FINAL REPORT

Environmental Guidelines for Second Home Developments in Mountain Areas

by
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Eisenhower Consortium
Institutional Series Report No. 3

Texas
Tech
University

WATER
RESOURCES
CENTER

Lubbock, Texas

WRC 78-1
June 1978

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The research reported in this publication was supported in part by the Forest Service, U. S. Department of Agriculture, through the Eisenhower Consortium for Western Environmental Forestry Reserach, and is published as Eisenhower Consortium Institutional Series No. 3.

June 1978

ACKNOWLEDGEMENTS

The research from which this report was derived was supported, in part, by the Forest Service, U. S. Department of Agriculture, through the Eisenhower Consortium for Western Environmental Forestry Research. Sincere appreciation is extended to the Forest Service and the Eisenhower Consortium. Assistance and support of Gordon D. Lewis, Paul F. O'Connell, Ross Carder, Thomas C. Brown, and other Forest Service personnel is gratefully acknowledged.

Additional assistance was provided by the Water Resources Center at Texas Tech Univeristy and its Director, Dr. Robert M. Sweazy who provided valuable review and support. Special thanks go to Ms. Carole Crum for preparing the final report, and to Ms. Raynell Keller for her coordination of clerical support.

PREFACE

Population pressures and lifestyle changes will continue to exert a demand for wilderness or rural tracts that can be developed for second home populations. The desire to escape from the city for the weekend, participation in specific recreational opportunities, retirement, and liberal job benefits fueled the boom that caused second home housing to become a goal for Americans at all income levels. Continued inflation and the spectre of energy shortages can continue to fuel the boom in second home housing as vacation plans to foreign countries or costly metropolitan areas are foregone.

In the states covered by the Southern Rocky Mountain Region there are numerous recreational lot sale projects. At present, however, the region only contains some few percent of the total number of leisure homes in the Nation. The appeal of the mountainous areas should intensify for the residents of the region and second home developments will continue to emerge. Many of the areas with potential development sites do not have appropriate criteria for local leaders to utilize so that adverse ecological, social, or economic impacts are minimized. Forest Service properties in the region will feel the increased recreational use caused by these second-home populations and can suffer direct environmental degradation caused by improperly planned second-home developments on adjacent private lands. This concern is evidenced by the Eisenhower Consortium's research mission.

The purpose of this study is to delineate the impacts that result from second home developments and associated activities and to develop solution strategies for mitigating those impacts in the Southern Rocky Mountain Region. The results are compiled in these guidelines for use by local planners and decisionmakers.

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CHAPTER I

INTRODUCTION

Background

The Western States, particularly the Southern Rocky Mountain Region, comprise an important part of the United States due to the large expanses of undeveloped land, the unique natural beauty of the region, and the potential that large reserves of untapped energy and mineral resources present to the future industrial growth of the United States. This area is a land of many contrasts, ranging from the bleak, arctic-like landscapes of high altitude mountain peaks, to thick conifer forests, grasslands, and deserts at lower altitudes. The region supports livelihoods from a multiplicity of private enterprises; ranching, mining, and forestry have been the main economic endeavors in the Southern Rocky Mountains and have contributed to keeping the population and industrial structures at a generally low level of development. In recent years, new development forces have been accelerating the growth of the Southern Rocky Mountains and are placing heavy loads on the environmental aspects of this region: the air, land, water, and animal life characteristic of the Rocky Mountains.

One of the greatest threats to maintaining the environmental quality of the West is presented by the conversion of large acreages of undeveloped land to urban-like areas; this includes the types of changes associated with homesites and subdivision developments, the increase in land surface covered by concrete and asphalt, and increases in the population density of an area. One of the factors leading to the rapid encroachment by the urbanization process in the West is the demand by the American public for outdoor recreational opportunities, which is a growing national trend. A direct result of the emphasis that is placed on recreation by the American public is the demand for recreational lots and second homes located in close proximity to

natural areas that afford opportunities for participation in outdoor sports such as backpacking, camping, skiing, and other activities. Estimates of the numbers of recreational homes in the United States show that more than 3.5 million homes and 15 million lots are developed at the present time within the United States. Within the past few years the development of recreational lots and homes shows the greatest rates of acceleration in the western part of the United States, largely because of the availability of large areas of undeveloped land for the recreational market. A large portion of this development activity is concentrated in the Rocky Mountain States, which is in part due to the opportunities this area presents for winter sports participation.

One of the results of the development of recreational properties is the acceleration of the growth of small resort communities located in mountainous areas; it is also leading to low-density, piecemeal development of lots and homesites throughout the Southern Rocky Mountains. The environmental consequences of the development of recreational property is causing the same kinds of environmental problems in the Rocky Mountain area that are occurring in our large cities. These effects include a deterioration of the quality of the air and water; increases in noise, solid waste, population densities, and the ever-increasing extent of urban development. These things are contributing to what many social scientists describe as a decline in the "quality of life". The uncontrolled growth of our major metropolitan centers not only affects the quality of the physical environment, but is contributing to stress on the socioeconomic aspects of man's environment. Local officials are finding that it is increasingly difficult to provide adequate city services to ensure the health, safety, and welfare of their residents, along with compatible industrial and residential growth.

In addition to the degradation of the quality of the air, land, and water, there are a host of other problems resulting from extensive homesite development associated with resort communities in mountainous locations. Some of the commonly occurring problems include the danger of forest fire, housing shortages, and excessive demands placed on the

capacity of the city to provide services to its residents. These problems are the result of the increased population density of the land area within and adjacent to the city, and the failure of the community planning process to adequately prepare the community for the demands which will be placed upon it by second home developments.

Three problem areas present challenges to resort communities in the Southern Rocky Mountains concerned with providing for future city services and maintaining environmental quality. These problem areas include:

1. Development of second homes that are used only during weekend, holiday, or recreational seasons and result in large scale population fluctuations;

2. Increase in permanent residential populations that require an expansion of city services; and

3. Future population growth that is imminent in many areas of the Southwest as energy and mineral resources are developed and power generating sites are expanded.

Proper planning techniques and the selection of effective control strategies for implementing community growth will accomplish a great deal toward solving the problems caused by existing development and planning for future contingencies. The problem of uncontrolled urban growth and its associated environmental consequences is a land use problem. Traditional land use controls, such as subdivision and zoning ordinances, are oriented to assuring that a proposed developmental project is orderly and compatible with the existing community structure. Traditional land use controls are limited in their effectiveness for controlling patterns of new development; this is a conclusion which is obvious from an observation of the patterns of urban sprawl that have developed around most major cities within the United States. The particular problems that face mountain resort communities which are generally located in areas with fragile terrain features, require that traditional land use control techniques be broadened to force development to conform to optimal patterns of land use.

Community planners will benefit from a planning methodology that incorporates environmental considerations into the traditional planning procedure for community land-use. There are two main advantages associated with incorporating environmental concerns into the community planning process. First, the local community is better equipped to deal with the increasingly stringent federal and state environmental legislation. Second, environmental considerations in land use planning not only provide for maintaining environmental quality, but are also effective methods for providing orderly community growth and decreasing the costs associated with providing community services.

The immediate future promises to be a period of rapid growth for the western part of the United States; the Southern Rocky Mountains will capture a great portion of this growth. Unless an aggressive and practical system for land use control is implemented by local governments in this area, a unique and colorful part of the United States will become blighted. Preserving the natural resources of the Southern Rocky Mountains is a task which will require careful attention by responsible decision-makers if our generation and future generations are going to continue to enjoy the natural attractions that this area offers.

Objectives

These guidelines address the environmental problems that result from the development and use of land for second homes in mountainous areas that are contiguous to National Forest lands and other areas of great natural value. These problems include a wide range of special concerns involving both the physical and socioeconomic aspects of man's environment. A detailed analysis of the overall problem area is required before effective solution strategies can be identified.

Solution strategies that have been identified have been incorporated into this set of guidelines for second home developments in mountainous areas. This guideline set is written to provide community planners and city officials within the Southern Rocky Mountains with an explanation of the possible environmental problem that could occur

and recommendations that can be adopted to preventing or alleviating problems common to this region of the country. Use of these guidelines will enable environmental planning and concern to be included in the formulation of an individual community policy to provide for a more rational use of the natural resources that are found in these areas.

Procedure for Utilizing These Guidelines

There currently exist many methodologies for environmental analysis and control. Several of these approaches have been applied at the national and state level, and are described in Chapter II. The following discussion outlines a systematic approach to the development of a procedure to be applied at a local level for both identifying potential environmental impacts of second home development and selecting appropriate control measures for minimizing or eliminating the adverse effects. Although a matrix method is employed, the materials presented in subsequent chapters could be utilized in other ways to effect environmental controls.

The following steps detail a procedure which can be utilized by local planners and governments in environmental planning for second home developments in mountain areas. The degree of consideration to be exercised within some of the steps may vary with specific project scope and magnitude, but the basic procedure should be applicable in all cases.

Step 1. Examine Environmental Impacts

The user should examine the 34 parameters in the areas of aesthetics, air, land, water, and socioeconomics described in Chapter III. A consideration of these environmental impacts with regard to the environmental setting at and adjacent to the particular development site in question should be made.

Step 2. Identify Relevant Development Activities

Examine the list of 141 specific activities associated with

second home planning, construction, and occupancy as described in Chapter III. The user should disregard those activities not applicable to the project, and may wish to add supplemental activities to encompass a particular development.

Step 3. Identify Environmental Impacts Using Matrix Worksheet

Using the activities (as developed in Step 2) and the list of environmental impacts, identify the anticipated impacts by circling or otherwise marking the appropriate intersection in the matrix provided at the end of Chapter III. This matrix has been marked at intersections where it was thought that impacts are likely to occur when particular activities take place in a "typical" mountain setting. For some specific cases, many of the marked impacts may not occur; for others, some may occur that have not been marked. In either case, the user should modify the matrix to fit the circumstances.

Step 4. Examine Environmental Controls Available

The user should examine the various environmental control mechanisms described in Chapter IV. Note that these controls are categorized into the following: (1) Comprehensive Planning, (2) Regulatory Controls, (3) Control by Aquisition, and (4) Differential Taxation. The user should add the symbols for applicable controls to any intersections added in Step 3.

Step 5. Determine Appropriate Control(s)

Finally, the user should examine the entire matrix at the end of Chapter IV to determine the control or control mechanisms which would be the most effective in mitigating the adverse environmental effects anticipated by the development activities. Totaling the number of suggested controls identified in each category may aid in this selection process.

In many cases, some of the control mechanisms may already be in existence. In others, ordinances may have to be passed, enabling

legislation passed, or other action-producing mechanism enacted.

CHAPTER II

THE ROLE OF FEDERAL AND STATE GOVERNMENT IN ENVIRONMENTAL CONTROL ACTIVITIES

Environmental concerns in recent years have resulted in a complex set of laws, regulations, and various programs at federal, state, and local levels. The following discussion enumerates many of the more prominent environmental requirements at federal and state levels of government. These form the institutional basis for environmental control mechanisms at the local level, which will be discussed in Chapter IV.

Federal Government

The legal system encompassed by the federal government interfaces environmental problems in each of its three branches: the courts, the Congress, and the various administrative agencies within the executive branch. In this section, an identification will be made of the salient activities within the three branches that are/or can be utilized to control environmental problems. These activity areas have their fundamental responsibilities based upon provisions within the Constitution.

Federal Court

Federal laws are an outgrowth of the interpretations of constitutional rights made by the federal courts. These laws are based upon court rulings on suits in cases such as citizen versus citizen, cities versus state, citizen versus the federal government, state versus state, state versus the federal government, and between agencies of the federal government itself. The states draw their fundamental statutes on the basis of this background of federal law.

The federal law has developed from the judicial interpretation of the legislation acts of Congress and as a result of litigation arising

from activities in which the agencies of the executive branch of government are engaged. As a result of favorable court interpretations, the strength of the individual pieces of legislation and the activities of the agency brought into existence to administer the act increases. The power to tax and spend, the power to regulate commerce, and the power to own and manage land have all been recognized as legitimate governmental powers as derived from the constitution. From the establishment of basic powers such as these, legislation and current legal doctrines have been applied to problems with environmental connotations.

Laws at the state level can be passed which convey the intent of federal court rulings. Likewise state laws can be more restrictive in their content than federal legislation but cannot be less restrictive than the federal ruling. Some of the primary legal tools most suitable for use are those associated with land use controls, and governments at the state and local levels can exercise control over land use in their jurisdictional sphere to accomplish environmental goals.

The federal courts will continue to have a primary responsibility in determining decisions for situations that have no legal precedent. From the basis of these rulings legislation to prohibit or control activities is drafted and put into effect.

Legislation and Administration of Environmental Programs

The Congress has approved legislation in recent years which has shown a national commitment to environmental quality. The new federal agencies which were created to administer these activities or the existing agencies whose mission was afforded to encompass new responsibilities have begun to operate control networks. In addition, these laws provide the basis for legislation and programs at the state level, which are the basis for the establishment of uniform standards for the control of environmental problems. An analysis of some of the more pertinent federal environmental laws promotes an understanding of the framework which communities and industries must operate within on a day-to-day basis. Future growth patterns for both populations and

industry in the Rocky Mountains in large part will grow out of controls that are placed on pollution and the use of land that stems from federal legislation.

Environmental legislation at the federal level has developed in several subject areas that relate to development in the Southern Rocky Mountains. Areas of regulation provided by this legislation may be grouped according to the following subject areas:

1. Guidelines relating the decision-making and planning process for projects that significantly affect the environment;
2. Pollution control programs relating to air, water, solid waste, and noise; and
3. Regulation of both depletable and renewable resources on federally-owned land.

Federal legislation included under each of these subject areas will be described in sufficient detail in the following section to describe the scope of regulation and eminent trends that are outgrowths of this regulation.

Planning and Decision-Making

NEPA

The National Environmental Policy Act of 1969 (DEPA) is the legislative Act that requires a consideration of all the important aspects of the environment in the planning and decision-making processes of federal agencies. The intent of the Act is to provide a legislative basis for the management of the environment by requiring that an environmental assessment or statement be filed. A more detailed look at the Act and related legislative provisions will provide some insight into the relationship of NEPA to other environmental acts.

The organization of the structure of the Act itself immediately reveals the important provisions that are contained in the legislation. Title I of the Act contains the substantive and procedural requirements that must be incorporated in the decision-making actions of a federal agency. Title II outlines the administration of the Act.

Purpose. The Act states at once "...it is the continuing policy of the Federal Government, in cooperation with state and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." [1] Further portions of this section describe the purposes of the Act, which specify the need for maintaining a healthful and aesthetically pleasing environment, while assuring that a wide range of beneficial uses will be guaranteed and that the quality of both renewable and depletable resources will be maintained.

The Impact Statement Process. Procedural requirements are contained in Section 102 [2]. This is probably the most important section of the Act because it established the environmental impact assessment and statement process. The five major points outlined in Section 102 [3] that must be addressed in an environmental impact statement form the basis for the eight points in the guidelines issued by the Council on Environmental Quality, and have been listed in a previous section of this study. They are included in the section describing the environmental impacts of second home development.

The Council on Environmental Quality. The Council on Environmental Quality consists of three menbers appointed by the President [2]. The Council serves as the chief administrative body for NEPA. Duties of the Council on Environmental Quality are specified in Title II of NEPA. The major duties of the Council include aiding the President with the preparation of an annual report on the quality of the environment, to review programs and activities of the Federal Government, to advise the President on national policies to improve environmental quality, to institute studies pertaining to the environment, and report at least once a year to the President on the quality of the environment.

The National Environmental Policy Act not only established

statutory and administrative considerations for environmental quality, it also stimulated the enactment of other environmental legislative and executive measures that expand the administration and applicability of the Act. The relevant legislation includes both executive orders and an act of Congress which have been enacted in the time period following the passage of NEPA.

Executive Order 11514

EO11514 is an order establishing a policy for the Federal Government to "...provide leadership in protecting and enchancing the quality of the nation's environment to sustain and enchance human life..." [4]. The order described the administrative responsibilities of federal agencies and the Council on Environmental Quality to effect the stated policy of this measure.

Executive Order 11523 [5]

This order established the National Industrial Pollution Control Council to advise the President and Chairman on the Council on Environmental Quality on industrial programs relating to environmental quality.

Environmental Quality Improvement Act of 1970

This Act expressively is intended to accomplish two purposes. First, each federal department and agency "...conducting or supporting public works activities which affect the environment shall implement the policies established under existing law..." [6] and to "...authorize an Office of Environmental Quality..." [7] that will provide professional and administrative staffing for the Council on Environmental Quality.

Executive Order 11752

This order was issued to assure that the Federal Government in "...the design, construction, management, operation, and maintenance of its facilities..." will "...provide leadership in the nationwide effort to protect and enhance the quality of our air, water, and land resources through compliance with applicable standards for the prevention, control and abatement of environmental pollution in full cooperation with state and local governments" [8]. The requirements of this

Act specify that federal facilities must comply with federal, state, interstate, and local standards for air and water pollution emissions [9].

Effects on Other Levels

The National Environmental Policy Act and related federal legislation and executive orders has influenced environment policies on all levels of government, which includes federal, state, and local projects. Although the requirement for the filing of an environmental impact statement has caused controversial delays and cost increases for public work projects, many state and local governments have recognized the utility of the process and have enacted their own environmental impact laws. Twenty-six states required some type of environmental impact analysis as of April 1976 [10]. The acceptance of the environmental impact statement process by a growing number of governments on the state level is a recognition of the utility that this technique presents as a management tool. On the federal level major criticisms continue to be directed at the length and complexity of the impact statements, which tends to offset the benefits gained from public and inter-agency review of impact statements. The Council On Environmental Quality recommended improvements to the impact statement process required by NEPA in its comprehensive report issued in 1976. The report included steps to make impact statements more analytical in content and manageable in size [11]. Improvements in this process are needed to improve the delineation of impacts resulting from a particular project, and to outline alternatives to the proposed action and their consequential impacts to the environment.

Pollution Control Programs

Air Pollution Control

The national commitment to clean air is set forth by the Clean Air Act. The original structure of this Act dates back to 1967 but, considerable strengthening of the Act was accomplished in 1970 with

the enactment of the amendments to the Clean Air Act. Some of the most important provisions contained in this Act are included in the following section.

Four purposes are outlined in this Act. They include:

1. To protect and enhance the quality of the nation's air resources so as to promote the public health and welfare and the productive capacity of its population,

2. To initiate and accelerate a national research and development program to achieve the prevention and control of air pollution,

3. To provide technical and financial assistance to state and local governments in connection with the development and execution of their air pollution prevention and control programs; and

4. To encourage and assist the development and operation of regional air pollution control programs [12].

Provisions for Regional Agreements [13]. This section provides legislative authorization for the encouragement of programs by state and local governments to prevent and control air pollution. Specific authorization is given to encourage improved and uniform state and local laws dealing with air pollution and interstate agreements or compacts between states for the control of air pollution. The encouragement of "...cooperative activities by all federal departments and agencies having functions relating to the prevention and control of air pollution..." [12] strengthens efforts made on the state level relating to air pollution control. Additional authorization is given for "...two or more states to negotiate and enter into agreements or compacts, not in conflict of any law or treaty of the United States..." for cooperation in the prevention and control of air pollution, for the enforcement of air pollution laws, and to establish agencies which will make these compacts effective [13].

Air Quality Control Regions. Primary responsibility is given to each state to maintain air quality within its entire geographical area. The state is required to file an implementation plan which specifies the manner in which primary and secondary ambient air quality will be

achieved and maintained within each control region within the state [14].

Air Quality Criteria and Control Techniques. The Administrator of the Environmental Protection Agency is given the authority to publish a list of air pollutants:

1. Which in his judgment have an adverse impact on human health and welfare;

2. The presence of which in the ambient air results from numerous or diverse mobile sources;

3. For which air quality criteria had not been issued before the enactment of the Clean Air Amendments of 1970, but for which he plans to issue air quality criteria under this section [15].

A second authorization found in this section is that requiring the Administrator to issue air quality criteria for each pollutant within twelve months after the initial list of pollutants has been published [16].

National Ambient Air Quality Standards. Several important conditions exist with regard to the establishment of national ambient air quality standards. First, the Administrator is to publish within thirty days after the enactment of the Clean Air Amendments "...proposed regulations prescribing a national primary ambient air quality standard for each air pollutant for which air quality criteria have been issued prior to such a date of enactment" [17]. After "...a reasonable time for interested persons to submit written comments thereon..." [18], the primary and secondary ambient air quality standards will be promulgated. Additional authority is delegated to the Administrator to issue primary and secondary ambient air quality standards for any air quality criteria issued after the date of enactment of the Clean Air Amendments of 1970 [19].

The Clean Air Act is centered around attaining two standards of air quality. The first time frame is oriented to the attainment of primary air quality standards. The second time frame involves the improvement of the air quality to secondary standards. National

primary ambient air quality standards are prescribed to be ambient standards which in the "... judgement of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect public health..." [20]. The national secondary ambient air quality standards are based on such criteria which "... is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air..." [21]. Progressively cleaner ambient air conditions must be attained in compliance with this Act. Two important dates are important in this time table. The first deadline is the attainment of national primary ambient air standards, which were to be met by July 1, 1975, while secondary ambient air quality standards were to be met by July 1, 1977 [22].

The responsibility for carrying out the provisions of the Clean Air Act rests with the states. One of the most important aspects of state air quality control is the control of particulate and sulfur dioxide concentrations. This is of major importance in view of the increasing conversion of major fuel burning installations to coal and the responsibility of the state in meeting its ambient air quality requirements. Difficulty in maintaining national ambient standards is an important consequence of coal conversion. However, in some western locations where ambient air quality is much better than the national standard, a Supreme Court ruling [23] has held that the air quality may not be degraded to national ambient air quality levels.

Energy and the Environment

The United States does not have a comprehensive energy policy to date, but the necessity of converting many petroleum-consuming sources to coal as an energy source is an eventuality that is foreseen, and this creates a need to consider the ramifications presented by this shift of the energy base in relation to a federal commitment directed toward attainment of the national air quality standards. The Energy and Environmental Coordination Act of 1974 combines energy conversion considerations with amendments to the Clean Air Act.

The purposes which are detailed in this Act include:

1. To provide for a means to assist in meeting the essestial needs of the United States for fuels, in a manner which is consistent to the fullest extent practicable, with existing national commitments to protect and improve the environment, and 2 to provide requirements for reports respecting energy sources [24].

Provisions. Important provisions of this Act relate to fuel burning at stationary sources, automobile emission reductions, and the requirement for the Federal Energy Administrator to conduct a study of potential energy reduction. The most important requirement of the Act, as far as this study is concerned, relates to the fuel requirements for power plants. An examination of the coal conversion requirements that are outlined in this Act will reveal some of the important implications of this Act in regard to resort developments and the development of western coal reserves.

Specific Requirements. Under this Act, a power plant may be prohibited from burning natural gas or petroleum products as its primary energy source by order from the Federal Energy Administrator. The instances under which this requirement becomes effective are detailed in Section 2 of the Act. These standards include:

1. If the plant is determined by the Federal Energy Administrator to acquire or have been designed with the capability or necessary plant equipment to burn coal on or after June 22, 1974 [25];

2. If burning coal in lieu of petroluem products is practicable, the necessary coal supply and transportation facilities exist, and plant reliability to its area of survice will not be impaired; and

3. Verification is received from the Administrator of the Environmental Protection Agency that the power plant or other installation will be able on and after June 1, 1975, to burn coal and comply with all applicable air pollution requirements without a compliance date extension [26]. The stipulations found in Subsection (b) of this Act do not apply to a major fuel burning installation if the installation is not a power plant.

The consideration of human health factors and the environmental effects of coal burning are considered in this Act. Special attention is given to the problem of allocating low sulfur coal among users as the measure to remedy air pollution problems within a given area. The allocation of low sulfur fuels is established on a priority basis to the areas designated by the Environmental Protection Agency as requiring low-sulfur fuel in order to minimize the adverse impacts to human health that will develop from the air pollution hazards created by burning coal.

Water Resources

The federal legislation governing the water resources within the nation is well developed in the subject areas relating to administration and the development of guidelines. Recent legislation in the water resources field will be considered because this is the legislation which has the greatest effect on development in western areas. The most recent water-related legislation shows development in three areas: the management of the planning process for the development of water resources, water quality upgrading and maintenance, public water supply protection, and legislation directed to further flood protection and other improvements for watershed areas. This section will describe the implications that this legislation presents to second home and recreational development in arid western regions.

The Water Resources Planning Act of 1970. A national policy for the planning and development of water and land resources of the United States is established in the Water Resources Planning Act. The introduction to the Act expressively declares that this is an Act "...to provide for the optimum development of the nation's natural resources through the establishment of a Water Resources Council and River Basin Commissions, and providing financial assistance to the states in order to increase state participation in such planning" [28].

The policy expressed by Congress in this Act is:

To encourage the conservation, development, and utilization of water

and related land resources of the United States on a comprehensive and coordinated basis by the Federal Government, states, localities, and private enterprise with the cooperation of all affected federal agencies, states, local governments, individuals, corporations, business enterprises, and others concerned [29].

Three portions within the Water Resources Planning Act are important to water and land resource development as it relates to this study. The respective portions include: Subchapter I, which authorizes the creation of the Water Resources Council and outlines the duties of the Council, Subchapter II, which creates and delegates authority to River Basin Commissions; and Subchapter III, which grants financial assistance to the states for comprehensive planning grant authorizations.

Subchapter I of the Act establishes that the Water Resources Council is to be composed of the Secretaries of the Departments of the Interior, Agriculture, Army, Commerce, Housing and Urban Development, Transportation, the Administrator of the Environmental Protection Agency, and the Chairman of the Federal Power Commission [30]. The Council is required to maintain a continuing study and prepare periodic assessments (on a time interval of once every two years or less) of the adequacy of supplies of water necessary to meet the water requirements within each water resource district of the United States. The Council is also required to maintain a continuing study of the relation of regional or River Basin Plans to the larger regions of the nation, and the adequacy of administrative and statutory requirements to provide coordination of water and related land resource policies among federal agencies [31].

Authorization is also given to the Water Resources Council to establish, after proper consultation with interested federal and non-federal entities, appropriate principles, standards, and procedures for federal participants to serve in the preparation of comprehensive regional or River Basin plans. Additional guidelines for the formulation and evaluation of federal water and related land resource projects are authorized [32]. Principles are broad policy statements which provide for the uniformity in comparing the beneficial and adverse effects

among alternative plans. Procedures provide detailed methods for carrying out the planned activities for water and related land resources [33]. The Council is also authorized to review and revise plans that are received from River Basin Commissions [34].

Subchapter II of the Act authorized the creation of River Basin Commissions. River Basin Commissions are established upon the request of the Water Resources Council, a request from a state directed to the Council, or by an individual state [35]. These River Basin Commissions are authorized to serve as the principle agencies for the coordination of federal, state, interstate, local, and nongovernmental plans for the development of water and related land resources [36].

Subchapter III of the act authorizes Congress to make allotments to states based on population, land area, need for comprehensive water and land resources planning, and available financial resources [37]. These sums of money are to be apportioned among the states and are limited to no more than 50 per centum of the cost that is incurred by the state in carrying out and administering water and related land resource planning.

The Water Resources Planning Act is basically an administrative measure that requires few procedural standards to be met on the state level. Perhaps the most important aspect of this Act is to establish a framework for the compilation of data and studies on various aspects of water resources. These studies can provide local planning agencies with data that can further the local planning process.

The Federal Water Pollution Control Act of 1972. The comprehensive federal policy for water pollution control and abatement is established by Public Law 92-500, which is the Federal Water Pollution Control Act of 1972. This Act is the most sweeping legislative act for the control of water pollution up to this point in time; its provisions affect national, state, local and private projects, and presents a great economic impact to both government and private industries.

The objective of the Act is "...to restore and maintain the chemical, physical, and biological integrity of the Nation's waters..." [38].

The most relevant sections of this Act as it relates to municipalities and local industries includes the compliance with performance standards and the responsibilities that exist under the National Pollutant Discharge Elimination System. Other responsibilities are incurred if toxic wastes are discharged into receiving waters.

The Federal Government is authorized by Public Law 92-500 to pay 75 percent of the cost of construction of publically-owned wastewater treatment works [39]. The grants are authorized to a state, municipality, intermunicipal, or interstate agency for the construction of a wastewater treatment facilities [40]. These grants are available to provide financial aid for various costs incurred at the stages within the construction process of publically-owned treatment plants [41]. These stages that are identified and funded under the grant program include:

1. Step 1 - planning grants;
2. Step 2 - construction drawings and specifications; and
3. Step 3 - building operable works.

This Act has been amended by P.L. 95-217 to require that applicants for federal funds for construction or extension of treatment works analyze the potential recreation and open space opportunities in the planning of the proposed treatment works [42]. Title III of Public Law 92-500 contains important provisions for the control of water pollution. The Act seeks to eliminate pollution by establishing two requirements that are incorporated within a discharge permit. First, effluent limitations are required and secondly, a time is set for meeting the compliance deadlines [43]. Water quality related effluent guidelines also determine the restrictions that are to be placed on the effluent discharge. Other important sections that are included in this Title relate to the technical aspects of pollution control, and are described in the following section.

1. The Environmental Protection Agency is required to publish information and guidelines for achieving the required treatment technology by municipalities and industries [44].

2. National standards of performance for waste treatment works must be met, particularly for "new sources" (new sources are effluent dischargers in which the construction of the treatment works is begun after the publication of proposed regulations that are later adopted) [45]. The new source standards of performance are often equivalent to the 1983 technology standards.

3. Standards for the discharge of toxic wastes and pretreatment requirements for industrial wastes discharged into municipal treatment systems are also required under provisions of this Act [46].

Section 402 of Public Law 92-500 establishes the National Pollutant Discharge Elimination System, which is the section of the Act which requires that a pollutant discharger secure a permit to discharge his waste. This section requires all point dischargers to secure a permit to discharge treated effluents (point discharges are discharges which result from sources such as wastewater treatment plants or cooling water discharges). In addition, several non-point sources (these are sources which originate from surface runoff over a land area) are specifically required to obtain permits under this Act; these non-point sources include feedlots, irrigation return flows, silviculture operations, and storm sewers. In general, permits are valid for five years and give a detailed breakdown of the pollutants that are to be allowed in the effluent stream. The permit also contains a schedule of compliance which includes dates for achieving best practicable or best available treatment standards, depending on which of the two treatment levels is the governing case.

The Environmental Protection Agency is authorized to administer the provisions of Public Law 92-500. The duties the Agency is charged with to promote the upgrading and maintenance of water quality include the following considerations:

1. To define the acceptable treatment technology;

2. To establish and enforce water effluent standards for most sectors of industry;

3. To establish and carry out planning for individual facilities,

statewide planning, and areawide planning under provisions of the Act; and;

4. To administer grants for public works [47].

Municipalities and local industries in the Southern Rocky Mountains will be challenged by the provisions of Public Law 92-500 to achieve the required standards of abatement for effluent discharges. Specific problems exist in meeting the new source performance standards; delays in obtaining permits also presents difficulties in the design and construction process for treatment works. Problems also are presented to small communities in securing federal grants to aid in financing the construction of public waste treatment works. Complying with all of the federal grant requirements as well as supplying the local share of the financial burden for the project are matters that are extremely important to both state and local governments. These difficulties are compounded when population pressures or the overextensions of the system prematurely overloads the treatment capacity. Meeting community responsibilities under the provisions of Public Law 92-500 is a motivational force for incorporating a viable community program providing control for sewer and wastewater treatment works.

Drinking Water Legislation. National regulations for public water supplies exist by the authority of Public Law 93-523, which is entitled the "Safe Drinking Water Act of 1974." The Act presents some important implications to both the operation of public water supply systems and for federal financial aid to public works projects.

In general, national drinking water regulations apply to "... public water systems in each state..." [48]. Limitations to the regulation of public water systems by this Act include the following situations:

1. A system which has only distribution and storage appurtances;

2. A water supply system which obtains all of its water from a public water system to which the regulations apply, but is not operated by the system;

3. A system which does not sell water to a person; and

4. If not a carrier in interstate commerce [49].

In the context of the Act, a public drinking water system is defined to be a system for the provision of piped water for human consumption, if the system has fifteen service connections and serves at least twenty-five individuals [50].

There are two provisions in this Act that are important in regard to public water supplies as they relate to state and local governments. These two provisions include the authority given to establish national drinking water regulations and to protect underground water supplies.

Section 1412 of this Act authorizes the Administrator of the Environmental Protection Agency to establish primary and secondary drinking water regulations. Primary drinking water regulations specify the concentrations of contaminants that present an adverse effect to human health [51]; while secondary standards specify the maximum level of contaminants that are permitted to protect human welfare [52]. The Environmental Protection Agency promulgated the first set of proposed primary drinking water regulations in December of 1974; the standards are expected to become regulations under the Act by June, 1977 [53].

Part C of Public Law 93-523 establishes the second important feature of the Safe Drinking Water Act, which is the protection of underground water supplies. Strict regulation of underground waste injection is specifically provided. Section 1424 (e) is of particular importance in this respect because of the importance of aquifer regulations in relation to the federal grant process for public works programs. The authority is granted the Administrator of the Environmental Protection Agency to declare an aquifer as the sole drinking water source to a locality, which has the effect of barring federal financial assistance to any project that presents a possible source of contamination to the groundwater contained in the aquifer. The importance of this regulation to financing large scale projects like highway or sewer construction is obvious; serious delays or disruptions of community capital improvement projects may eventually become a commonplace result of the effect of this regulation. Community services may suffer as a result of the restrictions to the future expansion of transportation or water services

when aquifer protection techniques are not included in the planning considerations of these projects.

Watershed Improvement and Flood Protection. Erosion control, watershed improvements, the use of land adjacent to watercourses, and the occurrence of flood events are issues that are important in the urban development of any given locality. Three national Acts offer provisions that relate to resolving some of these hydrologically related concerns with regard to both constructed improvements and to the mitigation of damages associated with flooding. These three Acts include the Watershed Protection and Flood Prevention Act of 1954 [54] and its amendments [55], the National Flood Insurance Act of 1968 [56], and the Flood Disaster Protection Act of 1973 [57]. A brief analysis of some of the relevant provisions of these Acts is presented to include the applicability of these statutes to the situations faced by many local governments.

The Watershed Protection and Flood Prevention Act of 1954 and Amendments. This Act was passed in response to a recognition by the Federal Government of the need to cooperate with the states and their political subdivisions for the development, conservation, utilization, and disposal of water. The important political subdivisions in this respect include soil and water conservation districts, flood control districts, and similar public agencies. Provisions within the Act are directed to seeking a solution to the problems caused by erosion, flood waters, and sediment damage in the waters and streams within the United States. Administration of this Act is the responsibility of the United States Department of Agriculture; the Soil and Water Conservation Service is responsible for managing studies and structural improvements that are authorized under this Act. Although flood protection of agricultural lands is the primary purpose of the Act, the amendments that have been added to the Act authorize structural improvements, not only for flood protection, but also for fish and wildlife conservation, recreation, and water supply [58].

The improvements authorized under this Act are small in scale with

respect to both area and capacity. Basically, watersheds upon which improvements are constructed must be less than 250,000 acres in area and must not include a structure with a capacity of more than 5000 acre-feet, unless prior approval has been obtained from the Secretary of Agriculture [59]. In addition, the Secretary of Agriculture is also authorized to conduct investigations, to initiate economic studies for improvement works, to provide support to local organizations, and the effect changes in cropping and land use practices and to promote soil, water, woodland, wildlife, and recreation on lands that are included in the project improvements [60].

Although this Act continues to be focused on agriculturally related projects, local communities can also benefit from the provisions of the Act that make federal aid available for developing municipal and industrial water supplies and in establishing erosion control practices for the local area. In addition, studies carried out under the supervision of the Soil and Water Conservation Service in connection with this Act are invaluable to community planning procedures. These studies, particularly soil survey maps, provide useful data for community planners that otherwise would have to be supplied by professional consultants at a large expense to the community taxpayers.

Flood Protection. Flood protection is a concern of great importance to local communities because of the large losses to both human life and property that occurs. The decisions regarding permitted land uses within flood plains is an issue that presents great difficulties to its resolution, particularly where land development interests are strong. Two national laws include provisions that are directed to strengthening state and local regulation of development within flood plain areas in the interest of providing mitigation of damages that are related to flood events. These two Acts include the National Flood Insurance Act of 1968 [61] and the Flood Disaster Protection Act of 1973 [62], which is basically a revision and expansion of the former Act. A joint consideration of both of these Acts will serve to outline some of the considerations of the federal policy for flood control that is established by this legislation.

Federal policy for the mitigation of flood-related damages seeks to provide economic relief to disaster victims, as well as to expand data relating to any flood-prone areas within the United States. However, in order to qualify for federal disaster relief under the provisions of these two laws, states and local communities must fulfill certain obligations that relate to land use planning and construction specifications for projects within flood plain areas. The most concise summary of the provisions of these laws is stated in the purposes of these Acts, which are summarized in the list that follows.

1. A flood insurance program is instituted which will become available on a nationwide basis over a period of time.

2. The flood insurance is to be organized on a flexible basis which includes measures of risk-pooling and equitably distributing the burdens among those protected by the insurance and the public in general.

3. State and local governments are encouraged to make appropriate land use adjustments and restrict development in flood-prone areas to minimize the damage from flooding.

4. Federal guidelines are intended to guide development away from locations that are threatened by flood hazards [63].

5. Programs are to be instituted for the expeditious identification of, and dissemination of information concerning flood-prone areas.

6. States and local communities are required to adopt adequate flood plain ordinances and effective enforcement provisions that are consistent with federal standards in order to qualify for federal financial assistance.

7. Property owners and federally supervised agencies and institutions that receive federal assistance are required to purchase flood insurance when their land or facilities are located in areas that have special flood hazards [64].

The National Flood Protection System provides substantial federal aid to the victims of flood disasters. However, the most important aspect of the Act is the strict land use planning required in flood plains. This is the only national land use control requirement in

effect at the present time which mandates action by state and local governments.

Other Environmental Problem Areas

Environmental problems that continue to plague state and local governments include solid waste, noise, and the regulation and use of pesticides. There are important federal Acts that deal with these problem areas. Specifically, these Acts include the Solid Waste Disposal Act, the Resource Recovery Act, the Noise Control Act of 1972, and the Federal Environmental Pesticide Control Act of 1972. Although these Acts do not present the impact at the state and local level that is presented by the major Air and Water Legislation, there are important provisions which will relate to the overall management of these problem areas.

Solid Waste. The National Government recognizes the fact that solid waste is an environmental problem for governments at all levels in the federal system, and legislation dealing with this problem includes both local and state concerns, as well as the national government, in seeking a legislative solution to solid waste problems. The national policy on solid waste is established in two Acts. Public Law 89-272, the Solid Waste Disposal Act, established a concern for disposal. Later amendments to this Act, included in the Resource Recovery Act of 1970, shifted the emphasis of solid waste management from disposal concerns to the recovery and recycling of useable products.

Several important considerations are outlined in the provisions included in the Solid Waste Disposal Act and its amendments. A consideration of these amendments will focus on their applicability to state and local situations.

The provisions of the Solid Waste Disposal Act includes demonstration grants for solid waste management and resource recovery systems, technical and financial assistance for the planning and development of resource recovery and solid waste disposal programs, to promulgate guidelines for solid waste systems, and to provide training grants for occupations involved with solid waste disposal. Several sections within

the Act are important with regard to solid waste management for state and local governments.

1. Section 203 [65]. This section encourages cooperative activities between state and local governments for solid waste disposal programs. Interstate, interlocal, and regional planning, as well as the encouragement of uniform state and local laws that govern solid waste disposal are likewise encouraged.

2. Section 207 [66]. This section outlines the provision of grants for state, interstate, and local planning.

3. Section 208 [67]. Grants to the state, interstate, municipal, or intermunicipal agencies are authorized for demonstration resource recovery systems or for the construction of new or improved solid waste disposal facilities.

4. Section 209 [68]. Recommended guidelines for solid waste recovery, collection, seperation, and disposal are to be promulgated by the Environmental Protection Agency. Model codes and statutes relating to solid waste disposal are to be issued by the Administrator of the EPA to guide state and local governments in these matters.

5. Section 210 [69]. Grants to a state, interstate agency, municipality, educational institution, or other organization to combine training, education, and employment for "...training persons for occupations involving the management, supervision, design, operation, or maintenance of solid waste disposal and resource recovery equipment of facilities..." [70], and to train instructors or supervisory personnel to train or supervise persons in occupations dealing with solid waste or resource recovery systems.

These provisions within the Solid Waste Act provide encouragement in the form of financial aid and the formulation of model ordinances promote a unified approach to solid waste pollution abatement at the state and local level.

Noise. Noise regulation presents a difficult environmental concern for regulation through legislative constraints. The Noise Control Act of 1972 [71] establishes a national policy on noise control. The

main thrust of the Act is directed at noise control at its source, and to accomplish this aim, noise emission standards for products in interstate commerce are established. There are few implications for state or local programs that arise from this Act, apart from the impact that this Act presents to the production of consumer goods. However, there are certain provisions in the Act which can affect the operation of local airports. In 1976, the Environmental Protection Agency proposed a set of guidelines for the nation's airports that handle commercial air traffic requiring a new system of airport noise abatement planning be instituted around these airports. The Federal Aviation Administration is required to approve these plans for the continued certification of these airports if these guidelines are approved [72].

Pesticides. Pesticides are another source of environmental pollution which presents regulation difficulty; federal regulation is established in the Federal Environmental Pesticide Control Act of 1972. The problem of pesticide regulation is very similar to noise regulation in that a great deal of the problem stems from the type of products that are available commercially, and most of the provisions found in the Federal Environmental Pesticide Control Act provide regulation for pesticides available on the market. Other provisions of the Act forbid anyone from using a pesticide contrary to label instructions [73]. The Environmental Protection Agency is authorized under this Act to approve state plans which limit pesticide use to persons licensed to use them [74].

Land and Resource Management

There are three areas of differentiation for federal legislation applying to land and resource management. These areas include (1) planning; (2) financial aspects; and (3) management policy for animal, plant, mineral, and recreational resources that are associated with both federally-owned and non-federal land areas. The discussion of these laws will include an analysis of the important provisions in order to outline some of the emerging trends for national land use policies on land areas that may be closely associated with second home developments.

Planning

Forest and Rangeland Renewable Resources Planning Act Of 1974. Planning efforts for renewable resources associated with federal lands is addressed in the Forest and Rangeland Renewable Resources Planning Act of 1974 [75], which is a recently enacted law that presents a great potential for expanding the knowledge base and planning techniques for effective management of natural resources. There are three noteworthy requirements that are instituted under this Act. These requirements include the preparation of a Renewable Resource Assessment, a Renewable Resource Program, and National Forest Resource Plans. All efforts carried out under this Act are established in accordance with the Multiple Use - Sustained Yield Act of 1960 [76].

Renewable Resource Assessment. The Secretary of Agriculture is required to prepare a Renewable Resource Assessment (which was to be completed by December 31, 1975), and to update this assessment annually after 1979 [77]. A comprehensive survey and a periodic update of "... prospective conditions of and requirements for the renewable resources of the forest and range lands of the United States, its territories, and possessions..." [78] is authorized to provide current information to be included in the Renewable Resource Assessment.

Renewable Resource Program. The Secretary of Agriculture is required to prepare and transmit a Renewable Resource Program providing in detail alternatives for "...the protection, management, and development of the National Forest System..." [79]. The program is to contain: [80]

1. An inventory of needs and opportunities for both public and private investment;
2. Specific identification of program outputs and an analysis of the costs versus the benefits;
3. A discussion of priorities for the accomplishment of inventoried program opportunities; and
4. A detailed study of personnel requirements needed to implement the program.

National Forest Resource Plans. The Secretary of Agriculture is authorized to "...develop, maintain, and as appropriate, revise land and resource management plans for units of the National Forest System, coordinated with land and resource management practices of state and local governments and other federal agencies." [81]

The importance of the Forest and Rangeland Renewable Resources Planning Act to state and local governments for making land use decisions probably will increase as the quantity of information on renewable resources increases. Assessments and resource surveys can provide much of the detailed information that land use plans need to be based on. This procedure should increase the ease of data gathering and decrease the cost of preparing land use plans.

Land And Water Conservation Fund Act Of 1965. The Federal Government established a policy for providing funding for outdoor recreational resources with the enactment of the Land and Water Conservation Fund Act of 1965 [82]. The goal of providing quality outdoor resources is accomplished by:

(1) Providing funds for and authorizing federal assistance to states in planning, acquisition, and development of needed land and water areas and facilities, and (2) Providing funds for federal acquisition and development of certain lands and other areas [83].

The federal monies that are directed to accomplishing the purposes of this Act are accumulated in a separate fund derived from user fees on federal land [84], sales of surplus federal property [85], the Motorboat Fuels Tax [86], and appropriations set aside by Congress for this act [87]. Under this Act, states may receive federal grants for up to 50 percent of the cost of planning, acquisition, and development of outdoor projects if a comprehensive state outdoor recreation plan is filed with the Department of the Interior [88]. Funds allocated under this Act are also authorized for related federal projects. Specific authorization for "...the acquisition of land, waters, or interests in land or waters..." [89] is given for additions to the National Park System, National Forest System, and refuges for fish and

wildlife.

Policy

Federal land management law shows development in matters of policy for the use of resources that are found on nationally owned lands. In general, these regulations can be grouped according to the following subject areas: management policy, grazing regulation, mining regulation, wildlife protection, and wilderness preservation. The discussion of each of these subject areas will show the differentiation of National Resource Policy.

Management. A large portion of publically owned federal land area is included in the National Forest System. Much of this land is highly productive range and timber producing area, in addition to containing rich deposits of minerals. The need for a clear management policy for the renewable resources found on these lands led to the passage of the Multiple Use - Sustained Yield Act of 1960. In the Act, Congress establishes that the National Forests are "...to be administered for outdoor recreation, range, timber, watershed, and fish and wildlife purposes..." [90]. The Secretary of Agriculture is given administration power for providing for the multiple use - sustained yield of the renewable resources on these lands based upon the relative values of the resources within a given area, including the use of the land area as wilderness [91].

Grazing. Grazing on public lands is regulated by the Taylor Grazing Act of 1934 [92], which authorizes the Department of the Interior to issue permits for grazing privileges on public lands. These permits are valid for 10 years, and are subject to renewal at the discretion of the Secretary of the Interior [93]. The policy established by this Act is designed to protect public lands from the adverse effects of soil erosion from overgrazing these land areas. However, grazing on public lands continues to be a controversial issue. A 1972 study completed by the National Forest Service concluded that almost half of public land areas are being overgrazed, resulting in erosion and decreased productivity on these land areas [94]. Superior

land management techniques that are currently being implemented by the Forest Service do promise future relief from the adverse effects of overgrazing.

Mining. The federal policy for mining is established under the authority of two acts: (1) the Mining Law of 1872, and (2) the Mineral Leasing Act of 1920. The management of public lands and resources presents problems and conflicts created by the dilemma presented by the development of minerals and the regulation of mining claims versus the management of renewable resources, recreation, and wilderness preservation.

Mining Law Of 1872. This law establishes a policy by the federal government encouraging the exploration and development of mineral resources; it is still the policy of the federal government today with regard to gold, silver, lead, copper, uranium, and other "hard rock" minerals [95]. This law formalized the claim filing procedure, although it does not contain any requirements for a claim to be filed. A 1974 survey completed by the General Accounting Office reported many abuses on claims filed under this Act that result because of the ease of filing and maintaining mining claims under the provisions of this law [96].

Minerals Leasing Act Of 1920. The regulation of nonmetallic mineral deposits, which includes coal, phosphate, sodium, oil, oil shale, and gas, on lands owned by the Federal Government is regulated under provisions of this Act. Unlike the Mining Law of 1872, this law regulates mineral production by imposing a lease system on mineral producers, rather than relinquishing title to the deposit that occurs when a mining claim is filed.

Under the procedure created by this Act, new claims are leased to private concerns, and the royalties derived from these leases are shared by both the federal and state governments. Leases are finalized following a competitive bargaining process, and run for a specified period of time, after which a period of renegotiation takes place. The 1920 Act, like the 1872 Act, contains no environmental considerations.

However, the operating considerations included in the 1920 Act require that a mining operation be managed efficiently, minimizing losses from wasted resources.

Wildlife Conservation. Comprehensive statutory control of the federal policy for preserving and managing wildlife is established by the National Wildlife Refuge System Administration Act of 1966 [97]. The first refuges were established in 1903 by Theodore Roosevelt, and the number of these refuges had increased to 367 by 1974 [98]. The 1966 Act consolidates the management of all of these refuges and gives the United States Fish and Wildlife Serve Administration power on these national refuges.

The National Wildlife Refuge System Administration Act established a policy "...for the conservation, protection, and propagation of native species of fish and wildlife, including migratory birds, that are threatened with extinction..." [99]. The Secretary of the Interior is authorized to declare a wildlife species to be threatened with extinction [100]. The national commitment to protecting endangered animal species is further extended by the Endangered Species Act of 1969 [101]. The latter Act extends federal protection to the importation and interstate shipment of endangered animal species or products that are derived from them. In addition, federal protection is extended to predator control on federal lands by Executive Order 11643, which prohibits the use of poison for predator control on national lands.

Wilderness Preservation. National policy is also directed to preserving another vanishing resource, which is wilderness areas. The Wilderness Act of 1964 [102] authorizes the establishment of the National Wilderness Preservation System [103] to preserve land classified as "Wilderness Areas" by placing a set of strict use restrictions for the land area that keep it in an undeveloped state. Eventually, 40 million acres of land may be included in the system [104], and because many of these wilderness areas are located in western areas, implications to future second home development and western recreational complexes can be expected.

State Government

Environmental Control Activities

States, in recent years, have had to pass legislation in the environmental area or modify existing legislation to reflect the mandates of federal legislation. The states now have developed sufficient control networks to rectify problems with air pollution, water pollution and solid wastes. These capabilities of pollution control can be aligned with revitalized land use control regulations to effectively manage second-home developments so that environmental degradation is minimized. Land use controls have been traditionally utilized by local governments to regulate urban development. This capability has generally been granted to the municipality through state enabling legislation. In this section, the capabilities of state and local governments to effect control over environmental problems will be outlined.

Legislation

Legislation on the state level for the five state study area includes environmental statutes regulating aspects of air pollution, water pollution, and solid waste. These statutes are well developed for the study area, and each of the environmental subject areas are comprehensively developed in individual state laws. State regulatory agencies responsible for the administration and enforcement of these Acts are also in existence.

Land Use Controls

Land use controls are being reexamined in many states because of their potential for management of the development process. The Fifth Annual Report by the Council of Environmental Quality notes the interest of the states in regulating land use and lists the activities of the forty-eight who were actively pursuing those efforts.

Traditionally, land ownership in America is subject to regulation,

despite a popular notion that in this country the landowner may utilize his property in any way that he pleases. Governments at all levels exercise control over land use in basically four ways: Eminent domain, police power, public ownership, and taxation. These control leverage points are explained as follows.

1. Eminent Domain - Eminent domain is the exercise of power that is possessed by a government to condemn property for public use. Owners are paid an assessed value generally comparable to the fair market value for the condemned parcels. Exercise of this power requires a great deal of political prudence because condemnation proceedings are highly controversial and public sentiment is usually negative to the governmental authority.

2. Police Power - Police power is affected through the regulation of land use to promote the health, safety, morals, and welfare of the community. This form of regulation is intended to promote the community interest by securing a person's existence, safeguarding the enjoyment of private and social life, and promoting the beneficial use of property. Some common police controls include subdivision, zoning, and nuisance ordinances.

3. Public Ownership - The community may be a landholder, in addition to its other land-related powers. Ownership may give the community absolute rights which are available in fee simple ownership, or any number of lesser interests provided by other property agreements such as joint tenancy, convenants, and easements.

4. Taxation - Taxation is an indirect means of land use control, in that tax evaluation may delay or accelerate land development. Property taxation policies by local governments do greatly influence the types of land development patterns that occur in a community.

Land Regulation Versus Taking

Historically the regulation of land and the taking of land have been two distinctly separate legal doctrines, and it is only in recent court decisions (since the 1920's) that the restriction in the use of

land by governmental regulation may be interpreted as taking of land. Land regulation, including extensive restrictions placed on the use of land by a landholder, is a tradition found in both English and American law. However, both English and American legal systems severely limit the taking of private property by governmental authorities. The Magna Carta specifically outlawed the seizure of land by the king for his own purposes [105]. In America, taking of land for public use is limited in the Bill of Rights by Amendment Five. This amendment specifically requires that the taking of private property for use by the public be ameliorated by "...just compensation" [106].

Precedents established by rulings in the Federal Court System of the United States establishes that taking private property and the regulation of private property are two interrelated aspects of governmental power and may be limited by Amendment Five of the United States Constitution. The key court decision for land use regulation as opposed to taking is Pennsylvania v. Mahon [107], which held that when diminution of land values that results from governmental land use regulation reaches a certain level, a taking occurs and just compensation is due the landowners. Interpretation of the point at which a regulation becomes taking is determined case-by-case by lower federal courts [108].

Land use regulation for the 1970's shows that emphasis is becoming increasingly directed away from a protection of the narrow interests of private land ownership to a higher value upon the protection of environmental interests. Recent federal and state decisions have upheld governmental land use regulation of bay and estuarine areas, shoreline areas, wetlands, and large land developments. Recent state and local legislation shows an increased concern for the protection of land resources. Court decisions arising from disputes involving land use regulation show a trend that supports regulation supporting regional interest [109]. The courts have held land use regulations detrimental where benefits have accrued to only a few local interests. Local governmental officials involved in drafting land use legislation would do well to consider the trends that are presented by the recent court decisions on land use:

1. Legislation aimed at the protection of a valuable natural resource has been found more favorable by the courts than regulations which are aimed at merely protecting profits that are made off the land area by private enterprises; and

2. Legislation that is regional in the scope of its regulation rather than merely local is more likely to withstand legal contests.

Trends In Land Use Control State Legislation

Land-use ordinances for the five state area are developed in the traditional areas of building codes, subdivision ordinances, and zoning ordinances. However, variations exist among the five states with regard to the degree of regulation required by their individual ordinances. The degree of state required local ordinance control ranges from compulsory subdivision ordinances for both cities and counties (New Mexico), to compulsory county subdivision and zoning control (Arizona), to compulsory county subdivision control (Colorado), and finally to city and county subdivision plat preparation and filing regulations (Wyoming). The State of Texas does not require subdivision or zoning controls to be enacted by either county or city governments, but does extend subdivision and zoning control to special water districts. Authorization for the enactment of building codes by local governments exists in every state, with the exception of Texas.

Provisions for comprehensive planning requirements within these five states is also of interest in view of the importance that comprehensive planning presents to the coordination of land-use regulation. There are no mandatory comprehensive planning requirements in existence for any of the five states included in this study. However, all five states require that city zoning ordinances must conform to a comprehensive plan; Colorado and New Mexico require the conformance of county zoning ordinances to comprehensive plans, in addition to conformance requirements for municipal ordinances. Arizona requires that a zoning plan be included within the comprehensive plan. Two of these states, New Mexico and Texas, require conformance of subdivision regulations with comprehensive plans. Wyoming requires municipal governments to

adopt a major street plan in order to regulate subdivision plats, and is the only one of these five states requiring that one of the two most important municipal infrastructures, which are the water and transportation systems, be specifically addressed in the master plan.

CHAPTER III

ENVIRONMENTAL EFFECTS OF SECOND HOME DEVELOPMENT

In identifying environmental effects of second home development, it is necessary to describe the nature of the environment which may be affected, and then relate to that environment the location, duration, and magnitude of the human activities which will take place. This section presents a description of the environmental effects which may be anticipated, and basic activities will be described in a later section.

Environmental Impacts

An environmental impact may be defined as an alternation or change in any of the various socioeconomic or biophysical characteristics of the environment which may result when a proposed or impending action is carried out. The following discussion identifies a total of 34 environmental impacts or characteristics in five categories - aesthetics, air, land, water, and socio-economic aspects. While any such list may not include all possible areas of impact potential, it is suggested that this list be utilized as an initial summary of possible concern, and that it may be further modified as specific needs develop.

Aesthetics

Aesthetic considerations encompass a broad range of concerns which are difficult both in defining what actually defines aesthetics and quantifying the changes which occur to the aesthetics of an area. The components of the aesthetic subject area include: natural beauty, the sensual enjoyment provided by clean air and water, and the natural animal life of an area. There are other important aspects concerning the manmade features of a region. These include: the orderliness of development (for example: a slum area as compared with an upper-middle

class suburb), the sensual appeal that the architectual design of a building has, and even such abstracts as the moral climate of an area. For simplicity of application, the subject area has been reduced to three aspects related to the development of an area.

1. Disagreeable Odor Production

Odors produced by an activity which are disagreeable to people residing in the area or to visitors in the area. These odors are usually classified as public nuisances; there will be difficulty in describing an odor as disagreeable because there are no reliable instruments capable of quantifying odor other than the human nose, and because of individual differences in odor perception -- what is disagreeable to one person may not necessarily be disagreeable to someone else. Obvious sources of disagreeable odors include feedlots, chemical refineries, and open garbage dumps. Less obvious sources of odors may be a restaurant, dry cleaning establishment, or even wood burning in a fireplace. These latter sources may present difficulty in regulation.

2. Increased Noise Levels

Noise levels, particularly in a natural area, are an important aspect of the overall sensual perception a person receives from an area. Noise is measured in decibles, which is a logarithmic scale measuring the pressure differences created in the atmosphere by the passing of sound waves. Two important aspects of noise levels are identifiable: noise of long duration and relatively low intensity, and noise produced at high levels of intensity for shorter periods of duration. Examples of different noise phenomena are presented by the background noise levels of car movement along a highway, or the irritating noise of an air hammer. Noise not only presents disagreeable physical sensations, but research studies indicate that it is also psychologically and physiologically damaging to both human beings and animals.

3. Visual Aesthetic Impacts

These impacts include changes that occur to the overall visual attributes or perceptions of an area. Three important aspects of

visual aesthetics include: the overall panoramic view of an area, the clarity of the atmosphere, and design aspects of development. Important aspects are a part of each of these classifications. The panoramic view of an area is affected by blocking visual corridors, construction of structures which stand out against the background (an example of this would be a radio tower), and scarring or blight of large areas of land that tends to be obvious at close range or at long distances (tree removal, cutting roadways, excavation, etc.). Atmospheric clarity is dependent on the quality of the air, particularly the particulate and photochemical smog concentrations. These pollutants diffuse the passage of light through the atmosphere resulting in an atmospheric haze or fog, and has the effect of reducing visibility.

Air

Traditionally, the western area of the United States is noted for its clean air and freedom from the pollution problems that exist in urban areas. Leisure home developments increase the air pollution sources within a given locality, and for this reason present the potential for the eventual degradation of this relatively unspoiled resource. The maintenance of air quality in resort development locations will be a concern of major importance through the life of the project.

4. Hydrocarbon Emissions

Hydrocarbons are a general classification of a chemical group that are important constituents of many fuel sources; hence their importance as an air pollutant. Hydrocarbons are emitted from automobile exhausts and fuel evaporation, from combustion of oil, coal, or gas for electrical power generation, in incinerators, and natural sources such as the aromatic compounds emitted from some species of conifers. Hydrocarbons are important to the field of air pollution because certain hydrocarbons (particularly common in automobile exhausts) are necessary for photochemical smog to form.

5. Nitrogen Oxide Emissions

This is a classification of gaseous air pollutants formed during

combustion processes that take place at high temperatures. Sources of nitrogen oxides include automobile exhausts, power generating facilities, and incinerators. Nitrogen oxides are not only toxic, but must be present if photochemical smog develops.

6. Other Gaseous Emissions

Other gases are emitted into the atmosphere during combustion or manufacturing processes. Important gaseous pollutants include sulfur oxides, carbon monoxide, gases from acids and halogens, vapors from production of petroleum products, and vapors from volatile metals, such as mercury. Gaseous emissions may be irritants or toxins to plant and animal life. Damage to materials from corrosion, staining, or chemical change is an important aspect of damage resulting from these emissions.

7. Particulate Emissions

Particulates emitted into the atmosphere include both solid and liquid phase particles. Important particulate sources are dusts, smoke, and aerosol emissions. Important sources of particulates include automobile exhausts, power plants, vehicle movement along unpaved roadways, and industrial emissions. These pollutants are responsible for a number of unpleasant effects to man's environment. These include: soiling of homes, clothing, and other surfaces; damage to roadside plant life, abrasion to exposed moving machinery, and damage to the respiratory functions of human beings and animals.

Land

The region included in this study shows a wide diversity of geographical land areas; differences in the characteristics among land areas are generally a function of the elevation of the location. Natural conditions within each of these regions largely determines the plant and animal species, soil conditions, and meteorological variables that are important considerations when determining the types of uses which are best suited to the land area. Conditions range from desert and chaparrel country at lower elevations to tundra-like growths of lichens and mosses

above the timber line. Each of these ecological communities; that is, Alpine, Subalpine, and other vegetative groups exhibit their own particular altitude range. The environmental factors which affect the plant and animal life include the altitude, latitude, available moisture, slope steepness, and the amount of insolation the area receives. Ecological changes from one community type to the next occur gradually over distance, so that there is a transition rather than an abrupt demarcation from one community to the next. The following impacts and attributes of land will be utilized to describe the effects of recreational home development.

8. Animal Population Alterations

Animal populations are inextricably related to numbers of individuals, habitat requirements, and range areas characteristics. Impacts to animals which result in alterations to populations include: an increase or decrease in the number of individuals, elimination of important animal or plant species, impediments to animal mating patterns or migrational movements, and drastic changes to habitat areas which may include development, road construction, reservoir construction, or high levels of human activity in area. Impacts from some activities may include changes in animal activity, or changes in amount of food and shelter available to these animals.

9. Critical Terrain Use (shoreline, hillside, wetlands, floodplains)

Certain land areas are extremely valuable to overall environmental quality. This includes shoreline areas (erosion and water quality protection), hillside use (fire hazard and erosion control), wetlands (groundwater recharge, animal and fish populations, water quality), and floodplains (groundwater recharge, animal habitat, flood protection).

10. Erosion

Erosion is simply defined as the stripping of soil by wind or water forces, with displacement and deposition in other areas. It presents serious problems for the protection of the quality of land and water resources.

11. Fire Hazard Intensification

Fire hazard within these communities is related to the climate, physical features of the area, and fuel characteristics. In addition, human activity intensifies the potential for the occurrence of fire. Fire hazard intensification is an increase in the probability that fire will break out given certain characteristics of residential or industrial development, the type of fire prevention programs carried out in the area, and the physical characteristics of the land area.

12. Plant Population Changes

Impacts to this subject area reflect alterations to the naturally occurring plant populations of an area. Impacts include the effects of increasing or decreasing the areal extent of vegetated areas, elimination of species, and introducing new species of plants and animals to an area.

13. Slope Alterations

This category includes the effects of activities that change the slope or the natural contour of a land area. The importance of these changes affects other areas; notably erosion, runoff, and drainage characteristics.

14. Soil Changes

Soil changes include compaction of soils resulting from traffic or construction activities, replacing original soils artificially with another soil type, and the removal of soil from areas by natural forces or artificial means. The net result is a change in soil texture, composition, or quantity, from the naturally occurring soil types.

Water

The development of second homesites and the growth of resort towns in the southwest involve important decisions regarding the development and apportionment of water resources for sources of water supply. Urbanization of mountain watersheds brought about by the development

of recreational property presents water quantity and quality problems to the downstream reaches of western river basins that are dependent on surface runoff from high altitude catchment basins for flow maintenance. Likewise, the extensive development of groundwater sources to provide water supplies to recreational developments also threatens the availability of an important water resource, particularly in areas where the groundwater supply is not naturally recharged. The following environmental characteristics associated with water quality and quantity may be utilized to determine the effects of second home development.

15. Aquatic Animal Population Changes

Changes which occur to alter either the diversity of the different species in a water, or an increase or reduction in the number of individual animal members within a given specie type. Changes to animal populations are very important for two reasons: (1) Most of these aquatic species are important either as gamefish, or important as food sources to gamefish; and, (2) some species tend to be very sensitive to the quality of the water and therefore are useful as indicators of water quality changes.

16. Bacteriological Aspects

Bacteriological characteristics of a water source are extremely important from a public health point of view. Disease-causing agents found in a water source may either be pathogenic bacteria or disease producing viruses. Other microorganisms can affect the taste, odor, color, turbidity, and BOD of a water source. The major source of bacterial pollution to a water source is from sewage contamination, either from disposal points, e.g. septic tank leach fields or from leaking sewer lines. Animals also introduce bacteria to a water supply from direct contamination with body wastes or surface runoff entering the water source after flow across stockyards and pasturelands. BOD (organic chemical pollutants in the water source) is removed by certain species of bacteria in a water. The removal of BOD is important for two reasons: (1) it is the natural process by which a water regains its quality following the effects of pollution; and (2), the bacterial action depletes

the oxygen dissolved in the water and may lead to fish kills and other undesirable effects.

17. Chemical Pollutants

This is a broad classification of pollutants in a water source which exist as trace elements or chemical compounds. Chemical compounds are important because they represent a serious threat to public health when introduced into a water source. Many chemicals are toxic in minute quantities; others may present taste and odor problems in a public water supply. Important chemical pollutants include pesticides, trace metals from industrial effluents, radiation sources, and hydrocarbon pollutants often entering a water source from automobiles.

18. Color

This is an important water quality criteria from an aesthetic point of view rather than a public health viewpoint. Color in a water source occurs both naturally and is induced artificially, usually by waste effluents entering a water source. Color changes in a water source decrease the public enjoyment of a naturally occurring source, and increase the cost of treated water because of the specialized treatment processes that are required to remove the color-producing agencts.

19. Obnoxious Plant Growth

Plant growths which are very disagreeable from an aesthetic point of view are included in this category. Algae growth in water results in surface and subsurface growth that is very disagreeable to swimmers, boaters, fishermen, and inhabitants along the shoreline. Decomposing algae produces disagreeable odors and can result in fish kills. Taste and odors may be introduced into a public water supply by the growth of algae and other plant growths. Obnoxious plant growth is nurtured by nutrients in the water source; these nutrients often enter a water source following the application of fertilizers or the discharge of waste effluents.

20. Odors

Odors from a water source are important from an aesthetic point of

view for both recreational and consumptive uses of water; the desirable condition is for a water source to be odorless. Disagreeable odors in a water source are often the result of conditions of excessive aquatic plant growth, certain microorganisms, refuse dumped into the supply, odor-causing organic chemicals, and septic sewage.

21. Taste

Odor and taste problems are related because of the close inter-relationship between these two senses from a physiological basis. Tastes in a public water supply are not dangerous from a public health standpoint, but are a source of public complaint about a water supply from an aesthetic viewpoint. The same types of materials that cause odor problems are responsible for tastes in a water supply; these contaminants include obnoxious plant growths, organic chemical compounds, and certain microorganisms.

22. Turbidity

Turbidity is the result of the diffusion of light passing through water which contains a large amount of suspended material; this gives the water a cloudy or murky appearance. Turbidity is mostly an aesthetic concern, but does present difficulties in disinfection of water for public supply. It also has an effect on aquatic life in a natural water body and may be expensive or difficult to remove from a public water supply.

23. Drainage Patterns

Natural drainage patterns are established by surface runoff over a time period of many years. Natural drainage channels, groundwater recharge, and surface water depends on soil characteristics, the amount of precipitation, vegetation, and geological features. Drainage patterns also include artificially induced drainage, which is the result of changes to the areal extent of impermeable surfaces, drainage channels, and the slope of the land.

24. Streamflow Variations (Flood, Low Flow, Withdrawals)

Natural Streamflows show annual and cyclic variations from flood

to low flow extremes. Natural streamflow patterns are altered by withdrawals taken from the natural streamflow. Diversion of surface runoff to a stream which ordinarily would enter the flow is also a type of withdrawal with an effect upon streamflow variation. The streamflow is important to other environmental areas which includes aquatic life, groundwater supply, and waste assimulation capacity of the stream. Accentuations of natural streamflow present potentially deleterious effects to these related environmental variables.

25. Stream Channel Modification

Modifications to streams include widening, deepening, straightening, bank improvements, and culverting. Stream channel modification alters the velocity, depth, and accentuates flow variations.

26. Groundwater Quality

The quality of groundwater is dependent on the chemical, bacteriological, and physical characteristics of the water. These constituents include: hardness, the content of corrosive gases, temperature, odor, and bacteria within the water. The potability of groundwater as a source generally depends on the depth at which it is found; water located at greater depths generally contains greater amounts of dissolved chemical constituents, which often adversely effects its potability. Groundwater quality is often affected by wastewater conveyance and disposal systems, which are potential pollution sources.

27. Groundwater Supply Quantity

The supply of groundwater for an area may either be a replenishable or an exhaustible source. A groundwater supply that is continually replenished is inextricably related to the surface water characteristics, which includes drainage patterns, streams, lakes and other impoundments, as well as wetland areas. Aquifer recharge areas, which include wetlands, forested areas, and floodplains, are important for the continual replenishment of the aquifer. Source water withdrawn from an exhaustible groundwater supply is an irreplaceable resource, which is why development of these sources should only be accomplished after an extensive

study of the source of supply is completed.

Socio-Economic Aspects

Socioeconomic alterations are also important implications of second home developments. The growth multiplication effects of leisure homesites often stimulates the increased complexity of commercial, local community, and industrial development of an area. Problems that can result from the growth multiplication effects of leisure home developments include difficulties in meeting the increased demands for recreational complexes such as ski slopes, expanding areas of urban blight, and competition among various competing interests for the use of natural resources. Foreseeable problems for the public sector concerns of second home developments center around meeting the financial responsibilities entailed in expenditures for public works and community services to meet the needs of rapidly expanding populations. The following environmental considerations may be important to second home developments from the socio-economic standpoint.

28. Commercial Activity

This category includes impacts to private enterprise within an area. Commercial activities include agricultural, forestry, mining, manufacturing, wholesale and retail, service, financial, and amusement businesses. Commercial activities provide the livelihood for individuals and input for the economic life of the region.

29. Energy Demands

Demands made on the energy utilities of the community. There are several aspects to community energy system: supply aspects of fuels (petroleum products, coal, nuclear), electrical generating capacity, and the distribution system. Energy demands will also depend on the type of home construction, the type of home appliances, and the type of heating and cooling equipment installed during home construction.

30. Financial Institutions

Impacts to lending institutions are included in this category. The

availability and cost of money for capital expenditures are the two most important aspects of this subject.

31. Housing Demand

Impacts to the availability of housing can be included in this category. There are two segments of the housing supply demand for resort cities: (1) the supply of recreational lots and houses for the seasonal residents of the community, (2) the supply of housing for permanent residents of the community (generally, housing for this segment will be less elaborate and located in less desirable locations.)

32. Public Service Requirements

Public service requirements are the demands that individual homeowners and businesses within the community require with respect to educational needs, fire, medical, police protection, road maintenance, and sanitation on a yearly basis.

33. Recreational Requirements

Impacts to the recreational sector include a consideration of several different areas. These areas are: the available recreational area and the average density of use on these areas, the ability of the community to provide for the continual maintenance of these areas, and the need to continually expand and upgrade recreational areas.

34. Transportation Controls

Community regulation of traffic and parking for roads and streets within the city limits. The controls to regulate traffic include: enforcement personnel, regulation devices (signs, lights, etc.), and system studies to provide continuing upgrading of the transportation system.

Activities In Second Home Development

From the initial planning stages, through construction, and finally into occupancy stages, second home development activities are many and diverse. This section outlines the more significant activities

which take place during this process and provides a basis from which to identify potential areas of environmental impact and controls which are most applicable to minimize adverse effects.

The activities are grouped into two phases -- the planning/construction phase and the occupancy phase. The activities are identified numerically, as indicated below. In reviewing the activity list, the user should identify those activities which will be associated with the project being evaluated. Eliminating those activities which are not likely to occur will expedite subsequent steps in the analysis.

Planning/Construction Phase

The activities associated with planning, while not resulting in direct environmental effects, provide areas where various controls may be utilized to prevent environmental damage during subsequent phases. Construction activities are more commonly associated with environmental disturbance, but may be accomplished with a minimum of environmental damage.

Acquisition for Development

1. Initial Phases of Acquisition

The future developer undertakes to find property suitable for the type of development he intends to construct, whether it is an apartment complex, a subdivision, or a condominium development. Some type of purchase agreement is usually agreed upon by the land buyer and land seller. This usually takes the form of an option to buy which essentially charges the buyer with a set rent if he does not purchase the land within a specified time intervel. If the developer already owns the land, pre-acquisition activities will be limited to an examination of the market advantages and legal restraints for a particular land parcel.

2. Interim Property Transactions

These transactions include legal investigation into the title validity, obtaining title insurance, and financing the investment, which is usually accomplished by mortgage financing. The actual loan

details depend upon agreements made between the lender and borrower. Costs involved include legal fees, title insurance, and the cost of the mortgage.

3. Finalized Property Transactions

These transactions are the concluding business transactions that allows a developer to obtain control to accomplish his plans for construction. In most cases, the land will be held in fee ownership by the developer, which gives him the absolute right of disposition. Lesser agreements may also permit the developer to accomplish his purpose; these agreements include joint tenacy and lease agreements. Following these transactions, the actual development procedure begins.

Project Design

4. Preliminary Project Design Submitted

Local governments empowered by the state governments to regulate development often require a developer to submit a detailed plan of his project for review under the comprehensive community plan, which allows a community to assure that any proposed development conforms to the general use for the area established in the community plan. For example, subdivision regulations, the most common form of local development control, often require the developer to submit a preliminary plan of his proposed development.

5. Project Review

Project review includes the evaluation of the proposed project by the local advisory board and their consultants to assure that the project is in keeping with community development, and that design standards for streets, drainage, and other provisions are incorporated.

6. Project Design Approval

A project receiving a favorable opinion by the local advisory board allows the development process to proceed; if a project is rejected, the board usually lists conditions necessary for removal if final approval is to be granted. Actual construction activities are usually contingent

upon the filing of a finalized plan of the development with the county recorders office. Once this is done, construction may begin immediately or after a set waiting period.

Site Development Preparation

7. Site Survey

Survey of the site to delineate property boundaries. Careful location of property boundaries will eliminate future boundary disputes.

8. Road And Utilities Layout

Preliminary layout of roads and utilities right-of-ways prior to their construction and installation.

9. Temporary Access Road Construction

The construction of roadways to allow access of men and machinery to the construction site. These roads are usually unsurfaced and are often abandoned after construction has been completed.

10. Bridge and Stream Crossing Construction

The construction of bridges and stream fords before permanent roads are constructed to allow vehicle movement over area streams.

11. Permanent Road Construction

The construction of major and minor roads through the project area. These roads will be graded and surfaced with the necessary drainage structures. Community standards govern their design and they are maintained over the life of the project.

12. Sewer Installation

Sewer mains are installed prior to the construction of houses. Design specifications for installation are set by state and local authorities. Installation usually follows major road or alley thoroughfares.

13. Drainage Installations

Installation of storm drainage usually accompanies the installation of sanitary sewers.

14. Utilities Installation (Gas, Electricity, Telephone)

Utilities distribution lines are installed early in the project construction phase. They are often laid along street right-of-ways.

Pre-Construction Activities

15. Developer - Home Builder Transactions

These transactions occur between the development property owner and the home builder (the developer may be the home builder) prior to home construction. Transaction types include fee transfers, joint tenancy, leases, or contract agreements which allows home construction to be initiated and completed.

16. Building Permit Approval

Securing a building permit from the local governmental authority is a prerequisite for the construction of a structure on the site. Normally a permit is granted if the structure conforms to land use restrictions for the area.

Lot Development

17. Lot Clearing

Removal of geologic and vegetative obstructions from the site to allow home construction.

18. Lot Grading

Grading the homesite to insure proper drainage will occur. Grading specifications are included in most subdivision regulations and the developer is required to follow them during construction.

Building Construction

19. Materials Delivery

Transport of materials to a building site to accomplish the construction of the building. Movement may be over temporary access or permanent road networks. Vehicle movement with materials will be more intensive at the outset of the project, but this activity is a continuing process throughout the construction phase.

20. Water, Sewer, and Utilities Provision

Providing each homesite with water, sewer, electricity, and gas is included in this activity. Connecting each homesite to water and utility mains is all that is required in most instances, but this may also include installing individual wells, septic tanks, and gas containers.

21. Home Unit(s) Construction

The erection and completion of the major structural facility is included in this category. The completed building may be a single-family residence or may be a multi-family housing unit, such as a condominium or apartment complex.

22. Ready-Built Home Placement

This category was created to include housing units which are delivered to the homesite essentially complete: Examples include mobile homes and A-frame type cabins. Installation procedures are minimal, and usually only involve placement, tie down, and utilities connection.

23. Private Roadway and Walkway Construction

These are paving activities which individual house owners undertake to provide roadways, driveways, and walkways for access to individual homesites.

24. Yard and Grounds Landscaping

Establishment of physical features of the yard area and permanent vegetation for each individual lot or housing project.

25. Construction of Recreational Facilities

Privately owned and operated recreational facilities are included in this classification. Examples of these facilities include private parks, golf courses, country club-type operations, tennis courts, and ski areas. These privately-owned facilities may later be dedicated to public use.

26. Community Water Improvements

Improvements to local water areas in the immediate proximity of the

housing project may be carried out. Examples of this type include providing shoreline access, stream channel cleaning, channel straightening, streambank seeding and planting, and the provision of structural improvements.

Occupancy Phase - Private Sector

After construction is completed and second home developments become occupied, the nature of the activities of potential environmental concern shifts to those more commonly associated with the operation of a typical community. However, some special consideration must be given to the mountain setting, the recreational needs and desires of the population, and the seasonal changes inherent in this combination.

The activities associated with the occupancy phase include those pertaining to the private sector, the public sector services, and the commercial and professional sector.

Temporal Occupancy

27. Winter

Leisure home developments which are characterized by intensive occupancy patterns throughout the winter months of the year. Occupancy of seasonal homes (distinguished from the permanent housing of the community) will show a very high percentage of use for winter oriented occupancy. Winter community services (heating, electricity, snow plowing, etc.) will have to be expanded to meet the increased demands from high winter use rates.

28. Summer

Resort city occupancy patterns in which high rates of seasonal home use occur over the summer months of the year. Seasonal home use throughout the summer will be of characteristically high for communities with summer occupancy patterns.

29. Trans-Seasonal

The use pattern of homes in resort cities during the interim period

between the major seasons of winter and summer.

30. Permanent

Resort communities which have shifted their use patterns from high levels of transient residents during the recreation seasons to an increasingly more permanent year-round residency pattern. It should be pointed out that fluctuations in population levels may still occur in these communities.

31. Weekday Fluctuations

Transient population increases during the weekday period for resort cities. The pattern of population increase and decrease is a short-term phenomena; the residency pattern generally will readjust to normal levels of permanent residents within the time period between weekends.

32. Weekend Fluctuations

Population fluctuations which occur over a period extending from Friday to Monday. The population fluctuations may increase community residency levels several times over their normal size on a short-term time frame, which will place a great amount of stress on community support facilities. This phenomena may be a onetime event, a weekly occurrence, a periodic occurrence, or an event which occurs once a year.

33. Special Events

Occupancy increases may be triggered by a special event, such as a music concert, horse race, a holiday, or sporting event. Population increases will usually be short-term in duration, but may peak at levels greater than full occupancy.

Occupancy Support Requirements - Scattered Lot Development

Differentiation between community development patterns is described by three classifications; Scattered lot development, simple subdivision developments, and high amenity developments. Scattered lots are intended to describe the development of land by individual parcels separated by expanses of undeveloped land. Development procedures are an individual concern for the landowner for the largest part, and community amenities

such as road access, water and sewer service, and electricity may be or may not be available depending on the location of the lot.

Home energy requirements include energy necessary for all heating, cooling, lighting, and appliance use. The energy required by scattered lot developments may be supplied by community electrical and gas mains, but in most cases will be heavily dependent on wood burning and individual home containerized gas facilities. Electrical energy may have to be generated on the site if access to community supplies is not available.

34. Heating Requirements

Energy requirements for home heating, which includes wood burning, natural gas, electricity, coal, and other energy consuming modes of heating provision. Requirements for heating will be most intense during the coldest months of the year, but heating may be a year-round requirement, particularly at high altitudes.

35. Cooling Requirements

Home energy required for home cooling (air conditioning). Cooling requirements will generally be heaviest in the summer.

36. Electrical Requirements

Energy in the form of electricity consumed in the home for heating, cooling, lighting, and appliance needs. This energy is supplied to each individual homesite through a utility network of surface and subsurface cables, which are supplied from a central generating source.

37. Solid Waste Generation

Solid waste contribution from individual homesites, which includes garbage and rubbish from household wastes, yard rubbish, discarded vehicles and equipment, and a variety of other waste. Average production amounts will be about five pounds per capita per day.

38. Water Supply Demands

Scattered lot developments will create impacts to area water supplies during their occupancy. Impacts to groundwater resources will occur in most cases because private wells will be utilized as supply sources.

39. Wastewater Generation

Occupancy of scattered lots will result in the production of amounts of wastewater from household use. Disposal of this wastewater will be required; on-site disposal methods (septic tanks - leach fields, for example) may be required if access to a sanitary sewer is not available.

40. Yard and Landscaping Activities

These activities include reshaping the slope and permeability of yard areas, planting domesticated grass and shrubs, and maintenance of these areas by fertilizer application and pruning. Scattered lots present minor cumulative effects compared to other types of development, largely due to their smaller areal extent.

41. Vehicle Movement and Parking

Vehicle movement along access roads to the homesite, and parking of the vehicle during periods of non-use at the site.

Occupancy Support Requirements - Simple Subdivision Developments

These developments are denser community developments as compared to scattered lot developments. These developments are characterized by at least three or more contiguously developed lots. Roads, drainage, electricity, and water and sewer service are provided in most cases. This may not be a hard and fast rule in all subdivision developments, and the individual homesite owner may be required to provide his own amenities.

Home energy requirements include the energy consumed in all forms for home heating, cooling, appliances, and lighting. The amounts of energy required by each individual home, as well as the greater cumulative effects of this energy use will differentiate energy requirements for subdivisions from that of scattered lot developments.

42. Heating Requirements

Home heating requirements for simple subdivision developments will be supplied from community energy services for the most part; in some instances each individual property owner will supply his own energy needs

from individual gas supply and wood burning. Wood burning in home fireplaces will be a major activity in these types of subdivisions.

43. Cooling Requirements

Cooling loads for simple subdivisions will have a greater cumulative effect than for scattered lot development. Cooling loads will be greatest in the summer for air conditioning requirements.

44. Electrical Requirements

Electrical requirements include the energy consumed for all home applications. Heating and cooling requirements constitute the bulk of the electrical demand, although the total demand will be some what higher than either of these demands alone. Subdivisions also may require additional electrical energy for lighting streets and other outdoor areas.

45. Solid Waste Generation

Simple subdivisions will generate similar amounts of waste per capita as do scattered lot developments. The cumulative impact of this waste generation will be greater than for scattered lot developments in its requirement for collection and disposal.

46. Water Supply Demands

Simple subdivision developments will create impacts to water supply sources. Water will be required for individual use in the household, as well as for outdoor uses such as lawn watering, car washing, etc.

47. Wastewater Generation

Simple subdivisions will generate amounts of wastewater as a result of individual use in the household. The cumulative effect of wastewater generated from subdivision developments will present problems of greater magnitude for treatment and disposal than will comparative scattered lot developments.

48. Yard and Landscaping Activities

Landscaping and establishment of yards will be carried out to a greater extent as far as alteration of slope, permeability, yard vegetation

types, and yard maintenance activities such as fertilizing when compared to similar scattered home developments. Subdivision developments tend to take on the appearance of similar developments in an urban setting, particularly for house and yard design. The cumulative effects will be correspondingly higher.

49. Vehicle Movement and Parking

Vehicle movement through subdivision type developments will increase as the density of the development increases. Parking of individual cars along thoroughfares within the development will also be a problem of a correspondingly greater magnitude as development proceeds.

Occupancy Support Requirements - High Amenity Subdivisions

High amenity is used to describe those leisure home developments which have all the community services of a comparable subdivision type development; amenities which include streets, water and sewer service, and utilities. In addition to these amenities, the high amenity subdivision has extensively developed recreational facilities such as golf courses, tennis courts, swimming pools, and club houses. The use of these facilities is usually reserved to homeowners within the project area.

Home energy requirements for high amenity subdivisions will be consumed for home heating and cooling, lighting, and appliance use. The amounts of energy consumed for these purposes will probably be somewhat greater than for a typical subdivision-type development due to the use of more electrical equipment for home conveniences than in the case for less expensive subdivision developments. Additional energy will be required in the operation of recreational facilities.

50. Heating Requirements

High amenity subdivisions will require energy to meet their home heating requirements. Per capita energy requirements will include energy used in heating the recreational facilities, and because of this, will be higher than for a typical residential subdivision. Wood burning in fireplaces will also be an important heat source.

51. Cooling Requirements

Cooling requirements for high amenity developments will be heaviest during the summer months. Energy required for cooling high amenity developments will normally be greater than for other types of leisure home developments due to a greater prevalence of centralized cooling equipment in these houses.

52. Electrical Requirements

Requirements for electricity in high amenity developments is the result of home heating and cooling, lighting, and appliance use. Electricity will also be consumed in supplying the energy needs to recreational facilities. The requirements for electricity for the recreational facilities will be consumed for clubhouse heating and cooling requirements, swimming pool heating, outdoor lighting, and other comparable uses.

53. Solid Waste Generation

Generation of solid waste taken on a per capita basis will be approximately the same as other types of development. The amount generated will be approximately five pounds of waste per capita.

54. Water Supply Demands

Demands upon water supplies from high amenity developments will generally be much greater than for a typical residential subdivision due to greater per capita domestic use (water use for household purposes is generally greater for higher income brackets), larger yard areas that are watered and water for recreational facilities (swimming pools, golf course watering, and other uses.) The water supply may be a community-owned surface or groundwater source or a source owned and operated by the private facility.

55. Wastewater Generation

Per capita wastewater generation for high amenity developments will be greater than amounts generated by most residential subdivisions, because high amenity subdivisions are associated with higher socio-economic

income brackets and per capita water use and wastewater generation tend to be higher for these groups. Wastewater generation will require collection, treatment, and disposal methods that is provided by sanitary sewer and treatment plant service.

56. Yard and Landscaping Activities

High amenity developments are characterized by large areas of landscaped and planted areas, which include large yards and golf courses. Landscaping and yard maintenance activities, including fertilizing, mowing, and watering, will present a greater cumulative effect than most residential developments.

57. Vehicle Movement and Parking

Vehicle movement and parking for high amenity developments will be typical of vehicular activity for residential developments of comparable densities. These developments will generally have wider streets than ordinarily are constructed in most subdivisions, and population densities are lower because of larger yards and houses. Generally off-street parking is provided.

Local Winter Recreational Activities

Local area attractions refer to natural or manmade attractions of a given locality which present opportunities for individual recreational activity.

58. Camping

This category includes camping activity for overnight stays or longer during the winter season.

59. Driving for Pleasure

The use of vehicles for drives intended strictly for pleasure during the winter months, these drives are defined as lasting approximatley one-half hour in duration with the vehicle confined to the roadway.

60. Fishing

Fishing activity during winter months; this includes ice fishing as

well.

61. Hiking

Hiking activity which is foot travel with a definite objective; overnight rest stops are included under the camping category.

62. Hunting

Hunting is the killing of game animals by lawfully prescribed methods.

63. Ice Skating

Individual ice skating activities.

64. Motorcycling

Motorcycle riding for pleasure rather than for strictly transportation purposes.

65. Off-Road Vehicle/Snowmobile Use

Vehicle use by individuals as a recreation means off established roadways. These vehicles are designed for travel off paved roadways and are usually 4-wheel drive models and snowmobiles.

66. Pleasure Walks

Walks by individuals with no objective other than pleasure. These walks include walks of at least one-half hour in duration requiring no equipment or cross-country objective as would be the case for hiking.

67. Skiing

Snow skiing activities by individuals.

68. Sledding

Sledding recreation by individuals.

69. Other

A category intended to include any recreational activity not specifically mentioned in the above list.

Winter Commercial Recreational Attractions

Recreational attractions which are organized as a part of a large scale commercial venture. Individual participation in these activities is possible only by paying a user charge. Commercial recreational attractions may include or contribute to the development of other commercial ventures such as eating and lodging places.

70. Bowling

Bowling activities in a commercial establishment.

71. Skating

Skating either on commercial ice rinks or on roller skating rinks.

72. Skiing

Snow skiing on commercially established slopes.

73. Swimming

Swimming in a pool operated by a private or public interest. Admission charges usually will be made.

74. Other

Other commercial activity not specifically mentioned above.

Local Summer Recreational Activities

75. Bicycling

Bicycle riding for pleasure along established bicycle routes rather than use for personal transportation.

76. Boating

Pleasure boating as a recreational activity.

77. Camping

Camping activity for overnight periods or longer in duration.

78. Canoeing

Recreational activity using canoes in boating activity.

79. Driving For Pleasure

Same as 59.

80. Fishing

Summertime fishing activity by individuals; this does not include ice fishing.

81. Hiking

Same as 61.

82. Horseback Riding

Riding horses for pleasure; usually this will be done along established horseback trails.

83. Motorcycling

Same as 64.

84. Off-Road Vehicle Use

Same as 65. (Excluding snowmobiles.)

85. Picnicing

Activity devoted to picnicing, usually carried out in designated areas and specifically differentiated from hiking and camping pursuits.

86. Pleasure Walks

Same as 66.

87. Sailing

Recreational boating in which sail boats are used.

88. Swimming

Individual participation in swimming in areas not organized for group participation.

89. Other

A category to include any local area attraction not found in the above list.

Summer Commercial Recreation Activities

90. Bowling

See 70.

91. Golf

Recreation use of a privately or publically owned golf course.

92. Horse Racing

Horse racing and its supporting establishment catering to public recreation diversion.

93. Skating

Same as 71.

94. Swimming

Same as 73.

95. Tennis

Tennis clubs or local courts which provide a tennis court to a participant in return for membership dues or a court fee.

96. Other

A category to include any summer oriented commercial activity not specifically mentioned in the above list.

Occupancy Phase - Public Sector Services

Public sector services refer to services provided by a local government for persons residing within its area of jurisdiction. These services are provided for the health, safety, and welfare of those living within the political boundary.

Miscellaneous Community Services

97. Education System

The primary and secondary school buildings, personnel, and administrative structure which furnishes public educational instruction, as

required by state law, to area residents.

98. Fire Service

Community fire service involves personnel, equipment, buildings, and the administrative structure necessary to provide the local residents and those immediately outside the local political boundaries with emergency fire service; i.e. the capability to respond to outbreaks of fire. Fire services will also involve carrying out fire prevention and inspection programs within the community.

99. Hospital And Ambulance Service

Community provision of hospital building, personnel, administration, and equipment that is necessary to provide both emergency and long term health care.

100. Police Protection

Personnel and support functions of a city police organization necessary to provide protection of the life and property of community residents.

101. Recreation Management

City management of public recreational areas. This includes both construction and maintenance of recreational facilities, as well as the personnel and administrative structure to accomplish these tasks.

102. Emergency Rescue Operations

The physical setting of resort cities and individual participation in outdoor activities will require that the community make provision for emergency rescue operations of persons injured or stranded in remote or inaccessible areas. A cooperative effort between different governmental authorities on the local, state, and federal level often will be required to provide the personnel and equipment needed to carry out these operations in difficult terrain.

103. Municipal Administration

The administration structure of coordinating the public employees

serving in various departments.

Solid Waste Services

104. Collection of Solid Waste

This involves the transfer of solid waste at individual sites from containers to transport vehicles. Litter collection programs are also included in this category.

105. Disposal Operations

Disposal of community solid waste involves the transport of the waste from the collection site, any predisposal processing (for instance, baling, shredding, incineration, or any other processing), and final disposal in a community operated landfill.

Transportation Sector

106. Road Maintenance

Maintenance operations on community roadways and their related structures. Included in this category are repaving, road surface patching, and repair of structures.

107. Traffic and Parking Control

Traffic and parking control involves providing control lights, parking, and maintenance of these items to assure orderly traffic flow through the community.

108. Road and Street Improvements

The on-going capital improvements program for the community to provide such things as extensions of paved street surfaces, widening existing roadways, providing parking space, and conducting studies for future improvements to the community street system.

109. Airport Facility Provision

Operation and maintenance of public provided airport facilities. This includes the initial construction, maintenance, and future expansion of aircraft control systems.

Water Services

110. Water Supply

Planning for and providing community water supplies. Important areas of concern to this subject area includes acquisition of the land area that is needed for reservoir storage, obtaining the water rights to a particular source, and the ongoing planning process for continual upgrading water supplies.

111. Water Treatment and Distribution

Construction, maintenance, and administration of community water treatment works and distribution systems that is necessary for providing a safe and dependable source of water to all community residents. Operation and maintenance of the existing system will be a community program of top priority.

112. Sanitary Sewers

Sanitary sewer system provides collection and transport of wastewater from individual residences to the treatment plant.

113. Centralized Wastewater Treatment

A publically or privately owned and operated waste/water treatment plant, in which waste/water from residential and commercial establishment is treated and disposed of.

114. Storm Sewers and Drainage Structures

Structural facilities providing collection and transport of surface runoff following rain storms.

115. Stormwater Disposal

Disposal of stormwater collected and transported to the site by the storm sewer system. Disposal points may include surface waters of artifically constructed ponds.

Commercial and Professional Sector

These activities are included to allow the user to incorporate consideration of impacts from the commercial developments of the

community.

116. Agriculture, Forestry, Mining

This classification includes agricultural establishments, such as farms, ranches, dairies, greenhouses, nurseries, and orchards that produce or market plants or animals. Forestry includes firms engaged in timber tracts, tree farms, forestry nurseries, forestry products, or general forestry services. Mining industry includes the extraction and processing of minerals and fuels, which include coal, ores, natural gas, and petroleum.

117. Construction

This category includes new work, additions, alterations, and repairs. Construction businesses are usually managed from a central point, but individual jobs are commonly dispersed geographically. A general classification of the construction industry may be included in one of these general groupings: (1) building construction, (2) general contract work, (3) construction by special trades (plumbing, carpentry, painting, etc.)

118. Manufacturing

Business establishments engaged in the mechanical or chemical transformation of materials or substances into new products.

119. Transportation, Communications, Electric, Sanitary Services

This includes firms which provide services to private individuals or businesses, passenger and freight transportation, communication services, electricity, gas, steam, water, and sanitary services. The U.S. postal service is also included in this classification.

120. Wholesale Trade

Business enterprises which are engaged in selling merchandise to retailers. This includes transactions to industrial, commercial, agricultural, or various other retail establishments.

Retail Establishments

These businesses are engaged in selling merchandise for personal

or household consumption. Services may be rendered incidental to the purchase of goods. Important characteristics of these businesses include: an established business location, usually an advertising or promotional program, buying or receiving wholesale goods, intermediate processing of these goods, and retail sale of goods to the consumer market.

121. Building, Mobile Homes

These establishments sell lumber and other building supplies, paint, glass, hardware, lawn and garden supplies, and mobile homes.

122. General Merchandise

General merchandisers sell items such as dry goods, apparel, furniture and home furnishings, small wares, hardware, and food. The types of business establishments include department stores, variety stores, general merchandise stores, general stores, etc.

123. Food Stores

These are retail stores that are primarily engaged in selling food for home preparation and consumption.

124. Automotive Supply and Gas Stations

This retail category includes dealers selling new and used automobiles, boats, recreational vehicles, trailers, motorcycles, new and used automobile parts and accessories, and gasoline service stations.

125. Clothing Stores

Retail stores engaged in selling new clothing, shoes, hats, underwear, and related personal wear.

126. Furniture, Home Furnishings, Equipment Stores

Retail stores selling goods used as furnishings in the home, floor coverings, draperies, glass and chinaware, home appliances, and new and used furniture.

127. Eating and Drinking Establishments

These are buisnesses primarily engaged in selling prepared food and

drink for consumption on the premises or at other locations. Drinking establishments are also included in this classification.

128. Other

Miscellaneous retail establishments not specified in one of the previous groups.

129. Finance, Insurance, Real Estate

These establishments are primarily engaged in the fields of finance, insurance, and real estate. The types of individual enterprises include: banks, holding companies, loan companies, etc.

Service Establishments

Businesses that are primarily engaged in providing a wide range of services to individuals, businesses, government, and other sectors.

130. Lodging Places

Commercial and institutional establishments which provide lodging, lodging and meals, and camping facilities on a fee basis.

131. Personal Services

This includes places of business devoted to such things as laundries, cleaners, portrait studios, beauty and barber shops, etc.

132. Business Services

These establishments render services on a fee or contract basis. Services rendered include advertising, mailing, employment, research and development.

133. Automotive Repair

These establishments provide automotive repair, leasing, and parking services to the general public.

134. Motion Pictures

Establishments which produce or distribute motion pictures; television and other film or tape production is also included.

135. Amusement and Recreational Services

These businesses provide amusement or recreation on a fee or admission basis. Refer to activities under "Recreational Activities".

136. Health Services

Establishments devoted to furnishing medical, surgical, and other health services to individuals.

137. Legal Services

Establishments which are occupied with providing legal advice or legal services. Persons engaged in these services are members of the bar.

138. Educational Services

These institutions provide formal academic or technical courses, correspondence schools, commercial and trade schools, and libraries.

139. Membership Organizations

Organizations which function on a membership basis. These include trade associations, professional groups, labor unions, political and religious groups, etc.

140. Private Households

Private households employ persons for a wide variety of jobs; these include cooks, maids, babysitters, butlers, personal secretaries, etc.

141. Other

Services supplied by establishments not named in the above list. This includes engineers, architects, accountants, artists, etc.

Relationship Of Second Home Development Activities To Environmental Impacts

In order to relate activities associated with second home developments to environmental impacts, it was determined that a matrix display would be best suited to present a summary of the potential effects

identified. The matrix developed is nothing more than a visual aid which is constructed from the lists of activities and environmental impact categories presented in the preceding sections. By placing the activities along the horizontal axis of the matrix and the environmental attributes along the vertical axis, each activity may be compared with each attribute and a mark placed at each intersection where the potential for interaction or impact is likely to exist.

The figures on the following pages show the activity/impact matrix that has been developed for evaluating the environmental effects of second home development in mountain regions. It should be noted that this matrix was developed for general use, and the marked intersections indicate those impacts which are most likely to occur when a particular activity takes place in a "typical" mountain setting. For some specific cases, many of the activities or impacts may not occur. For other cases, some impacts may occur that have not been marked.

In reviewing the environmental impact matrix, the user should relate the various activities and impacts to the environmental setting in the affected area. In this manner, many of the suggested impacts may be eliminated, while others may be verified for subsequent consideration.

Figure 1. Second Home Development Activities And Environmental Impacts

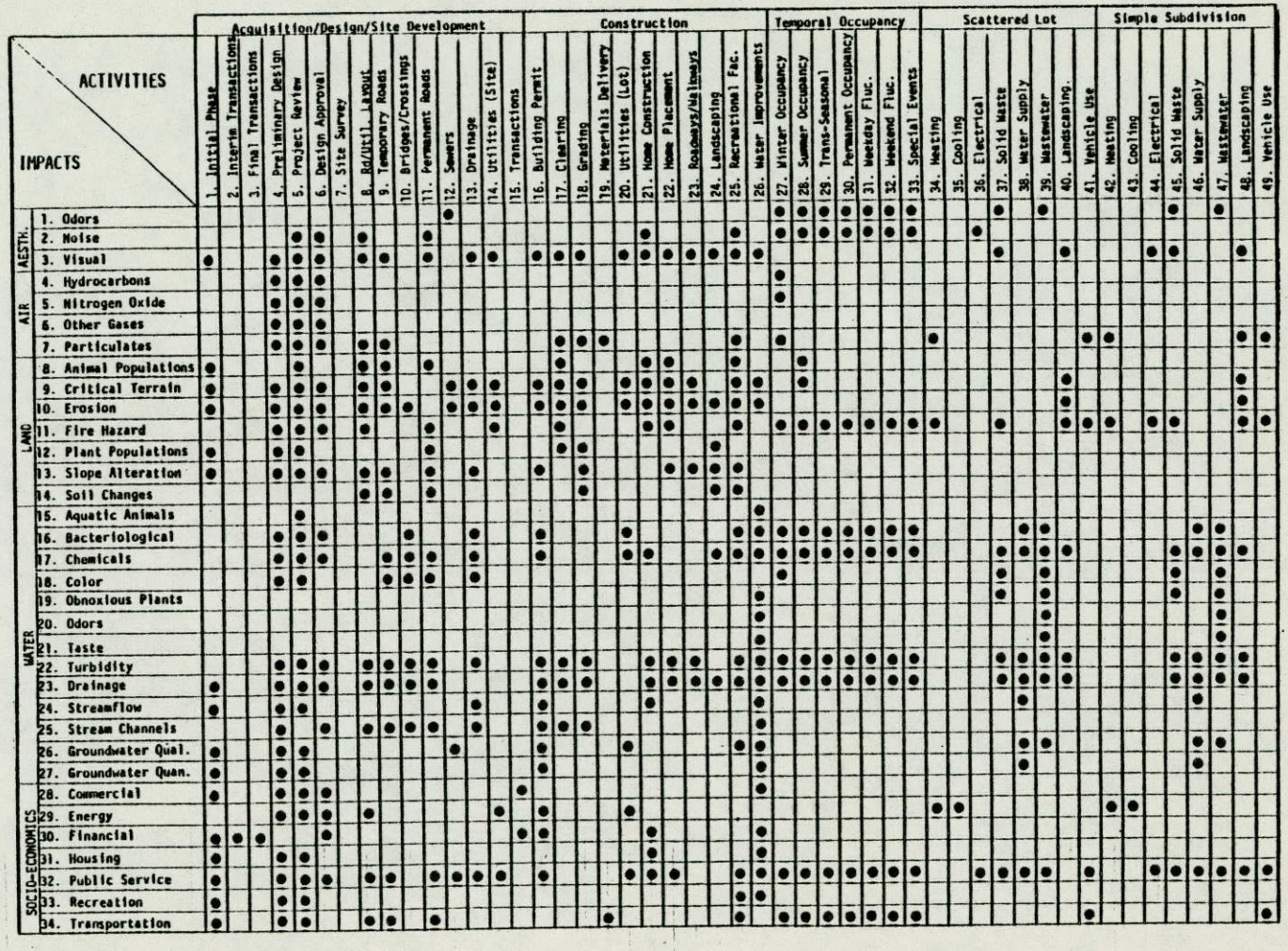
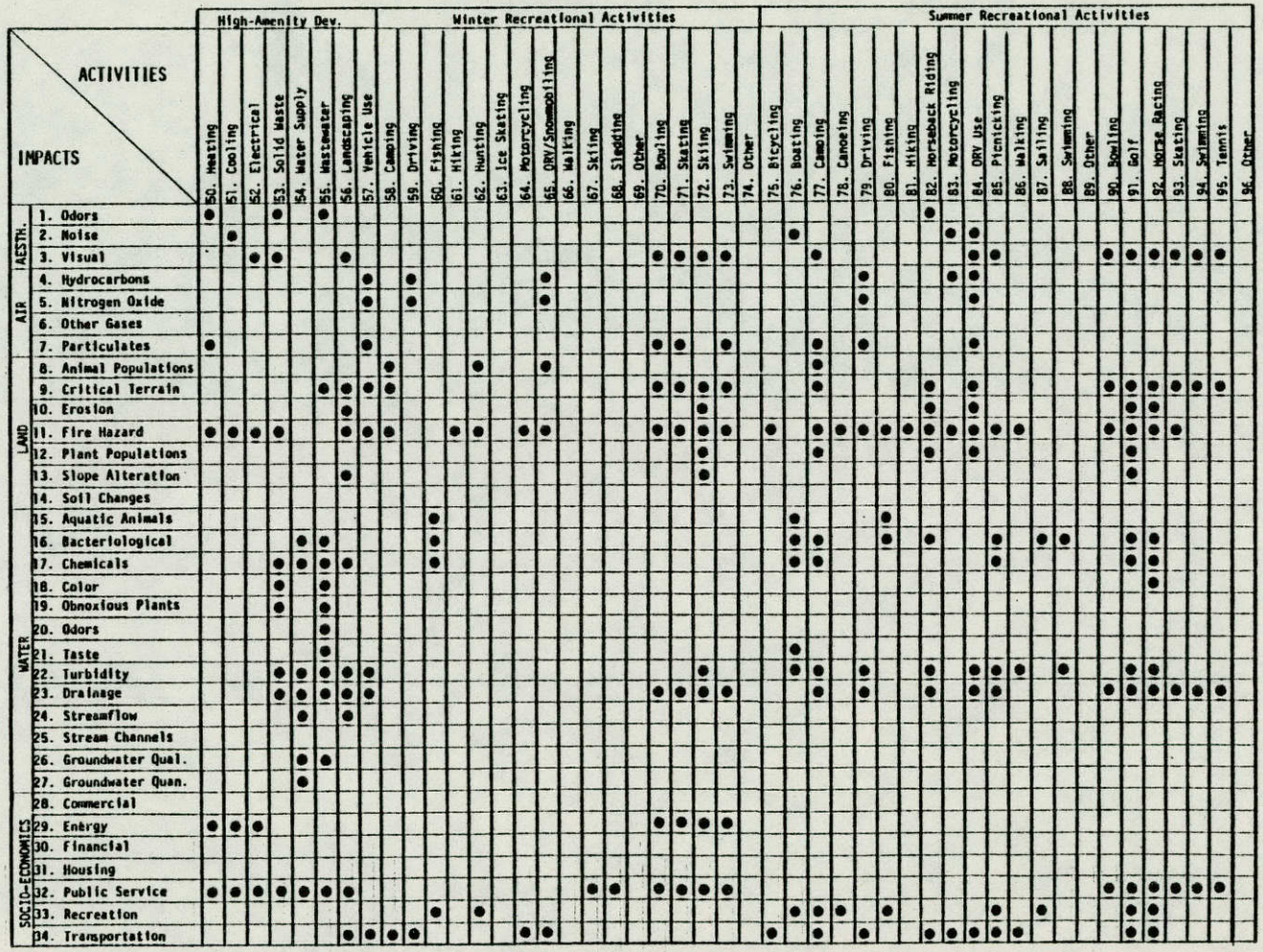


Figure 1. (cont'd)



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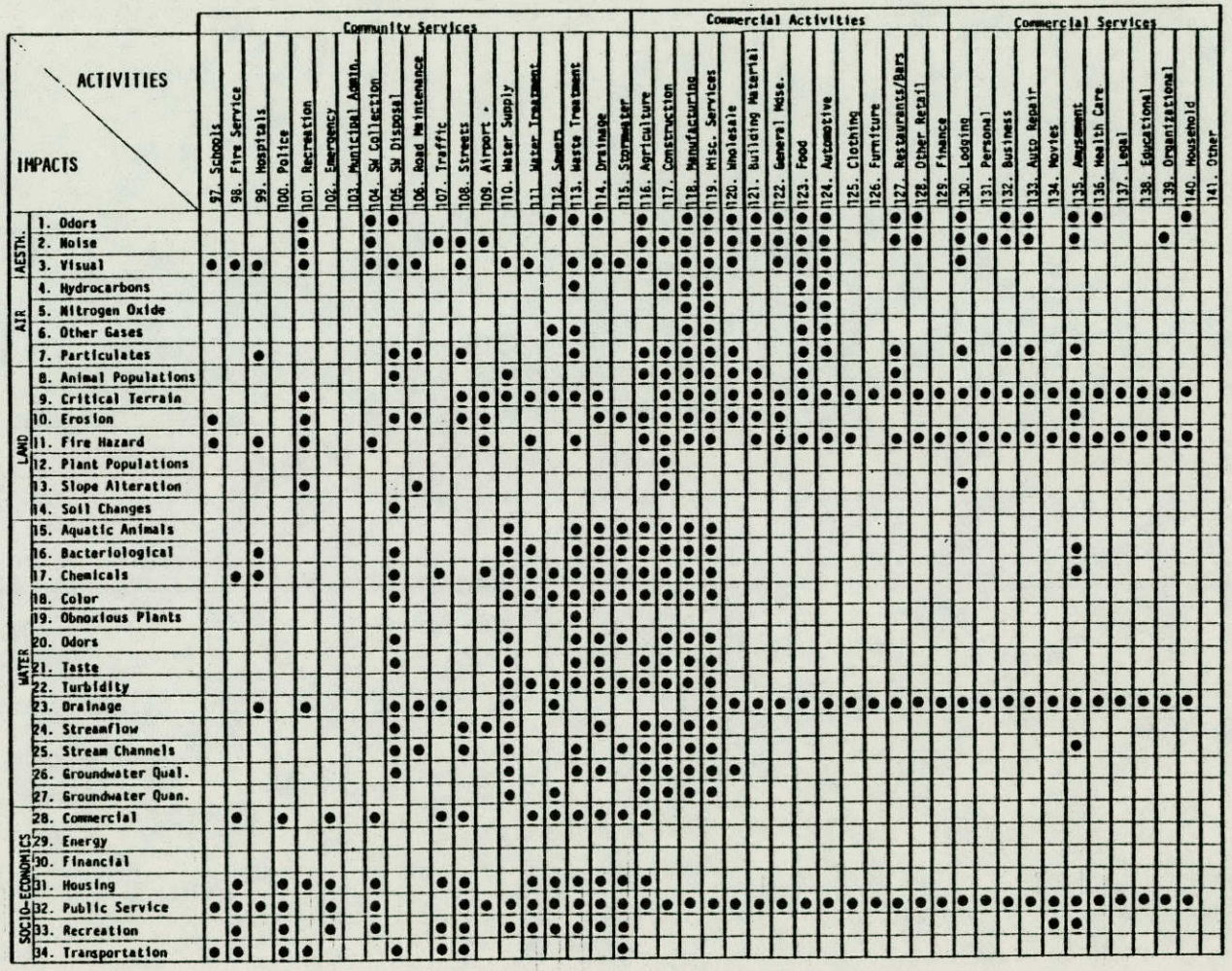


CHAPTER IV

CONTROLLING ENVIRONMENTAL EFFECTS OF SECOND HOME DEVELOPMENT

Local Governments

Controls available to local governments can be exerted in a variety of ways. Planning is included in the control mechanism which will be examined because of the pre-eminent position which comprehensive plans present to the effective implementation of many other land use controls. The types of land use controls that present useful opportunities for the states included in the study area are the comprehensive plan, regulatory methods, control by acquisition and differential taxation. These will be discussed in the following sections.

Comprehensive Planning

The comprehensive community plan constitutes the important first step a community makes toward decisions concerning its future growth. After the community determines how it wants to develop, it can then better evaluate the development schemes that are submitted for official approval. The plan is not a land use control technique *per se*, but other land use controls which are available to the community can only be optimally employed using the comprehensive plan as a basis.

Comprehensive plans have historically been primarily concerned with the physical aspects of development. The mainstream of the planning sector has not recognized the capabilities that they have for managing the environmental quality of the area. Environmental management goals can be addressed by the decision-makers in the preparation of the plan so that future decision can reflect the community's concern for environmental quality.

The plan is a general document which analyzes the current setting of the locality with respect to its physical, social, and economic

characterization and relates these different sections to the future growth of the area. The preparation of the plan can get the community constituents involved with determining what they want, how much they want, and where those wants should be placed prior to questions concerning second homes or recreational development. It is an idealistic approach, but still is a practical policy to set goals for community needs, and thus provide a baseline for comparison with respect to future development proposals. The plan thus sets out what the community wants and how the local authorities will accomplish these goals.

The plan is generally prepared by a planning commission or a similarly appointed administration body at the request of the city council, or the county commission if the county is the client. Because of the importance that the plan has in guiding the future development of the area, public participation in the planning process is sought at several different points to insure that the plan is developed on the basis of the areas specific technical and political needs. Professional consultants are often hired to prepare the detailed studies and maps, which are incorporated into the plan as part of a single document. The document when approved by the authorizing agency becomes the basis for the council in making land use decisions and in the provision of community services in the area.

The document must be amendable. The plan should be focused on physical development. It must be comprehensive, general, and long ranged in viewpoint. It should distinguish between major physical design proposals and basic policies. The means by which the plan will be realized by the approving agency must be set forth so that all may understand how and when the various goals will be reached. To accomplish this purpose, the plan may include a time frame that will be followed by the client to accomplish or review progress toward goal attainment.

The contents and arrangement of the plan document may vary. A type format recommended by Kent [110] is as follows:

1. Introductory material
2. Summary of the general plan
3. Social objectives and urban physical structures concept

4. Description of the general plan
   a. Basic policies and major physical-design proposals
   b. The working-and-living areas section
   c. The community-facilities section
   d. The civic-design section
   e. The circulation section
   f. The utilities section
5. Conclusions and appendices.

The sections of the plan through 4a are statements of the goals and policies of the plan. The sections from 4b to 4f are more detailed in nature. The physical locations of the components within these sections of the plan are outlined on maps. The timing of their development in the case of community facilities and how they will be attained are also described. The value of this procedure is apparent when considering just an aspect of the circulation (transportation) section and the utilities section. Once the arterial streets and the feeder streets have been designated on the map and their timing for development is set, the location of water and sewer mains is then finalized. This set now becomes the basis for drafting ordinances that affect the future of community water and transportation systems. For example, two ordinances are important in this respect: (1) The official map ordinance reserves land area for right-of-way easements for roads and utilities, as well as for other public areas; and (2) an ordinance governing the timing of water utility and street extensions, which is intended to prevent the over-extension of either the water or transportation systems (that is, extensions of development into new areas is not allowed until service improvements have reached a certain level in areas already incorporated). These two controls provide a mechanism for slowing rapid urban growth.

To reflect the emphasis on environmental management the policy section and the detailed sectors on the physical facilities of the community should be amplified to reflect environmental management. These aspects can consist of such topics as:

a. Maps of slopes, particularly those in excess of 15°
b. Hydrologic soil types for runoff and waste disposal

c. Types of vegetation
d. Flood plain and wetland areas within the community
e. Geologic structures and groundwater for waste disposal analysis
f. Soil and geologic structures presenting construction hazards
g. Notation of prevailing wind patterns
h. Analysis of mineral deposits in the vicinity of the community

These requirements will be expensive and time consuming when added to the traditional planning techniques, but will pay later dividends when they form the basis for an enlightened community zoning or land-acquisition plans which minimize environmental degradation.

Ideally, the comprehensive plan prepared by the consultants would be the optimal utilization of the physical characteristics of the area to minimize environmental degradation. Politically, this may not be possible. The consultant should be directed to prepare an environmental impact analysis for the various development alternatives open to the community. These should be presented at public hearings so that the final plan submitted to the community authorities can reflect the communities wish and the means by which the environmental impacts can be minimized.

The following list summarizes some of the capabilities of environmental control through comprehensive planning:

1. The comprehensive plan is a basic document through which most of the impacts identified in this study for environmental control in the area can be mitigated.

2. The passage and periodic review of a comprehensive plan which is used to guide the growth of the community can provide a central focal point by which the public evaluates the effects of development on their area and provides input to local decision makers.

3. A comprehensive plan adopted by the community and kept updated through periodic review, gives a legal basis by which development and its associated impacts on the communities resources can be evaluated.

Regulatory Controls

Utilization of police power through regulatory measures are a means by which environmental control can be effected on the local level. Most of the techniques of this type have a long history of use in municipal management and can be utilized effectively with the framework of a comprehensive plan that has addressed the problem of environmental management within the municipality.

Official Map Regulations

Official map regulations are ordinances which reserve land areas that are needed for community facilities. These land areas are identified on an official map as to their location and areal extent. Other uses that may be made of this land are preempted by the community and its power of emminent domain. Just compensation must be paid to landowners for this land.

The major advantage presented by this technique is that land area needed for community facilities may be reserved for community use before land prices or development present insurmountable difficulties for obtaining the needed land area. For this reason, the official map requires a strong community plan, which can accurately estimate the land area that will be needed for community facilities and outline them in detail on a map of the region. The official map is an important technique in any locality, but it is especially valuable in localities where topographic features limit the placement of community facilities.

The following suggestions would enhance the probability of success of environmental controls utilizing an official map regulation:

1. Copies of the official maps, the most visible portions of the comprehensive plans, can be circulated widely through the community to inform landowners and those involved in land development of the physical boundaries of tracts to be acquired for public uses and the community plan for land use in the remaining areas.

2. The community should establish a program to acquire the public lands designated by the official map.

3. A program for preferential assessment of property based upon

land uses shown by the official map boundaries should be instigated as soon as possible after approval of the comprehensive plan.

Zoning Controls

This power is the regulation of land uses within the area of the government's jurisdiction to maintain the health, safety, and welfare of the residents in that area. Zoning regulation is based on a solid constitutional basis from the precedent set by the Supreme Court decision of Euclid v. Ambler Realty in 1926 [111], and is the most widely utilized form of land use regulation.

Land use regulation by zoning ordinances exercise control over the manner in which land is used by the following two ways, which are listed below:

1. Control over the use that is made of a land area. Traditional classifications of land use under zoning ordinances include classifications as residential, commercial, industrial, and agricultural areas.

2. Control over the type of development that will be constructed on a land area. Typical restrictions include minimum lot size, floor area, building bulk and setback requirements, off-street parking, signs, and landscaping restrictions.

Several generalizations can be made about zoning regulations. First, a zoning ordinance is based on the comprehensive plan which considers the highest use that can be made of a particular land area. Second, zoning ordinances must not be arbitrary or capricious in their regulation. For instance, recent court decisions have struck down zoning ordinances which promote racial segregation, or tend to limit property ownership to the economically privileged (for example, large lot zoning is viewed with disfavor by judicial authorities if most of the community land area is taken by this zoning classification). Third, zoning ordinances are not retroactive in their application; community problems that exist before the zoning ordinance is passed are not outlawed because they do not conform to the land use specified in the ordinance. New development, however, which does not conform to the specified land uses are prohibited from becoming established. Lastly,

zoning is criticized because of the continuation of many archaic practices associated with the process. Often the document is written in confusing language and frequent amendments change the meaning of the ordinance which causes it to diverge from the goals established in the comprehensive community plan. The zoning process is susceptible to local political pressures that often cause a large number of use variances to be granted; these variances utlimately reduce the value of the ordinance for promoting land use regulation.

Despite the criticisms that have been leveled against it, zoning presents community planners with a flexible tool that can provide control over strategic land areas. Extensions of the traditional zoning regulations present possible solutions to governments faced with special land use problems. These include the following three innovations:

1. Cluster Zoning - This is a modification of density regulations found in many zoning ordinances which allows a concentration of development in one portion of a subdivision and retains the remainder of the land area within the subdivision for open space.

2. "Critical" Areas Zoning - This is a regulation of zoning based on land areas that are important because of the value of their natural resources, aesthetic amenities, or cultural value. Typical classifications for critical areas include floodplains, shorelines, watershed areas, forest areas, wetlands, areas of unusual geologic significance, and historical districts. Identification and demarcation of critical areas, as well as decisions on the extent of new development that will be permitted in each, is an activity which must be included in the community planning phase.

3. Specialized Use Zoning - Zoning districts which are specifically set aside for use by certain industries accomplishes a great deal toward the containment of problems caused by industry on the community structure. Typical special use classifications include strip mines and power plants. The success of this technique is also highly dependent upon the planning process. The identification and location of mineral deposits, air and water pollution hazards, and other factors must be included in special use districts.

The following suggestions would enhance the probability of success of environmental controls through zoning:

1. Institutional mechanisms should be provided to allow zoning by density rather than by specification of parcel size.

2. Verification by scientific study and data acquisition of the existence and location of environmentally-sensitive sites within the area covered by the plan should provide the basis for establishment of conservation zones or of even more specific (but still conservation-oriented) zoning devices such as wetland zoning, steep-slope zoning, stream bank zoning, or shoreland zoning.

3. Establishment of preferential assessments on land zoned for agricultural or conservation use can help insure public and owner acceptance of these zoning devices.

4. A request that the Corps of Engineers make floodplain studies in association with community's expectation of development outlined in the comprehensive plan could form the basis for establishing floodplain zoning regulations.

Building And Construction Codes

A building code is a legal document which sets forth requirements to protect public health, safety, and general welfare as they relate to the construction and occupancy of buildings and other structures. Accomplishment of these goals is done by setting minimum acceptable standards for matters in need of regulation, which includes fire protection, structural design, sanitary facilities, lighting, and ventilation. Building permits are issued when the design of a structure includes the proper considerations.

The extent of regulation imposed by building and construction codes includes construction, alterations, maintenance, repair, and demolition. Mechanical equipment and other appurtances may also be regulated. There are two basic types of code regulation:

1. Specification Codes - These codes deal with the selection of material, size and spacing of units, and methods of assembly; important specification codes include fire, plumbing, and electrical codes.

2. Performance Codes - These codes prescribe the objective that is to be accomplished during construction (much leeway is usually given to designers to accomplish this specific purpose). Housing codes are performance codes that deal with maintenance and environmental subject areas; their application is usually reserved to rental property.

Building and construction codes present additional control methods by which communities can regulate certain aspects of construction in an area. For example, limitations to the height and area, materials selection, electrical and gas equipment for a building are examples of fire precautions that can be exercised. Plumbing specifications can insure that proper design and installation of septic tanks and tile drainage structures.

The following list suggests some specific items which are representative of environmental controls possible through building and construction codes:

1. The local code should specify that lot development plans seek to reduce the amount of runoff generated at each site and maximize the disposal of the runoff generated by the utilization of disposal methods employed on-site.

2. Building codes should be written to insure that the insulation and structural measures employed in home construction reduce the energy requirements for heating and cooling.

3. Establish test and inspection procedures that are to be followed in establishing the suitability of the site for on-site wastewater disposal procedures and the possible systems and their construction standards which can be instigated after the site characteristics are established.

4. Spark arrestors of an approved type should be required for all chimneys to reduce the probability of fires.

Subdivision Controls

Subdivision regulation is the control of the platting and conversion of raw land into lots that is exercised by a local government. Basically,

the local government controls the subdivision of real estate by forcing the developer to apply certain procedures and standards for the layout of his project established by the government in return for the privilege of recording an official plat and marketing lots. By exercising these controls, the city is able to avoid problems caused by the extension of utility systems, problems in the transportation networks, provision of school systems, and water and sewer service. This is a widely exercised form of land use regulation; all fifty states have enabling legislation that empower local governments to regulate land by subdivision ordinances.

Subdivision regulations provide for a plat approval process that allows local governments to exercise a great deal of control on the type of development that is constructed within a city. The plat approval process assures that new development conforms to the pattern of development of the city, safeguards the health and safety of the future residents of the development, that the development does not present economic difficulties to the community, and the property values of the development are protected for future lot owners in the development. This is accomplished within the act by requiring that the design of amenities for the subdivision meet certain minimum criteria. Minimum standards include the following subject areas.

1. Design of roads, sidewalks, curbing, gutters, and other paving is uniform with adopted city standards, the general layout of these amenities must be in keeping with the general plan of the street network that is addressed in the comprehensive community plan. A master street plan usually is included within the comprehensive community plan and deals with the development and timing of the city transportation network in greater detail. A well-written master street plan offers a valuable reference aid to the plat approval authority during the process of approving new development.

2. The design and installation of the water distribution system, sanitary sewers, and drainage works in the subdivision employ certain design criteria so that their connection to the existing municiapl system does not create problems with the later operation and maintenance

of the system. Additional design criteria for water systems are intended to protect the health of future property owners in the development.

3. The community economic structure is protected by requiring the developer to install properly designed amenities or post a performance bond of sufficient size to insure the provision of amenities before final approval of the plat. Another important consideration in the plat approval process is requiring the developer to dedicate open space for parks and schools; this is a requirement that is increasingly critical as land prices continue to rise. A comprehensive plan which forms a basis upon which decisions about community land requirements for recreation and educational needs will greatly aid this process.

4. Requiring that the developer install amenities prior to the approval of the project plat, or post a bond that guarantees that these amenities will be provided within a reasonable length of time protects the investment of property owners. This is a weak point in many subdivision laws which has been exploited by recreational property developers, and has directly contributed to many of the land related problems resulting from recreational developments.

Subdivision ordinances are often criticized as being inadequate to control the continued spread urban sprawl. The fact is that subdivision ordinances are an effective tool for controlling land use and its associated environmental problems. The crux of the problem is that many local governments have no control over the timing and location of the subdivision development. This encourages land speculation, excessive lot development, and poor quality residential developments. Problems that result from ineffective control over the timing and location of subdivisions include abandoned developments, tax burdens on the community economic base, difficulty in providing city services to outlying subdivision developments, and the difficulty that replatting subdivided land presents to efforts to reclaim abandoned subdivisions.

The solution to this problem is to be found in linking the techniques that are effective in controlling when and on what conditions that a subdivision will be admitted into a city. Some effective techniques for accomplishing this purpose are listed in the following section.

1. Revising the city tax assessment policy to assess developments at a higher value after plat approval is gained. Undeveloped parcels within the city should be assessed at higher rates to force them into development and prevent "leapfrog" development from occuring.

2. The extension of city utilities into new subdivision developments can be controlled to prevent the overextension of water lines, prevent overloads to sewer and waste treatment capacity, and prevent an overextension of the community road network. It is for the above reasons that the community should strengthen its master water and sewer plan, as well as its master street and transportation plans. These two sections should be written if they are not included as separate sections within the comprehensive community plan. These two master plans can form the basis for an ordinance that requires water and transportation amenities to reach a certain level of development within incorporated subdivisions before extensions of these utilities into new developments will be considered.

3. Revise zoning controls to prevent residential development in areas unsuited to this use. This will prevent the development of problems associated with poor soil conditions, drainage and flood problems, water pollution, and the threat of fire. These objectives can be accomplished by special district zoning based upon an inventory of land features that is included in the comprehensive plan. Strengthening or adding a site review provision within the subdivision performance requirements can aid in preventing development in areas that are not suited to construction.

4. Strengthen provisions within the subdivision ordinance to provide additional assurance that development will be of high quality. Pertinent sections within the ordinance that can strengthen the ordinance include:

a. Consultation with state agencies to identify methods that will protect the quality of the environment;

b. Establish a methodology to forecast the community needs for open space and equitably apportion the required open space that is to be dedicated to public use within a subdivision development;

c. Increase the performance bond required for the provision of amenities to prevent speculative subdivision developments; and

d. Strengthen the required performance provisions within the subdivision ordinance to include erosion and sediment control considerations. Watershed protection can be furthered by requiring the developer to dedicate shoreline easements to the community to preempt construction in these areas.

When viewed in its proper perspective, it is apparent that a subdivision ordinance in an effective tool for guiding the quality of community development. However, subdivision ordinances cannot be expected to be effective in the absence of planning devices. It is only when subdivision ordinances and other regulatory techniques are employed to further a dynamic community plan that their optimum value is reached.

The following examples indicate the environmental controls that may be initiated through subdivision controls:

1. Require that subdivision plans conform to the comprehensive plan approved by the local jurisdictional authority.

2. Insure that subdivision regulation outline the design procedures, construction methods, and the quality of materials required in the construction of public facilities in the development and the procedures that will be followed in cases of non-compliance.

3. Require that developers show proof that the water supply and wastewater treatment provisions outlined in the subdivision plan are adequate for the proposed population density, environmentally and technologically sound, and economically feasible.

4. Require developers to post a performance bond that will insure that installation of public facilities outlined in the subdivision plan and approved by the local jurisdictional authority will be accomplished early in the life of the community.

Planned Unit Development

Planned Unit Development (PUD) is a regulatory device that has a great potential for modifying the development of land in urban areas. A planned unit development is an area of land controlled by a land

developer, and is developed as a unit. This procedure offers increased flexibility in a number of ways over traditional subdivision and zoning controls. A PUD project permits the developer to mix the uses which he makes of his land, it allows him increased flexibility in locating structures and utility lines on his project, and allows the developer to vary lot size, frontage, and minimum percentage of lot coverage. Further advantages are presented to the land developer because a PUD allows a project to be developed in sections, and because the developer can better meet the market demand for housing of different types by mixing the types of units which he constructs on his project.

Planned Unit Development is often structured as an ordinance or as an amendment to the zoning ordinance. There are distinct advantages which accrue to the local governmental entity because of the adaptibility of a PUD. These are summarized in the following list:

1. More efficient land use is possible by employing PUD's mixed-use options. The site review process (that is, review of the development site for pertinent physical features that render it amendable to development) that is included in many subdivision regulations can be strengthened under a PUD provision because of its flexibility in designating uses that are to be constructed on the land, and the need to review this construction. This can eliminate some of the problems that result from trying to design subdivisions to fit odd-shaped land parcels.

2. Open land area within a development is promoted by the clustering of development in a PUD.

3. Planned Unit Development substitutes a bargaining process between the developer and the local planning administration instead of the rigid plat approval process. This allows the community to control not only the timing and tempo of development, but also the specific design elements of the amenities in the project.

PUD is not the answer to every land use circumstance, but it does prevent a favorable alternative to the regulation of many new real estate projects. It is an effective technique for regulating larger real estate projects, but is not always effective for controlling smaller developmenzs. The best compromise is probably to rely on

traditional land use control techniques for most development, but also extend an option to the developer for applying for a PUD dependent at the recommendation of the planning board. Planned Unit Development presents distinct advantages for communities in mountainous areas that often have land parcels of awkward shapes and unfavorable topographic features that often make the application of traditional subdivision controls impractical. Communities in mountainous areas should study the possibility for implementing a PUD regulatory control.

The following examples indicate the range of environmental controls available through planned unit development:

1. Provide regulatory support for cluster development so that construction will be limited to those portions of the tract most suitable for development at population densities established as the upper limit for ultimate development of the site.

2. Require adherance to a development schedule that outlines the timing to be followed in a step-wise manner for the installation of water, sewer, and utility service on the tract and for the grading, land cleaning and erosion control procedure used in conjunction with these operations and the subsequent construction of roads and structures.

3. Specification of roadway design allowed on the tract to provide for the planned traffic in the area, fire contingency planning, roadway drainage, and maintenance procedures used by local authorities for permanent roads in the area.

4. Require submission of a landscape plan for the project that harmonizes the construction of roads, structures, and utilities systems with the aesthetic features of the site.

Phased Development Ordinance

This is a regulatory act which provides for the orderly and planned growth of an area using the comprehensive plan as a basis. Acceptance of the legality of this type of regulation seems reasonably assured in view of a ruling by the New York Court of Appeals [112] upholding the legality of an act which regulates the timing of development [113]. This ordinance includes provisions which assure that no new land development

or incorporation of new land areas will take place unless community facilities (which include water, sewage, drainage, roads, and parks) are adequate. The importance of the community plan as a basis for the ordinance is paramount. For this reason, the comprehensive plan should include detailed sections addressing community water supply, sewage, drainage, recreation, and transportation facilities that will be required as the city expands in area and population. These sections within the comprehensive plan (often referred to as master plans, such as the master road plan, etc.) together with supporting maps provide a basis for the minimum criteria for facilities, the amount of land area that will be required for these facilities, and an estimation of the type of investment that will be required to provide these facilities.

A phased development ordinance provides the community with two notable advantages. First, the community can more effectively prevent the overextension of water and transportation systems with the accompanying difficulties associated with financing additional capacity for the system or performing the routine maintenance that is periodically required. Secondly, a phased development ordinance is an effective means for providing for the timing and location decisions for incorporating new subdivisions within the city. Avoidance of problems to the city financial and service administration sectors that are associated with the incorporation of poorly planned and prematurely developed subdivisions can be achieved by a phased development ordinance. A phased development ordinance, together with the traditional zoning and subdivision regulations, can provide a community with increased flexibility for guiding the future development of land use patterns in its area of jurisdiction.

The following control mechanisms are examples of those possible under a set of phased development ordinances:

1. Use the detailed studies conducted in the preparation of the comprehensive plan as a basis to identify the lands which have the most suitable physical characteristics for development and for establishing the land areas to be designated as development sectors.

2. Establish the economic conditions of the community, the existing

tax base, and the level of public service presently provided for the occupants of the jurisdiction by detailed studies and use these findings to plan a program of capital expenditures to provide the necessary community service based upon expected future costs, the revenues from the existing development, and the planned growth of the community.

3. Establish the time sequence under which the development sectors will be furnished public services by the appropriate local government and allowed to develop.

Moratoriums

Moratoriums are regulatory measures enacted by the community which place a temporary freeze on all development in the area until the community completes planning for community services or enacts applicable zoning or subdivision controls. New development is prohibited in the interest of preventing future problems associated with the new development and its conflicts with the planning and control measures that are enacted during the moratorium period. Since moratoriums place a great restriction on the rights of a landowner, extension of moratoriums cannot be continued indefinitely. Moratoriums which are extended for an excessive period of time constitute a taking of a landowner's property and compensation must be paid to the landowner (moratoriums have been held valid for periods that have extended as long as eighteen months, although this should not be taken as a hard and fast rule). Moratoriums should be properly thought of as stopgap measures that can provide a period of time for planning and implementing relief measures in a community facing an emergency with supplying or maintaining adequate levels of community services as a result of pressure on the existing system by new development.

The following list summarizes characteristics of moratoriums:

1. The legal basis for the moratorium must be established by the community at the onset of its imposition.

2. Moratoriums can be utilized to freeze construction and development of a tract until the community completes the planning of community services to prevent future problems from development, is allowed to

enact land use controls according to the timetable outlined in the approved community plan, or is able to provide the needed public services to the tract.

3. Moratoriums are only temporary delays and relief must be granted to the landowners either to initiate development or to pay compensation if the delay extends past a period of several months since imposition of this device constitutes a taking of the landowners property.

Law Of Torts

A traditional land use control is the common law of nuisance, which seeks to promote the public welfare through the use of police power. Nuisances are defined as everything that endangers life or health, gives offenses to the senses, violates the laws of decency, or obstructs the reasonable and comfortable use of property. The regulation of non-conforming uses is perhaps the best known application of nuisance law. For example, an industry that is permissible in an industrial district may present hazards in a residential subdivision. Nuisance control may be exerted through zoning ordinances which specify permitted uses, or they may be controlled by regulatory ordinances. Examples of the latter group of controls includes laws which control such things as abandoned vehicles, erosion, grading, housing, noise, solid waste storage and disposal, and sign ordinances.

Closely related to the law of nuisance is the law of negligence, which is of particular importance to resort communities interfacing on forest lands with respect to the ever-present possibility of a fire outbreak. Negligence, simply defined, is a breach of legal duty, which includes duties imposed both by rule of common law or by statute. Ordinances which are established to prevent the kindling and spread of fires are common in many states [114]. This problem is a major concern to local, state, and federal officials in the Southern Rocky Mountains because there is a notable absence of legislation that is directed to the regulation of fire hazards on private property in this area of the country.

Land use controls utilizing these concepts which can aid in an

overall community program for environmental preservation include:

1. Erosion Control;
2. Storage methods for solid waste on private homesites, as well as refuse disposal on land areas; and
3. The control of fire hazards on private homesites.

Model state laws and enabling legislation may be required to effectively deal with these problems and overcome local political opposition to these controls.

The following environmental control mechanisms are examples of those possible through application of the Law of Torts:

1. Adopt an erosion and sediment control ordinance to be administered by the local government agency charged with building code enforcement to regulate the generation and control of stormwater runoff during the development and construction of lands for non-crop or rangeland uses.
2. Upgrade the institutional requirements of the local solid waste management program to insure that the collection and disposal of solid wastes generated in the planning area or region are conducted in an environmentally sound manner.
3. Seek state or federal aid in determining the potential for air pollution problems posed by local conditions and future development in the area and adopt local ordinances based on study findings which can alleviate air pollution problems prior to their development.
4. Local governments should require support and enforce ordinances dealing with the construction, operation and maintenance of private water supplies and on-site waste disposal systems located in their jurisdiction.
5. Development of local ordinances which regulate the fire hazard potential on private property.
6. Regulate the uses of land allowed in the floodplains of the jurisdiction.

Environmental Impact Statements

Environmental impact analysis and the preparation of statements is

a process that was initiated under the National Environmental Policy Act of 1969. The act requires that a statement be prepared for all federal projects having a significant effect on the environment. Preparation of statements has also been extended to include significant private and public projects as well. Some states now require the preparation of impact statements by state agencies for projects that alter the environment in significant ways. Local governments can also adopt the environment impact statement process and require the filing of statements for all developmental projects.

A local ordinance that requires the filing of an environmental impact statement for local developmental projects is a control that can be enacted by state governments in the interest of promoting development that is compatible with community environmental objectives. Advantages to the environmental impact statement in relation to local development projects include the following points:

1. The incorporation of environmental considerations take place during all stages of the project, particularly during the planning stage.

2. There is an increased opportunity for public participation in the review of projects that present a great potential for affecting the community structure.

3. The project review process can modify aspects of the project to make it more environmentally compatible. The project review stage can also be used to screen out projects that are poorly planned and prematurely initiated.

The environmental impact statement process is not without its disadvantages, which include both economic and political aspects. The review process presents an added administrative expense for both educating personnel in their respective roles, the added expense of additional salaries and other administrative costs. There is also the possibility that local interests will use the public review process to tie-up developmental projects, no matter how well-planned these projects may be. These disadvantages, as well as the advantages presented by this control technique should be thoughtfully considered before the community commits itself to this course of action.

The following items summarize the capabilities of the environmental impact assessment process in environmental control:

1. Local governments can pass an ordinance to require the preparation of an environmental impact assessment on public and private development within their area of jurisdiction to force disclosure and encourage consideration of possible environmental impacts.

2. Environmental Impact Assessment in the private sector could be limited to industrial use, commercial complexes, and subdivision requests from individuals and still maintain control over the primary determinants of environmental quality in the planning region.

3. Environmental Impact Assessments for development at the local level should disclose how the proposed scheme will affect the planned program for community development outlined in the comprehensive plan.

4. Requirements for a public hearing or the public viewing of environmental impact assessments at the local level will aid community officials in their decision-making process.

Control By Acquisition

A community can exercise considerable control over the land use patterns in its environment by the acquisition of property. The degree of control that can be exerted ranges from full ownership to lower levels of management. For example, control can be furthered by the purchase of a land parcel and attaching a restrictive covenant to the property deed, which will insure that no use will be made of the area that will not conform to community land use standards. The land area may then be resold or leased. In this way, the community can make a profit as well as assuring that no unwanted development will take place. Different means of carrying out acquisition are included in the following list.

1. Fee Simple Purchase - This is the purchase of a land area by a government. In this case, the government fullfills the role of the buyer, and negotiates the purchase with the landowner. Fee simple ownership entitles the government to the full benefits of land ownership,

but these advantages are offset by the high cost of land that is acquired.

2. Less-Than-Fee Interest - These agreements involve lesser land interest arrangements such as easement purchase, lease agreements, purchase of development rights, and joint ownership. The advantage to arrangements of this kind can provide a local government with a means to promote its interest in the type of land use patterns that develop in an area at a cost that is usually much lower than fee ownership. However, the purchase of land rights in many localities may cost as much as the purchase of the deed to the property.

The community can acquire land by methods other than strictly negotiating for the purchase of land on the open market. This includes obtaining land by condemnation proceedings, gifts of land from privately owned holdings, and foreclosures on land parcels in lieu of deliquent taxes. The high cost of land in resort areas and other difficulties encountered in the land acquisition process will probably preclude the use of land acquisition as a main land use control technique by the community. There are two reasons for this conclusion. First, to effectively shape the development of an area undergoing urbanization, the community must be a major landholder, particularly in its outlying and developing areas. This requires a large capital investment; the purchasing power of the investment is considerably reduced by high land prices. Secondly, the acquisition of key land areas needed to control development may involve difficulties in negotiating the purchase or involved difficulties with governmental--public relations.

Land use control by acquisition is a technique which should be considered by local communities during its land use policy formulation stage. High land prices may preclude the local government from becoming a large landholder. A great deal of control can be exercised by the government holding limited interest in land areas. Examples of the way in which control can be exercised include:

1. Holding the deed to strategic or critical land areas (critical areas include areas of steep slopes, unstable soils or geologic strata,

or along shorelines);

2. Attachment of a restrictive convenant to a property deed which then runs with the land following the acquisition of the property rights or interest by the community;

3. Retaining easement right-of-ways for public access to community recreational areas or to permit the construction of pipelines and utilities to be undertaken in an optimal manner with respect to the environment; and

4. The purchase of property rights to allow for the proper growth of development. A controlling interest in the property for land areas within the community is a strong bargaining point in negotiating the development proposals with builders.

The following are examples of the capabilities of control by acquisition:

1. The timetable for development outlined in the comprehensive plan for community facilities such as parks, open spaces, street networks, public buildings, and utilities allows the city or county to develop a financial plan by which future public revenues can be appropriated to obtain the fee or lesser interests or rights in real property for public use.

2. The comprehensive plan can establish the intent to preserve existing land use patterns in the planning area where sites possess scenic, esthetic, historic, or environmentally sensitive characteristics which are either worthy of preservation for public use and enjoyment or are unsuitable for use because of location and site characteristics by the acquisition of these lands as gifts, bequests, or by expenditure of public funds for purchase in fee simple or the purchase of easements.

3. Easements are a legal tool which can be used by communities to preserve lands in current land use at costs much less than purchase in fee simple.

Differential Taxation

Local governments exercise the power to assess and collect taxes

on land areas within their jurisdiction. The ulterior motive for local property taxes is to raise revenue to support community capital expenditures for schools, police and fire protection, and budgetary deficits. Taxation policies are more far-reaching than the collection of amounts of revenue; taxation policies present economic incentives or disincentives for land uses that are found in urban areas. It is the incentive to growth or non-growth that makes taxation an attractive method to regulate the development of land areas, and is a possibility that should be explored by local governments.

Real property taxation affects land development in two ways. First, there is a tendency for higher property tax rates in municipal areas to force the development of open land areas. This results because open land areas are often used for agricultural, recreation, timber, or related uses that operate on marginal profits; an increase in the property tax rate on land areas supporting these enterprises absorbs a large part of the profit that is produced from the land. Since the low margin of return no longer economically justifies the continued operation of the enterprise, the land area is offered on the real estate market for sale. Usually, the only buyers for this property are land developers who intend to profit by putting the land to a more intensive use, such as the construction of housing units and other structures that tend to accelerate the rate of urbanization. Secondly, tax assessments are often below the market value of the land. This encourages landowners to withhold their land from development in the hope of capturing profits from the speculation in land values. Undeveloped land areas exist in the midst of developed or developing areas, and often these undeveloped land areas occupy the most desirable sites that are needed for residential or commercial uses. Developers are forced to search for suitable building sites in other areas, and often end up developing unincorporated rural areas. This is the "leapfrog" pattern of development that accelerates the spread of urban sprawl.

Taxation policies can be modified to effect the pattern of that development taken in an urbanizing region by employing a strategy of differential assessment. Differential assessment takes one of three

forms which include: preferential assessment, deferred taxation, and restrictive agreements. A brief description of each of these methods of differential assessment will provide a more detailed view of this means of control.

1. Preferential Assessment - Assessment of land for taxation is made with regard to the use which is made of the land. Open land uses, such as agriculture, recreation, or timber production received special tax consideration in order to keep the land in its undeveloped state. Elgibility of a land area for classification under preferential assessment may be based on the occupational status of the landowner, the productivity of the land area, or the zoning classification of the parcel.

2. Deferred Taxation - These are tax assessment plans that are designed to recapture some or all of the taxes that owners of undeveloped land are required to pay by basing tax rates on the value of an undeveloped land area at less than its market value. Agricultural and timber uses are the most frequently protected land-related uses. Twenty-eight states have enacted deferred taxation plans [115]. A common provision in many of these deferred taxation plans is a provision which allows the local government to recapture a percentage of the deferred value of the land when it is offered for sale to developers. Assessing the land at a tax rate that is less than the market value of land provides an incentive to the landowner to maintain his land at its open use. Including a provision that requires the landowner to repay a portion of his deferred taxes upon conversion or sale of his land provides the local government with a deterrent to the sale of open land to developers.

3. Restrictive Agreements - Another form of differential taxation which is accomplished by contracted agreements that extend over a period of time which usually lasts from ten to fifteen years. These contracts are made between the individual landowner and the local government. Essentially, what is done is to agree to freeze the assessed values and tax rates of the land for the agreed-upon time period in exchange for maintaining the land area in its open-use state for the

duration of the time period. Provisions for cancelling the contract often include a penalty to the landowner which forces him to pay a large percentage of the market value of the land. Experience with California's Williamson Act, a restrictive tax agreement, shows that many landowners are extremely hesitant about entering into contracts that keep land undeveloped for a long period of time [116]. Reluctance on the part of landowners to enter into contractual agreements works against the effectiveness of restrictive agreements for maintaining land use at a low intensity of development. Landowners who are under the greatest pressure to develop their land are the ones who will be least likely to enter into long term agreements because of the great amount of pressure that is brought to bear upon them to convert the use of their land. For this reason, restrictive agreements are often ineffective in shaping the pattern of development.

Differential assessment is the least effective means of shaping development when compared to land regulation by police power or acquisition techniques [117]. Disadvantages are incurred to the local government for a number of reasons. First, differential assessment decreases the revenue that is available to the local government from its property tax base, which is its most important source of revenue. This is an especially important aspect when large areas of land qualify for differential tax advantages. Secondly, differential taxation policies only delay the development of land for a period of time. This is because non-economic factors affecting the landowner, such as his retirement or death, often leads to the sale of open land to developers by the owners of undeveloped land areas and leads to development despite the advantages to keeping land undeveloped that is presented in differential taxation plans. Finally, the cost of administering differential taxation plans presents an additional expense to the annual outlays for community service that are connected with the periodic assessment of property and the cost of preparing contract agreements.

In conclusion, taxation policies of differential assessment present advantages to local governments for land use control. The overall effectiveness of differential assessment in shaping the

development of a region into desirable patterns is much less than what can be achieved by regulation or acquisition techniques. Taxation policies present their greatest advantage in protecting the survival of agriculture, recreation, and timber production interests, thereby assuring that the open land area associated with them is continued in its open state.

The following examples summarize some of the control mechanism possible through differential taxation.

1. Open space assessment for reduced taxes would apply to any land that would benefit the public within the area of jurisdiction.
2. The land use plan outlined in the comprehensive plan of the local government would be the basis by which local authorities granted preferential tax assessment.
3. Rollback taxes extended backwards over a multiyear period would be imposed whenever land use on the tract was changed to other uses instead of open space use.

Relationship of Controls to Activities/Impacts

In order to relate environmental planning and control methodologies to the various environmental impacts resulting from second home developments, the matrix display previously developed will be utilized again. For a summary of the results, the four major categories of control methodologies are recalled:

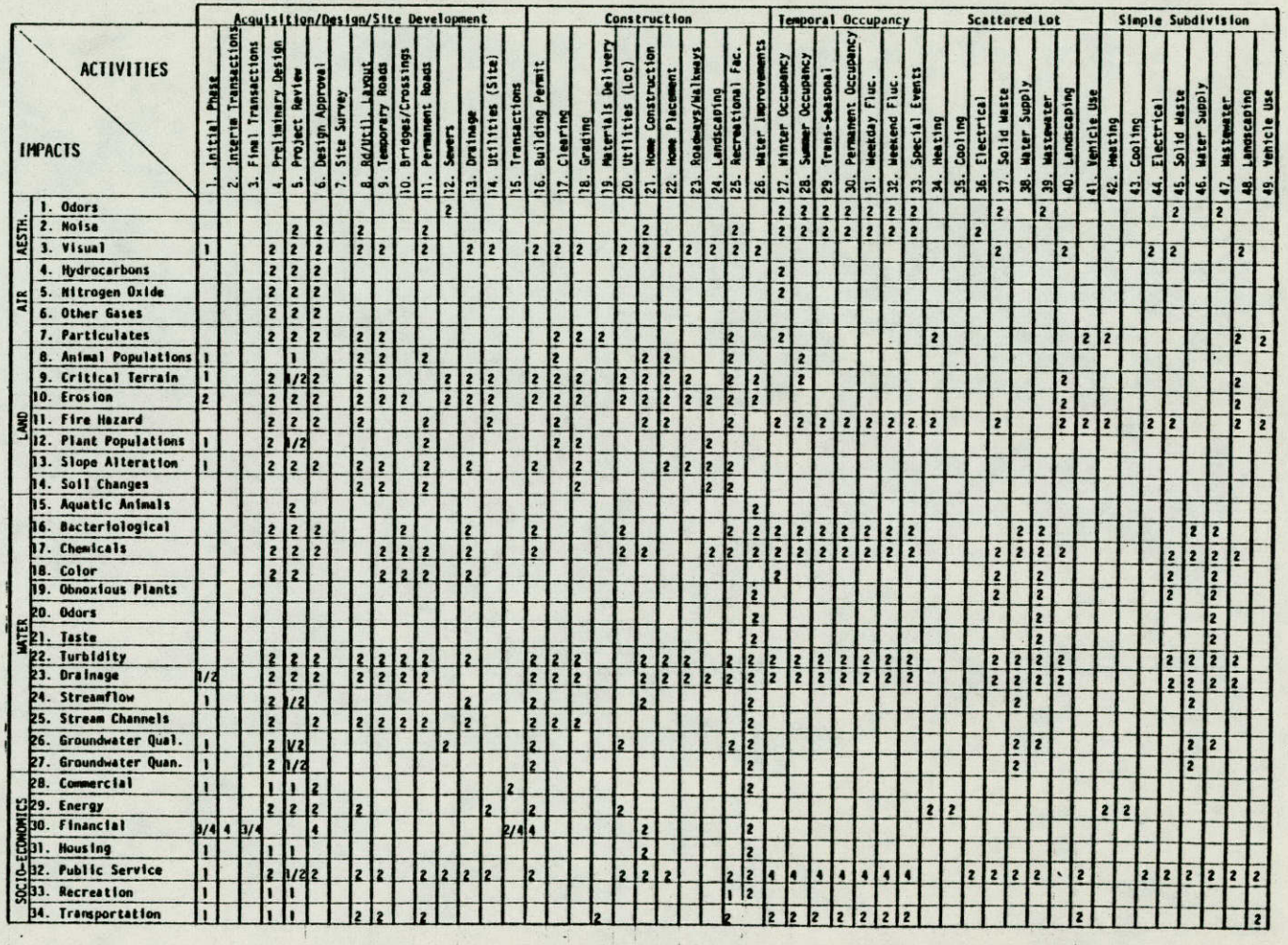
1. Comprehensive Planning
2. Regulatory Controls
3. Control by Acquisition
4. Differential Taxation

By examining each of the intersections where the potential for interaction or impact was determined in Chapter III, the applicability for incorporating one or more of the control categories may be considered.

The figures on the following pages again show the activity/impact matrix, but now the marked intersections indicate the control methodologies considered to be most applicable to the particular event occurring

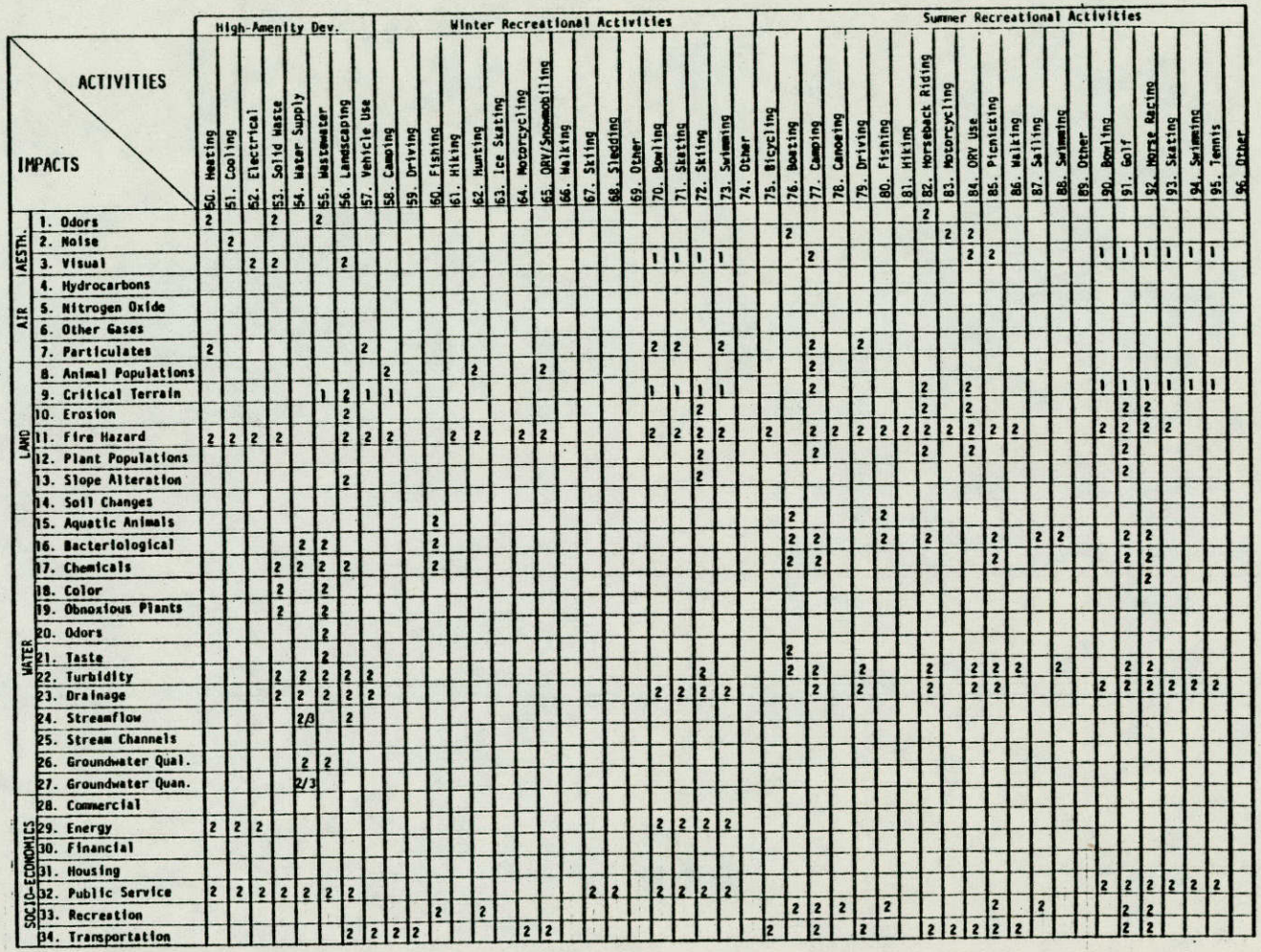
at that intersection. As before, the user applying this procedure should modify the matrix with additions, deletions, and alterations as warranted by the particular circumstances of the project or development under consideration.

Figure 2. Environmental Control Matrix For Second Home Developments



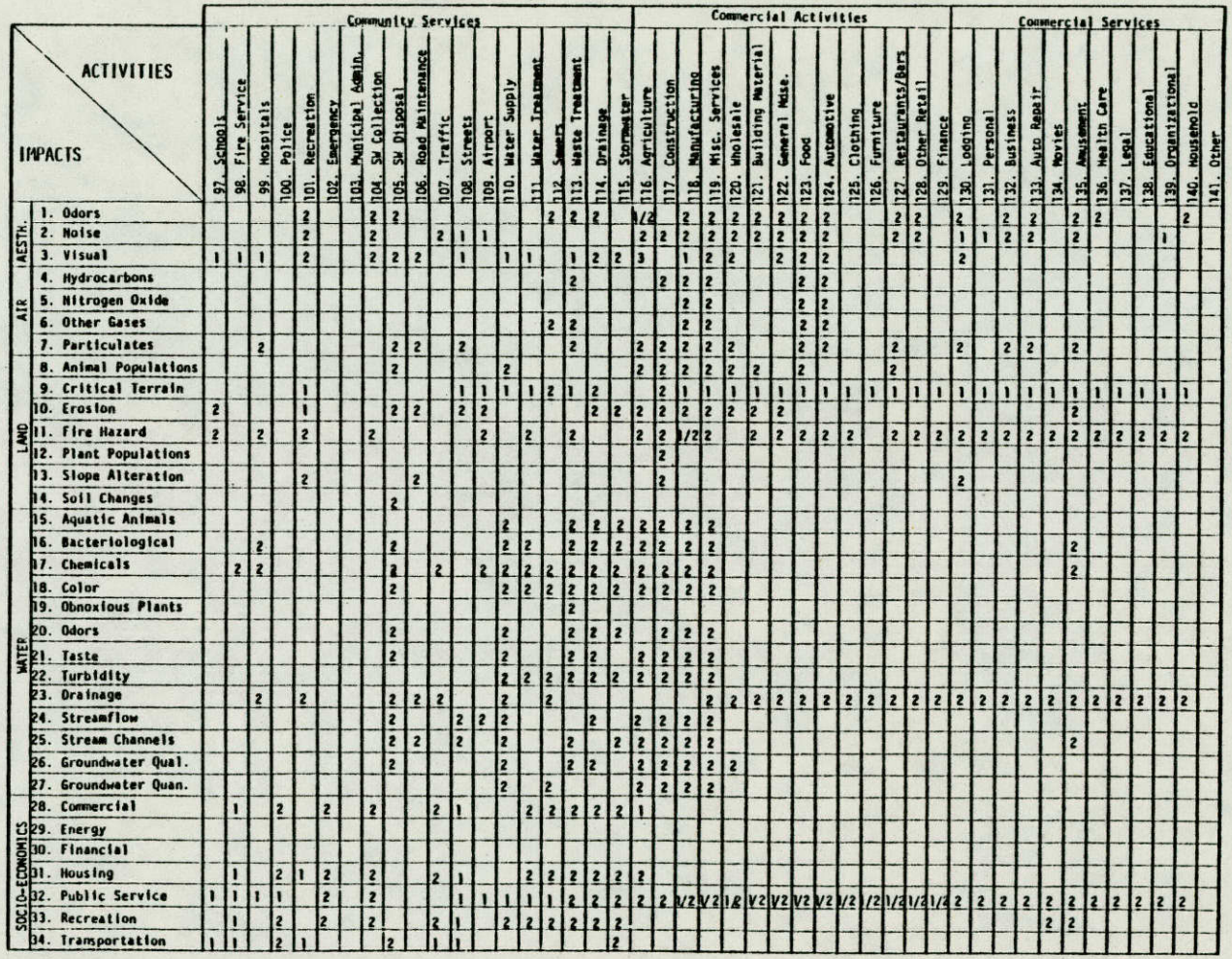
Key: 1. Comprehensive Planning
2. Regulatory Controls
3. Control by Acquisition
4. Differential Taxation

Figure 2. (cont'd)



Key: 1. Comprehensive Planning
2. Regulatory Controls
3. Control by Acquisition
4. Differential Taxation

Figure 2. (cont'd)



Key: 1. Comprehensive Planning
2. Regulatory Controls
3. Control by Acquisition
4. Differential Taxation

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Summary

In the United States today, millions of American families own second homes, and more are expected to own recreational properties of some kind. Many of these second homes were constructed in areas that were previously rural or primative. Additional lands of this type are continually being subdivided and prepared for sale to potential second-home buyers. The development tracts range from planned new towns that are provided with modern subdivision amenities to those where limited provision for service or transportation networks occur. The latter forms pose the greatest threat of environmental degradation because of the lack of environmental analysis that occurs in the planning stages.

Generally, problems occurring with second home facilities in rural areas are associated with water body, scenic vista, or climatic zone proximities. The fragile nature of the ecosystems occurring in the areas with most developmental appeal is easily disturbed and can cause changes in the natural chemical, biological and physical properties of the site that detrimentally affect adjacent private properties or the public domain. The degree of impact from second home developments exhibits variation from location to location because of the uniqueness of the site and the difference in developmental activities. Impacts, however, will result whenever changes in land use occur. The effects can be minimized if sound planning and construction practices are initiated which consider the ecological characteristics of the site and the service amenity requirements of the second home population who will inhabit the site.

The guidelines set forth in this document have been developed for use by local planners and decisionmakers in formulating individual community policy for minimizing adverse environmental effects stemming from

second-home developments. The guidelines incorporate 34 environmental parameters in the areas of aesthetics, air, land, water, and socio-economics, and 141 activities associated with the planning, construction, and occupancy of second home developments. A matrix format was developed to relate activities to potential impacts, and the same matrix format was utilized to summarize appropriate control mechanisms categorized as (1) comprehensive planning, (2) regulatory controls, (3) control by acquisition, and (4) differential taxation. A five-step procedure for utilizing the guidelines was presented in Chapter I.

Recommendations

The result of intensive research indicates the desirability and feasibility of incorporating environmental guidelines into the development process of second homes. Benefits gained by incorporating these guidelines in the developmental process promote interests in both the public and private sectors, as well as in the area of preserving the quality of aesthetic, air, land, water, and socio-economic resources. Benefits are gained at the community level, where environmental guidelines can be integrated into land use controls exercised at the local governmental level. These benefits include well-planned residential areas, business districts, traffic circulation, and reduced capital expenditures. Benefits gained at the private level can be expected to be achieved in the areas of protection of individual property from non-conforming uses, nuisances, and erosion of property values that generally follows the degradation of aesthetic amenities.

Incorporation of environmental guidelines into second home development activities for the immediate future can best be accomplished through modifications to existing land use controls at the local governmental levels, which includes both incorporated communities and county governments. Local government is the level of government which traditionally exercises primary responsibility in land use decisions; furthermore, it is much more responsive to public sentiment and is better equipped to respond to local circumstances than government at the state or national level. Incorporating these guidelines into the

local governmental land use regulatory structure allows the individual land owner a great latitude of action in utilizing his land. Despite this viewpoint, efforts to strengthen existing land use regulations can be expected to be met with a great deal of opposition from the private sector of the community.

The establishment of a comprehensive plan is perhaps the most significant step a community can take toward insuring that its future growth will take place in an environmentally compatible manner. Using the comprehensive community plan as a basis, almost any form of land use control may be integrated into a manageable policy. However, effective implementation of the goals that are set forth in a community plan, as well as in bringing the statutory land use controls to bear effectively, is possible only when an effective administrative body and procedure is established. Several important considerations need to be stressed concerning both the administrative body and the procedure it should follow.

First, the administrative body should be composed of local officials and supporting personnel. Consideration should be given to selecting members from local elective offices, commissions, and boards. The number of members comprising the body will, of course, be based on the areal extent and population size within the locality. In addition, technical support must be available to the administrative body in order to provide the necessary expertise for decisionmaking processes. Technical support conceivably would involve areas such as engineering, law, and urban planning. Staffing these local land use administrative bodies and their supportive technical structure will foreseeably overtax the ability of local governments to provide the needed personnel, particularly in small communities. Personnel problems may ultimately be resolved by including larger units of local government in the planning effort (for example, county government or councils of government), or by requesting assistance from the state. Organizational patterns of these administrative bodies should be kept flexible in order to meet the particular needs of a locality.

Secondly, an administrative procedure needs to be established in

order to promote both consistent and objective application of land use controls by the administrative body. Considerations in this respect include the subject matter of development cases presented to the body (a recommendation would be to hear applications for new development, a change in use, or a change in the intensity of use for a parcel of land), establishing guidelines for conducting public hearings, and allowing adequate time for public comment prior to the actual issuance of a permit to a land developer. Excellent guidelines relating to administrative procedure are set forth in A Model Land Development Code, published by the American Law Institute.

Finally, there is a definite need for the various states in the Southern Rocky Mountain area to take more initiative in establishing uniform and effective land use regulation. Two major needs are apparent. First, enabling legislation is needed in order to authorize states to establish both administrative and procedural guidelines for granting development permits. Secondly, a great deal of responsibility rests with the various states for providing local governments both technical and financial assistance for land use planning and regulation at the local level. Positive state action is necessary if major land use decisions are to be kept at the local and state level.

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