they must work well physically, bring necessary land uses and activities to the community and set a standard of design that conforms to the existing environment. The purpose of local study is to identify the suitability of land for development and so to establish a development pattern for the entire strategic area. This framework for development should serve as the concept behind the Planning Board's discussion with developers. It should be reflected in the Town's zoning map, and the Planning Board's procedures should permit negotiation with a developer toward a reasonably consistent goal.



LOCAL SCALE

NATURAL RESOURCES

MAN-MADE RESOURCES

LANDFORMS

- STREAM VALLEY
- VALLEY WALLS
- HILLS
- TERRACES
- DRAINAGEWAYS

SOIL CONDITIONS

- SILTY AND BOULDERY - WELL DRAINED
- GRAVELLY - WELL DRAINED
- VERY SHALLOW
- POORLY DRAINED
- FLOOD PRONE

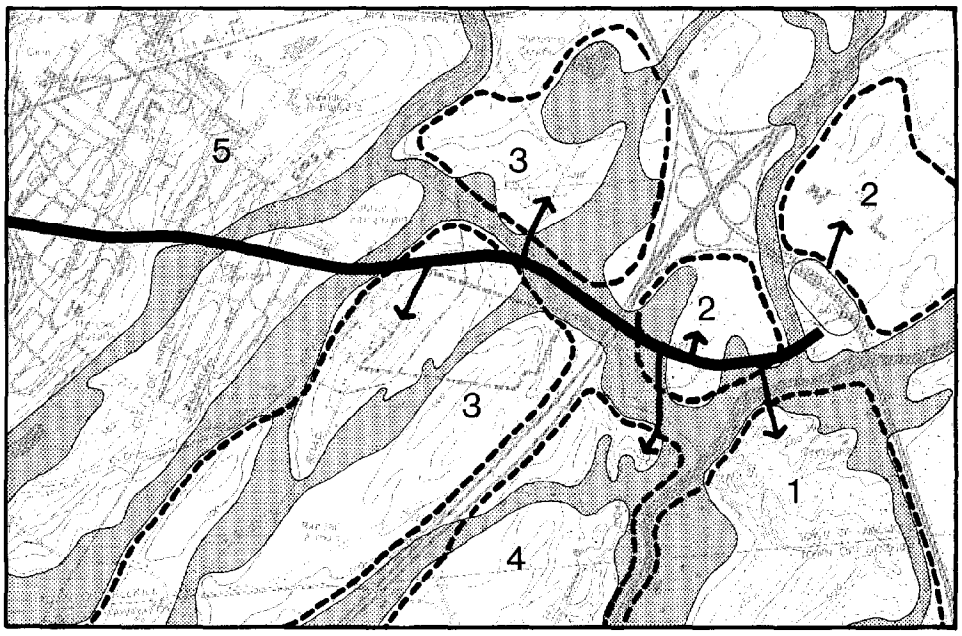
ACTIVITY

- LARGE-SCALE STRUCTURES
- SMALL-SCALE STRUCTURES
- FIELDS - UNUSED
- FIELDS - LIMITED DEVELOPMENT

MOVEMENT

- LIMITED ACCESS HIGHWAY
- ARTERIAL
- HIGHWAY EXIT
- RAILROAD
- TRANSMISSION LINE

COMMUNITY PLANNING OBJECTIVES



MOVEMENT

- ARTERIAL ROAD
- COLLECTOR ACCESS
- HIGHWAY EXIT

OPEN SPACE

- DRAINAGE NETWORK
- 1 PRESERVATION

ACTIVITY

- 2 OFFICE & COMMERCIAL
- 3 RESIDENTIAL
- 4 RECREATION
- 5 CITY
- DEVELOPMENT UNITS

Community planning objectives are based on a review of the resources of the local area. This review shows the predominant conditions of the environment that will be major factors in planning new development. The community's objectives should be to respect the inherent structure and limitations of the environment. New development should enhance the character of the community by conforming to the pattern of natural and man-made resources and following the existing structure. This will enable the community to realize its logical potential for development with the minimum likelihood of adverse impact on the environment.

NATURAL RESOURCES

STRUCTURE

DRAINAGE LINES

RIDGELINES

MAN-MADE RESOURCES

MOVEMENT

LIMITED ACCESS HIGHWAY

ARTERIAL

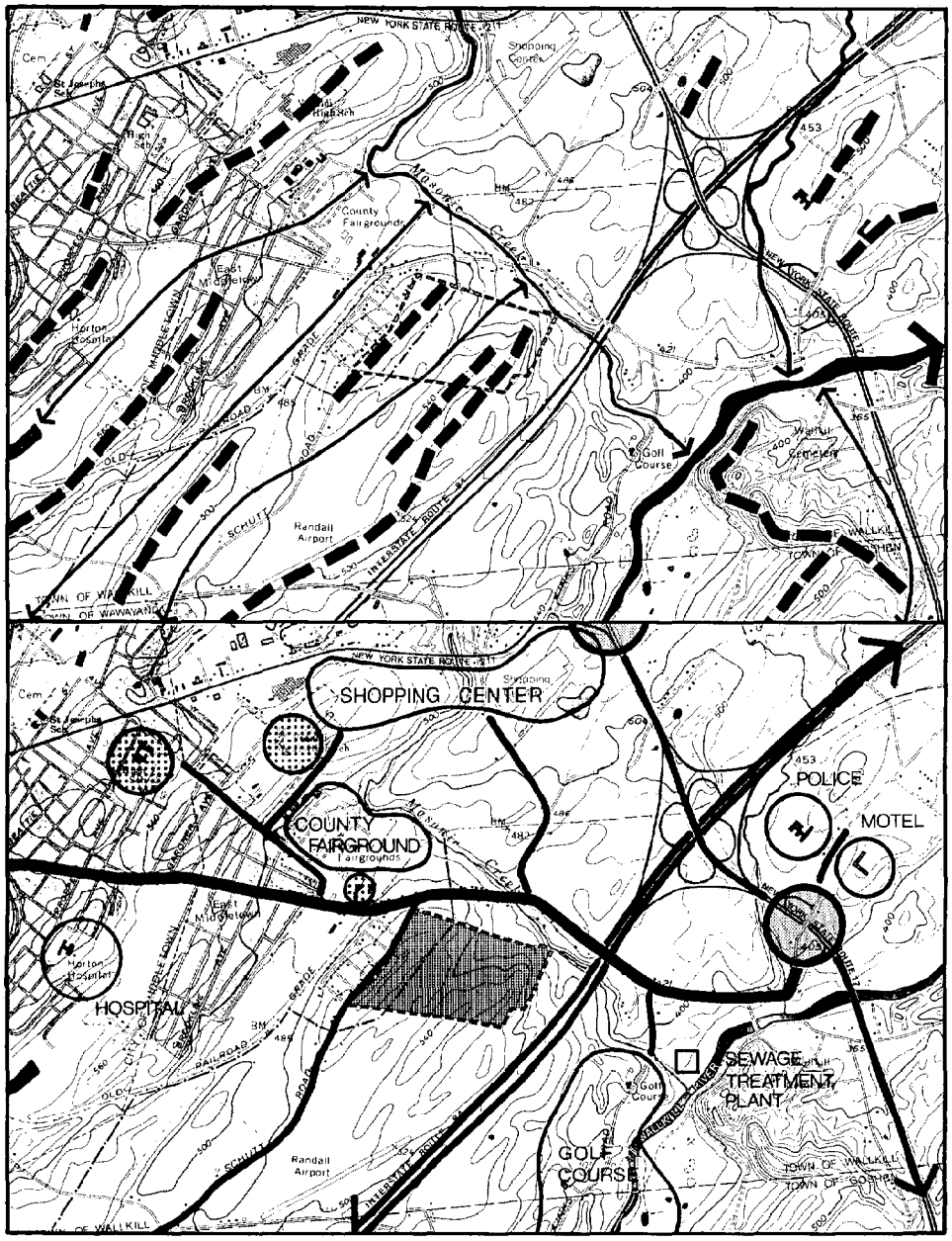
LOCAL DISTRIBUTOR

HIGHWAY EXIT

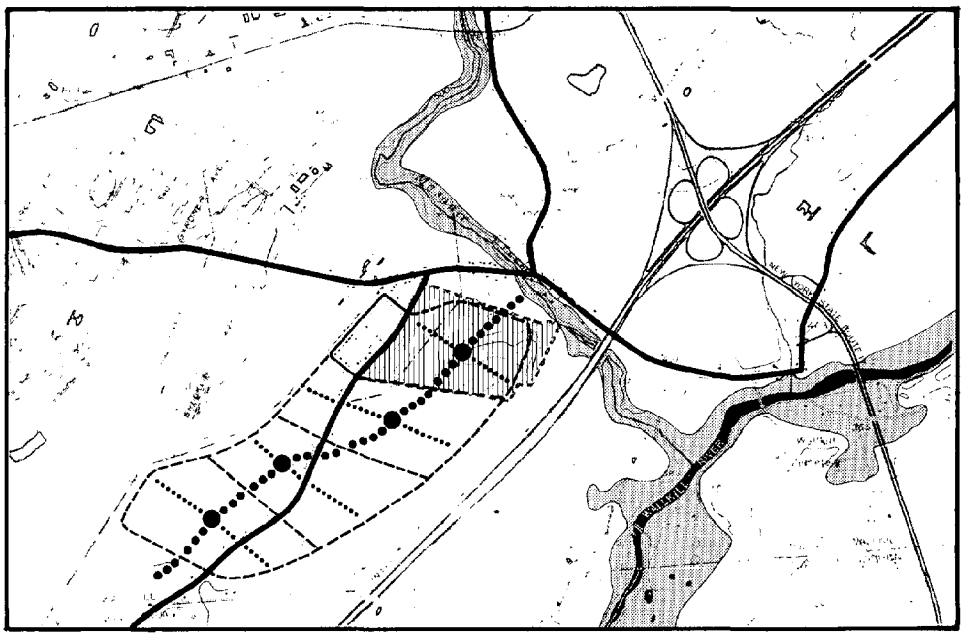
ACTIVITY

SCHOOLS

SITE



LOCAL AREA CONCEPT PLAN



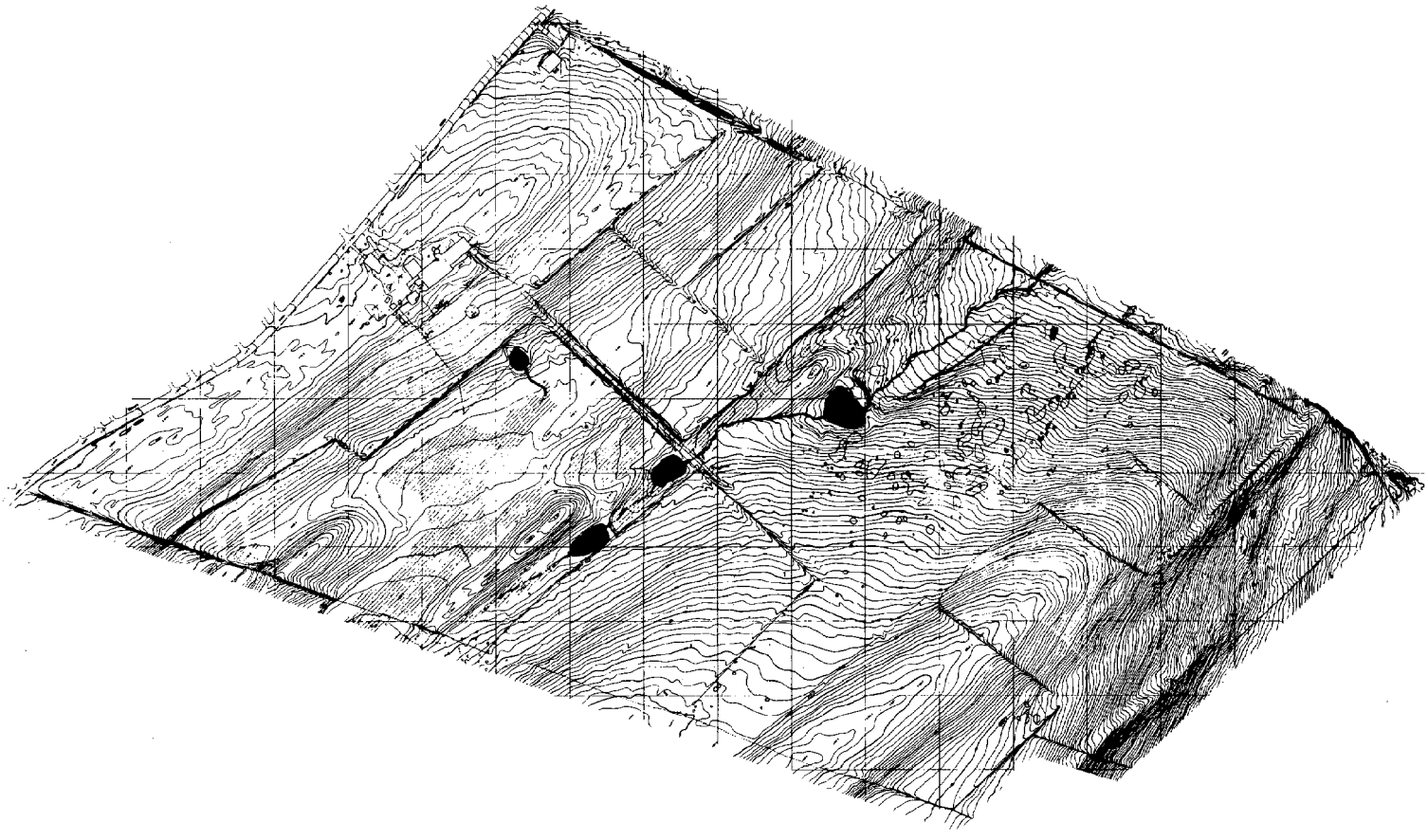
VEHICULAR MOVEMENT

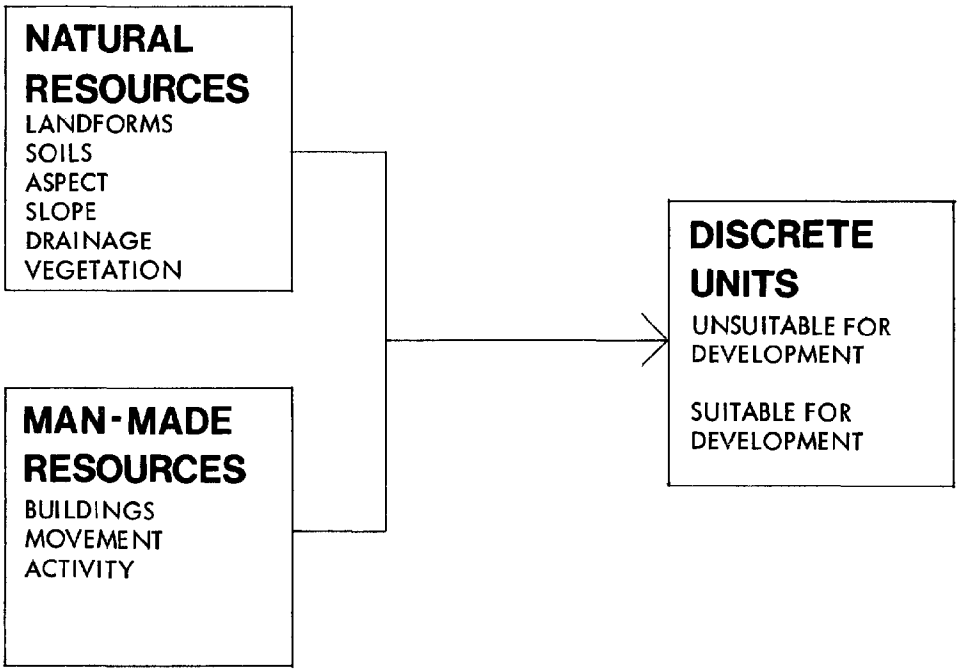
- ARTERIAL ROAD SYSTEM
- PROPOSED COLLECTOR ROAD SYSTEM

PEDESTRIAN MOVEMENT

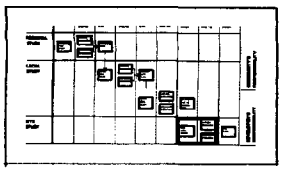
- REGIONAL OPEN SPACE SYSTEM
- LOCAL PEDESTRIAN PATH SYSTEM
- SITE PEDESTRIAN PATH SYSTEM

With the community planning objectives as a guide the components of the local area which affect the site can be roughly laid out. The developer thus knows what local area functions he must provide and how his project will be linked to adjacent parcels and services. This is a physical concept of organization and linkages, not a legal or economic concept of land use, density, profit, etc., which are the usual concepts guiding local planning. At this scale the organization of the environment is the most critical aspect of planning. The precise densities and zoning restrictions should be reasonable and sufficient to achieve this environmental concept. These can be worked out subsequently.

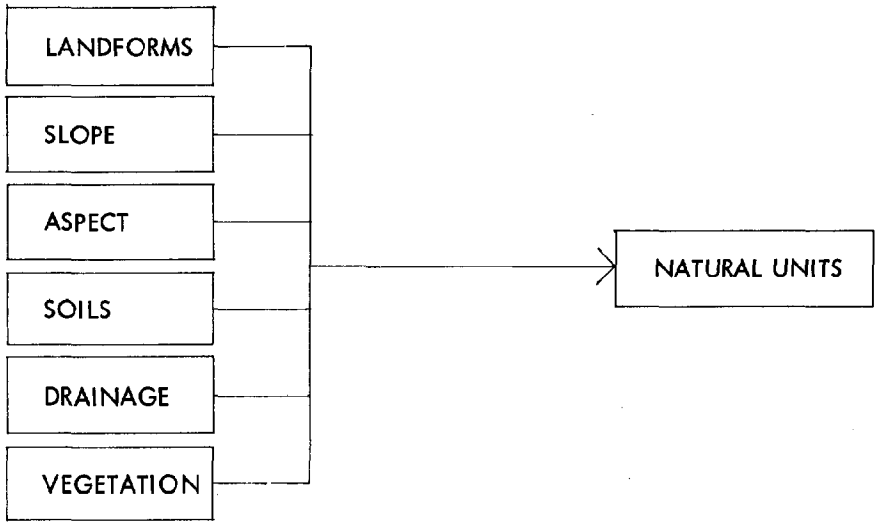




The purpose of the site study is to identify all of the factors of a site that will determine its layout and design. All work at this scale should be the responsibility of the developer, and reviewed by the Planning Board. The use and intensity should be set at the local scale on the initiative of the Planning Board. The general problems of site development and potential should be known as a result of the regional and local studies. At the site scale, the developer should be concerned only with minor variations in density and with the layout of roads, services, building areas and open space areas. The analyses at this scale produce all the information necessary to design the project within the framework set at the local scale.



SITE SCALE

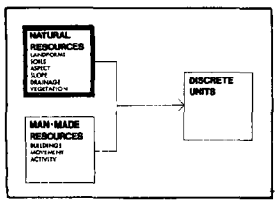


Analysis of the natural resources at the site scale establishes the extent of various constraints on use of the site, and a set of natural parameters for development. Three types of consideration are involved:

FUNCTIONS AND MANAGEMENT OF THE ECOSYSTEM
runoff and erosion
water table
streamflow and aquatic life
soil structure and plant growth
wildlife habitats and populations

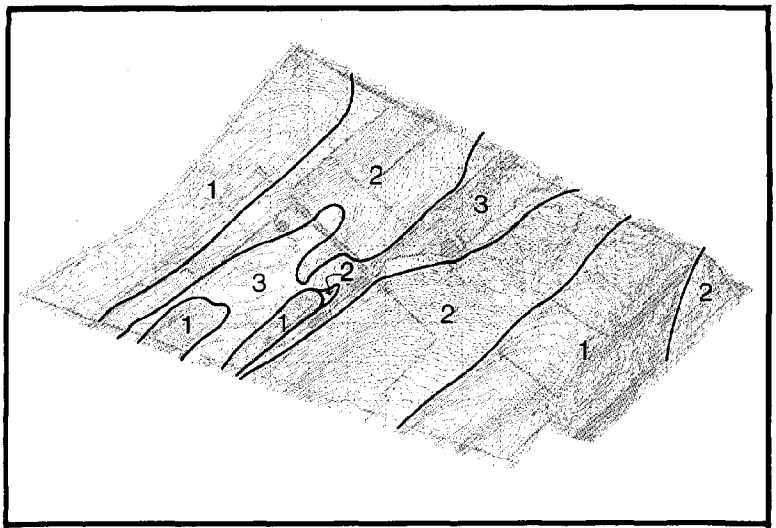
ECONOMICS OF SITE IMPROVEMENTS
foundation conditions
earthmoving and grading requirements
drainage conditions
clearing and grubbing of vegetation

VISUAL INTEGRITY OF THE LANDSCAPE
landforms
ridgelines and high points
valley lines
natural colors and forms of vegetation
vistas and visual exposure



NATURAL RESOURCES

LANDFORMS

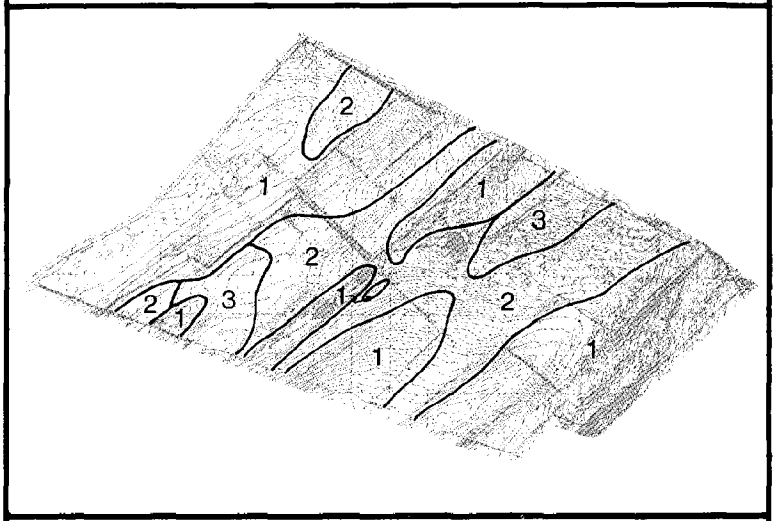


1 BEDROCK

2 GLACIAL

3 DRAINAGE

SOILS

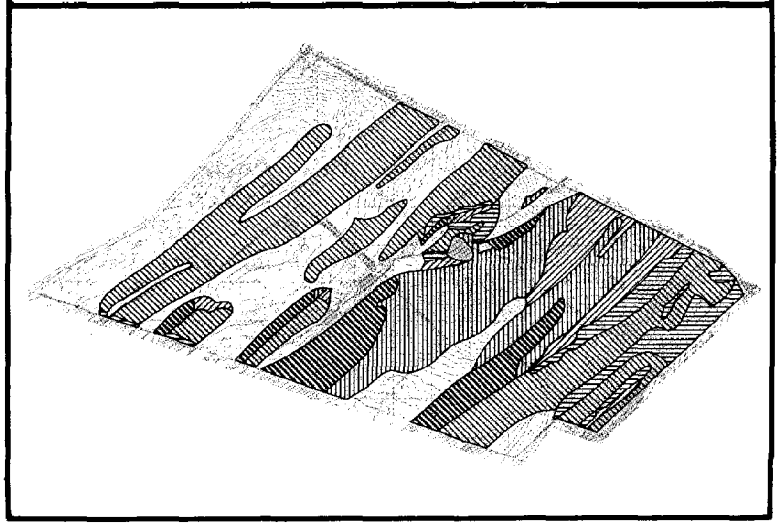


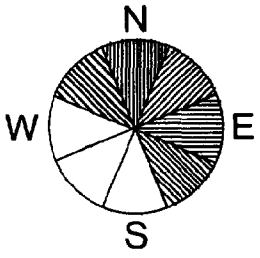
1 WELL DRAINED SLOPES OF 3-15%

2 POORLY DRAINED SLOPES OF 3-8%

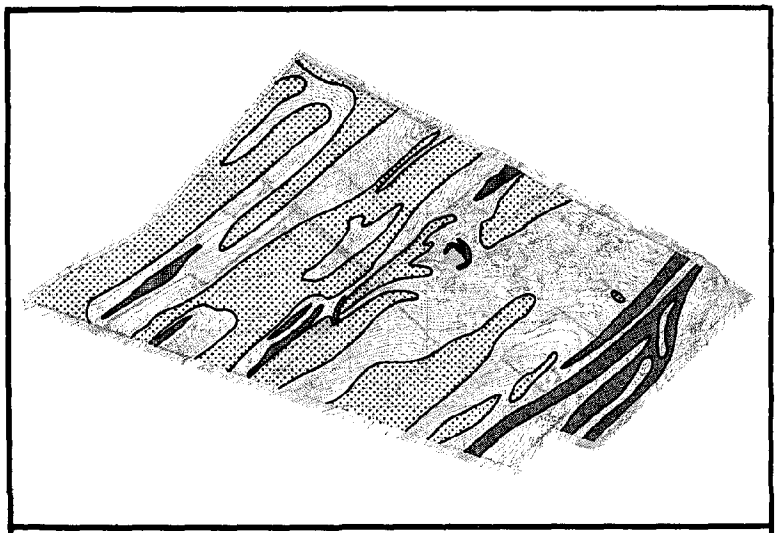
3 VERY POORLY DRAINED SUBJECT TO PONDING

ASPECT





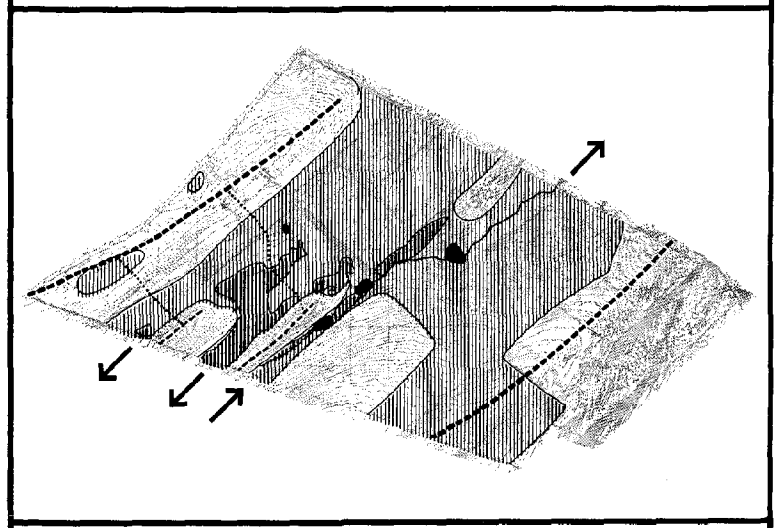
SLOPE



UNDER 5%

OVER 20%

DRAINAGE



SURFACE WATER

USUALLY WET

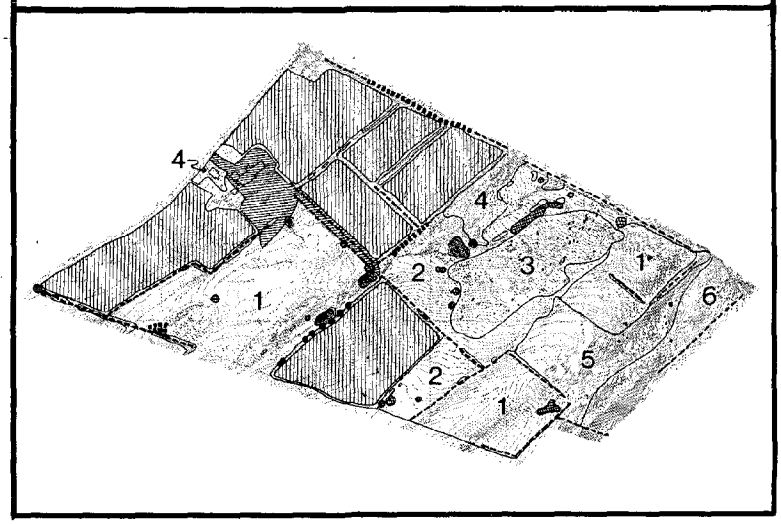
SEASONALLY WET

RIDGELINES

MINOR DIVIDES

DIRECTION OF DRAINAGE

VEGETATION



BARREN

BOULDERS

PILED ROCKS

PILED BOULDERS

DIRT

WATER

GRASS

OLD FIELD

CROP

1 PASTURE

2 DERELICT PASTURE

TREES

3 THICKET

4 SECONDARY SUCCESSION

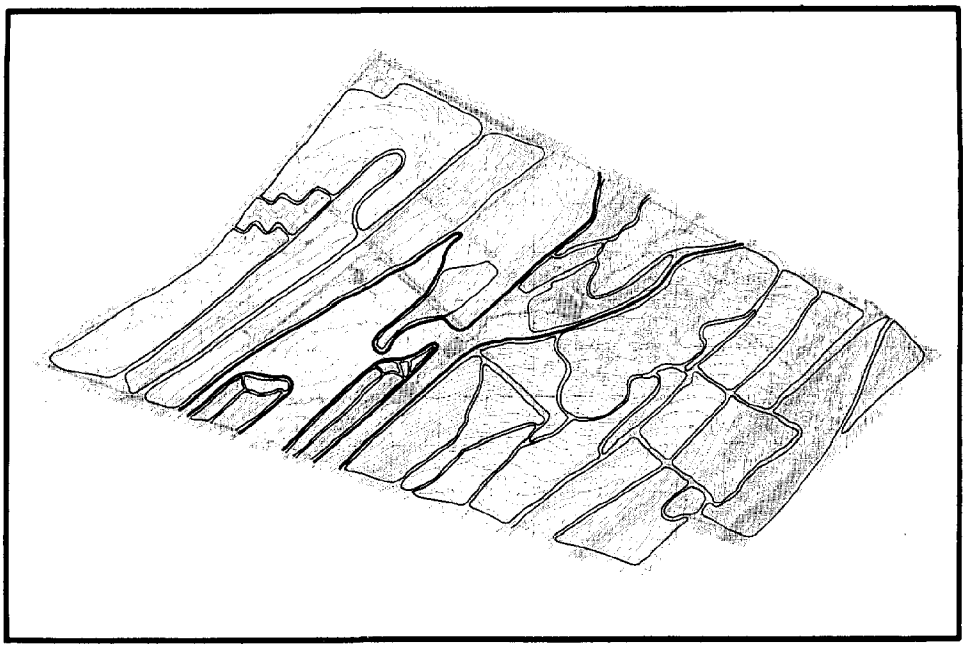
5 DOMINANT - mature SUCCESSION

6 DOMINANT - immature SUCCESSION

SINGLE TREES

BRUSHLINES

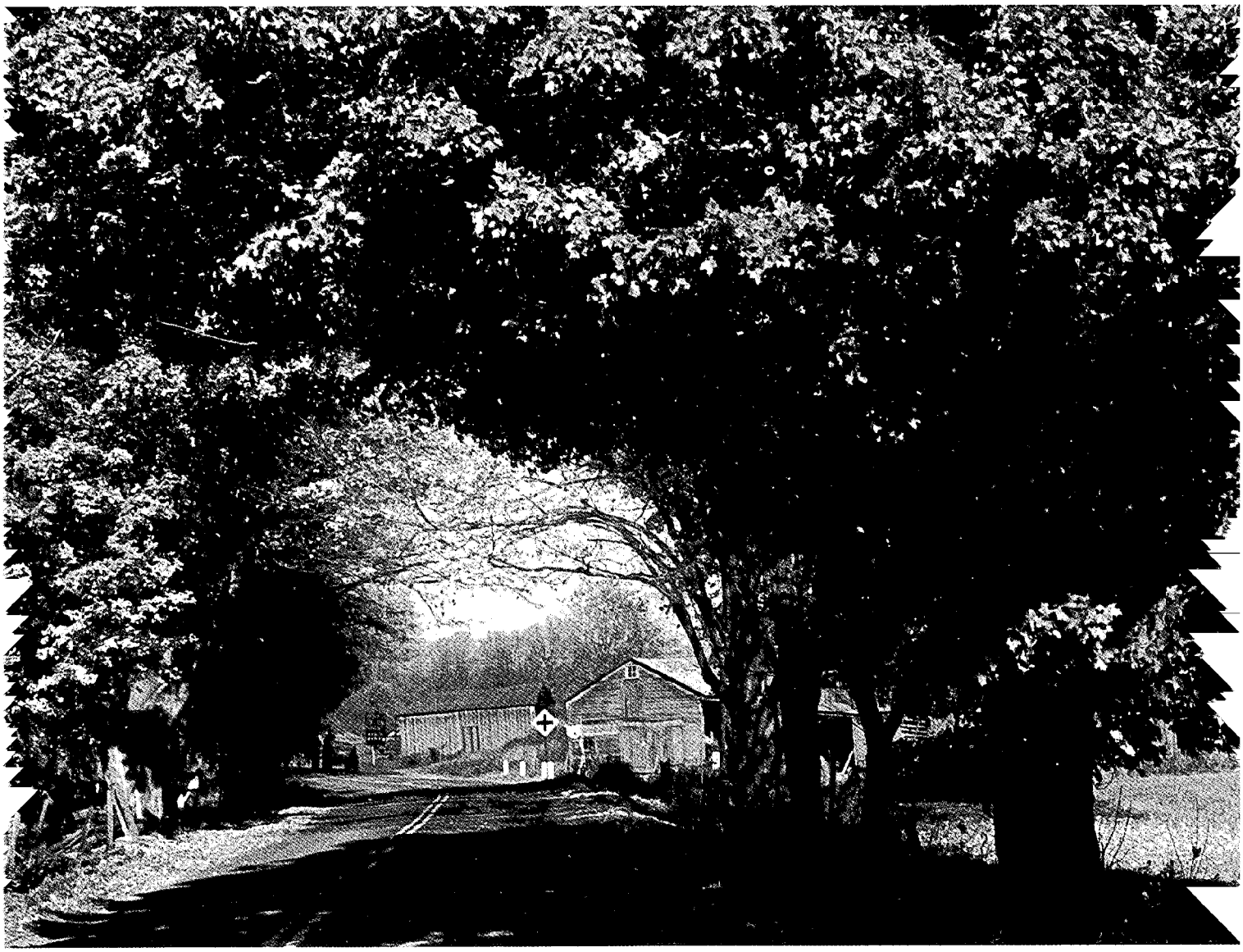
NATURAL UNITS

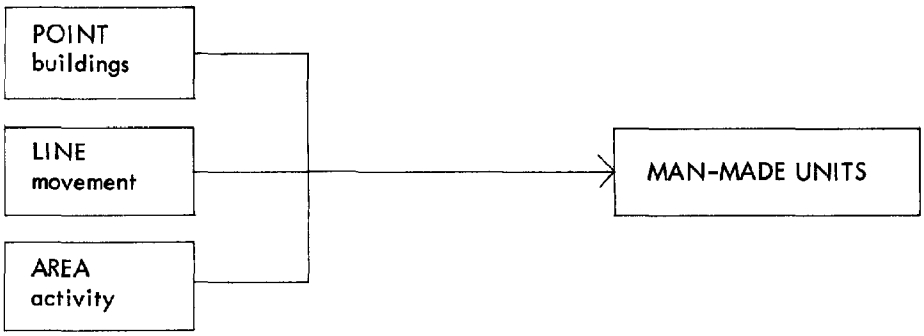


NATURAL UNITS

Combination of all the natural resource factors results in a set of units which reflects all natural variations of the site. The units express natural processes in terms of land areas. Each unit is a distinct area with a package of natural resources which determines to some degree its intrinsic character and how it can be used.

- steeply sloping areas should remain undisturbed
- ponding areas are unsuitable for housing, but can be used for recreation and occasional storage of excess runoff
- the stream will remain as the storm drainage system, but can be impounded to permit recreational use
- the remainder of the site is suitable for housing at various densities
- the area of thickets and free-standing trees should be subjected to the lowest density
- all housing areas will look downhill to a central valley of open space





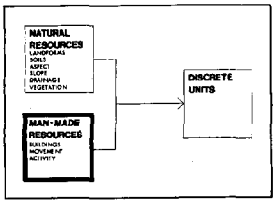
The existing pattern of uses and improvements reflects the perception and intuition of generations of farmers concerned with developing agricultural potential of the site. Analysis of the site's man-made resources reveals the logical organization of functions, which leads to a set of parameters for development which complements the natural resources:

FUNCTIONS AND INFRASTRUCTURE
drainage control structures
accessibility
public utilities
land use compatibility

ORGANIZATION AND FUNCTIONAL IMPROVEMENTS
land improvements
roads and paths
stone walls and fences

CULTURAL AND HISTORICAL
buildings
paths
landmarks

VISUAL
trees and hedgerows
spatial pattern of fields, pastures and roads
views and vistas

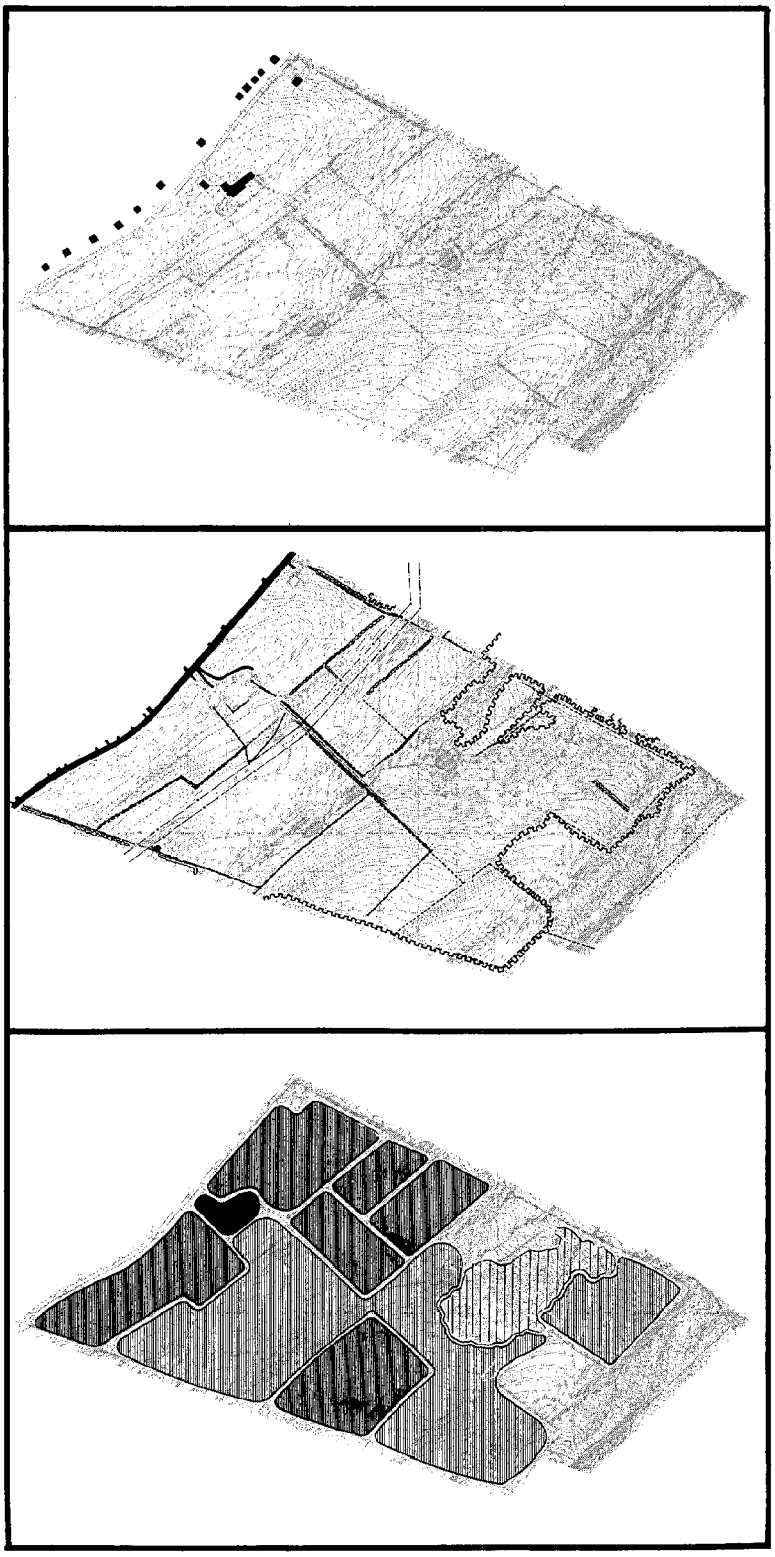


MAN-MADE RESOURCES

POINT
BUILDINGS

LINE
MOVEMENT

AREA
ACTIVITY



BUILDINGS

ROAD

DIRT ROAD

POWER LINE

FENCE

STONE FENCE

TREES

TREE LINE

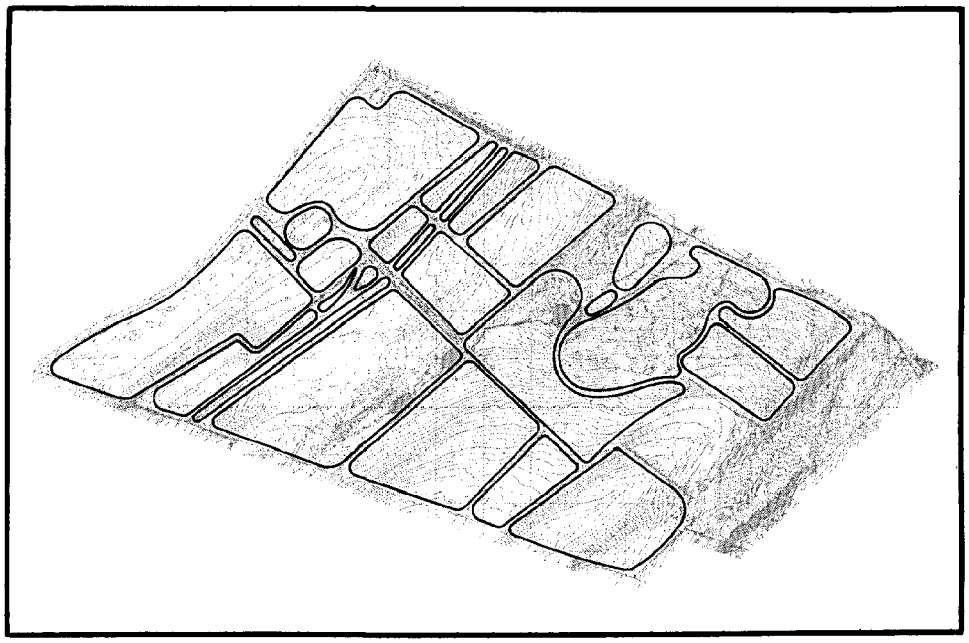
THICKET

PASTURE

FIELDS

BUILDING

MAN-MADE UNITS



MAN-MADE UNITS

Combination of the man-made factors results in a set of areas reflecting all man-made modifications of the natural resources. Each area is a distinct unit of the site that has been developed and managed for productive agriculture. The status of each unit suggests how it can be used.

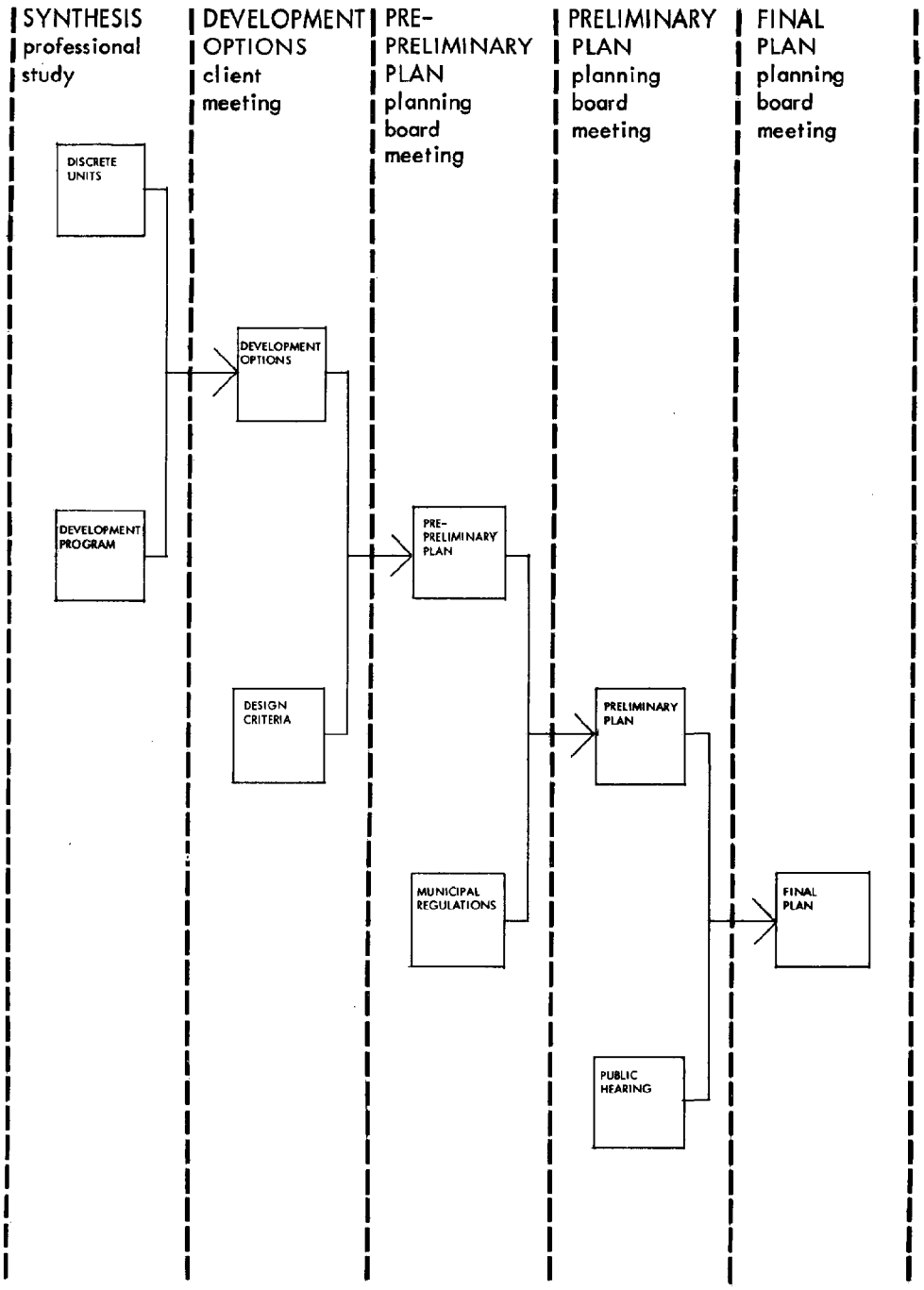
- areas that were not used for agriculture are not suited for housing
- housing is pre-empted on power line right-of-way
- the barn, farmhouse and farmyard area can be preserved and adapted to recreational purposes
- the farm road provides a strong, spinal feature for linking the units internally
- the pattern of fields and stone walls can provide a basis for defining neighborhoods or clusters of housing
- the greatest density should be located closest to the main road

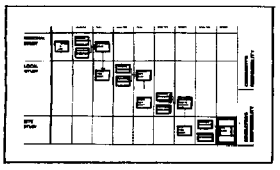
DESIGN PROCESS

In the design process, the data and interpretations resulting from the site analyses are used in evolving a final site plan. There are two aspects of the analyses that must be articulated in the design process: the identification of logical areas of the site and the identification of significant conditions. Actually each is inherent in the other, but this intrinsic relationship is easily lost in the dissecting process of analysis. The purpose of the analyses is to better understand the conditions of the site; thus a great deal of data about the site are produced. The purpose of site design is to work with the conditions of the site to achieve an environment that is consistent with these existing conditions and a physical form that is sympathetic to that which exists. The key to design is the organization of the data into manageable areas that pertain to how the site can be used. The design process involves the application of various criteria for planning and design to this basic environmental concept of the site.

The stages in development of a final plan and the inputs that are required for each stage are diagrammed on the opposite page. The detailed analyses of the environment of the site result in maps of natural and man-made units. The first step in the design process is to combine these into one set of units which comprise all significant environmental factors. These are evaluated according to land management and development criteria to indicate the type of land use pattern the site can tolerate. When the developer's program requirements are added, it is possible to outline the realistic options for development of the site. After the developer and planner have settled on a course of action, basic design criteria are followed in laying out a conceptual or pre-preliminary site plan. This plan should be reviewed by the Planning Board, or preferably its staff, to determine if the development objectives for the strategic area will be accomplished. After this endorsement, the plan is refined to comply with all local regulations and conditions. This input results in the preliminary site plan, which is reviewed by the Planning Board and by the public at an open meeting or hearing. After preliminary approval by the Planning Board, the plan is fully detailed into working drawings which show how every aspect of the project will be built in compliance with all applicable design standards and construction codes. These drawings receive the Planning Board's final approval and a building permit can then be issued.

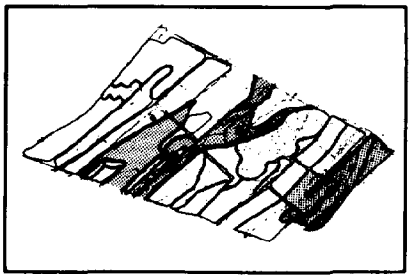
The Planning Board's contribution to development within strategic areas is completed at the end of the preliminary site plan review. The production of final plans and supervision of construction should not require changes in the planning and design concepts for a site. For the most part, the final design and construction stages are concerned with details which have an effect on the architectural and internal quality of the site, but have little impact on the community as a whole. These stages can be adequately handled by a building inspector cognizant of the Planning Board's objectives according to his usual practice. Therefore, these stages are not treated in this manual.





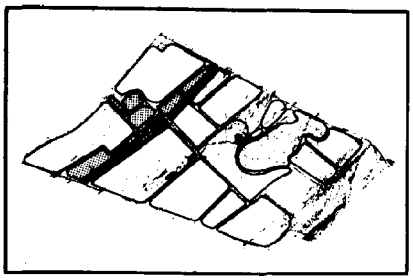
DESIGN PROCESS

The results of the natural and man-made analyses are two sets of units which delineate all existing conditions and the extent or area of each. To begin the design process it is necessary to derive a common denominator for both natural and man-made considerations. This is achieved by superimposing the natural and man-made units, which produces a map combining all units. Each resulting area is a distinct set of conditions - a discrete unit of the environment. Discrete units are a synthesis of all environmental conditions expressed in areal terms. They are the environmental divisions of the site that reflect its existing functions and character. Therefore, they are the logical building blocks of a site plan that respects the environment.



NATURAL UNITS

drainage courses and areas subject to flooding
lowland areas subject to ponding
steeply sloping land (over 20%)



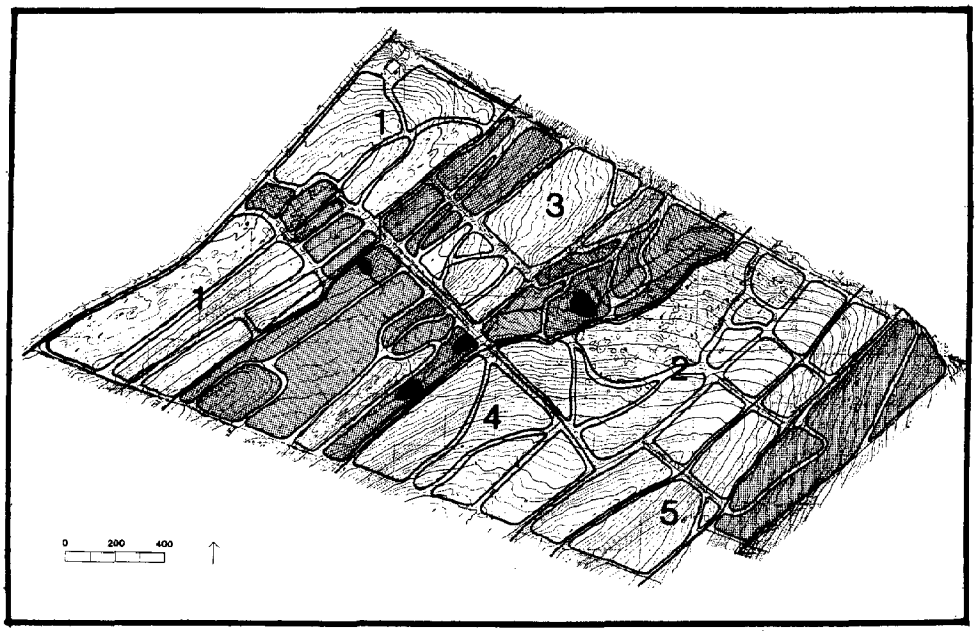
MAN-MADE UNITS

power line right-of-way
farm house and barn

The discrete units can be evaluated to determine how each should be used within the context of the total site environment. The most basic evaluation is the suitability of a unit for building. The intention of this evaluation is to protect the efficient functioning and character of the site which benefit the entire local area. In the public interest, the shaded units on the above maps are excluded from the potential building area of the site. The remaining units are generally suitable for building. They have either no serious constraints or problems, such as an occasional high water table or somewhat steep slopes, that are within the scope of normal site improvements. The factors which determine how they can be used are also derived from the natural and man-made analyses. They are:

NATURAL	MAN-MADE
SLOPE aspect earthmoving and slope stability	ACCESS roads open space views
SOIL drainage conditions foundation conditions	SERVICE serviceability community facilities
VEGETATION types condition	EDGES stone walls and fencelines hedgerows
VISUAL exposure	ACTIVITY barn rehabilitation

DISCRETE UNITS

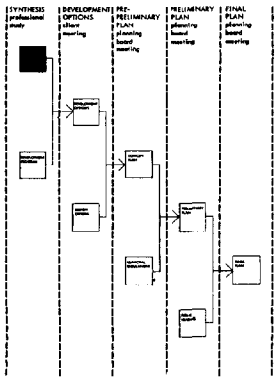


DISCRETE UNITS

SUITABLE FOR DEVELOPMENT

UNSUITABLE FOR DEVELOPMENT

In applying these factors to the discrete units, a pattern of combinations was apparent. Five combinations were derived which enabled the units to be aggregated into larger coherent areas, each with a narrow range of conditions. The characteristics of each are listed below:



1 FLAT AND GENTLY SLOPING
NW - E ASPECT
STEEP DROP-OFF TO SE
HIGH VISUAL EXPOSURE
ACCESS TO TOWN ROAD
ACCESS TO UNBUILDABLE AREA
ACCESS TO BUILDING COMPLEX
NO TREES

2 MODERATE SLOPE
N ASPECT
HIGH VISUAL EXPOSURE
ACCESS TO UNBUILDABLE AREA
SCATTERED TREES AND BOULDERS

3 MODERATE TO STEEP SLOPE
SE ASPECT
ACCESS TO UNBUILDABLE AREA
NO TREES

4 FLAT TO MODERATE SLOPE
NW - N ASPECT
ACCESS TO UNBUILDABLE AREA
NO TREES

5 MODERATE TO STEEP SLOPE
N AND SE ASPECT
HIGH VISUAL EXPOSURE
SMALL FORESTED AREA

The discrete units distinguish all environmental resources at the site scale. They reveal the range and distribution of conditions, but may be too detailed and fine in scale to be the basis for site design. Grouping the discrete units according to relative similarity of conditions provides more manageable units that are applicable to housing development. Although some generalization of detail is involved, the larger units remain consistent with the structure and the functions of the environment.

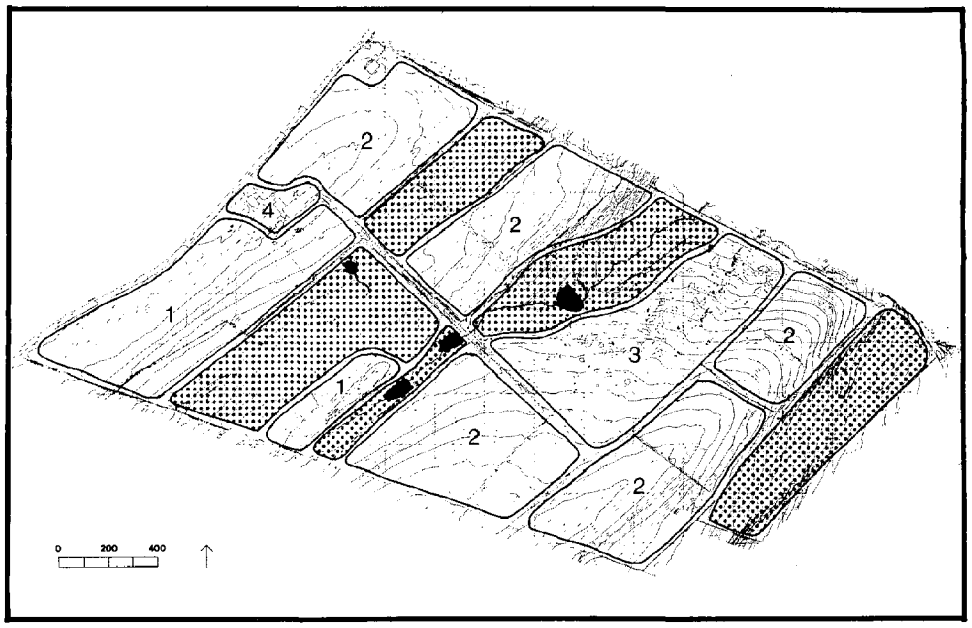
The functional limitations of the site are protected by the designation of unbuildable area, or open space. This comprises all environmental functions that are essential to the area and all serious limitations on building with the site. The open space pattern gives the design a basic environmental appropriateness; however, it is not sufficient to express the character and identity of the site. This requires , in addition, a sympathy with the physical forms: the landforms, the indigenous plants, the organization of the land and the activities upon it, and the visual or spatial coherence that results from all these factors. This element of sympathy is provided by the structure and characterization of buildable areas. The characterization indicates the basic quality of the area with which the proposed use must be compatible; the edges of the areas are the main linear elements of the structure of the site. The development program discussed below can thus be related to the most appropriate areas of the site and organized according to the same elements that give the site its present character. By this means, the integrity of the environment will be continued as the site is developed for a new use.

The land developer's main objective is to achieve a return on his investment. In most cases, he has purchased land at a price based on the return to be expected under the local zoning designation. The zoning thus, in effect, requires the developer to build a minimum number of dwelling units in order to make a profit. Under the flexible provisions of a Planned Unit Development, a mixture of housing types may be provided. Each type has different land requirements, and a different value in terms of its selling price for the developer. A mixture of housing types, therefore, requires a different number of dwelling units in order for the developer to realize the same value. The developer decides on the percentage of each housing type according to his evaluation of the housing market. In this case the most feasible mix was 30% apartments, 60% town houses and 10% single family detached houses. The next step is to determine the number of each type according to the zoning and the conditions of the site.

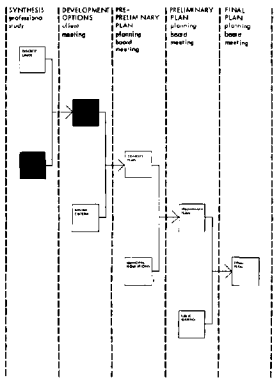
The site has an area of 90 acres; it was zoned for 10,000 square foot single family lots which yield about 2.5 dwelling units per acre. The zoning, therefore, permits 225 detached, single family units on the site. As a P.U.D. the number of units of each type is determined by dividing the permitted number of units by the desired mix. In order to compensate the developer for the lower unit value of multi-family units, the number of garden apartments is increased by a factor of three and the number of town houses is increased by a factor of two. The total number of dwelling units is then 494.

	% of permitted number of units	number of units	P.U.D. unit increase factor	maximum number of units permitted
APARTMENTS	30	67	3	201
TOWN HOUSES	60	135	2	270
SINGLE FAMILY HOUSES	10	23	1	23
TOTAL	100	225		494

DEVELOPMENT OPTIONS

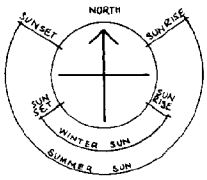


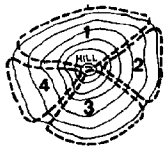
		ACRES	DENSITY FACTOR	# UNITS
1	APARTMENTS	13	12	156
2	TOWN HOUSES	36	8	288
3	SINGLE FAMILY HOUSES	14	2.5	35
4	RECREATION	1		
	OPEN SPACE	31		
	TOTAL	90	5.3	479



The developer and his consultant then consider the options for distributing this number on the site. By using the most suitable areas for each housing type and standard densities for each type, a total of 479 units was the maximum feasible number. This was acceptable to the developer; in other cases options such as greater than standard densities, major site improvements to enlarge the areas of suitable land or changes in the desired housing mix may be considered in reaching an acceptable program. By following the P.U.D. option the developer achieves a greater number of units, a desirable mix of housing types and the necessary flexibility for a high quality of design. The Town achieves a relatively intensive development, appropriate for a strategic area. In addition an important segment of a Town-wide open space system is secured at no cost to the Town.

The map resulting from the development options step provides a concept for the location and intensity of uses on the site. This concept for design of the site is developed into a desirable physical layout by the application of design criteria. Below is a list of criteria for determining building types and their location and orientation on a site. These are derived from basic principles of the effects of the environment on buildings and activities.



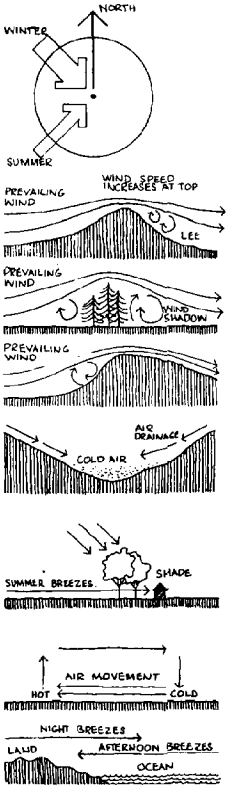


SUN

desirable slope orientation
- winter morning and afternoon south-east to south-west
- summer early morning and late afternoon east, west

undesirable slope orientation
- winter west, north, east
- summer south-east to south-west

aspects of the sides of a hill
1 cold side
2 cool side morning
3 hot side (summer)
4 warm side evening



WIND

desirable summer breezes
undesirable winter prevailing winds

buildings
insulate to protect from cold winds and open to allow winds to cool in summer

locate buildings on the lee side of the hill to protect them from winter prevailing winds

locate buildings or plant hedgerows or tree buffers to protect them from prevailing winter winds

the most desirable location for building with respect to wind and hills also depends on the shape of the hill

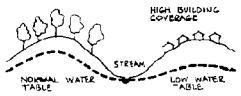
cold air accumulates in valley floors and then tends to move down the valley this is particularly a night-time effect

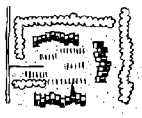
plant trees to protect buildings from summer sun but allow for breezes

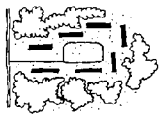
deciduous trees are desirable as they provide shade in summer while letting the winter sun through

hot air rises causing the air from colder areas to move in under the rising hot air this process causes a circular movement with air moving from cold areas to hot areas

design buildings and layouts to take into account the daytime and night-time direction of air movement







DRAINAGE

maintain natural, surface drainage system

provide storage for excess runoff in lakes and temporary ponds

avoid building in flood plains (conform to the national flood insurance program)

locate structures in areas that are not prone to natural disasters or build structures that can withstand the natural disaster (e.g. hurricanes, tornados, earthquakes, tidal inundation, mudslides, erosion, floods, subsidance, etc.)

SOILS

structural quality of the soils should determine type of construction

maintain soil as a fertile medium for plant growth

minimize earthmoving requirements

restrict construction areas and movement of heavy machinery to avoid unnecessary soil compaction

stockpile topsoil from excavated areas for reuse after construction is completed

provide subgrade drainage of all wet soils, discharging into surface drainage system

maintain water balance and water table by avoiding compaction of soil, massive regrading and high coverage (causing excessive runoff)

VEGETATION

utilize existing tree patterns
- lines
  maintain scale, rhythm and form of hedgerows and other linear elements

- areas
  large scale structures relate well to large masses of trees, woods or forests

  areas can be cleared creating tree masses to relate to building complexes

- points
  scattered clumps and individual trees relate well to single family houses

  build in woods rather than treeless fields

maintain visual continuity by avoiding indiscriminate tree planting

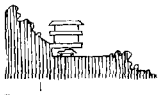
maintain habitats for wildlife by instigating a vegetation management program

new tree plantings should complement existing trees to be preserved

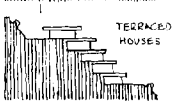
TOPOGRAPHY

design and place buildings so that they follow contour lines and relate to the form of the terrain

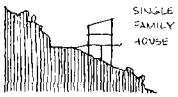
build on the sides of hills not on the top so that the form of the natural feature will be protected



use slopes to create parking spaces under buildings

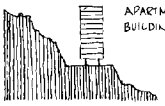


on steep slopes design buildings for that unique condition



imposed structures may hug the slope

stand completely free



rest on a platform

avoid high land coverage on rough, unique and/or steep terrain. it is possible to keep the same floor area ratio while minimizing the coverage by building multi-story structures

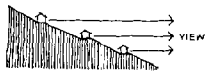
unique soil conditions or fragile ecological system such as sand dunes require designs that do not disturb the natural system

preserve natural features such as rock outcrops, trees, etc. rather than "improving" them for ease of construction

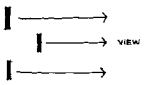
	SLOPE	CONDITION AND SITE IMPROVEMENTS	SUGGESTED TYPE OF RESIDENTIAL USE
	flat	requires regrading and underground drainage system	
	0%-5%	best left with no major development or construction	recreation open space
	gently sloping	*most development* can be sited with minor reshaping of land	all housing types
	3%-10%	generally good for building	single family houses
	rolling	low retaining walls may be required around roads and parking areas	
	5%-20%	generally good but less coverage	town houses
	steep	very high or tiered retaining walls may be necessary to accommodate grade changes – minimize land coverage	no parking lots
	15%-30%		apartments
	very steep	foundations and retaining structures are usually prohibitive in cost	
	over 30%	avoid building and construction of all types	open space

note the suggested residential use is only meant as a guide and is based on land coverage and access only – combinations and/or changes can be made

VISUAL

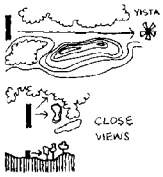


buildings located on a slope can take advantage of the view as long as the lower buildings are kept under the line of vision of the one above

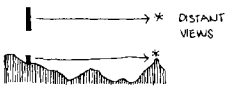


buildings on flat terrain have to be placed so they do not block the view

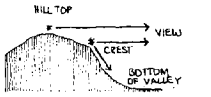
when the terrain offers no view the *buildings should be placed so that an* internal or contained view becomes significant



place buildings to take advantage of vistas or to create vistas

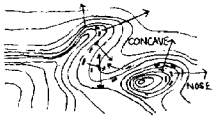


design and place buildings to take advantage of both close views and distant views



the brow or crest of a hill is a more critical location than the top of the hill as it offers views down the hill into the valley as well as distant views out

make use of visual elements when designing paths, roads, etc.

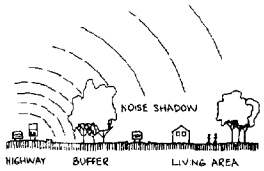


hollows or concave slopes are enclosed, sheltered, oriented internally or to a focused view

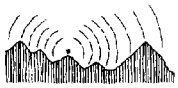
noses or convex slopes are exposed, expansive, oriented outward to a general view

avoid crossing prominent landforms with roads or other man-made structures *therefore maintaining the identity or integrity* of the features

SOUND



create a buffer between living areas and noise source



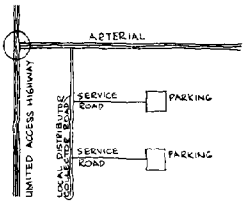
avoid prominent sites for projects that generate a lot of noise e.g. industry, highways, airports, etc.

noise reverberates through and along valleys

noise travels very well across water bodies

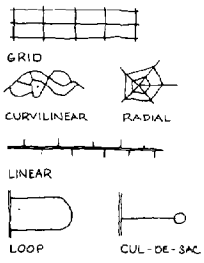
The design criteria on this page cover basic principles of organization of buildings and access into a coherent system or pattern for a site. These principles should be combined with the site derived criteria from the previous two pages in the design of a conceptual site plan.

MOVEMENT PATTERN



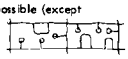
create a hierarchy of roads each with a clearly defined function

- limited access highway (interstate) inter-city, high speed, no development, grade separated interchanges
- arterial (state) intra-city or county no development
- local distributor (county or town) slow moving sidewalks some frontage access
- service road (minor street) building access sidewalks no through traffic



avoid through traffic in residential neighborhoods by the correct selection of street pattern

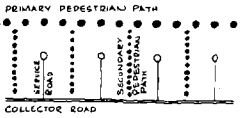
no hierarchy of roads created through traffic is possible (except within the pattern)



patterns o.k. for collector systems but not so good for residential neighborhoods

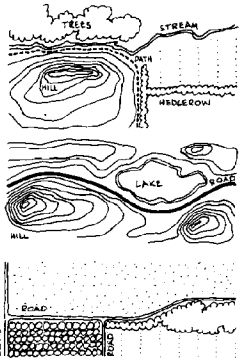
hierarchy created but allow for too much access i.e. causes strip development

through traffic not possible therefore good for service roads in residential neighborhoods



separate vehicular and pedestrian movements

separate the functional uses of roads and paths (trucks, busses, bicycles, children, idle strollers, etc.)

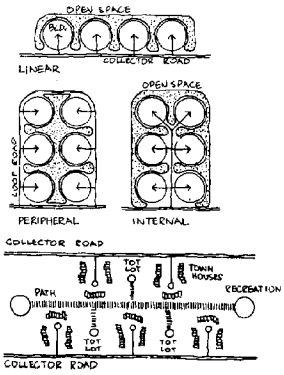


walkways and paths should follow natural and/or man-made edges and linear elements

roads and paths should follow contour lines and other natural features

roads should follow established man-made or natural patterns, forms, edges and lines

DEVELOPMENT PATTERN



create an organized pattern of roads, open space, paths, land use and activities

distribute activities according to proximity, location and linkage

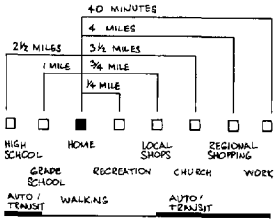
create a compatible environment

cluster like uses

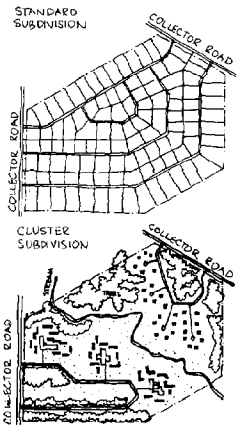
create an overall mixture of uses and type of unit for variety

avoid a mixture of uses that are not compatible - e.g. heavy industry and residential

create an environment that is in sympathy and harmony with the natural and man-made resources of the area

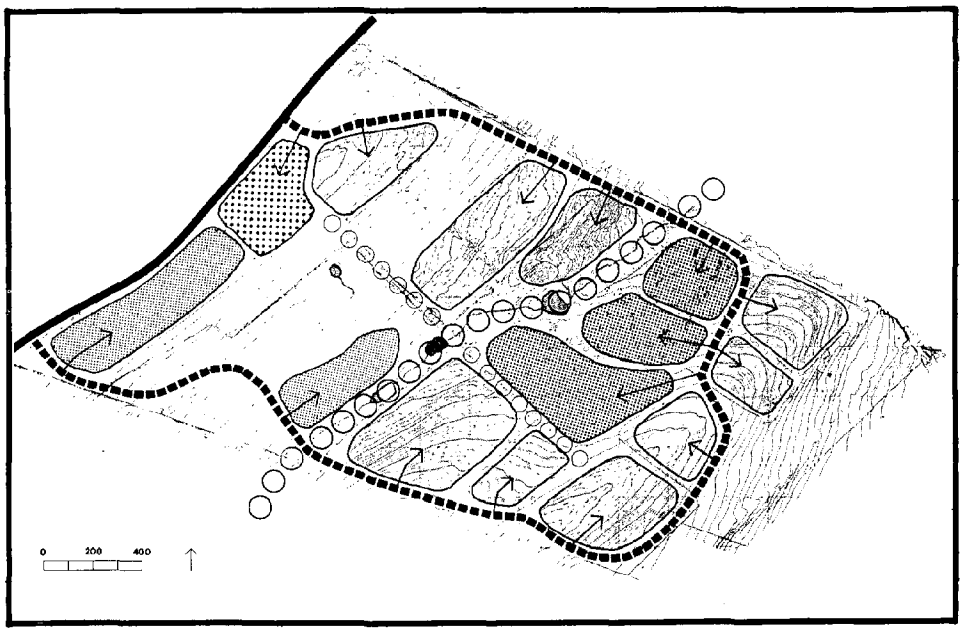


create residential developments with identifiable neighborhoods with a good relationship to all other activities



residential and other uses should be clustered to preserve natural features and to create a harmonious living and working environment

PRE-PRELIMINARY PLAN



VEHICULAR MOVEMENT

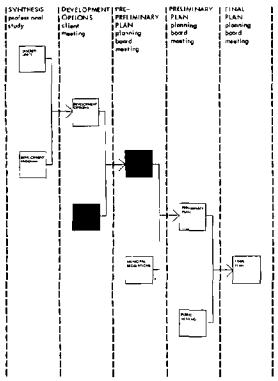
- EXISTING ARTERIAL
- PROPOSED LOOP COLLECTOR ROAD
- PROPOSED SERVICE CUL-DE-SAC

PEDESTRIAN MOVEMENT

- LOCAL PATH
- PROPOSED MAJOR PEDESTRIAN SPINE

ACTIVITY

- APARTMENTS
- TOWN HOUSES
- SINGLE FAMILY HOUSES
- RECREATION
- OPEN SPACE



The pre-preliminary plan is a schematic drawing showing the organization of all of the major components of the development according to design criteria and the dictates of the site. The size and relationship of all building and open space areas and the vehicular and pedestrian access routes are set. These provide the structure for the proposed development and ultimately determine its character.

The pre-preliminary plan is submitted to the Planning Board for review and comment. It does not require formal approval, but should be the basis for discussion of the development concept. Following agreement on the concept, or a modification of it, the concept can be translated into a plan in which the actual components of the project are located on the site and designed.

The exercise of control over the development of land by a community is an application of the police power of the State. The fundamental document which sets forth the powers and provisions of land use control is the State enabling legislation which empowers local government to adopt land use controls. The most commonly used controls are the zoning ordinance and subdivision regulations.

ZONING ORDINANCE

The zoning ordinance is adopted by the community for the purpose of promoting the health, safety, morals and general welfare of the community. The ordinance is a local law which regulates the use and development of all land, as follows:

- dividing the community into districts
- density of population
- location and use of buildings, structures and land
- amount of open space
- percentage of lot that may be occupied
- size of yards and courts
- size of buildings
- building height and number of stories

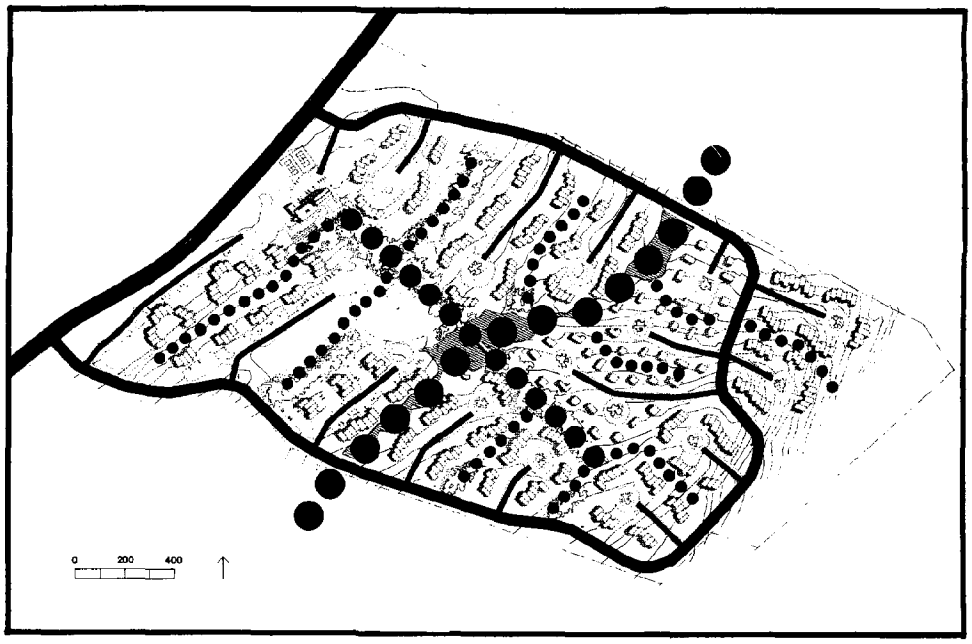
SUBDIVISION REGULATIONS

The purpose of the regulations is to provide rules, standards and procedures for the review of subdivisions by the Planning Board in order to promote the public health, safety, convenience and general welfare of the community. It is administered to insure orderly growth and development, the conservation, protection and proper use of land and adequate provisions for circulation, utilities and services. The regulations control:

- procedure for submitting plans
- design standards and specifications of streets, drainage, sewerage, water,[1] street lights, fire hydrants, fire alarm boxes, trees
- maximum block size
- right-of-way width
- pavement width
- grades of streets
- configuaration of street intersections - angles and spacing
- length of dead-end streets
- provisions for fees and performance bonds

The zoning ordinance and subdivision regulations include standards for each of the above factors, and a proposed subdivision must conform in every respect. The Planned Unit Development District is a special designation which exists in many communities. This permits mixtures of various housing and land use types. In order to achieve a more sypathetic and efficient layout, it also provides for adjustment of some of the usual standards to adapt to the conditions of the site. The Preliminary Plan on the opposite page shows the design of the site according to the Town's policies.

PRELIMINARY PLAN



VEHICULAR MOVEMENT

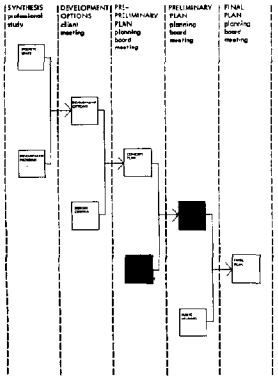
- ARTERIAL
- COLLECTOR
- SERVICE

PEDESTRIAN MOVEMENT

- LOCAL PATH
- MAJOR PATH
- MINOR PATH

BUILDINGS

- APARTMENTS
- TOWN HOUSES
- SINGLE FAMILY
- RECREATION



	NUMBER OF UNITS	NUMBER OF ACRES
GARDEN APARTMENTS	152	17
TOWN HOUSES	289	39
SINGLE FAMILY HOUSES	37	11.4
OPEN SPACE AND RECREATION		22.6
TOTAL	478	90

SITE DENSITY 5.3 DWELLING UNITS PER ACRE

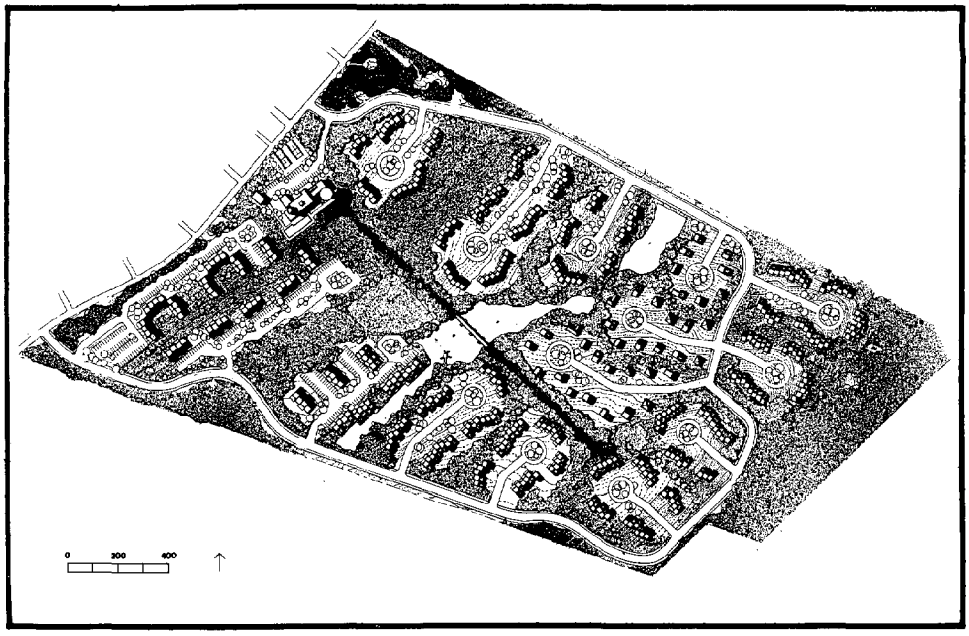
The preliminary site plan should be approved by the Planning Board. The Board's decision should follow a public hearing, which may suggest modifications to the plan. The public hearing is held after the Planning Board has accepted the preliminary plans as complete, but before it has acted on the project. The hearing offers the only opportunity for the general public to voice its concerns or endorsement of the development proposal. Under the usual present arrangement, shown on page 22, this is the public's only input into the planning process, and there is often, understandably, much misunderstanding, resistance and resentment. If a public input can be organized into the earlier stages of planning, as shown on page 24, much of this reaction could be avoided.

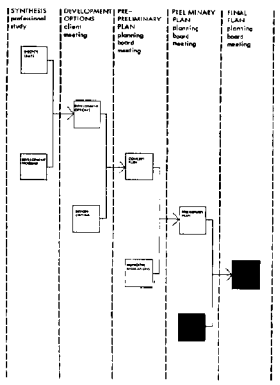
The hearing should satisfy the public that the Planning Board and other agencies have worked in the public interest. The developer and the Planning Board should demonstrate that the construction of utilities and provision of services has been well organized and coordinated with the rest of the community. The development of strategic areas should not cause economic hardship, or degrade the quality of the environment in the community. The presentation of the proposal at the hearing should be organized to show the total impact on the environment. The following chart includes a basic list of factors to be considered:

ENVIRONMENTAL CONSIDERATIONS

NATURAL RESOURCES	MAN-MADE RESOURCES
AIR ■ orientation to sun and wind ■ plantings to shade and screen ■ air quality and sources of contamination: smoke, exhaust fumes, dust, ambient air WATER ■ location in watershed ■ sources of water contamination: silt, sewage, fertilizer, road salt, refuse ■ water quality: dissolved oxygen, fish life, growths of algae and water weeds ■ flood and drought cycle ■ coverage by buildings and paving: maintenance of water table and aquifer recharge areas ■ multiple use of water resources LAND ■ organization of land use and buildings on terrain ■ soil compaction ■ soil erosion ■ disfiguring landscape by regrading ■ dumping, litter and sterilization of soil	SERVICES ■ demand for sewerage, water, schools, police, solid waste disposal, fire protection, recreation, health services ■ overburdening of utilities ■ location of utility rights-of-way: underground lines, safety, design, right-of-way management MOVEMENT ■ congestion ■ hazards to pedestrians ■ parking and circulation facilities ■ coordination of road pattern ■ fumes; contaminated runoff ■ noise ACTIVITY ■ incompatible land uses ■ visual suitability: massing, materials, color ■ functional organization of land uses ■ adequacy of land areas: density and intensity of use ■ visual pollution: solid waste and debris ■ housing maintenance

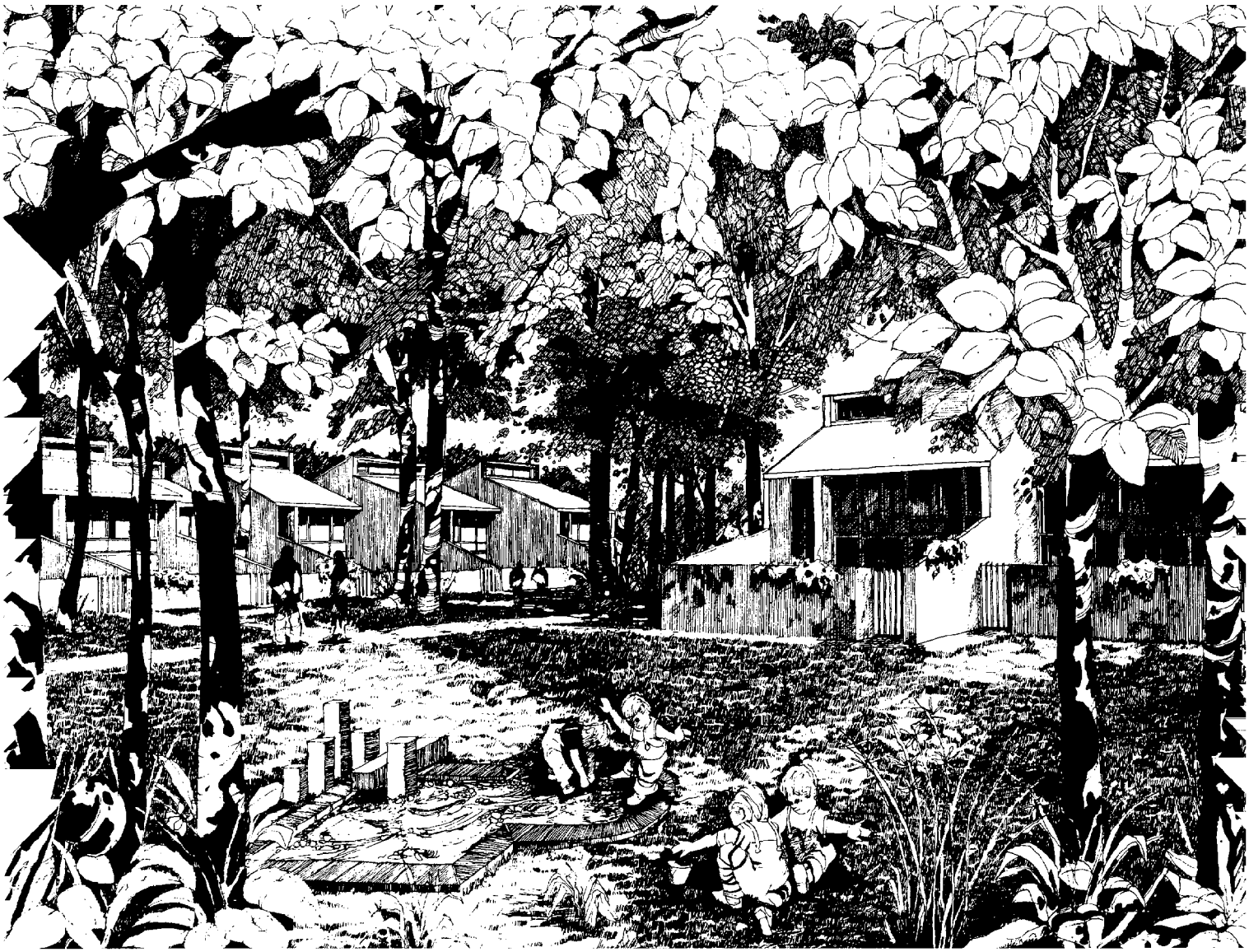
FINAL PLAN





The result of the public hearing is a final version of the preliminary plan that reflects all requirements of the Planning Board, the public and the developer. If the planning process has been carried out properly and the community has made an adequate input, all of the necessary considerations on the previous page will have been included. Otherwise, substantial revisions may be called for before the Planning Board can consider preliminary approval of the proposal. At this point in the process, the Planning Board should have sufficient information on the technical aspects of the proposal, its relationship to the environment, and its political implications.

Preliminary consideration by the Planning Board should not be a determination of whether the benefits of the project will outweigh the negative impacts; each should be judged independently. The negative impacts should be acceptable to the community and the benefits should be real. If the negative impact or "pollution of the environment" is unacceptable, the community will not be able to live with the development. If the benefits are not apparent, the potential of the strategic area has not been realized.



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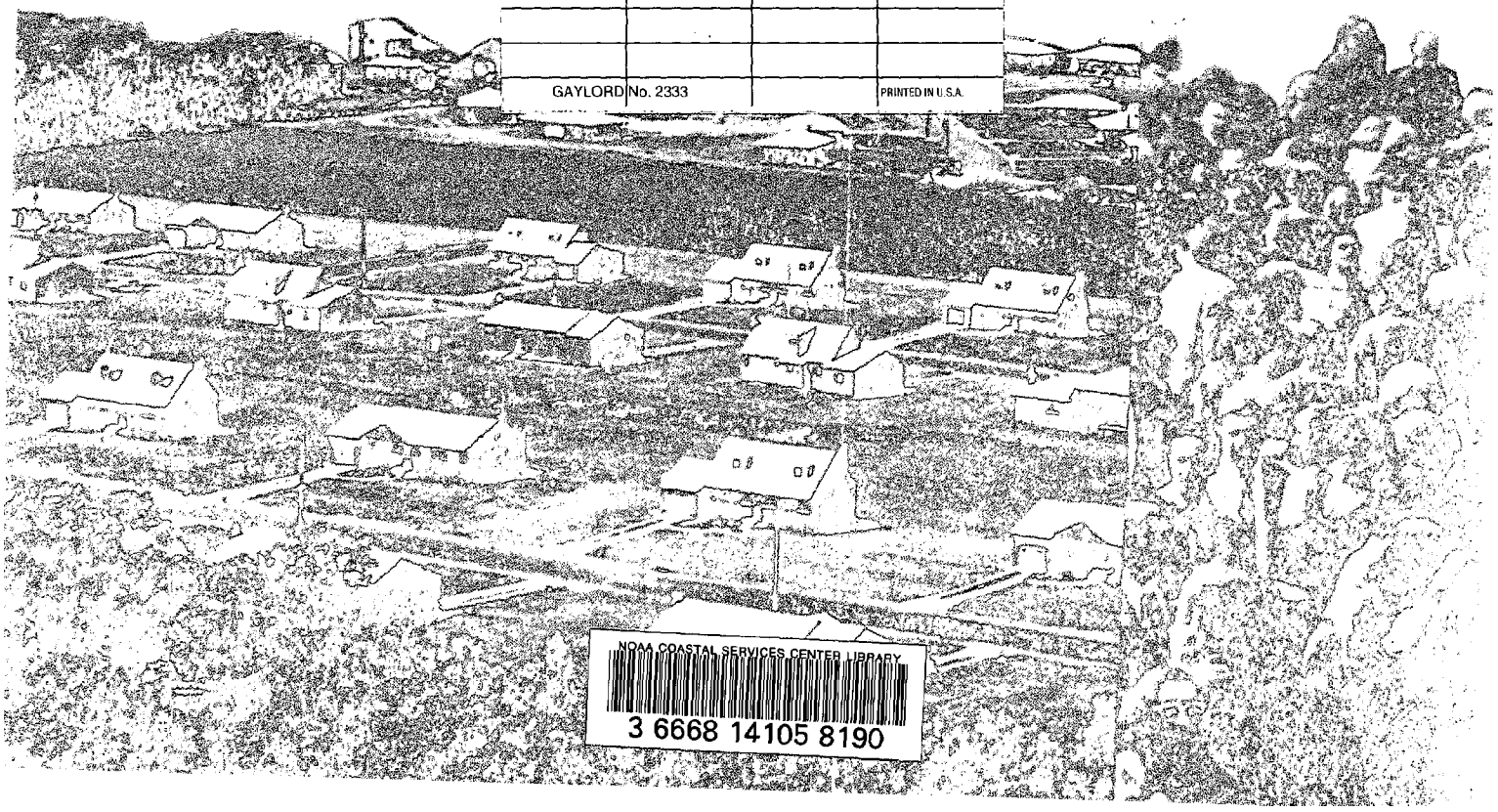

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