LAND USE:

Trends and Policies in the Upper Midwest

In this era of limited resources, public policy must, more than ever, protect opportunities for personal and social advancement within the constraints of the world's resources. This requires a constructive partnership between the private and public sectors and the clarification of responsibility among public jurisdictions within the framework of national objectives. Land-use problems in the Upper Midwest demand our attention, both to sustain our lifestyle and to contribute toward resolution of the national/international resource management questions.

February, 1976

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RESOURCE COLLECTION

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LAND USE:
Trends and Policies in the Upper Midwest

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This study is a product of the Upper Midwest Council. The Council’s Board of Directors established the objectives and procedures for the study. The specific contents, however, were developed by the Council staff under the direction of an advisory committee. The Board was kept informed on the progress of the study as well as the general but not specific contents of the report. Individual Board members may or may not agree with the conclusions in the report.
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The Energy Subcommittee evaluated the relationship of energy to land use by focusing on energy supply and demand. A key issue was the primary and secondary impacts of coal fields and coal processing on other land uses. A second key concern was the extent to which energy costs and availability have influenced residential and employment locations.

These energy issues directly relate to the primary concern of the Settlement Subcommittee, which sought to identify and evaluate the factors that influence the settlement process. Settlement is defined as the density and distribution of human activity on the landscape. The potential effects of energy cost and availability on settlement were considered in four scenarios.

The Land-Use Management Subcommittee reviewed the development of various land-use management tools as they are implemented, mostly at the local level. They report conclusions regarding the need for additional information and assistance to local decision makers to improve management of development. The committee also considered criteria to define critical areas. This concept involves land areas or land uses with greater than local significance. The subcommittee reviewed critical areas legislation and procedures in the Upper Midwest, viewing the critical areas process as one of many land-use management devices.
and water, to name a few. In essence, a comprehensive, consistent, single
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For example, the 1965 Federal Highway Act, in effect, supported an unration-
a result, legislation often has created land-use policies unimplementable. As
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land-use policies tend to treat problems indirectly rather than directly, they have been developed after problems emerge, rather than prevented.
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Public concern over land-use management has been increasing, but
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to other regions of the nation. How should these land resources be
effect to the Upper Midwest economy and lifestyle, then such industries
industries, including agriculture, forestry, mining, and hunting, are more short-
determined by the nature of the land and resources. Natural resource
The economy and lifestyle of the Upper Midwest are largely

Summary: Major Findings and Recommendations
purpose land-use policy does not, and never has, existed. What does exist is a complicated array of conflicting, overlapping and inconsistent policies and programs, many of which never were intended to influence land use.

Two basic changes in land-use management are needed. First, all levels of government must develop long-range social, economic and environmental goals. Goals, objectives, policies and programs and the responsibilities for such among levels and between branches of government must be carefully coordinated.

Second, greater cooperation must develop between the public and private sectors, together with clearer responsibilities for decision making. Differences in the goals of the public and private sectors are becoming less distinct, and thus require a clear definition and coordination of their respective roles. Furthermore, land acquisition, development and management are becoming increasingly complex and costly, requiring both public and private resources. New development concepts will be needed to bring the public and private sectors together for the planning, financing, and implementation of specific developments. An example is the public-private cooperative venture process (see page 46). Resolution of land-use problems will occur not just by expanding the public's management responsibilities but also by clarifying the roles of the public and private sectors and by coordinating all governmental responsibilities. The public sector should become a facilitator, a designer of societal goals, a monitor of progress and a setter of standards. The private sector should become a "doer" and a producer.
FINDINGS AND RECOMMENDATIONS

The following recommendations are based upon the major land-use findings in this study and the considered judgments of the Land Use Advisory Committee.

Finding: The existing pattern of population thinning and dispersal uses energy resources inefficiently. A dispersed, low-density population uses more fuel for transportation than does a concentrated population of equal size (Costs of Sprawl, 1974). Also, single-family, detached dwellings require more fuel for heating a given number of square feet than do multi-unit dwellings, such as townhouses. People's preferences for single-family, detached housing (and resulting patterns of population dispersal) will continue unless energy costs increase substantially or energy becomes much less available.

Recommendation: The public sector should initiate a program to provide better information to individuals on the relative economic and environmental costs of housing, transportation and alternate lifestyles. The public sector also should increase public awareness of alternatives to the large-lot, single-family, detached dwelling.

Finding: The cost of providing services to dispersed development often is subsidized by taxes or fees paid by higher density developments. For instance, dispersed developments such as "leap frog" subdivisions are not always assessed the total costs of providing sewer and water services. These costs are normally distributed across the entire financial base of the urban area. Transportation, telephone and postal services to remote locations likewise are subsidized by the entire system.
**Recommendation:** Accurate cost-accounting methods should be developed to evaluate the cost of the public service delivery system. Public agencies should consider the option of marginal cost pricing for public services. Marginal cost pricing assesses to each added increment the true cost of adding that increment or unit of service to the system. For example, customers no longer would pay an established flat rate for electrical connections. Connection charges would vary depending on the cost of extending electrical service. Considerable research is yet needed, however, to determine actual incremental costs for services and an equitable method of allocating those costs.

**Finding:** Real-estate and income-tax provisions have stimulated urban dispersal. Capital gains for individuals are taxed by the federal government at half or less of the comparable income-tax rates. This has tended to stimulate land speculation, skew land-market functions and create artificial land scarcities -- all of which encourage settlement dispersal. The income-tax allowance for depreciation of non-homesteaded buildings encourages rapid turnover in non-homesteaded building ownership once the property has been fully depreciated for tax purposes. This results in instability of tenure and poor building maintenance, contributing to urban deterioration and development dispersal on the urban fringe.

Real-estate taxes are based on the value of land and man-made improvements on the land. Usually the land is under-assessed, and most of the tax burden is placed on man-made improvements. This discourages maintenance and rehabilitation of older structures and again stimulates development dispersal.
Recommendation: State and federal real-estate and income-tax provisions should be re-evaluated to create a tax structure that does not encourage urban deterioration.

Finding: Landowners may realize financial benefit or may suffer financial loss because of public facilities investments. For example, a landowner near a highway interchange may realize significant profits as a direct result of public investment in the highway. Or, a landowner near a sewage treatment facility, or whose access is cut off by freeway construction, or whose land is zoned for limited use, may experience a loss in property value.

Recommendation: "Windfall" land profits that result from public investment should accrue to the public. At the same time, landowners should be compensated for "wipeout" losses resulting from public decisions. Such concepts require additional study before specific means of implementation can be considered. Several ideas on recapturing windfall profits have been used elsewhere and might be considered, including unearned increment taxes (England and Australia), special capital-gains taxes on property-value increases (Vermont), and increased land-transfer taxes.

Finding: Trends from 1970 to 1974 indicate that population continues to disperse and urban and rural lifestyles continue to merge. Job availability, physical amenities and personal perception of the quality of education, housing and security are among the most important influences on the choice of residence and lifestyle and, consequently, on settlement patterns. If these changing patterns of settlement are to be guided, they must be understood. How these factors interrelate and influence settlement is still largely unknown.
Recommendation: States in the Upper Midwest should pool resources and establish a common data collection and reporting system for migration and settlement information. For example, Minnesota demographers should work closely with persons in other Upper Midwest states who gather and analyze data. A regional committee of staff persons from state planning agencies in the Upper Midwest should be established to define specific data needs and develop the means for cooperation.

Finding: The concept of resource preservation often results in negative policies that may impose unreasonable or undesirable constraints on development. Maintenance of existing standards of living, however, mandates continued development, better management and re-use of resources. Development of resources need not be synonymous with the negative connotations of resource exploitation. Economic development can and should be compatible with reasonable precepts of resource conservation.

Recommendation: Resource conservation and economic development must be integrated to sustain social progress and minimize future conflicts over resource use. This will require better quantification and careful evaluation of environmental considerations during the planning of major developments. It will also require specific and constructive ideas from environmental groups in identifying potential impacts. Establishment of environmental performance standards is one way to minimize environmental conflicts on a wider basis. For instance, the National Clean Air Act has established standards for air quality that may not be exceeded by facilities in the designated air-quality regions. Similar guidelines or standards should be considered for the use of land resources -- at both the state and federal levels.
Environmental mediation is another technique for resolving environmental conflicts. This approach brings together representatives of opposing interests as a mediation body to negotiate differences. The procedure can produce a solution mutually agreeable to all parties, avoiding costly delays from court proceedings. Environmental mediation successfully resolved a protracted dispute over damming the Snoqualmie River in Washington state. This approach, while not applicable for all disputes, should be evaluated by decision makers for application to future environmental issues.

**Finding:** In an era of limited resource availability and changing attitudes toward land use, past concepts or applications of private property rights may no longer be appropriate.

**Recommendation:** Government, business, labor and education should support a concept of land ownership that recognizes the obligations as well as the rights of a landowner. This view perceives the landowner as a steward who accepts responsibilities of land ownership as a public trust with obligations to manage the land in order to insure its continued use for future generations.

**Finding:** The opportunity for individuals to select from a variety of living experiences is important to the long-term public interest. This means the best possible urban lifestyle, the best possible suburban lifestyle and the best possible rural lifestyle. None of the available lifestyle options should exclude or detract from other lifestyle options.

**Recommendation:** Public policy should assure a full range of living experiences, provided those lifestyles do not infringe on the legitimate rights of others and do not require a substantial, unnecessary economic subsidy.
Finding: There is inadequate data on population mobility — who moves where and why. Such knowledge is essential to the development of meaningful settlement and land-use management policies.

Recommendation: The federal census should include detailed information on change of residence, with better geographic tabulations and cross-referencing with other demographic characteristics. Population data should be tabulated for place of work as well as place of residence.

Finding: Certain businesses in higher density urban locations move to lower density semi-rural and rural locations in search of lower land costs, lower taxes, socio-economic stability and, often, lower labor costs. Since employment location is the most important influence on migration, it is essential to understand the factors that influence business and industrial relocation in order to establish meaningful settlement policies.

Recommendation: Better economic and social data are needed to help determine how the movement of business and industry affects communities. These data should include the socio-economic characteristics of employees of relocating industries and businesses, employee commuting patterns and the kinds of businesses and industries that stimulate or respond to population migration. Responsibility for gathering and evaluating such data should rest with the state planning agencies, state departments of economic development and the Bureau of Census.

Finding: As energy costs increase, low- and middle-income families will seek to reduce energy expenditures, including home heating and transportation costs. Higher-income groups will likely find their personal energy expenditures affected only marginally and will have significantly greater options
in residential choice. Energy expenditures may become a symbol of prestige and lead to further socio-economic segregation. An unmodified free-market mechanism that is unable to provide an equitable energy distribution system may result in serious social consequences.

**Recommendation:** Energy distribution should be managed through a combination of increasing costs and decreasing availability. Energy costs should increase as production and marketing costs increase to insure adequate incentives to the private sector. Energy-use taxes should be increased to fund research on alternative energy sources, energy efficiency, alternate transportation modes and systems. The feasibility of rationing or allocation systems should be further evaluated as methods of reducing consumption and equitably distributing energy. Such systems should be evaluated not only as temporary solutions to emergency conditions but also as possible elements of a long-range national policy to minimize energy waste.

**Finding:** Resource extraction and energy generation and transmission facilities have multi-state, land-use impacts. Demand in one state influences production in another. State governments, however, primarily react to the recommendations of utility companies and have little opportunity to help evaluate the overall supply/demand system and its impacts on more than one state.

**Recommendation:** States in the Upper Midwest, in cooperation with industry, should develop a regional or interstate forum to evaluate proposals for resource extraction and energy conversion and transmission facilities. States should adopt uniform regulations to avoid mutually disadvantageous competitive positions in dealing with energy resource development industries.
Finding: Resource-extraction and energy-conversion and transmission facilities will not have a major direct impact on overall agricultural production in the Upper Midwest. However, impacts from such facilities on specific farm or ranch units can be substantial. In addition, secondary impacts, including increases in employment and population, will have substantial impact on agricultural as well as urban land use. Finally, competition for the use of water between energy development and agricultural uses will have substantial implications for agricultural production.

Recommendation: State government must take responsibility for insuring that resource-extraction and energy-conversion and transmission facilities minimize impacts on agricultural production and that fair compensation for impacts on individuals is assured. States in which these facilities will be located must establish procedures to anticipate secondary developments and manage their impacts.*

Finding: Prime agricultural land is being consumed by non-agricultural land uses. Once converted to non-agricultural uses, reclamation of land for agricultural purposes is virtually impossible. A clear understanding of this problem is hindered by lack of information on the location and rate of loss of agricultural land, the nature of pre-empting land uses, future needs for cropland and a definition of prime agricultural land. Until this information is available, it will be difficult for Upper Midwest states to adopt meaningful agricultural land-use policy.

Recommendation: State governments in the Upper Midwest, in cooperation with federal agencies, should undertake a joint study to provide greater

*Refer to Minnesota's Airport Zoning Act in the Appendix as an example of legislation to control secondary development.
information on agricultural land-use changes. In designing such a study, several points should be noted:

* A careful review should be made of current agricultural land use projects in different states. It would be most efficient to build on existing studies if the problems associated with non-comparable data can be overcome.

* The study probably will have to be conducted on a sample basis to complete it within a reasonable time.

* Data should be stored in a way that they can be easily updated, and used for modeling or scenario analysis.

* The study should include plans for a periodic follow-up, since changing conditions will result in different interpretations of potential land use.

Until more information is available to answer the foregoing questions, Upper Midwest states should establish measures designed to minimize the irreversible transfer of agricultural land to non-agricultural uses.

**Finding:** If agricultural productivity drops below a certain level, or if an agricultural area becomes interspersed with too many non-farm activities, agriculture in that area will decline. Though such a process may not necessarily be undesirable, it is important to understand the reasons for and consequences of that process.

**Recommendation:** A study should be undertaken to investigate the concept of "critical mass" and its application to agriculture around small and medium size cities. Such a study would help influence public policy on questions of preservation of agricultural land.

**Finding:** The Garrison and Oahe diversion projects have encountered considerable opposition because of uncertainties relating to costs, impacts -- especially to Canadian waters -- benefits and alternate use of
water resources. These controversies underscore the need for continued public contributions to the planning of major land-use projects, the importance of accurately communicating costs and impacts to the public and the continuing need for long-range planning for use of water resources.

Recommendation: A water-resource allocation plan should be developed for the Upper Midwest region. This plan should evaluate water-resources plans for the Missouri River Basins, Souris-Red-Rainy River Basins, and other existing multi-state and international river-basin or state water-resources plans, and should suggest priorities for regional water-resource allocations, especially during periods of drought. Coordination of river-basin and state water-resource planning should provide a framework for evaluation of proposed major projects and provide a forum for resolution of interstate allocation disputes.

Finding: There is considerable duplication, contradiction and general confusion regarding the responsibilities of various agencies and levels of government in land-use management. There is also a conversion of land management responsibilities between the public and private sectors. A dynamic and creative management partnership is needed between government and the private sector.

Recommendation: Public land-use management policies should build upon private initiatives and reward creative land management consistent with national, regional, state and local interests. For example, a system could be established to provide fiscal credits for constructive environmental or social impacts and penalties for environmental injury or social disruption.
Finding: Inequalities exist among local governmental units in their ability to provide adequate public services. Local governments often do not have adequate fiscal strength, sufficient trade or service areas or population bases to provide adequate public services. As a result, local land resources are frequently exploited to develop a stronger fiscal base and to provide public services at lower costs.

Recommendation: Cooperation, sharing of services and boundary adjustments among local governmental jurisdictions should be encouraged by state policy where service can be improved, costs reduced and public participation strengthened. Counties and regional development commissions should assist local governments in measuring the effectiveness of their public service delivery systems.

Finding: Shifts in population and economic activity may cause hardship, both on declining and rapidly growing communities.

Recommendation: Individual communities should be encouraged to limit, manage or otherwise design their own development strategies, so long as those strategies do not impose hardships on other jurisdictions or unfairly restrict the opportunities of individuals for personal advancement.

Finding: Most state approaches to managing land use are negative, tending to extend local zoning concepts that are designed to limit or exclude development from certain areas. They often are couched in terms of conservation or preservation of resources and may discourage productive and efficient resource use.

Recommendation: State land-use management should be positive in accordance with defined needs and should be designed to guide what may or should
happen, rather than what should not happen. For example, power plant siting guidelines can be positive in approach when they provide a framework for siting consistent with state goals.

**Finding:** Local citizens and public officials often have little awareness of land-use pressures that influence development in their communities. Likewise, citizens often lack the opportunity to participate effectively in local land-use decision making.

**Recommendation:** State government should help local, county and regional authorities to encourage citizen involvement in land-use decision making. Alternatives for effective contributions should be communicated clearly to citizens who desire to influence local and state land-use decisions. Anticipated land-use changes should be identified and estimates provided of the expected social, economic and environmental impacts of land-use changes.

**Finding:** Pressures for development of resources result from national and international needs and market pressures. These market pressures affect Upper Midwest food production and mineral extraction (such as coal, taconite, copper, nickel, petroleum, etc.). State resource-development guidelines therefore depend upon national guidelines.

**Recommendation:** The federal government must provide clearer guidelines for the use of resources that are significantly affected by national and international needs. This is a prerequisite to the development of consistent and meaningful state resource-management policies. The federal government should provide technical and financial help where needed to mitigate impacts resulting from development of national resources.
In this era of limited resources, public policy must, more than ever, protect opportunities for personal and social advancement within the constraints of the world's resources. This requires a constructive partnership between the private and public sectors and the clarification of responsibility among public jurisdictions within the framework of national objectives. Land-use problems in the Upper Midwest demand our attention, both to sustain our lifestyle and to contribute toward resolution of the national/international resource management questions.
Historical Perspective

Historically, land-use policy has reflected popular attitudes towards resources and property rights. Concepts of property rights began to emerge through English Common Law during the 16th and 17th centuries and flowered during the 18th century. Owning property in England, as well as Colonial America, was the key to social status and personal freedom. Early American attitudes toward land use were based on these property-rights concepts, as well as a perception of the generous supply of land and resources. The view prevailed that land was abundant and property owners should exercise almost total control over their land. This attitude contributed to the concept of manifest destiny, the idea that man's destiny is to conquer and subdue primitive, pagan nature. Manifest destiny, resource abundance and private property rights provided the conceptual foundation for settling the American West and for adopting the Northwest Ordinance, Indian treaties, railroad land grants and the Homestead Act. Public policies through this period promoted rapid settlement of the land and development of resources.

Then, in the 20th century, social and demographic changes generated greater concerns for the rights of the public over rights of the individual. The first land-use controls in the early 20th century were established to maximize land values for property owners. Zoning ordinances restricted land uses that adversely affected the value of adjacent land. Such regulation represented a significant departure from past attitudes on individual property rights. Initially, land-use control efforts were limited to urban areas where greater density of development made land-use conflicts a growing
problem. Clearly, the development of large urban areas stimulated the need for land-use management.

In the past 20 years, there has been a growing awareness that land-use regulations must accomplish more than protection of land value. A particular concern is to insure that present land uses do not preclude potential future uses. These attitudes reflect a basic change in our concept of land -- from that of an abundant commodity to one of a limited resource, requiring careful husbandry.

Other attitudinal changes also have occurred. In the past it has been assumed that societal well-being was directly related to the free market functioning of the private sector in a competitive market situation with relatively few restrictions. The public sector's role was to encourage competition but to protect the public from the excesses of competition. But this restrictive definition of the public and private sectors' roles has not adequately served the changing need of an increasingly complex and technical society. Private decision making usually focuses on short-term needs and benefits, which in the long-term may not be in the best overall public interest. A recognition of the interdependence of the public and private sectors is needed together with the realization that a creative partnership best serves the long-term interests of both sectors.

In the past economic progress often has depended upon the development of natural resources in accordance with incentives that encouraged maximum use over the short-term. As easily accessible resources were depleted, man either developed new resource substitutes, turned to less economic resources or modified his resource consumption patterns. Changing attitudes on resource availability, however, have forced a reappraisal of past consumption patterns with a perspective of planning for future needs.
Basic past assumptions are being questioned and many wonder if technology will continue to provide alternate resources for future consumption or if resource availability will in fact place limits on future growth.

As Ralph Widner has summarized: "We now enter upon a new era, in the face of conditions quite different from those that existed when our great-great-grandfathers conceived the Constitution, developed our states and marked off the boundaries and powers of our local governments. While their efforts were undertaken in the context of an awaiting continental abundance of virgin resources, ours now seem to be constrained by potential scarcities, not just national, but global in magnitude. These issues that now face us arise from the dawning perception that we must find ways to constrain and manage the distribution of economic and population growth to comport with the limits of energy, food, materials, land, water and clean air available to us."*  

Chapter I

Settlement:

Patterns, Policies and Prospects

"The present settlement pattern is a composite of individual choices regarding place of residence and work. Such choices are made among perceived options, which in turn are influenced by public policies. The great variety of public policies that influence settlement tend to be redundant, contradictory and ineffective."
Population Shifts are Continuing

Since the early 1960s, there has been widespread interest in reversing the migration of population from rural to urban areas on the assumption that a "balance" of population would benefit both rural and urban interests. At the same time, concern was expressed about urban sprawl, which increases costs of services to dispersed developments and removes agricultural land from production. Recently, sprawl has extended farther, bringing new growth to rural areas and small towns. Thus, the pressure for urban-rural balance has diminished. But population has shifted without specific management or an understanding of the processes that influence settlement. Settlement refers to the density and distribution of all human activity on the landscape.

The 1960s and early 1970s saw three major patterns of population change in the Upper Midwest. First was the continuing population loss in areas with economies based on natural resources, agriculture and mining, in particular. Urban areas, where jobs were available, drew population from agricultural and mining areas, causing population losses in large areas of the Upper Midwest.

Second was the thinning and spreading of urban population. This included the gradually declining population in the older developed portions of urban areas and increasing dispersal on the urban fringe. The most dramatic example of these changes occurred in and near the Twin Cities of Minneapolis and St. Paul. The same trends were evident around the smaller metropolitan and sub-metropolitan growth centers.

Third, large numbers of people moved to locations with physical amenities (small towns and rural areas) that are accessible to urban
services and employment. Such preferences probably are influenced strongly by a rural lifestyle heritage. Even in the major urban centers, such as Minneapolis and St. Paul, the majority of in-migrants come from the small towns and rural areas of the Upper Midwest. Rural migration to urban areas consists predominantly of single, young adults seeking employment, education and social contacts. As these social contacts are made, as families are established and children grow up, people likewise change their point of reference with regard to "desirable" living environments. Urban core areas thus serve an important function as demographic "staging areas" for a transitional population. Contrary to common belief, families do not migrate directly from rural areas to the urban core. They are not likely to understand or to identify with urban areas. Their choice of residence is suburban or exurban.

Because of these preferences, the Upper Midwest and the nation consist of a series of low-density, overlapping urban networks with commuting and service areas linked by efficient transportation and communication systems. Recent trends show an acceleration of population thinning and dispersal and a merging of urban and rural lifestyles.

In the context of these ongoing population changes, people have sought an "urban-rural balance" or a "control of urban sprawl." Yet, no one has stated precisely what needs balance or control and why. If a fundamental American principle is freedom of individual choice and maximization of human potential, then existing settlement patterns may reflect rational choices that serve needs perceived by individuals. Policies to manage settlement should try to adjust factors that influence the settlement process in undesirable ways. National, state and local settlement policies must not be designed to solve problems caused by the settlement
patterns. Rather, policies should aim to achieve positive development goals built on an understanding of current processes and intended to guide that process, not thwart it in pursuit of simplified or utopian concepts.

Many planners have argued for control of urban sprawl and concentration of development in the older urban centers. Their arguments are usually based upon the cost of duplicating services and public investments that already exist in the developed areas. These arguments, however, often do not adequately consider factors that influence personal choice of residence, the reasons for current patterns and the full range of related social and environmental costs and benefits.

Several Factors Influence Settlement

People commonly consider two kinds of factors in selecting a place to live: those that contribute to movements between communities and those that influence selection of residential location within a community.

Employment is the primary reason that people move from one community to another. While job location usually is not a significant factor in residential location, employment becomes more important in choosing a place to live in larger metropolitan areas. Most people accept a job before migrating; however, some move to a desired location to find employment. The latter group considers other factors than employment alone in deciding to move. While employment remains the primary reason for migration, recent research shows that physical and cultural amenities account for an increasingly large share of decisions to move. This accounts for population growth in the southeast and southwest coastal areas, the
Appalachians, the Ozarks and the Rockies on a national scale and in the lake regions of the Upper Midwest on a regional scale.

Once a general community location is determined, the primary factors that influence the specific place of residence within that community include housing, education, personal security and physical amenities.

**Housing:** The size, condition and value of housing are the most important determinants of residential location. Housing is considered to be an indicator of social-economic status, for most families invest a maximum feasible portion of their income in housing, and income is highly correlated with occupation and education. Personal security, educational quality and physical amenities also affect housing value. Housing size varies with family size; however, increasing family size precipitates a move more often than does declining family size. Because the range of housing stock is similar in most communities, housing does not usually influence migration decisions.

A common desire is to own a single-family home on a large piece of land. This goal has been supported by private lending policies and a variety of public policies and programs, including low-interest loans, income taxes, property taxes and highway construction. Those who desire urban locations often have been discouraged by these policies and the high cost of urban land. The result has been housing dispersal — for those who can afford it — and deteriorating housing in the core areas for those who can not.

**Security:** Personal security is becoming more important in people's decisions on where to live. It is not a factor in migration, for a range
of choices exists within convenient distance of most employment. Crime is perceived to be higher in low-income and racially mixed areas, tending to discourage consideration of inner-city residential locations. Accurate comparative information on personal security, however, is not available.

Effects on land use are two-fold: isolation of core areas and dispersal on the fringe. High-rent apartments with security systems replace single-family houses in older neighborhoods, while the residential population changes from homeowners who are involved in the community to isolated, non-involved, anonymous, short-term renters. Families that seek to avoid areas with security risks tend to locate on the urban fringe, contributing to development dispersal.

**Education:** Quality of education is an important consideration for families with children. As with housing and personal security, a range of educational options is presumed to exist within most urban areas. However, since little or no information is available for potential residents to evaluate education quality, substitutes are used: socio-economic status of the community (as observed by the housing stock and population composition) and school facilities (age and condition of buildings). These indicators do not favor inner-city locations. This contributes to deterioration of older areas and to dispersal on the urban fringe where educational quality is perceived to be better.

Perceptions of housing, security, and education all reflect an anti-urban bias. The density and lifestyles of cities are associated with threats to personal security, inferior educational systems, lack of privacy and a number of other undesirable characteristics. Choices of residential location are based upon such perceptions, which are not necessarily accurate.
Urban areas provide opportunities for employment, culture, entertainment, education, social contact and human services that usually are not accessible to rural areas. More accurate comparative information and correction of common misperceptions and bias against urban lifestyles may alter settlement trends. It is probable, however, that such attitudes are deeply ingrained in American culture and that major adjustments are unlikely in the near future.

**Amenities:** The desire to live in areas with physical amenities is causing dispersal of population well beyond the established built-up fringe of urban areas. In the Upper Midwest, many scenic lake areas are experiencing rapid growth and virtually every urban area realizes an extended commuting zone. Areas of social-economic interaction increasingly tend to overlap, and urban land-use patterns extend across the countryside.

Desires for amenity locations like small towns and rural areas are not new. They date at least as far back as the Industrial Revolution and correspond to rapid growth of cities. At that time, accessibility was poor and non-farm population was tied to urban job locations. Efforts to develop pleasant urban environments were evident in the 19th century, with the New Town movement and the Green Belts initiated by the public sector, and streetcar suburbs developed by the private sector.

Rising income levels and increasing mobility have accelerated dispersal patterns since World War II. As a result, more people have been able to live in small towns, rural areas and amenity locations. Current settlement patterns suggest that people are still tied to urban employment, but are willing and able to travel farther to live in the type of environment they prefer and even are willing to make economic sacrifices to do so.
The population dispersal rate around the Minneapolis-St. Paul area appears to be one of the highest in the nation -- in terms of density and commuting distances. High dispersal tendencies also exist around smaller urban areas that have expanding employment and are located near amenity areas, such as in central Minnesota. Lowest dispersal rates occur around urban areas that lack environmental amenities, such as urban areas on the Great Plains. For example, in the rapidly growing community of Bismarck-Mandan, growth is mostly contiguous, even without specific policies to discourage dispersal.

**Public Policies Strongly Influence Settlement**

The settlement pattern is a composite of individual choices regarding residence and work. Such choices arise from perceived options, which in turn are influenced by public policies. The term public policy as used here includes legislation, programs, agency rules and regulations, and in general, all activities of the public sector that affect land use, intentionally or otherwise. In a real sense, the United States and most of the individual states do not have comprehensive land-use policies but rather collections of policies relating to various land-use problems. In the past, the establishment of policy affecting land use clearly reflected changing attitudes and values. Most public policy prior to the 20th century reflected concepts of individual property rights, the seemingly unlimited resources of an expanding nation and the fervor to subdue primitive nature. Among the more significant public policies reflecting these values were:

* The Fifth and Fourteenth Amendments, which prevent the government from taking property without just compensation to protect landowners from unfair public acquisition.
* The Ninth Amendment, which guarantees rights of individual travel, thus assuring the opportunity for social and economic mobility. This has facilitated concentrations of population in some regions and population loss in others.

* The Northwest Ordinances of 1787, which sought to establish a land-tenure constitution for new states joining the Union within the Northwest Ordinance area. The Ordinances included federal government procedures for survey, allocation, sales, record keeping, uniform taxation, etc., and gave private landowners rights to possess, occupy, hold, transfer, buy, sell, mortgage, lease, subdivide, consolidate, use, conserve, improve land, etc.

* The Railroad Land Grants of the 1850s, which provided alternate sections of federal land to railroads to stimulate commerce in western areas, to build a trans-continental transportation system and to unify the nation. Railroads thus preceded and stimulated western settlement, anchored the location of cities, and became the major landholders they remain today.

* The numerous Indian treaties during the 19th century, which ceded Indian lands to the U.S. government and confined Indians to reservations to "ensure the safety of western settlers and secure lands with significant economic value in the interests of the nation." Vast areas of the West were thus opened to private ownership and settlement.

* The Homestead Act of 1862, which offered free land in 160-acre tracts to settlers after five years' occupancy and cultivation. The intent was to stimulate development of western lands and establish a nation of landowners. The result was rapid settlement, including the over-settlement of many semi-arid western lands.

Public concern for preservation of selected land resources began with the establishment of Yellowstone National Park in 1872. Preservation emerged as an issue in policy development after the turn of the century with the establishment of the National Park Service in 1916, counteracting the precedent of encouraging individuals to own and develop land.

Policies encouraging individual land ownership, however, continued. For instance, the Federal Housing Administration Home Mortgage Insurance policies following World War II provided low-cost insured loans for new housing to stimulate construction and extend ownership to more people.
The effective result was to neglect the maintenance of older housing stock in deference to the encouragement of rapid suburbanization.

Transportation policies also have substantially influenced settlement patterns. In recent years, highway construction policy, more than any other public policy, has facilitated the dispersal of population and employment in the Upper Midwest. The 1956 Federal Highway Act provided up to 90 percent federal aid for construction of a national system of urban and rural expressways. Little consideration was given to the enormous secondary effects that the resulting accessibility would have on land use. The shorter travel times provided by limited-access expressways have made wide areas of rural land more accessible and encouraged more distant commuting and dispersed settlement. National mass transit legislation was enacted in part to counteract automobile dependency.

While highways and transit were receiving public subsidy, railroads curtailed passenger service, abandoned unprofitable routes and faced serious economic difficulties. Railroad abandonments have significantly affected land use in small towns dependent upon rail service and have disrupted marketing patterns for agricultural commodities.

Urban dispersal patterns stimulated by improved accessibility are further reinforced by real-estate and income-tax policies. For instance, capital gains of individuals are taxed by the federal government at half or less the applicable income-tax rates. This has tended to stimulate land speculation, skew land-market functions and create artificial land scarcities and irregular patterns of urban development. All these create higher costs for public services.

The income-tax allowance for depreciation of non-homesteaded buildings has a substantial effect on urban land use. Properties that have
been fully depreciated for tax purposes are resold and the new owner again begins the depreciation process. This accelerated depreciation allowance encourages turnover of ownership and poor building maintenance. The result is urban deterioration, especially in older parts of urban areas. The depreciation allowance also encourages capital investment in new construction, some of which may be invested in core city redevelopment.

State and federal income-tax rates give preference to ownership of single-family housing through real-estate tax shelter and mortgage deductions. Such deductions stimulate ownership of new homes usually situated on the urban fringe.

A variety of benefits is provided to agriculture, including deductions for capital outlays, capital-gains treatment of certain income items and lenient accounting procedures to support agricultural income, encourage productivity and preserve social structure. But they can also provide a tax shelter to hobby and residential farms, and make land speculation profitable.

Real-estate taxes are based on the value of land and man-made improvements on the land. In most cases, land is under-assessed and most of the tax burden is placed on man-made improvements. Taxation on real-estate improvements discourages maintenance and rehabilitation of older buildings, encourages construction of new buildings in new areas, and encourages a wasteful use of land. All of these factors produce low-density, horizontal urban development with attendant public costs for transportation, sewer, water and other services.

Inequities in the real-estate tax base among municipalities lead to variations in the cost and quality of available services. New commercial and industrial facilities, which generate property-tax
revenue, usually locate in municipalities that have low tax rates and provide a high level of services, thus compounding inequity patterns. These conditions foster divisive competition among communities for taxable business and industry. Large areas of unused land are held for industrial development, and high-value residential, commercial and industrial development becomes concentrated in preferred locations.

Property-tax exemptions to churches, schools, museums, and hospitals recognize the social contribution of these institutions. But real-estate tax exemption is a special form of public subsidy that tends to distort the use of public resources (including land), without direct accountability to the public.

The value of agricultural land often is inflated by demand for residential lots. In such cases, tax assessment is determined not by actual land use, but by potential land use, imposing a severe financial burden on the agricultural operator. The farmer is pressured to sell his land for development before that land should be developed. The result may be dispersed or "leap-frog" development. Property-tax relief is not always the answer. Inflation in urban land values usually results when agricultural operations continue in urban fringe locations. Also, non-agricultural land investors and developers often profit from agricultural tax-relief measures.

The approach generally has been to provide counteracting legislation which usually does not correct adverse effects of the foregoing policies. Recently such legislation has proliferated, but again, without coordination, without policy guidelines and without an understanding of the social, economic, environmental and land-use impacts. Policies and
programs that have been so implemented include:

* Environmental legislation -- such as the National Environmental Policy Act, wild and scenic rivers acts, shoreland management acts, floodplain management acts, coastal zone management acts, power plant siting acts, environmental rights acts, state environmental policy acts and state critical areas legislation.

* Policies intended to counteract the resulting economic disparities -- such as state department of economic development policies to encourage business and industrial development; fiscal disparities laws to reduce inequities among local governments; economic development incentives, such as the Minnesota Taconite Amendment to stimulate employment expansion in northeastern Minnesota; welfare- and income-maintenance laws to provide economic security without employment.

* Public land ownership (or land banking) to conserve public money and control the location and timing of development through the retention of public land or acquisition in advance of public need.

Many public policies are, in turn, reinforced by private policies such as:

* Major real-estate developments, including housing, shopping centers, and industrial parks, intended to fulfill a public need and make a profit for investors. The location of these developments usually is influenced by external factors, such as other public or private investments, which establish economic advantages of various locations. This clusters development at or near preferred sites.

* Home mortgage policies of financial institutions favor low-risk borrowers who seek to purchase property in "stable" neighborhoods. Such policies exist to help financial institutions realize a reasonable return on their investment at minimum risk by minimizing the likelihood of home mortgage defaults. This results in reduced investment and discouragement of rehabilitation in the urban core, tends to encourage construction of housing on the urban fringe and contributes to population and economic dispersal.

Finally, public and private monetary policies also have had an undetermined impact on land use. Supply of money influences inflation. Inflation causes temporary aberrations in the economy which may impart advantages to certain investments in land use. For instance, productive cropland may become relatively more attractive as an investment than non-productive land. Eventually the economy reaches equilibrium as adjustments are made to inflation.
Government policies to control the impacts of inflation may inhibit the economy from adjusting. For instance, rent controls may reduce the attractiveness of rental housing as an investment and consequently have a temporary impact on housing mix and density.

Private monetary policies also may have land-use impacts. "Redlining" or the practice by some lending institutions of discriminating against investments in "high risk" inner-city neighborhoods may contribute to inner-city decline and suburban dispersal. The policies of private lending institutions should be closely coordinated with public policies on urban renewal to maximize the impact of renewal capital.

Although inflation probably affects land use patterns, the direct links between land use and inflation are uncertain. Further study is needed to more clearly define the impacts of public and private monetary policies on land use.

These are the more significant policies that affect land use. The complete list is much longer. Most of these policies are initiated for purposes other than influencing land-use patterns. However, important land-use changes may result as secondary, unintended impacts of these policies. The secondary land-use impacts may have far greater implications for society than those originally intended by policy makers; yet those secondary consequences are seldom anticipated, evaluated or even perceived by the policy makers. This lack of awareness produces contradiction and poor coordination of land-use policies -- characteristics that will persist until the federal government identifies long-range national priorities and defines land-use policies. Only then can state and local government likewise initiate effective land-use planning programs.
Future Prospects are Uncertain

Basic desires for individuality, privacy, self-determination and property ownership may reinforce the demand for single-family, detached residences that are convenient to open space. The realization of these desires, however, may be modified in the future.

Recent trends indicate a disenchantment on the part of young persons with suburban lifestyles. Increasing costs of land, construction and energy have raised the cost of single-family, large-lot housing beyond the means of most families. It is possible that cluster designs and townhouse or condominium housing will increasingly provide acceptable alternatives to large-lot, single-family, detached housing. And in fact, with increasing dependence on a dwindling supply of certain energy resources, this country may no longer be able to afford the luxury of energy inefficiencies inherent in single-family, detached housing on large lots.

Energy efficiency can be significantly improved within current modes of housing and transportation. Thus, high energy costs are not likely to have significant short-range impacts on settlement. The impacts of energy costs and availability are considered in greater depth in the Energy section of this report.

Advances in communications technology may offer a substitute for transportation with much lower energy consumption, permitting wider choice in residential location and lifestyle. If national surveys reflect preferences accurately, more people likely will seek living in a small town or rural area in an environment of pleasant amenities. Telecommunications policy could have as significant an impact on settlement over the next two decades as transportation and housing programs have had.
during the past two. "Telecommunications may enable the U.S. population finally to reconcile what seem to be two fundamental but conflicting needs in American society -- access to others and separation from them. It may hasten the advent of what one observer describes as its destiny: an urban civilization without cities."*

"The construction of energy conversion facilities and of housing for anticipated population increases presents excellent opportunities for public-private cooperation. A public-private cooperative venture should be seriously evaluated as a potentially effective method of minimizing conflicts and undesirable impacts."
Present Lifestyle is Based on Low-Cost, Abundant Energy

The American lifestyle is based on low-cost and abundant energy, particularly petroleum and natural gas. But the era of inexpensive and abundant energy has ended, and land-use trends based on those resources -- such as low-density, residential patterns that waste energy -- pose substantial problems for future generations. Cheap and abundant energy has affected land use in the following ways:

1. Development of an auto-oriented transportation system, dispersing housing, jobs and services.

2. A marketing and distribution system based on sites accessible to highways. Increasingly, commercial facilities have gravitated toward large-scale, suburban, regional shopping centers.

3. Agricultural methods increasingly dependent upon machines rather than human labor, encouraging a larger scale of operation. Every phase of agriculture uses a great deal of energy, from production and processing to distribution and marketing.

4. Housing construction and location which is inefficient in terms of energy use. Detached, single-family homes -- particularly those with poor insulation and inefficient heating systems -- require relatively high energy consumption for heating and cooling.

5. Commercial and industrial buildings constructed more for appearance and convenience than for energy efficiency. Large areas of exposed glass surface and a general lack of insulation or thermal windows contribute to high heat loss.

6. An extensive system of energy conversion and transmission facilities, including extraction of coal resources.

7. Public and private policies that encourage consumption of energy. For example, state and federal gasoline taxes are earmarked for new highways, which encourage driving, urban sprawl and, in turn, increased gasoline consumption.

8. Utility rates that do not always reflect actual costs. Electrical service, for example, is considered a "right" regardless of location and function. The utility-rate structure subsidizes extension of service to remote locations by absorbing the costs throughout the system.
As supplies of petroleum and natural gas have declined and costs increased, attention has turned to alternate energy sources, specifically toward abundant coal reserves in the Northern Great Plains. These reserves can sustain the United States' energy consumption at its present rates of increase for an estimated 200 years. Coal development in North Dakota, Montana and Wyoming will affect land use significantly -- both directly, as a result of strip mining, production and transmission, and indirectly, through socio-economic impacts on nearby communities.

**Siting of Energy Conversion Facilities**

In order to learn how sites are chosen for energy conversion facilities, spokesmen were interviewed from five different utility companies representing six existing or planned facilities to convert coal to electricity or synthetic natural gas. In selecting a plant site, these utilities first consider:

* Location of the coal, including access, seam depth and thickness, and the BTU and moisture content.

* Location of the market in relation to the coal and transportation, including rail, barge, pipeline, and/or transmission lines.

* Availability of water.

These additional factors are considered:

* Mine-mouth conversion of coal to energy requires greater capital investment and maintenance for construction of plant and transmission lines, plus acquisition of transmission right of way.

* Building a conversion site closer to customers, plus rail transportation to haul the coal, requires less capital investment than mine-mouth conversion, but this choice has a risk: cost increases for rail transportation. Such increases later are passed along to consumers.
* Public Service Commission rate policies can substantially affect the location of generation facilities. The rate of return on investment will affect interest rates on borrowed capital. If the rate of return is low, as mandated by the Public Service Commission, capital costs are higher, thus discouraging mine-mouth plants because of higher transmission costs and nuclear plants because of higher generation costs. But adjustment clauses in rate agreements allow utilities to pass transportation costs increases along to customers, thus encouraging load center facilities.

* Other generation technologies, especially nuclear reactors, are also considered alternatives to the use of fossil fuel. Wind, solar energy and other so-called exotic technologies are not now considered feasible alternatives to those using fossil fuels.

* Government controls have not been a major influence in choosing sites. But new air-quality standards proposed by the Environmental Protection Agency (EPA) and legislation such as that passed in Minnesota, North Dakota, Wisconsin and other states will affect the location of future energy conversion facilities.

* Earning fair rate of return on the large capital investment in a mine-mouth plant requires full capacity operation over 24 hours. Thus, such facilities are best used as base-load plants.

* Nuclear generating facilities, in all cases, provide base-load demands because of their high capital investments and low operating costs. In such cases, peak-load thermal generating facilities should be located near the point of heaviest demand.

* Cooperatives are able to borrow at lower cost or secure federally guaranteed loans and therefore have more ability than private utilities to pay the higher investment costs of a mine-mouth plant.

* Cooperatives may be more willing to pay higher interest rates for short-term capital investments to avoid escalation of long-term costs and higher charges to consumers. Private utilities usually can pass these costs more easily to their customers.

* A conversion facility near point of use should be large enough to require unit train coal delivery.

* The cost or availability of land may be a consideration in comparing two sites if all other factors are equal.

* Taxes do not appear to influence site selection. The Minnesota task force on power plant siting, however, suggested in 1972 that property-tax distribution laws be changed to insure that property-tax revenues do not accrue exclusively to the county, township or school district within which the taxable property is located. The Minnesota Fiscal Disparities Law and recent tax legislation in Wisconsin embody this idea.
Economic considerations of the utility, siting regulations of the states and air- and water-quality standards of the U.S. Environmental Protection Agency will be the most important factors influencing locations of future power plants. States without such regulations will have the least ability to affect the location of generation facilities. But because the selection of sites involves multi-state issues, even states with regulations will be unable to adequately address related problems. Interstate cooperation is needed to produce standard regulations.

Energy Development Impacts will be Significant but Variable

The Northern Great Plains Resources Program estimates that by the year 2000, assuming highest rates of coal development, less than one-half of one percent of the land in 36 target counties in North Dakota, Montana, and Wyoming will be directly affected by coal mining and related facilities. Intensity of development and impact in this 36 county area will vary. One of the highest impact areas will be Oliver and Mercer Counties in North Dakota. Using the higher development rates, mines and related production and transmission facilities will require about 51,000 acres, or about 4½ percent of the land areas in those two counties. This acreage does not include an estimated 40 percent of the strip-mined land that will be rehabilitated by the year 2000. Strip mines and generation and transmission facilities will remove relatively prime agricultural land from production. Thus, neither the quantity nor the quality of agricultural land is likely to be substantially affected by energy production by the year 2000.
Although the overall impact on agriculture may be minimal, effects on specific farm units will be significant. Resource extraction, energy conversion and transmission will unavoidably disrupt numerous farm units -- especially where electric transmission lines cross irrigated areas or land with potential for irrigation.

The greatest land-use impacts from energy development are indirect. Employment, under the maximum coal development scenario, is expected to increase 143 percent in the target counties between 1970 and 2000. Population in this same area under this scenario would increase from 434,000 to 939,000. Secondary effects of this growth on housing, education, transportation and utility services will have a far greater impact on land use than the direct effects of coal mining, processing and transmission. The location of coal development is predetermined, but distribution of the secondary effects is unknown.
Impacts arise from the construction and operation of energy facilities. Construction brings a sudden and often large influx of temporary work crews. Their choices of residence and lifestyle are determined by the transient nature of construction work. But operational crews are permanent employees who demand different public services. The operational crews are more often accompanied by families, for example, and create a heavier demand on the school system. They are also more selective in their choice of residence. The result is a "boom and bust" phenomenon with respect to housing and services. Local government in many cases is poorly equipped to handle these changes.

Primary and secondary impacts vary considerably. If coal is simply extracted, the impact will be considerably less than if energy-conversion facilities are present as well. Another factor is whether conversion involves coal gasification, electrical generation, coal slurry or synthetic petroleum production.

**Impacts Must be Managed**

Primary impacts on air and water quality and secondary impacts on settlement systems will extend far beyond the conversion facilities. Considering that sphere of influence, the choices are clear: manage those impacts in the perceived public interest, or leave the initiatives to the private sector. A decision not to manage ignores potential adverse effects and denies public responsibility. The question then should not be whether to manage, but how to manage and how each level of government should participate in the management.

Optimally, each state should have goals for land use and energy development and a clear definition of the public interest to guide the
formulation of policies and programs. Since no comprehensive federal energy or land-use policy provides guidelines, each state must establish its own priorities. State policy should assign high priority to providing adequate public services at a reasonable cost for the population increase resulting from energy development. A portion of this population growth likely will occur in high amenity locations such as at Lake Sakakawee or along the Missouri River. The likelihood of mass population dispersal would be greater in an area abundant with lakes, rivers, trees and hills. Because the provision of services to a low-density population is more costly, states anticipating large population growth from energy development may wish to encourage a nucleated development pattern by strengthening the existing hierarchy among nearby service centers. For example, North Dakota could evaluate methods of expanding employment and services in nearby established towns of the "partial convenience center" size and larger, such as Beulah, Hazen and Center.*

A broader range of services could be encouraged in the established "regional service centers," such as Bismarck-Mandan and Dickinson. The state should encourage intergovernmental reorganization where necessary and intergovernmental cooperation in providing public services and sharing service costs. The state also might consider encouraging counties and local governments to initiate comprehensive planning programs. The Land-Use Management section of this report includes several suggested techniques for controlling and guiding development that could be used to manage population growth in the areas affected by energy development. Since the cost for inefficiencies in government ultimately falls on the state,

guidelines for land-use management tools should be established by state
government or imposed where local cooperation is lacking.

The construction of energy-conversion facilities and of new
housing for anticipated population increases presents excellent oppor-
tunities for public-private cooperation. A public-private cooperative
venture should be seriously evaluated as a potentially effective method of
minimizing conflicts and undesirable impacts. State government, in
cooperation with the private sector in the midwest coal regions, has the
opportunity to assert new leadership by developing a positive approach
to land-use management.

Regardless of the processes implemented to regulate and finance
energy development, it is a probable conclusion that costs will continue
to escalate. It is not certain how great an effect these increasing
energy costs will have on settlement patterns and lifestyles. There is
likely to be a lag period as economic and social systems adjust to these
changes. In the short run, radical changes are already occurring in choice
of auto size as individuals attempt to minimize the impact of increasing
energy costs on personal mobility. In the long run, additional changes
may occur in the entire settlement process. In fact, increasing energy
costs coupled with inflationary construction costs may diminish and possibly
reverse the recent population dispersal trends described in Chapter I.
Perhaps the only safe conclusion is that change will occur. That change
must be guided within the context of recommendations made in the Land-Use
Management chapter of this report.
Chapter III

Agriculture:

Loss of Prime Agricultural Land

"Is the Upper Midwest losing prime agricultural land at a rate that will present significant problems for the economy and environment of the region and the nation?"
Cropland-Need Estimates are Contradictory

The world's swelling demand for food, plus increasing costs of fuel and fertilizer indicate that demand for agricultural land may increase markedly over the next two decades. Because agricultural land is being lost to other uses, the logical conclusion is that most fertile acreage should be preserved.

On the other hand, a strong case can be made for the argument that ample land is available for our foreseeable needs. The U.S. Department of Agriculture claims that by the year 2000 fewer acres will be needed than those in use today -- 298 million cropland acres with at least 415 million acres available.*

In light of the basic disagreement over land needs, additional information is needed. Given the critical importance of agriculture to the Upper Midwest, a study must be conducted to provide that information.

Basic Problem is Defining Needs

Preserving agricultural land did not arise exclusively from the fear that the United States is losing too much land to non-agricultural uses. Instead, people in local areas saw good farmland being diverted into non-agricultural uses. The greatest loss has occurred around large metropolitan areas and in the most populous states. Environmentalists, city planners and citizens have become concerned about these trends and have attempted to influence legislation to retard the loss. Often they were joined by farmers, especially when the proposed laws gave farmland

a lower tax assessment. More than 30 states have adopted some form of differential assessment.

For most people the problem is: what is the best way to preserve agricultural land? Answers include differential assessment, agricultural zoning and transfer of development rights.* But seldom is the general question addressed -- whether there is a national need to save agricultural land. The local need seemed obvious enough to facilitate adoption of legislation aimed at preservation.

The movement to preserve farmland tends logically to emphasize "prime" agricultural acreage. This suggests that "prime" land is easily identified and that it will remain prime unless forces such as erosion decrease its potential.

On closer analysis, however, the value of agricultural land depends not only on the relatively fixed physical characteristics of the land, but also on economic and technological variables. These variables include the size of the farm unit, transportation costs, commodity prices and production costs.

From a regional or national viewpoint, the question is not just whether agricultural land ought to be preserved, but if so, where? This does not mean local reasons for preserving agricultural land are invalid, but local needs may be less influential than regional or national priorities.

Are there indeed reasons for concern about the loss of agricultural land in the Upper Midwest? Conditionally, yes. If agricultural land is lost for which there is no economical replacement and if demand

*One of the best papers on this subject is "Farmland Preservation Alternatives in Semi-Suburban Areas," by William R. Bryant, published by the Department of Agricultural Economics at Cornell University in April, 1975.
for agricultural land is increasing, then its loss would be significant. The economy of the Ninth Federal Reserve District depends largely upon agriculture (although this is less true for the Twin Cities than for other areas). A loss of agricultural land now could be a severe economic blow to the region and would possibly even affect the world food problem.

Therefore, a basic question emerges: Is the Upper Midwest losing agricultural land at a rate that will lead to severe consequences for the economy or environment of the region or for the nation's food producing capacity?

A second important question follows: Is enough population being lost in certain rural areas to reduce or destroy productivity of those regions? Is there a critical mass of land and agricultural activity necessary for agriculture to remain viable in a given locality? These questions are discussed in the following section.

**Data on Cropland Losses are Needed**

The answer to the basic question of agricultural land loss is not easily determined. The problem is one of trade-offs rather than a need for some absolute quantity of land. In addition, the types of land to be preserved will change with economic conditions. Thus, there can be no permanent map of prime agricultural land or a firm total of needed acreage.

But a need does exist for a survey of available agricultural land in the Upper Midwest. It could show how much land -- and what kinds -- are available, and their location. Such an inventory must be repeated regularly to learn the rate of loss to other uses. Additional information is needed: energy and chemical requirements of the land, the size of the
farm unit and its access to markets. The importance of these characteristics will depend upon prices. Agricultural land quality will be graded from best to worst suitability, rather than relying on labels such as "prime," "good," etc., which vary too greatly over time.

Information derived from identifying prime agricultural land subsequently must be recorded flexibly -- not on maps of soil characteristics, for example, but in computers. These data must be stored in a way to allow easy updating. Furthermore, sufficient funds must be available so that periodic field examinations can update the data file.

One approach to storing land information is based upon a complete and detailed survey of all land; another is to rely upon a sample of land within a given area. The detailed survey is a very precise management tool. But gathering data on every piece of land is expensive and time consuming. (Completion of the detailed land survey in Minnesota alone would require up to 35 years.)

Random sampling provides an overview at a much lower cost. The random sample, however, can not show exactly where the lands are located. For example, the 1967 Conservation Needs Inventory was completed nationwide on a 2% sample basis. One could estimate the types of lands within a county but could not determine where in the county the lands were located.

Although a sampling approach does not provide an optimal management tool, time and cost considerations dictate that a sampling approach may be the only feasible course at this time.

Computer models then can estimate the quantity and quality of land needed by varying cost, demand and technology assumptions. Such model building was recommended at a U.S. Department of Agriculture conference on prime agricultural land held at Airlie House, Washington, D.C., in July, 1975.
Unfortunately, the most recent effort announced by the U.S.D.A. ("Land Inventory and Monitoring Memorandum - 3" by R. M. Davis, October 15, 1975) indicates that this approach will not be used. Factors such as proximity to market, transportation facilities and other economic data will not be included. Instead of a flexible data system, allowing regions to adopt their own definitions of "prime" and "unique," the proposed study appears to be relatively inflexible and will not offer regions the opportunity to adopt their own definitions of "prime" and "unique."

Several organizations in this region are gathering data along the lines advocated here. For example, the Minnesota Land Management Information System is constructing a statewide data bank using the forty acre parcel as the base data unit. However, no study is underway to provide the region with a uniform method of gathering data and a uniform set of analytical concepts.

Another reason for the importance of this study is that shifts in agricultural land use may have serious environmental consequences. Quality farmland pre-empted by non-agricultural uses can be replaced either through more intense use of available lands or through use of lands now in natural areas. Intensification of use raises numerous problems with water supply, erosion, destruction of wildlife, and chemical runoffs. These impacts on the ecosystem have significance beyond simple aesthetic considerations. And in fact many of the impacts accrue to agriculture. For example, the widespread cutting of shelter belts have resulted in serious wind erosion during the current winter (1975-1976) throughout large areas of the country. Also, concern is rising over the decline in wild honey bee populations due to loss of habitat and increased use of chemicals. Resulting decline in pollination could substantially reduce crop productivity.
in local areas. Because of these and other concerns, a large segment of society opposes further intrusion into natural areas. The proposed study would determine which lands are being lost and the results of that loss on natural areas.

Whether this project should build upon existing projects or whether an entirely new study is needed cannot now be determined. Clearly, cooperation must grow between the U.S.D.A. and states in the Upper Midwest. But it is not clear which agencies have resources necessary to design and implement the project.

**Agricultural Trends Impact Local Economies**

Even if the above study indicates a negligible need to preserve agricultural lands on a regional scale, local reasons may be powerful for such preservation. The economy of most towns and small cities in the Upper Midwest depends on agriculture. Some agricultural economists are beginning to consider the concept of "critical mass." If agricultural productivity drops below a certain level in an area or if an agricultural area becomes mixed with too many non-farm activities, then agriculture as a viable economic activity in that local area will decline.

If there is insufficient agricultural activity in a region, agricultural businesses will not prosper. Also, the existence of large numbers of non-farm plots in farming areas may affect the agricultural viability of an area. The location of these non-farm plots tends to disrupt the ownership pattern and create smaller, irregular, less economical fields. They also tend to introduce non-farming values into a farm area, leading to complaints about odors, noises and dust associated with farming. Finally, the effect of rising land values and resulting increases in real-estate tax can place a considerable economic burden on agricultural operations.
The idea of "critical mass" has a foundation of common sense, but it is not yet an operational concept. No studies accurately show the combination or degree of factors necessary to lower farming activity below a critical mass. Furthermore, the loss of agriculture in a local area should not always be assumed to be bad. Some local areas may prosper by substituting more profitable industries for agriculture by diversifying their economies. Therefore, the discovery that a certain critical mass is necessary for agriculture in a local area does not indicate measures must be taken to protect it.

Nevertheless, many medium and small sized cities face problems resulting from a decline in agricultural activity if the uncontrolled spread of non-farm activities into farming areas continues. This will put a severe strain on many communities. The problem should be studied in greater detail.

Other Areas of Concern

Not all agricultural land-use problems are related to intrusion of non-agricultural activities and to critical mass levels. Population loss and rapid changes in land tenure also pose problems for agricultural production. Indeed, these problems may hold greater significance than the two major problems discussed above.

A different aspect of the urban-agricultural land-use conflict relates to the need to control urban sprawl. Preservation of prime agricultural land can be used as a tool to guide urban growth and thus limit the costs of services such as sewers, transportation and schools. This reason for preserving prime agricultural lands is less associated with concern for agricultural land than it is for reduction of urban services
costs. If urban expansion occurs haphazardly and especially at a low density, then service costs become very large and tend to be paid for by those not using them. These costs can be lowered by keeping some land out of development on the grounds that it is valuable for other purposes — such as agriculture, recreation, parks and wildlife preserves. Although this reason for identifying and preserving prime agricultural lands may have merit for the city planner, it does not qualify as a major reason for preserving agricultural land unless it coincides with other reasons developed here.

Preserving agricultural land also can help meet the needs or values of particular groups. For example, many farmers may wish to continue farming even in the face of strong economic disincentives. The love of a particular piece of land has always been a respected value in the United States. There are areas in North and South Dakota, for instance, where strip mining conflicts with agriculture. In some of these areas the quality of the agricultural land is low; such lands need not be preserved to maintain a high level of agricultural activity.* In spite of this, people with farms or ranches on this land may not wish to lose them. State or local governments may decide that the values of those working the land should take precedence over the use of the land for coal mining.

Many policy makers are looking for immediate guidance and may be impatient with a suggestion for additional studies. A general feeling of the Land Use Committee is that if any protection of agricultural land is adopted for the urban-rural interface, it should be along lines considered

*It should be noted that some coal deposits do lie under land which is rich enough so that our proposed study might recommend that it should be kept in agriculture.
by the Metropolitan Council in which "preserves" for agriculture are established in the areas where the "best land" is available. This will meet the goals of the city planners who wish to limit the costs of services and will be compatible with efforts to protect regional productive capacity and local economies.
Chapter IV

Land-Use Management:
A Creative Partnership of the Public and Private Sectors

"More than a check and balance system is needed between the public and private sectors; rather what is needed is recognition of their interdependence and a redefinition of roles to encourage a creative partnership directed at the long-term interest of both."
Land Use Policies are Often Ineffective

Public concern over land-use management has been increasing, but public policies and programs have not always resolved land-use problems satisfactorily. Historically, land-use laws have reinforced the idea that land is an abundant commodity for use and sale at the discretion of its owner. Land-use policies have been reactive, rather than prescriptive. Land-use policies tend to treat problems individually rather than comprehensively. Land-use policies and programs often have attempted to treat problems that really are symptoms of previous management efforts.

Goals have not been established to guide land-use policies and programs or to help evaluate the land-use implications of all public policy. As a result, legislation has often created land-use policies unintentionally. For example, the 1956 Federal Highway Act, in effect, supported an unarticulated policy of urban dispersal by significantly extending commuter access. In like manner, unarticulated land-use policies have been created by legislation on housing, mass transit, utilities, air and water quality, taxation, and welfare, to name a few. In essence, a comprehensive, consistent, single-purpose land-use policy does not, and never has, existed. What does exist is a complicated array of conflicting, overlapping and inconsistent policies and programs, many of which never were intended to influence land use.

A Wide Range of Land-Use Management Techniques are Available

A number of land-use management techniques have been developed to implement public policy. At the local level, zoning is most commonly used, in addition to subdivision regulations, building codes and official maps. Recently state government also has implemented zoning to control
development on floodplains, shorelands, coastal areas, power plant sites and designated critical areas. Less commonly used techniques include transfer of development rights, planned unit developments, land acquisition, purchase of easements, taxation policy and restrictions on extension of public services.

Transfer of development rights is a system where development rights for one parcel may be sold and transferred to a different parcel. Owners of land not zoned for development are thus compensated through the sale of their development rights for any diminished value resulting from development restrictions. The net effect is to change the location of the authorized property use. The purpose is not only to manage growth but also to preserve open space, protect historic sites or pursue other uses in the public interest.

Extension of public services such as highways and municipal sewer and water is another management technique. The public sector can have a substantial impact on the pace and direction of development by planning the timing and location of public services. A recent example is the "Ranapo" approach, whereby developers of areas not slated for urban growth are required to provide a certain number of those services usually provided by the public sector. This transfers the cost of such services from the community at large to the individual homeowners receiving the services.

Property and real-estate taxation policies have had a major influence on the settlement pattern. They have tended to encourage central city blight and population dispersal. (Refer to Chapter I, "Settlement," for greater details of these impacts.) The primary purpose of property taxes has been to raise revenue. Tax structures were not designed with
land-use planning needs as a consideration and often conflict with public land-use goals. Recently, real-estate taxes have been used more widely to achieve land-use goals. For instance, "Green Acres" zoning and agricultural district laws incorporate tax-relief measures to encourage continuation of agricultural land use in urban fringe locations. When coordinated with land-use policies, income and property-tax structures have a substantial potential for influencing settlement patterns. They should be more widely used.

Planned unit developments mix land uses in a limited area to complement each other in a compatible community. Planned unit developments provide that all local development management techniques are coordinated with specific design requirements and environmental considerations. Many "new towns" are designed as planned unit developments.

Land acquisition has been proposed as the ultimate technique for controlling land uses. Under this concept, government purchases all undeveloped land parcels around an urban area and leases back to farmers those areas not scheduled for immediate development. Growth can be carefully controlled as the government resells parcels in designated areas. Drawbacks to this approach are the enormous capital costs, the large administrative staff requirements and the stifling of free enterprise.

A less ambitious approach is the purchase of easements. An easement is the title to any one of the many rights a landowner has to alter or use land. Billboard, development rights, access, and tree cutting rights are among easements commonly purchased. Easements cost less than fee simple and allow land to remain on the tax rolls. On the other hand, easements do not effectively make significant changes in land use. Costs
of such easements often are only slightly less than fee simple costs, while administrative costs remain unchanged.

Land-use management programs and developments have not always accomplished desired objectives because the management techniques either were not coordinated with existing public policies, because public policies themselves were contradictory, or because a public policy framework was totally lacking. As an example, the National Clean Air Act can pre-empt local and state land-use management efforts because the location of pollution sources such as factories also influence settlement patterns. In effect, the National Clean Air Act encourages a dispersal of land-use development at the same time that local and state governments are implementing management tools to discourage dispersal.

The Garrison and Oahe watershed diversion projects present examples of land-use developments that have engendered considerable controversy due in part to possible conflicts in public policy. These projects appropriate considerable quantities of the Missouri River water resources, mostly for irrigation but also for recreation, municipal water supply, and for improvement of wildlife habitat. At the same time, additional quantities of water, the volume of which is presently uncertain, will be needed for energy conversion and transmission requirements. It is not at all certain that there are sufficient water supplies to fulfill Project Independence needs and irrigation needs.

**A Need Exists for Greater Public-Private Cooperation**

Considering the large scope of the land-use management problem, a report such as this can make only limited substantive contribution in proposing improvements. The two following recommendations suggest a first
step in creating a more effective land-use management and development process.

First, all levels of government must initiate long-range planning programs that set clear land-use goals. These goals then will guide the formulation and coordination of policies and programs that affect land-use patterns and, it is hoped, will foster greater inter-governmental cooperation. The goals also should enable the private sector to coordinate its own land-use development. Development without such planning is an unaffordable luxury.

Second, greater cooperation is necessary between the public and private sectors. Differences in roles and goals of the two sectors are becoming less distinct. Furthermore, many land uses are becoming increasingly complex and require large capital investments. New development concepts will be needed to bring the public and private sectors together for the planning, financing and implementation of certain facilities. Such cooperation takes many forms, including such concepts as the cooperative venture, tax-increment financing, community development districts and planned unit developments.

This public-private cooperative venture approach may be applied to many projects, such as redevelopment of a central city or construction of a sports facilities complex. No established format governs such an approach. A cooperative venture may be structured to fit the specific needs of the project. Indeed, versatility in structuring a cooperative venture is one of its key advantages.

Initiative may come from either the public or private sector and the responsibility for planning, financing and construction vary considerably.
from project to project. Usually the public commitment involves land acquisition, guarantee of a one-stop permit system and often a financial commitment to construct semi-public facilities such as parking ramps.

Once a public-private cooperative venture project has been proposed, special enabling legislation is necessary to establish the joint development corporation. Each participant is usually represented on a committee established to supervise the project. The Block 7a project in downtown Saint Paul is an example. The partners include the Minnesota Science Museum, a private corporation, the Housing and Redevelopment Authority (HRA), and the city of Saint Paul. The project involves construction of an annex to the Science Museum, a parking ramp, a medical office structure and a moderate-income apartment structure. The HRA will acquire the land, and the city will finance construction of the parking ramp, concourse system and related public facilities through general obligation bonds. The bonds will be retired by revenues from the parking ramp and taxes assessed on the project facilities. The private sector is responsible for financing construction and operation of the residential and office structures. The city receives an increase in the tax base, expanded downtown parking facilities, extension of the skyway concourse system, enhancement of the city's cultural facilities, and an increase in the housing supply. Benefits to the private developer include a simplified permit-acquisition process, city assistance in planning and increased project viability stemming from public investment in skyways and parking facilities.

This public-private cooperative venture approach can be applied to any project of major significance or impact, such as a new satellite city, a renewed central city, or a major energy-conversion facility.
Recent financial difficulties encountered by several cooperative venture projects do not in any way negate the concept, but rather emphasize the importance of careful initial planning, close public scrutiny, and above all, a firm commitment from both private and public participants prior to project commencement. Recent experiences also underscore the conclusion that the primary incentive for the private sector must continue to be a fair return on invested capital.

The public-private cooperative venture approach has begun to receive wider attention, but numerous questions remain. To what types of facilities can this approach best be applied? How can the benefits and potential of cooperative venture best be communicated to the public and private sectors? What are the limits to the financial support beyond which the public sector should not be committed and how should those limits be identified? How can the economic benefits and risks of cooperative ventures best be allocated to the private and public sectors? How can long range commitments best be secured to ensure stability for cooperative venture projects. Answers to these complex questions are beyond the scope of this report and may be addressed at a later date.

Role of the Public and Private Sectors

In order to improve the land-use management system, public and private responsibilities need to be defined and understood. Responsibilities of the private sector should include:

* Actively participating in the public decision-making process to insure that public policies take full account of private contributions and responsibilities in pursuing the general public interest. This positive approach by the private sector to public decision making is exemplified by the way in which Upper Midwest utilities have assisted state agencies to formulate power plant siting regulations.
* Educating itself on public interests and goals to contribute meaningfully to the public decision-making process and to prevent conflicts between public and private decision making. Furthermore, the private sector must make greater use of existing communication vehicles to contribute to public decision making in its formative state. This should reduce the tendency of the private sector to adopt an adversary role when it is placed in a reactive position to policies and programs being proposed by the public sector.

* Pursuing its goals in the general public interest as defined by and prescribed through public policies and regulations.

* Developing specific opportunities to participate with the public sector to implement the cooperative venture approach to land-use development. Such a creative partnership will be increasingly necessary for complex land-use facilities that require large amounts of capital.

* Employing the concept of social responsibility in its decision-making process as part of enlightened self-interest. Profit motivation is the cornerstone of the American system and must remain the primary motivator of private business. The private sector, however, must continue to accept the proposition that long-term business success both contributes to and depends on the general well-being of the country. Recent efforts by Upper Midwest corporations to improve the housing stock of central cities exemplify making social responsibility part of an enlightened self-interest.

* Operating methods that demonstrate stewardship of resources and avoid impairing their future use. The misuse of land and other resources, demonstrated by some past practices of the mineral extraction industry, violates the concept of land stewardship. The multiple and sustained use of forest resources encouraged by some private timber firms illustrates a more enlightened approach.

* Building awareness and taking full advantage of public opportunities to encourage socially responsible decisions and actions. These include grants for pollution-abatement equipment (e.g., to reduce animal feed-lot pollution), tax-deduction provisions for pollution-abatement equipment, and density-bonus provisions of many zoning ordinances.

Responsibilities of local government should include:

* Improving long-range planning processes and setting goals and objectives that reflect local needs and desires to guide land-use development.
* Insuring a full range of lifestyle opportunities for all persons within the constraints of efficient resource use.

* Insuring equal opportunity in housing, employment and education.

* Utilizing local zoning, building codes and other land-use management tools in a manner consistent with community goals and objectives.

* Encouraging and facilitating maximum citizen contribution to the land-use planning and development process.

* Encouraging productive and creative cooperation with the private sector in the planning, financing and implementation of large-scale land-use developments.

* Knowing and utilizing appropriate facilities, services and resources of state and federal governments.

Responsibilities of state and multi-state authorities should include:

* Developing affirmative, long-range, land-use planning processes, based on sound state goals and objectives. Guidelines for state growth and development should be compatible with national goals and objectives and should aim to build on state strengths and correct state weaknesses.

* Filling the gap between federal and local governments in land-use policy development.

* Utilizing and adapting national and multi-state data sources and monitoring systems.

* Assisting local and regional governments to improve land-use management techniques.

* Acquiring, as appropriate, unique land areas determined to be of more than local significance in accordance with state land-use guidelines.

* Managing land uses (such as energy facilities), whose scope precludes control at the local level.

* Directing local governments on the local management of land uses (such as shorelands and floodplains) that have state-or region-wide significance.

The responsibility of the federal government should include:

* Acknowledging the range of land-use issues and perceptions of land-use needs from one part of the United States to another, and not imposing a "standard" on each state.
* Setting national goals and objectives to guide land-use policies and programs. The land-use implications of all present and proposed public policies must be given thorough consideration. Priority should be given to adjusting public policies incompatible with present social, economic and environmental needs. The federal government should retain jurisdiction over issues of national significance (such as resource use and energy development).

* Developing a land-use monitoring system that will provide continuing data on changing patterns of use.

* Developing criteria to help local and state governments judge the relative investment value of public-works expenditures.

* Assisting and encouraging states to develop effective land-use management programs, especially those states experimenting with new approaches and methods.

* Providing guidelines for control of land uses that have interstate impacts and requiring state government to implement those controls. National standards already have been set for floodplains, coastal shorelands and billboards on federal highways.

The federal, state and private sectors usually have the tools, or at least access to the tools, necessary to implement their respective roles. However, local governments usually lack adequate information on techniques to implement local policy and guide land use. The following tools could help improve decision making and land-use management at the local level:

* A "planning for local officials" handbook should be prepared that would set forth in non-technical terms the concerns of local land-use planning and the methods to do it. Several publications already might serve that purpose, including "Local and Regional Planning in Minnesota" by Gunnar Isberg, distributed by the League of Minnesota Municipalities and the Twin Cities Metropolitan Council. This and/or other planning books might be considered for adaptation to the Upper Midwest regional framework and be promoted by states for use by local officials.

* A checklist of requirements and considerations provided to local decision makers before they develop land-use projects. Many decisions are made without such a checklist.
* A television documentary that would identify common land-use problems and stress interrelationships among states. Residents of Upper Midwest states do not appear to recognize the interdependence of state economies and mutual problems, such as finding sites for energy-conversion facilities. Such a documentary could be widely disseminated within the region and adapted for film as well as television presentation. The intent would be to educate the public on land-use problems and to encourage greater regional cooperation in resolving inter-state problems.

Improvements are Needed in Land-Use Management

For a variety of reasons, the present land-use management system does not always function effectively. Land-use management techniques have not always been well coordinated, nor have they always functioned as intended or hoped for.

Land-use management programs have failed to take account of the processes that influence land use or the fundamental relationships that exist between land use and most other issues of public concern. As a result, land-use management efforts have been narrowly conceived and single-purpose in intent. This has resulted in segregated land-use patterns and uniform development, resulting in concurrent maturity, deterioration and costly redevelopment on a broad scale. Many first-ring suburban communities are belatedly recognizing this problem.

Most land-use regulatory efforts, such as zoning, lack objective standards for determining whether a property-use restriction is reasonable. Implementation procedures tend to be rigid, resulting in local "land-use management by exception" through the granting of variances.

For the most part, land-use management has followed or reinforced accepted values and settlement trends and has not attempted to consciously influence them. Land-use management has been reactive rather than prescriptive. It has responded to problems after they have occurred rather than anticipating consequences in advance.
Land-use management efforts have cast the public and private sectors into adversary roles. Too often the public sector has excluded the private sector from the decision-making process, while the private sector likewise has denied the public sector a role in its planning and design process.

Land-use management programs have been mostly developed at the local level. Yet, the factors that influence land-use patterns are mostly determined by policies formulated at the national level. It is thus a foregone conclusion that local management efforts will be less than effective.

Finally, and perhaps most importantly, land-use management programs have been formulated without the benefit of overall goals and objectives that are necessary to provide direction and coordination to the process.

In conclusion, land-use problems are functions of a dynamic economic system where growth in technology, varying consumer needs, and constantly evolving social trends mandate that change will occur. A static condition of equilibrium will never occur, nor is such a condition desirable. However, current failures to effectively manage land use changes have resulted in waste and inefficiencies in the settlement systems. This translates into, among other things, unnecessary consumption of scarce resources and excessive cost for delivery of public services. The unabated continuation of these trends present undesirable problems for the future. It is within this context that society must improve the functioning of the land-use management system. And it is only within the context of clearly defined goals and objectives that a land-use management system can hope to minimize the inefficient use of our limited resources.
Appendices
Energy production rates should not be regarded as unalterable phenomena but as responses to demand. Demand for energy, in turn, is influenced by incentives and policies that affect consumption. The impact that potential energy policy options will have on future land use and settlement is not clear. Therefore, the Energy and Settlement Subcommittees of this land-use study jointly have explored the potential impact of energy cost and availability on settlement.

The following four scenarios explore the potential effects of alternate public policies.

Scenario #1. Present Trends

This scenario assumes that energy supplies will be adequate without rationing but that costs will continue increasing more than inflation rates. Substitute fuels will become available with continuing adaptation to less energy-intensive technology.

The goal of energy self-sufficiency remains unrealized, though domestic production is up with the discovery and development of some new gas and oil deposits, and with large-scale coal extraction and conversion to electricity, synthetic natural gas and liquid hydrocarbons. Domestic energy production is supplemented by imports paid for by exports of agricultural commodities and U.S. technology. New fuels for transport are being developed, including wood alcohol and methanol. Solar heating units are widely marketed for supplemental home heating. Increasing costs of energy tend to discourage extravagant uses. Population and economic development dispersal continues. Commuting distances increase, though some small to
medium-sized employment centers also develop. Second homes are common. Interstate migration increases as people become more selective in choosing their lifestyles.

No major shifts occur in public policy, but continue in existing policy -- such as tax reforms. These provide incentives to increase energy efficiency and eliminate undesirable land-use impacts. Research and development is encouraged to evaluate efficient utilization of resources, particularly land and energy. Land-use controls tend to shift to higher levels of government as local units seem unable to deal with critical and comprehensive issues such as protection of prime agricultural land. At the same time, a gradual shift of influence on settlement patterns is under way from the private sector to the public sector.

Scenario #2. Distribution Equity

Energy shortages continue and distribution is equalized through a government appropriation system. Costs to consumers are held at a relatively low level. Allocation systems allow special appropriations for emergency use, public services, etc. Fuel oil for heating is given high priority for allocations. Because heating oil prices are relatively low, little incentive exists to improve the energy efficiency of existing housing. Government incentives are largely unsuccessful because of an overall economic downturn caused by the low priority assigned to gas allocations for personal driving consumption. Most persons tend to consume all the energy they are allocated "whether they need it or not." "Sprawl" is controlled through gasoline availability, access to utilities and public transportation. The public is generally apathetic about future prospects and not inclined to take risks, make new purchases, or change jobs or residences.
Personal mobility, including travel and migration, is substantially reduced. The economy tends to be recessionary. Inflation is, in effect, suppressed.

Strict controls are instituted on all types of construction, affecting location, type of construction and scale. Tax reforms aim toward equality of opportunity, such as income maintenance. Transportation and utilities are managed to control settlement. In general, much stronger government controls affect settlement patterns, land-use development and the use of other resources. Authority over land-use controls tends to shift to state and national levels to deal with major national issues, such as energy shortages.

Scenario #3. Systems Management

Continued energy shortages are accompanied by modest increases in energy prices, carefully monitored to guard against excess profits or monopolies. Government policies promote efficiency and provide information to help the public make better personal choices. Energy availability is controlled to the extent that balance-of-payments is maintained. Prime goals of public policy are to monitor resource waste and develop incentives to improve efficiency in use of resources -- including rationing. Economic impacts of energy use are closely monitored. Consumer education is stressed. Urban dispersal is managed through restrictions and incentives, and farm land is protected or development rights purchased.

Income is increasing, but inflation is a constant threat. Unemployment is moderate to high and remains a major national concern. The availability of jobs is a major consideration in choosing a place to live.
Access is important for daily necessities. Shopping by telephone or by car pool, etc., is common. Public policy requires strict accountability for using energy, land and other resources. Tax reforms encourage efficient use of resources, specifically reducing extravagant land and energy uses.

Guidelines are being developed to evaluate the effectiveness of existing and proposed public investments. Public policy supports development of progress indicators and monitoring resource use. These policies include housing rehabilitation, energy efficiency, research into transportation and communications technology, job retraining as a condition for public assistance, protection of prime farm land and limits on dispersal. A public-private "partnership for progress" is stressed; the public role is that of monitor and facilitator, the private role that of "doer."

Scenario #4. Free Enterprise

Energy shortages continue without government distribution systems or price controls. Many governmental controls existing in 1975 remain in effect, but no major new ones are enacted. Policies are intended, generally, to expedite a free-market economy. Government intervention is generally viewed with disfavor.

Careful cost accounting is observed in personal, public and corporate decisions. Ways to substantially reduce energy use, particularly in heating and transportation, are implemented. Transportation uses are more sensitive to higher prices than are heating costs. The economy tends to be inflationary. Population dispersal slows, for few people can afford new housing and distant commuting. Settlement occurs around medium-sized towns with a full range of basic services. Access to public
transportation is important. Immigration is generally reduced. Inflation most affects low-income people, reducing social, economic and geographic mobility. The result is greater socio-economic segregation with violence and crime in "zones of captivity." New measures of productivity and efficiency are emphasized in both the public and private sectors to reduce waste and costs.

The principal impacts of this scenario are on the low-income population, reducing their options and limiting their mobility. Public policy is initiating no new major controls. The government's primary role is considered to be a monitor of economic conditions and a promoter of efficient operations by a free-market economy.

The foregoing scenarios are intended to help policy makers reflect on the present and consider appropriate energy-related policies that will influence future conditions. In all probability, the future will not look quite like any of these scenarios. However, the future may include elements from one or more.
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<th>Scenario #1 - PRESENT TRENDS</th>
<th>Scenario #2 - DISTRIBUTION EQUITY</th>
<th>Scenario #3 - SYSTEMS MANAGEMENT</th>
<th>Scenario #4 - FREE ENTERPRISE</th>
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<td>Energy supplies adequate with cost increasing faster than inflation</td>
<td>Energy shortages, government allocations, costs remain relatively low</td>
<td>Emphasis on efficient use of resources, with appropriate data and incentives</td>
<td>Energy shortages continue but without allocation or price controls</td>
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**HOUSING**

**Distribution**
- Dispersal continues.

**New Housing**
- Emphasis on energy efficiency.
- Housing costs continue to rise as energy and labor costs increase.
- Modular housing and multi-family housing increase, but interest in single-family homes still dominates.
- Interest in new technology heating systems.

**Existing Housing**
- Increased interest in renovation and insulation of existing housing.
- Continued gradual erosion of stability in older neighborhoods.

**TRANSPORTATION**

**Private**
- Continued major reliance on auto for personal transport.

**Public**
- Use increases but is limited to large urban areas.

**Commercial**
- Slight increase in use of rail and barge for shipping.
- Reduced reliance on autos; switch to smaller cars.
- Use increases in public transportation even in medium size urban areas.
- Commercial sector receives priority on allocations; minor changes in transport modes.
- Small energy-efficient cars predominate
- Use increases in public transportation.
- Government policy to encourage use of rail and barge transport modes.
- Significant decrease in use and sales of autos.
- Large increases in use of public transport in all size cities.
- Decline of trucking industry. Large increase in rail and barge transport.
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<td><strong>INCOMES</strong></td>
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<tr>
<td>Personal income increases</td>
<td>Income increasing slower than</td>
<td>Income levels increase at about</td>
<td>Income increases but at a</td>
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<tr>
<td>at rate of inflation.</td>
<td>cost of living.</td>
<td>the rates of inflation.</td>
<td>rate slower than inflation.</td>
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<td>Less disposable income as</td>
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<td>greater share of earnings</td>
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<td>used for purchase of</td>
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<td>necessities.</td>
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<td><strong>EMPLOYMENT</strong></td>
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<tr>
<td>Unemployment levels moder-</td>
<td>Sustained high unemployment a</td>
<td>Unemployment levels moderate;</td>
<td>Moderate to high unem-</td>
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<td>ate but not serious.</td>
<td>serious problem.</td>
<td>job location a determinant of</td>
<td>ployment levels. Job location</td>
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<td>Job locations continue to</td>
<td>Employment locations near</td>
<td>residential location.</td>
<td>the major determinant of</td>
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<td>disperse.</td>
<td>developed areas due to decreased</td>
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<td>residential location.</td>
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<td>mobility.</td>
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<td><strong>AGRICULTURE</strong></td>
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<td>Agricultural land continu-</td>
<td>Agricultural land no longer</td>
<td>Agricultural land protected from</td>
<td>Agricultural land not</td>
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<td>es to be displaced by urban</td>
<td>threatened by urban dispersal.</td>
<td>urban dispersal.</td>
<td>generally threatened by</td>
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<td>dispersal.</td>
<td>Land values remain high but</td>
<td>Land values remain high but</td>
<td>dispersal.</td>
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<td>increases non-existent due to</td>
<td>increasing at a slow rate.</td>
<td>Agricultural land values</td>
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<td></td>
<td>slowed economy.</td>
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<td>declining unless in scenic</td>
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<td>Production costs and thus</td>
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<td>and convenient location.</td>
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<td></td>
<td>consumer prices increase</td>
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<td>significantly</td>
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<td>High production costs</td>
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<td>increase consumer costs.</td>
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<tr>
<td>Agriculture exports</td>
<td>Agriculture sector receives</td>
<td>Moderate increase in production</td>
<td>Agricultural exports reduced.</td>
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<tr>
<td>emphasized to maintain</td>
<td>allocation priority. Production</td>
<td>costs and consumer costs.</td>
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<td>balance of payments.</td>
<td>cost increases slight. Consumer</td>
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<td></td>
<td>costs moderate.</td>
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<td>Agricultural exports</td>
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<td>encouraged by government</td>
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<td>policy.</td>
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<td><strong>REAL ESTATE</strong></td>
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<tr>
<td>Land values in dispersed</td>
<td>Land values in dispersed</td>
<td>Real-estate values increase</td>
<td>Decrease in land values in</td>
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<tr>
<td>locations increase</td>
<td>locations decline due to</td>
<td>moderately in all locations.</td>
<td>dispersed locations; increase</td>
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<td>significantly</td>
<td>increased consumer demand.</td>
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<td>in land values in all</td>
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<td>locations.</td>
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<tr>
<td><strong>TAXES</strong></td>
<td><strong>Scenario #1 - PRESENT TRENDS</strong></td>
<td><strong>Scenario #2 - DISTRIBUTION EQUITY</strong></td>
<td><strong>Scenario #3 - SYSTEMS MANAGEMENT</strong></td>
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<tr>
<td></td>
<td>Tax base of many local governments threatened. Services decline.</td>
<td>Local government expenditure reduced but taxes remain high.</td>
<td>Improved financial stability for local governments.</td>
</tr>
<tr>
<td></td>
<td>Taxes increasing at all levels of government.</td>
<td>Tax rates increase but revenues decreasing due to economic slowdown.</td>
<td>Moderate tax rate increasing at all levels of government.</td>
</tr>
<tr>
<td></td>
<td>Property- and income-tax reforms tested as techniques of controlling land speculation and sprawl.</td>
<td>Land speculation a minor problem; little change in tax system.</td>
<td>Tax reform to encourage efficient use of resources.</td>
</tr>
<tr>
<td><strong>RECREATION</strong></td>
<td>Vacation travel remains popular.</td>
<td>Vacation auto travel declining; increase in nearby vacations.</td>
<td>Vacation auto travel declining; increase in nearby vacations.</td>
</tr>
<tr>
<td></td>
<td>Slightly decreased recreation spending as a share of family budget.</td>
<td>Significant decrease in expenditures on recreation.</td>
<td>Vacation spending as a share of family income little changed.</td>
</tr>
<tr>
<td><strong>SHOPPING</strong></td>
<td>Continued dispersal of shopping facilities to suburbs but concentrated in large scale regional centers.</td>
<td>Reduced dispersal of shopping facilities; re-establishment of some neighborhood outlets.</td>
<td>Concentration of shopping facilities encouraged; re-establishment of some neighborhood outlets.</td>
</tr>
</tbody>
</table>
### APPENDIX B

**SELECTED MAJOR POLICIES THAT INFLUENCE LAND USE**

<table>
<thead>
<tr>
<th>LEGISLATION/POLICIES</th>
<th>MAJOR PROVISIONS</th>
<th>PRIMARY INTENT</th>
<th>LAND USE EFFECTS</th>
<th>IMPLIED VALUES/PRINCIPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NATIONAL</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>U.S. Constitution</td>
<td>Government cannot take property without just compensation</td>
<td>To protect landowners from government acquisition without just compensation</td>
<td>Inhibits government initiative in land management and development</td>
<td>Any government interference with private land rights must be justified by the general public health, safety or welfare</td>
</tr>
<tr>
<td>(5th &amp; 14th amendments)</td>
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</tr>
<tr>
<td>Ninth Amendment</td>
<td>Guarantee individuals the right to travel.</td>
<td>To give individuals opportunities for social and economic mobility</td>
<td>Concentrations of settlement in certain regions of U.S.; population losses in others</td>
<td>Freedom of movement enhances the opportunity for individual self-realization</td>
</tr>
<tr>
<td>to U.S. Constitution</td>
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<tr>
<td>1787</td>
<td>Federal government procedures for survey, allocations, sales, record keeping, uniform taxation, etc.</td>
<td>To establish a land tenure &quot;constitution&quot; for new states joining the union</td>
<td>Gave private landholders rights to possess, occupy, hold, transfer, buy, sell, mortgage, lease, subdivide, consolidate, use, conserve, improve land, etc.</td>
<td>All land, except the small amount needed to carry on the function of government, should be transferred to private ownership</td>
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<tr>
<td>N.W. Ordinances,</td>
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<tr>
<td>1787</td>
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<tr>
<td>Railroad Land Grants</td>
<td>Alternate sections of federal land granted to railroads after construction completed</td>
<td>To stimulate commerce in western areas and build a transcontinental transportation system</td>
<td>Railroads preceded western settlement; anchored location of cities; railroads became large land-holders</td>
<td>Unify union, develop the West</td>
</tr>
<tr>
<td>1850's</td>
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<tr>
<td>Indian Treaties</td>
<td>Ceded Indian lands to U.S. Government and confined Indian to reservations</td>
<td>To ensure the safety of western settlers; secure lands with significant economic value</td>
<td>Opened vast areas of the West to private ownership and settlement</td>
<td>White man's destiny or &quot;divine responsibility&quot; to develop the land and resources; the greatest good for the greatest number</td>
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<tr>
<td>(various dates)</td>
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<tr>
<td>LEGISLATION/POLICIES</td>
<td>MAJOR PROVISIONS</td>
<td>PRIMARY INTENT</td>
<td>LAND USE EFFECTS</td>
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<tr>
<td>Homestead Act, 1862</td>
<td>Land offered free to settlers in 160 acre tracts upon 5 years occupancy and cultivation</td>
<td>To stimulate settlement and development of western lands</td>
<td>Rapid settlement, including oversettlement, of many semi-arid areas</td>
<td>Establish a nation of landowners (T. Jefferson)</td>
</tr>
<tr>
<td>National Park Service Act, 1916</td>
<td>Established the National Park Service in the Department of the Interior, defined the purposes for which national parks may be established and set rules and regulations for their use and management</td>
<td>To preserve lands of significant beauty or natural value</td>
<td>While areas of natural value have been preserved, they have attracted millions of visitors, influenced travel patterns and surrounding land uses and values</td>
<td>It is desirable to preserve a few examples of natural beauty for the use and enjoyment of future generations</td>
</tr>
<tr>
<td>FHA Home Mortgage Insurance</td>
<td>Low-cost insured loans for new housing</td>
<td>To stimulate housing construction and extend ownership to more people</td>
<td>Encouraged deterioration of older housing stock, rapid urbanization</td>
<td>A man's home is his castle; nuclear family; single-family housing</td>
</tr>
<tr>
<td>Federal Highway Act, 1956</td>
<td>Federal aid to states of up to 90% for purchasing rights-of-way and constructing limited access highways</td>
<td>To establish a national system of limited access highways that would provide a faster response to national emergencies</td>
<td>Increase distance/time ratio, encouraged long distance commuting and urban dispersal</td>
<td>Maximizing the nation's mobility improves response to emergencies and stimulates economic development</td>
</tr>
<tr>
<td>Federal Mass Transit Act</td>
<td>Financial support for public transportation systems</td>
<td>To help support financially handicapped public transportation systems</td>
<td>Concentration of residential and commercial development along transit routes</td>
<td>Alternatives to the automobile are needed</td>
</tr>
<tr>
<td>National Environmental Policy Act</td>
<td>Requires EIS on all major federal actions significantly affecting the environment, sets forth specific policies to guide federal agencies</td>
<td>To consider any adverse environmental effects and alternatives to the proposed action</td>
<td>May extend exploitive development to non-federally managed lands</td>
<td>Environmental factors must be taken account of in economic development</td>
</tr>
<tr>
<td>LEGISLATION/POLICIES</td>
<td>MAJOR PROVISIONS</td>
<td>PRIMARY INTENT</td>
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<tr>
<td><strong>NATIONAL and STATE</strong></td>
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<tr>
<td>State and Federal Income Taxes</td>
<td>Tax rate based on personal earnings from wages, interest, capital gains, etc.</td>
<td>To support state and federal government services based on ability to pay</td>
<td>Preference to ownership of single family, detached housing through real estate tax shelter and mortgage deductions, encouraging urban dispersal</td>
<td>Individuals should pay a &quot;fair&quot; share but have equal access to public services</td>
</tr>
<tr>
<td>Capital-Gains Taxes</td>
<td>Capital assets held for more than 6 months are taxed at half of the applicable income-tax rate</td>
<td>To encourage capital investments</td>
<td>Encourages land speculation; drives up the price of land to affect tax savings; makes housing a function of the real-estate commodity market; makes urban fringe land unavailable to those unable to enter a speculative market</td>
<td>Economic growth is desirable; it is necessary to encourage capital investment in order to stimulate economic growth</td>
</tr>
<tr>
<td>Income-Tax Depreciation Schedules</td>
<td>Depreciation losses can be deducted from gross income</td>
<td>To encourage capital-investment risks; absorb losses</td>
<td>Improved real estate is bought and sold as tax shelter commodity; permanent ownership discouraged; maintenance of rental property discouraged</td>
<td>Assumes that all assets go down in value and should be written off in the year the loss occurs</td>
</tr>
<tr>
<td>Agricultural Taxes</td>
<td>Variety of benefits including: expensing of capital outlays, capital-gains treatment on certain income items, lenient accounting procedures</td>
<td>To support agriculture income and encourage productivity</td>
<td>Tax shelter to &quot;hobby&quot; and part-time farmers and land speculators -- as well as bona fide farmers</td>
<td>Economic and social values of agriculture should be protected</td>
</tr>
<tr>
<td>Gasoline Taxes</td>
<td>State and federal governments add up to 15 cents tax per gallon</td>
<td>Used for highway construction</td>
<td>Cyclical effect: Gasoline sales stimulate highway construction which leads to population dispersal</td>
<td>Highway users should pay for highways</td>
</tr>
<tr>
<td>LEGISLATION/POLICIES</td>
<td>MAJOR PROVISIONS</td>
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<td>STATE</td>
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<tr>
<td>Minnesota Taconite Amendment, 1963</td>
<td>Taxes on taconite ore extraction not to be increased above current levels in taxes paid by manufacturing companies, for 25 years</td>
<td>Stimulate industrial expansion in northeastern Minnesota</td>
<td>Hasten rate of taconite development; transfer tax support for local services to other local and state taxes</td>
<td>New employment opportunities needed to sustain quality of life in northeastern Minnesota</td>
</tr>
<tr>
<td>Minnesota Fiscal Disparities Law</td>
<td>Reapportion 40% of new commercial/industrial property-tax revenue to municipalities and school districts in 7 county metropolitan area</td>
<td>To reduce inequities among local governmental units in their abilities to provide public services</td>
<td>Uncertain at this time</td>
<td>Equality of opportunity should not be denied because of where a person happens to live</td>
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<tr>
<td>Green Acres Law</td>
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<td>To protect farmers from land speculation</td>
<td>Farmers themselves often wish to speculate in land</td>
<td>Desirable to protect from land speculators</td>
</tr>
<tr>
<td>Usury Law</td>
<td>8% limit on interest charged to individuals, no limit on interest charged to corporations</td>
<td>To make low-interest money available to individuals and to prevent banks from taking advantage of individuals</td>
<td>In times of tight money available to individuals decreases; encourages home purchase through large suburban builders who can finance loans</td>
<td>The individual needs protection in the financial market place</td>
</tr>
<tr>
<td>Minnesota Municipal Commission Act</td>
<td>Gives MMC authority to regulate annexations, incorporations and mergers</td>
<td>To give increased authority to local government to provide public services and regulate development</td>
<td>Forces non-conforming uses outside incorporate areas, thus encouraging dispersal</td>
<td>Municipal balkanization discourages intergovernmental cooperation and planning</td>
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<td>LEGISLATION/POLICIES</td>
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<tr>
<td>Wild &amp; Scenic Rivers Acts</td>
<td>Minnesota Act requires local units of government to comply with state land-use standards on designated wild, scenic and recreational rivers. All state acts authorize state acquisition of lands and scenic easements along such rivers. Management plans are prepared by the states for those rivers.</td>
<td>To preserve and protect outstanding rivers</td>
<td>Minnesota Act has highly restrictive regulations, zoning standards and criteria regulating land use along designated rivers; land-use standards and criteria prohibit future commercial and industrial development along such rivers; land-use standards require larger lot sizes and substantial building setbacks; Wisconsin Act relies chiefly on state land acquisition.</td>
<td>The preservation and protection of scenic and recreational values along outstanding rivers</td>
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<td>(Minnesota, Wisconsin, Iowa)</td>
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<tr>
<td>Shoreland Management</td>
<td>Requires counties and townships to develop and implement shoreland zoning ordinances according to state standards. Minnesota Act was amended in 1973 to include municipalities.</td>
<td>To guide the wise use and development of shorelands of public waters of the state</td>
<td>Requires local units of government to have in force, ordinances which guide land-use development of shorelands according to the capability of the resource base. Prohibits incompatible use of lands within 300' of river and 1000' of a lake</td>
<td>The wise use and development of shorelands</td>
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<tr>
<td>(Wisconsin, Minnesota)</td>
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<tr>
<td>Floodplain Management</td>
<td>Requires local units of government to develop and implement local floodplain management programs; assists local governmental units in becoming eligible to participate in the National Flood Insurance Program.</td>
<td>To reduce flood damage losses and to guide the wise use and development of floodplain areas of the state</td>
<td>Local ordinances control uses of land within floodplain areas; severely limits development of floodways of floodplains; floodproofing of buildings within floodplains</td>
<td>Reduction in flood damage losses; wiser use of floodplain areas</td>
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<tr>
<td>(Wisconsin, Minnesota)</td>
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<td>LEGISLATION/POLICIES</td>
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<tr>
<td>Coastal Zone Management (CZM), Minnesota and Wisconsin</td>
<td>Requires coastal states to prepare a plan for the wise use and development of the coastal zone of Lake Superior in Minnesota and Wisconsin &amp; Lake Michigan in Wisconsin</td>
<td>To encourage the wiser use and development of the coastal zone</td>
<td>Act requires states to define geographically a coastal zone boundary and require states to establish permissible uses within that coastal zone. New goals, objectives, policies established by the states will influence future land-use development in coastal zone areas</td>
<td>The wise use and development of the coastal zones of Minnesota and Wisconsin</td>
</tr>
<tr>
<td>Minnesota's Power Plant Siting Act</td>
<td>States have prepared rules, regulations and procedures for siting of new power plants and high voltage electric power transmission facilities</td>
<td>To locate new power plants and high voltage transmission lines in environmentally and socially acceptable areas</td>
<td>Gives the state a lead role in the placement of such facilities</td>
<td>The location of future power plants and high voltage transmission in environmentally and socially acceptable areas</td>
</tr>
<tr>
<td>Minnesota Environmental Rights Act of 1971</td>
<td>Each person has both the right and responsibility for protection, preservation and enhancement of natural resources</td>
<td>To provide an &quot;adequate civil remedy&quot; to protect air, water, land and other natural resources from &quot;pollution impairment or destruction&quot;</td>
<td>?</td>
<td>Man and nature can exist in productive harmony</td>
</tr>
<tr>
<td>Minnesota Environmental Policy Act, 1973 MSA 116D.02</td>
<td>The State of Minnesota assumes continuing responsibility as a trustee of the environment, including management of growth, development of a coordinated program of land-use control, protection of environmentally sensitive areas and natural habitats, reduction of waste, conservation of resources, reclamation of mine lands, etc.</td>
<td>To declare state environmental policy among state governmental agencies and in cooperation with federal and local governments</td>
<td>Broad, long-range effects will depend upon degree of coordination and enforcement</td>
<td>It is necessary 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</td>
</tr>
<tr>
<td>LEGISLATION/POLICIES</td>
<td>MAJOR PROVISIONS</td>
<td>PRIMARY INTENT</td>
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<tr>
<td>Minnesota Critical Area Act, 1973</td>
<td>Allows governor to designate a &quot;critical area&quot; and specify development guidelines</td>
<td>To supplement existing zoning authority when faced with imminent development that threatens environmental quality</td>
<td>Slows down or modifies proposed developments</td>
<td>The preservation of certain land areas should take precedence over economic development</td>
</tr>
<tr>
<td>LOCAL</td>
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<tr>
<td>Local Property Taxes</td>
<td>Tax rate based upon assessed value and classification of land, emphasizing improvements, with modifications and exemptions</td>
<td>To provide financial support for public education, safety, health and welfare</td>
<td>Wide variations in assessment practices, tax rates and service levels; tends to be regressive; tends to discourage property improvements -- particularly rental; results in cyclical depreciation; tends to encourage scattered extravagant use of land; forces agriculture out of urban fringe; encourages &quot;leapfrog&quot; development</td>
<td>Assumes that property values are derived from public improvements or investments; that property value is related to ability to pay, and degree of use of public services</td>
</tr>
<tr>
<td>Local Planning Processes</td>
<td>Description and classification of land-use types with maps designating approved locations</td>
<td>To separate conflicting land use-types; protecting property values</td>
<td>&quot;Fiscal zoning&quot; may be used to exclude population requiring high service cost; encourage business and industry; tends to be self perpetuating</td>
<td>Private property values should be protected from external adversities</td>
</tr>
<tr>
<td>Building Codes</td>
<td>Electrical, plumbing and building specifications, including lot sizes and &quot;set backs&quot;</td>
<td>To protect owner from unsafe or overcrowded development</td>
<td>Increases housing costs, fosters urban sprawl and minimum maintenance of older housing</td>
<td>Safe construction and uncrowded development are goals for all housing</td>
</tr>
<tr>
<td>LEGISLATION/POLICIES</td>
<td>MAJOR PROVISIONS</td>
<td>PRIMARY INTENT</td>
<td>LAND USE EFFECTS</td>
<td>IMPLIED VALUES/ PRINCIPLES</td>
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<tr>
<td><strong>ALL</strong></td>
<td></td>
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</tr>
<tr>
<td>Public Land Ownership (Land Banking)</td>
<td>Retention of public land or acquisition in advance of need</td>
<td>To save money and control location and timing of development</td>
<td>Has saved public money but influence in overall development minimal</td>
<td>Government may acquire land when in the public interest, paying fair market rate</td>
</tr>
<tr>
<td>Public Investments</td>
<td>Highways, building, parks and open space</td>
<td>To provide needed public services</td>
<td>Property-value gains (or losses) accrue to adjoining or affected private properties</td>
<td>Public responsibility is to serve or check private sector (not coordinate or manage it)</td>
</tr>
<tr>
<td><strong>PRIVATE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major real-estate developments</td>
<td>Housing developments, shopping centers, industrial parks, etc.</td>
<td>To provide for a perceived public need and make a profit</td>
<td>Externalities, such as other public or private investments usually determine comparative economic advantage of various localities, thus compounding development at specific locations</td>
<td>An investment that brings a profit to the private entrepreneur is usually in the public interest; economic growth has beneficial effects to all segments of society</td>
</tr>
<tr>
<td>Home Mortgage Policies of Financial Institutions</td>
<td>Preference given to low risk borrowers in &quot;stable&quot; neighborhoods</td>
<td>To realize return on investment by minimizing home mortgage defaults</td>
<td>Dis-investment in urban core; tends to foster housing replacement and discourages rehabilitation</td>
<td>Lending institutions are primarily obligated to make a profit from their investments</td>
</tr>
</tbody>
</table>
APPENDIX C  CRITICAL AREAS LEGISLATION IN THE UPPER MIDWEST

Minnesota is the only Upper Midwest state to establish critical areas legislation — the Critical Areas Act of 1973. Its purpose is to assign the state responsibility for identifying and protecting areas of unique characteristics which could be damaged by uncontrolled development. Areas of critical concern are broadly defined as those with significant historical, natural, scientific, cultural or economic resources of regional or statewide importance.

The governor designates a critical area upon recommendation of the Environmental Quality Council. Within three years following designation the action must be approved by the state legislature or the affected regional development commission. The recommendation to designate may be initiated by the Environmental Quality Council, a regional development commission, or local units of government. Local units of government are assigned the responsibility of managing such critical areas with the assistance and cooperation of the State Environmental Quality Council. Thus far, only one critical area has been designated — the Lower St. Croix River in June 1974. Areas that are being considered or have been considered for designation since the Act was passed are the Mississippi River corridor through the Twin Cities, the Mille Lacs watershed district, the Minnesota zoo site and the North Shore.

Wisconsin and Michigan have treated the establishment of critical areas incrementally, that is, by designating specific areas of statewide concern with specific bills. In both states critical areas legislation was submitted in 1975 to the state legislatures, but failed to pass. The Montana legislature defeated three critical areas bills during the 1975
legislative session. In South Dakota a bill designating the State Planning Agency to study critical areas and submit a report in two years was passed by the senate and defeated by the house. In North Dakota no legislation was submitted on critical areas during the 1975 legislative session. However, the State Planning Agency has contracted for the preparation of such a bill to be submitted to the 1976 session.

In each state the definitions of critical areas are similar, based on recommendations of the American Law Institute. But even with general agreement on definitions, none of the states has established specific criteria to identify such areas. One common concern of all Upper Midwest states is the transfer of responsibility for land-use control from the local level to the state level. Thus, each state has proposed that local governments retain the primary responsibility for managing critical areas.

To determine the effectiveness of the critical areas process and possible application to other states, the Critical Areas Subcommittee chose to evaluate the Lower St. Croix area, the only critical area established in the Upper Midwest.

By act of Congress in 1968, the St. Croix River as far south as St. Croix Falls-Taylor Falls was designated as a wild and scenic river. As a result of local initiative from both Minnesota and Wisconsin, the Bureau of Outdoor Recreation of the Department of the Interior initiated a study of the St. Croix River below St. Croix Falls-Taylors Falls to determine whether or not it should be included under the Act. In 1971 the Lower St. Croix study was completed and in 1972 the Lower St. Croix below St. Croix Falls-Taylors Falls became the first addition to the national scenic rivers system.
Local initiative had been stimulated by existing and proposed development along the St. Croix. Citizens requested that the Minnesota-Wisconsin Boundary Area Commission serve as a catalyst and draw together concerned citizens and governmental agencies from both Minnesota and Wisconsin. The Minnesota-Wisconsin Boundary Area Commission had been established by joint legislation of both Minnesota and Wisconsin in 1965, resulting from the proposed power plant development on the Minnesota side of the St. Croix and the "save the St. Croix" movement. In response to the request, the Minnesota-Wisconsin Boundary Area Commission called a conference and set forth the hypothesis that the Lower St. Croix should serve primarily as a high quality recreation resource. There was near unanimous agreement on this proposal. Local initiative was instrumental in the Bureau of Outdoor Recreation Study and designation of the Lower St. Croix.

Passage of the Lower St. Croix Wild and Scenic River Act in 1972 required the preparation of a Master Plan. Implementation of the Plan has been delayed for over two years due to an Environmental Impact Statement requirement, prompting the Governor of Minnesota to designate the Lower St. Croix River a critical area. Local units of government were required to control development through zoning in compliance with Interim Development Regulations prepared by the Environmental Quality Council. Wisconsin invoked its emergency rule power to protect the Wisconsin side of the river in a similar manner through zoning. Now that the Master Plan and EIS are finished, both states are establishing permanent regulations and standards to be adopted by local units of government as zoning ordinances. These preservation efforts are being supplemented by $19 million in federal
funding for fee and scenic easement acquisition, as well as state appropriations for acquisition of scenic easements.

The Lower St. Croix area represents a classic example of effective cooperation between federal, state and local governments, with the initiative for such designation at the federal and state levels coming primarily from the local level. Reflecting on the 10-year process, the executive director of the Minnesota-Wisconsin Boundary Area Commission, James Harrison, said, "I have a great deal of faith in the ability of private citizens to generate good ideas and provide constructive public input if their attention is channeled and if they are supported with basic facts that challenge them to set specific goals and objectives." Two St. Croix area citizens, Mr. Rod Lawson and Mrs. Phyllis Nelson, agreed that the average person feels local government should have the final authority in land-use decisions, since most persons approach land-use management questions according to their individual vested interests. On the other hand, those whose pocketbooks or lifestyles are not affected by land-use proposals do not speak up on issues.

Conclusion:

The most effective role for state and federal governments in land use is to support local land-use decision making. Controls at the state and federal levels are not likely to be effective without the understanding and support of people at the local level who see a relationship between their personal interests and land-use management.
APPENDIX D  LAND-USE EFFECTS OF RECENT ENVIRONMENTAL LEGISLATION

In 1970, Congress amended and strengthened the National Clean Air Act, but did not consider adequately the provisions of the statute authorizing land-use and transportation controls. The amendment was intended to control sources of air pollution, but profound, unintended social and economic impacts were felt. The Act itself can pre-empt local and state land-use management control efforts because the locations of air pollution sources also affect settlement patterns. That is, within a geographic area that is at or near national air-quality standard limitations, the location of highways, parking lots and major businesses and industries all must be taken into account.

Specific responses to such air-quality guidelines are left to local and state authorities, whose options seem to be limited to: 1) a loss of economic expansion opportunities to other areas that may need such expansion to maintain a reasonable tax base and level of services, 2) dispersal of facilities across political jurisdictions, compounding problems of fiscal disparities and promoting exclusionary growth management, or 3) imposing non-automotive transport systems (i.e., mass transit), with attendant high construction costs and related effects on development densities and social factors.

Although the Clean Air Act is intended to assure clean air standards, it imposes parameters for land-use decision making at the same time. This Act may have serious side effects on local and state economic and social conditions; however, it also has considerable potential for improving the quality of the environment. It also encourages jurisdictions to cooperate within a framework provided by the environmental criteria and standards.
Passage of the Federal Water Pollution Control Act in 1972 also has significant implications for land-use management. The extent of these implications, even after three years, is unknown since implementation plans have not yet been approved and questions on interpretation of terminology remain to be answered. For example, if an agriculture drain pipe qualifies as a "point source" of discharge, then agricultural operations may have to meet the stringent requirements of the law. The implications for agricultural drainage and irrigation operations would be significant not to mention the logistics of enforcement — permits and inspections, for example. The implications of the Act's stringent standards also apply to all aspects of land and resource use. In the future, all major land-use developments must comply with this Act. This could change both the location and design of such developments.
360.78 Government units in airport development area; tax sharing.

The legislature determines that the location of a new major airport in the metropolitan area will increase the value and rate of development of land in the airport development area; that the airport development area may comprise property located in several government units; that the exercise of the powers and duties conferred on government units by section 360.74 to 360.76 to control development of land in an airport development area may result in greater development of such land within one government unit than another; that the control of such development will be of benefit to the entire airport development area; and that the assessed value of taxable property and the tax resources in the government unit where the most development takes place may be significantly greater than in other government units in the area. Therefore, to encourage the protection of inhabitants of the area and natural resources of the metropolitan area, to increase the likelihood of orderly development in an airport development area, and to provide a way for all government units in the area to share in the tax resources generated by growth of the area, the governing bodies of all government units located wholly or partly in an airport development area shall jointly study and decide upon a plan for the sharing of property tax revenues derived from property located in an airport development area. If 80 percent of the government units having territory within the airport development area agree upon a plan, such plan shall be put into effect and all government units shall
enter into such agreements as may be necessary for this purpose, provided that the plan shall not impair the existing contract obligations of any government unit. This section shall not apply to the commission or the council.

Laws 1969, c. 1111, p 5, eff. June 7, 1969
APPENDIX F UTILITIES CONTACTED ON SITING DECISIONS

To determine how decisions are made to choose a utility site, the Upper Midwest Council Energy Subcommittee reviewed information and interviewed persons from five utility companies representing six existing or planned facilities to convert coal to electricity or synthetic natural gas. These facilities included:

1. The Minnesota Power & Light’s mine-mouth conversion facility at Center, North Dakota, scheduled to open in 1977 and serve northeastern Minnesota.

2. The Minnesota Power & Light facility to be located on the St. Louis River and open about 1983, bringing coal from North Dakota by rail and serving northeastern Minnesota.


5. The United Power Association’s mine-mouth electrical generating plant, to open at Underwood, North Dakota, in 1978 or '79 and providing power to rural northern and northeastern and central Minnesota.

6. The Michigan-Wisconsin Pipeline Company plant being constructed to convert coal to synthetic natural gas at Beulah, North Dakota and transported by pipeline to serve markets primarily in Michigan, Illinois and Wisconsin.
Many groups and individuals, with diverse backgrounds and interests, are interested and involved in land-use planning policy. Such diversity of background often creates a need for a clearer understanding of basic terms. The following definitions do not represent the only definitions of such terms but do present a brief general clarification of terms used in this report.

**Comprehensive Plan**
Document, or documents, in map, test, tabular, chart or other form, that are the primary guide to present and future decision making; a master plan; a general plan.

**Exploitation**
The use of resources without the negative concept of waste or misuse often associated with the term.

**Land Use**
All activities, occupations, practices and use of ground space, including water, subsurface and air space.

**Land-Use Goals**
Broad statements of intended accomplishment covering horizon years far into the future and describing broad aims, desired results or ideals for achievement as related to land use.

**Land-Use Guidelines**
Statements of criteria, standards, specifications and procedures that limit decisions on land-use development and/or land use.

**Land-Use Objectives as Opposed to a Goal**
A short-range statement of intended accomplishment to be attained in the near future and describing specific aims and desired results, all within the context of long-range land-use goals.

**Land-Use Planning**
The art, science and process of arranging ground space, so as to adapt it most economically, functionally and gracefully to the many varied present and anticipated future activities and occupations of civilized man, including all activity patterns, structures, systems and functions; or Intelligent forethought applied to the development of ground space.

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Land-Use Planning Process, Land-Use Management
Any land-use planning activity that establishes goals and contributes to their attainment; coordination of activities affecting ground space, including the understanding and meeting of human needs and the orderly relationship of activities, patterns and systems; or
A systematic approach to anticipating and adjusting the environment consistent with the social, economic and functional needs of people.

Land-Use Policy
A broad statement that incorporates goals and objectives into a public or corporate official position; definite course or method of action selected from alternatives in light of conditions to guide and determine present and future land-use decisions. A settled course adopted and followed with respect to the wise and prudent use of land.

Land-Use Program
Specific implementation procedures or actions designed to carry out a land-use policy. For example, a planned acquisition of wetland areas would constitute a program to implement a policy of preserving wetlands.

Private Sector
Includes all businesses, corporations, foundations, associations, special purpose groups (e.g. environmental organizations and labor unions) and individuals.

Public Sector
Includes the entire range of departments, agencies, special purpose taxation districts (e.g. watershed planning districts), regional planning or development commissions, regulatory commissions, the judicial system, and semi-public corporations (Federal Reserve Bank) at all levels of government.

Urban Area
In general terms, that area occupied by concentrations of urban land uses: residences, industry, commerce, transportation, and including vacant land either surrounded by urban uses or in a transitional phase prior to development.

Windfall Profits
Profits accruing to landowners because of public investment in such facilities as sewers and highways; the size of the profits exceed appreciation in land value normally expected from landowner improvements and inflation.

Wipeout Losses
Decreases in land value that result from public investment. For instance, when improvements remove public access, land values often decline. Such decline would qualify as a wipeout loss.

A special note of appreciation is due for Alvin Clare Russie of Midwest Research Institute, who provided considerable input to the above definitions.
APPENDIX H  THE UPPER MIDWEST COUNCIL

HISTORY OF THE COUNCIL

The Upper Midwest Council was created in 1959 by a group of concerned leaders throughout the Ninth Federal Reserve District in response to needs for more information on regional socio-economic trends and options available to stimulate growth and improvement in the Upper Midwest community.

The Council's initial research activity was made possible by a grant from the Ford Foundation through the University of Minnesota. The regional business firms also contributed substantially to this program which, by 1965, had produced thirty-four published reports on the Upper Midwest economy. Since that time the Council has published the results of additional research projects and action programs which have been directed toward specific issues affecting the quality of life throughout the region.

In 1966 the Council moved out of its original offices in the Business Administration Building on the West Bank of the University of Minnesota into the Federal Reserve Bank Building, Minneapolis. The Council has continued to maintain a close working relationship with the University through an association with the school's Center for Urban and Regional Affairs.

The Council has a current membership of 232 members and firms in the six states of the Ninth Federal Reserve District. Membership is encouraged from all sections of the region. The Council is governed by a Board of 30 Directors elected annually by the members to serve for a one-year period, and by an Executive Committee appointed from the Board.

Special leadership has come from the dedication of such men as: J. Cameron Thomson, founder and first Council president; Hugh Galusha, W. A. Strauss, Earl Ewald, Bruce K. MacLaury and Donald R. Grangaard, successive Council presidents; and Philip Nason, treasurer of the Council since its inception. Over the years, the successful achievements of the Council have been due to such members and directors, committed to the continued vitality of the Upper Midwest.

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Preparation of this report can in a large part be credited to the dedication and support provided by the entire Council staff. Their input in reviewing, editing, and typing were essential to the final completion of this report.

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South Dakota State Planning Bureau; Eros Data Center; and the U.S. Geological Survey. A Land Use and Natural Resources Inventory Demonstration Project for South Dakota. n.d.


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