MINNESOTA:1985[†]

This is a look at the geographic patterns of population and major land uses in Minnesota as they may change between now and 1985. The initial work for this overview was done in a graduate seminar conducted by John R. Borchert and Donald D. Carroll at the University of Minnesota, in the winter and spring of 1970, in cooperation with the Minnesota State Planning Agency.

Five major points emerge from this study.

(1) Major land-use and population changes are likely to be subtle and unspectacular, but inexorable.

(2) There will be continued increase in the need for statewide land use policy, zoning, and land purchases.

(3) The road network is and will continue to be the most important factor shaping the pattern of development and population change.

(4) The changing geographic patterns of investment provide no indication that local and regional inequities in tax base can be alleviated by spreading industry, trade, or high-value homes.

(5) Although the need for certain policies is clear, many issues could be resolved and results evaluated only with better use of state and local data.

Gross Changes in Population

Since the end of the Great Depression in the 1930's, the size and distribution of America's population have been powerfully influenced by the continuing high level of federal military-space spending, the explosive birth rate, the adjustment of both rural and urban settlement patterns to automotive transportation, and the rising affluence and resulting greater range of choice of residential location. These have been the major forces in Minnesota just as they have been in the nation as a whole. But now the explosive growth of population is ended, or at least recessed, and the next fifteen years will see, instead, an explosive growth of the labor force and family formations. There are also new patterns of government spending, new institutions, and new technologies on the horizon that will affect population size and distribution over the next fifteen years.

Five sets of assumptions about these past, present and future conditions produce five different population projections for 1970-1985. (See table.) The past-trends projection has the highest probability. The other projections illustrate the range that is possible, though less probable.

Location of Jobs and People

Farms will be fewer, larger and more fragmented among numerous separate parcels. An increasing number of farmers working off farm part-time will keep the number of farm units from declining even faster. By 1985 more than half of all farms will be operated on a part-time basis in major cash-crop areas, near urbanized areas, and along the margins of the main agricultural region. Only in the less urbanized, livestock-producing areas will more than half of all farm operators still be full-time by 1985.

Agricultural production is expected to become more intensified in the existing high production areas of the state. Meanwhile a 16-county marginal agricultural area in north-central and northeastern Minnesota is likely to experience either abandonment of most existing farm units or the appearance of new, very large-scale operations.

An important factor in the growth of rural commuting to off-farm jobs will be

MINNESOTA POPULATION PROJECTIONS, 1970-1985 (in thousands)

Assumptions	State				7-County* Metro Area				80-County Non-Metro Area			
	1970	1985	Change	%	1970	1985	Change	%	1970	1985	Change	%
Past trends[a]	3773	4303	530	14.0	1874	2316	442	23.6	1899	1987	88	4.6
Defense Expenditures[b]	3773	4547	774	20.5	1874	2679	805	43.0	1899	1868	-31	-1.6
Heartland/centralization[c]	3773	4625	852	22.6	1874	2679	805	43.0	1899	1946	47	2.5
Heartland/dispersal[d]	3773	4625	852	22.6	1874	2381	507	27.1	1899	2244	345	18.2
Ineffective heartland[e]	3773	3906	133	3.5	1874	2129	255	13.6	1899	1777	-122	-6.4

[a]Assumes extension of 1940-70 net growth trends.

[b]Assumes continuation of, or direct substitution for, recent national military-space program spending without geographical realignment.

[c]Assumes that Minnesota would maintain the same proportion of U.S. population as in 1970 with continued heavy migration towards the Twin Cities Metropolitan Area.

[d]Assumes that Minnesota would maintain the same proportion of U.S. population as in 1970 with most new growth directed outside the Twin Cities Metropolitan Area by national policy.

[e]Assumes continued national metropolitanization as a result of either absent or ineffective federal intervention.

*Includes counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington.

the continued expansion of manufacturing into rural labor markets. Current manufacturing employment patterns reflect a strong growth in the traditional areas of the Twin Cities and the southeast quarter of the state; relative stability in Duluth and northern pulp and paper centers; rapid spread to out-state farm trade centers. The 1985 manufacturing employment patterns show expansion of the "industrial frontier" outward from the Twin Cities, Mankato and St. Cloud, with the greatest expansion in the established centers.

Throughout the southern and western parts of the state the chief economic base of many medium-sized and small towns will shift from agriculture to manufacturing. However, the majority of municipalities will continue to be by-passed by industrial employment — though they may see indirect effects through growth of commuter populations. Selection of new industrial sites will depend, as in the past, partly upon local facilities, access to labor and to the Twin Cities, but also the ability of the local environment to accommodate the wastes associated with industry.

Total population has been declining for at least a decade — usually longer — in over 60 percent of Minnesota counties, yet non-farm population has grown continuously during the same period in over 90 percent of the counties. Non-farm population growth rate has been highest in the most urbanized areas, lowest where the non-farm activity is most directly dependent upon farm trade and service. Non-farm development — residential, commercial, industrial — will be much less oriented toward railroads and flatland; much more towards highways, lakes, woods, rolling land. It will also be more open and lower in over-all density.

Within most urban areas of any size, population growth has occurred around the edges, while core areas have been partly vacated. These older core areas are being partly rebuilt with larger lots and more open space, and partly maintained and refurbished, in a kind of thinning out process.

Growth has been relatively steady throughout the overlapping commuter reaches of the Twin Cities, St. Cloud, Mankato, Owatonna, Rochester, Winona, and intervening smaller centers. Growth has shown more variability surrounding Austin-Albert Lea, Worthington, Marshall, Willmar, Fergus Falls, Detroit-Lakes, Fargo-Moorhead, Brainerd, Grand Forks-East Grand Forks, Bemidji, Duluth and the Iron Range. These represent the "growth regions" of the state, which will continue to account for virtually all of Minnesota's net growth. Growth in smaller places will depend increasingly upon being part of a "growth region" — in being accessible to multiple, diverse centers of employment opportunity.
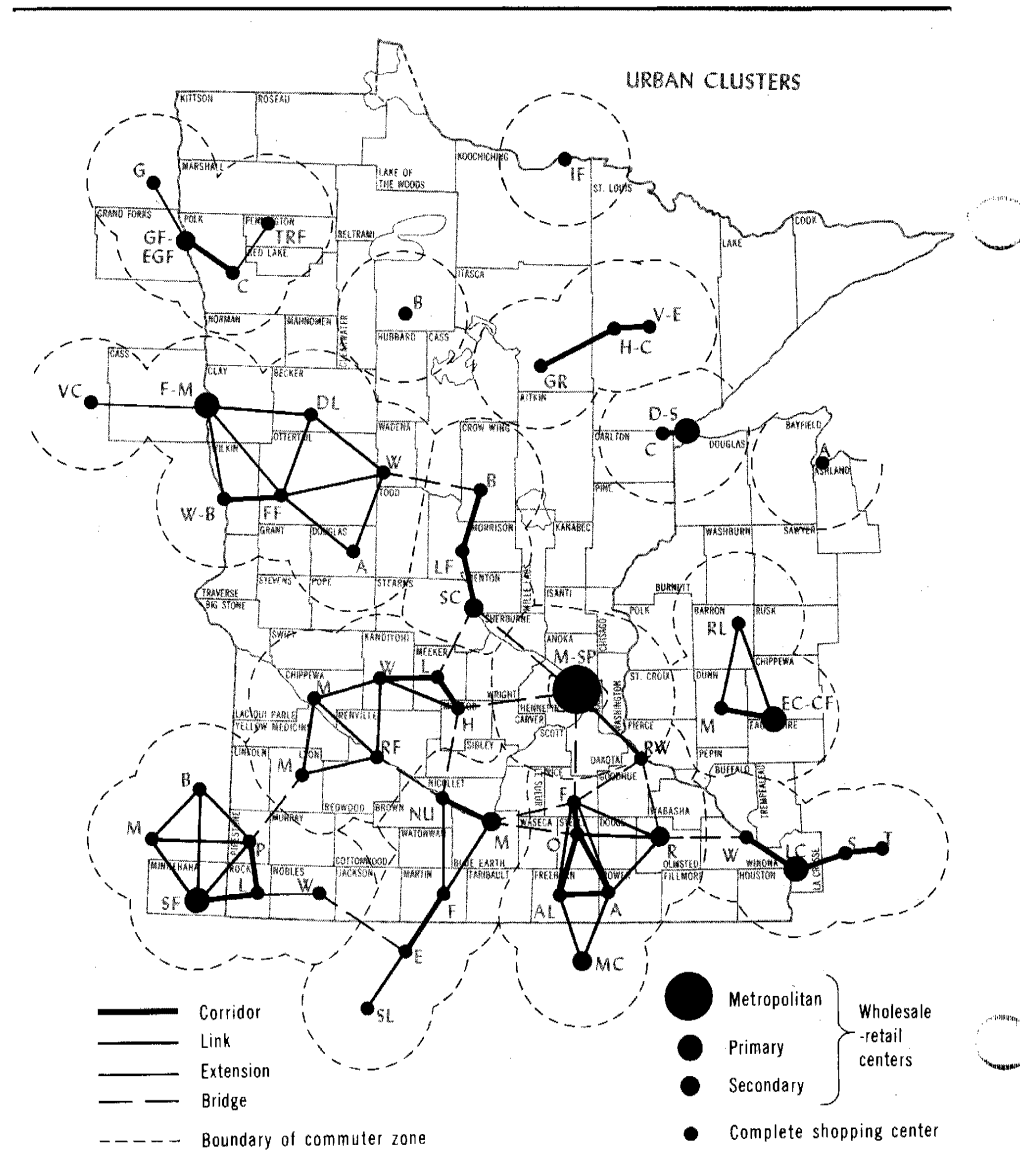
Urban Clusters

Almost all non-farm growth will continue to occur in thirteen clusters of urban/rural interaction formed by linkages of "complete shopping" and "wholesale-retail" centers. (See map.) Nine of these clusters extend into adjoining states; four have their major centers of population in adjoining states. These urban clusters are in a sense the state's new cities.

All of the urban clusters (including the Metropolitan Area) have important common features:

- Internal accessibility and convenient travel time.
- Major and lower order shopping and service facilities.
- Industrial and wholesale districts.
- Public higher education facilities.
- Health care facilities.
- News media networks.

These urban clusters form the nuclei for a set of out-state multi-county "urban districts", each in a sense being a "low-density Metropolitan Area". Like the Metropolitan district, each contains major diversified centers; small partly specialized neighborhood centers; specialized district centers for health, higher education, industry, state offices and services, newspaper publication and broadcasting. Each has a multiplicity of residential areas — old, new, rich, poor, mixed, compact, scattered, close-in to major centers, outlying in small towns or along lakeshores. And each has a road network which connects each of these

URBAN CLUSTERS

| Corridor |
| Link |
| Extension |
| Bridge |
| Boundary of commuter zone |

● Metropolitan — Wholesale-retail centers
● Primary
● Secondary
● Complete shopping center

districts with all others. Each of the major diversified centers has a substantial element of independence from all others; yet there is also much interdependence — travel in every direction throughout the urban cluster for business, shopping, education, health care, home-to-work trips, and social or recreational purposes. These same clusters and connecting networks will be, more than ever, the locus of most of Minnesota's population in 1985. Their local and internal patterns will continue to change inexorably as the new Midwest emerges from the old.

Housing and Settlement Patterns

New households will form at record rates as the 1946-60 "baby boom" reaches the age of family formation from now to the mid-1980's. New dwelling units will have to be built to house these new families. Additional new dwelling units will have to be built to replace those which are obsolete and demolished. Given population growth, projected from "past trends", and assuming housing replacement rates of 4 to 10 percent, the state will need between 355 and 529 thousand new housing units by 1985; the Metropolitan region will need between two-thirds and three-fourths of that total. The result will be a net change in the residential settlement pattern of 25 to 35 percent. That is, about one-fourth to one-third of the housing in the state in 1985 will have been built since 1970; and most of it will be in areas where no dwellings stood before. New high-rise towers will produce major changes in the skylines of the central cities; nevertheless the Twin Cities will remain one of the two lowest-density metropolitan areas in the million-or-more population class in the nation, with the development pattern continuing to reflect the availability of open land and the presence of hundreds of lakes.

Housing may be classified in three major zones outside the Central Business Districts of the Twin Cities Metro Area.

● *Zone of Redevelopment* — platted and mostly built up before 1900, now consisting of mostly obsolescent and poorly-maintained dwelling units. Most likely locus of clearance and redevelopment, both privately and publicly financed. Residential redevelopment will be mainly apartments and will account for 15 to 40 percent of all new units in the Metro Area — dependent on demolition rates. It is likely that at least two-thirds of the present housing stock in the redevelopment zone will be standing in 1985 and the problems of physical deterioration remaining largely unresolved.

● *Zone of Traditional Maintenance* — mostly platted and built up in the building booms of the 1920's and from the end of World War II to the mid-1960's. Likely to continue in owner occupancy with accompanying traditional maintenance by the occupant family. Scattered prime sites and by-passed areas will be redeveloped in apartments or town houses. This zone will account for 5 to 10 percent of new units built in the Metro Area.

● *Zone of New Growth* — mostly one-family homes, mass-produced and built on up to 250 square miles of new undeveloped land between 1970 and 1985, but more clustered and comprehensively planned than in the past. The New Growth Zone will account for 50 to 80 percent of all new units built in the Metro Area.

The geographic distribution of private investment within the state seems to be concentrated more and more at favored locations, thus accelerating the disparities in the ability of local government to provide quality public services. The existing

MINNESOTA DWELLING UNIT REQUIREMENTS 1970-1985 (in thousands)
Assuming projection of "past trends" in population

	New Units needed for new-formed households	Replacement Units needed at decennial rate of:		Surplus farm houses due to consolidation	Maximum new units needed (growth + replacement) at replacement rate of:		Maximum new units needed (surplus farm houses used) at replacement rate of:	
		10%	4%		10%	4%	10%	4%
10 County* Metro Area	252	92	37	12	344	289	332	277
77 County Non-Metro	103	82	33	44	185	136	141	92
State	355	174	70	56	529	425	473	369

*Includes counties of Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Washington and Wright.

local taxing jurisdictions are not structured to accommodate the growing interdependence between urban and rural areas and between one community and another. These structures of government force local units to compete with one another for tax revenue — as a result the rich get richer and the poor get poorer. Attempting to redistribute industry, trade or high value homes equally does not appear to be a feasible way to alleviate the effects of these local tax base inequities. These "have" and "have not" communities are found throughout the state and within every region, including the Twin Cities Metropolitan Area. This clearly emphasizes the growing need for a state-wide pooling of resources.

Transportation

The Prime State-Federal Highway Net will continue to be the framework for new growth and development throughout the state. The prime network is comprised of the highways which directly link each Complete Shopping or Wholesale-Retail center with all others in Minnesota or in the adjacent states and provinces. Outside the Metropolitan district, this network has set the locational pattern for 600,000 new non-farm residents in the past four decades and will set the pattern for another 200,000-300,000 by 1985.

The network also intersects most of the scenic regions of the state, although the access it provides to scenic regions is usually accidental and incomplete. Major scenic corridors in which scenic highways are least developed are the Minnesota Valley and the heavily-rolling glacial moraine and lake region centering on the Leaf Hills between Alexandria and Detroit Lakes. There will also be a growing recognition of the need to coordinate recreation and non-recreation development in two scenic corridors -- the "Hiawatha Valley" and the North Shore of Lake Superior.

The feeder network of township, range, and section line roads will continue to change in function.

- Within the growth regions the rural roads serve increasingly as commuter routes. As commuter routes, these roads have increased the accessibility of the rural labor force to new employment in the industrializing non-metropolitan urban areas. Thus, as a practical matter, rural road subsidies have served as rural economic stimulants.
- In the non-growth areas the number of farms has declined by one-third or more; full-time

farms by one-half or more over the last four decades. There has been commensurate decline in the amount of rural road mileage actually needed to serve the remaining farms. The trend will continue.

- In the lake regions new non-farm development may well be slowed, blighted, or misdirected because the rural road network, based on original land survey lines, is seldom compatible with the pattern of lakeshore.

The existing transportation network is encouraging the transformation of rural settlements into spread out low-density urban systems. There may well be growing recognition of the advantages of intentional decentralized urbanization in this way.

Within these urban systems, the alternatives of settlement management will become increasingly important — whether to encourage the concentration of development in a major center — or to deploy resources toward the development of a "dispersed city". Some hold that resources must be committed to one selected city to bring it up to a population of at least a quarter million so it can support culture, education, and service appropriate to urban life. Others contend that all "cities" today have become more than ever multi-centered collections of specialized locations and districts, varying in density and linked by multi-focused transportation networks. In this sense, the road network will serve as an important tool in accomplishing the state's settlement objectives.

About three thousand miles of rail line might be considered excess and abandoned -- this assumes no restrictions on system mergers. Major foci and connecting points with the national network will remain, all major trade centers in the state continuing to have direct rail routes to the major foci as at present. Places with about 1000 or more population which now have rail service will continue to have at least one tie to the basic regional network and the Iron Ore system in northeastern Minnesota will remain much as it is.

Rail lines to be abandoned will be those which duplicate service or serve the very small towns almost exclusively. These abandoned railroad rights-of-way together with abandoned rural roads, might be developed into a trail system for snowmobiles in winter, for hiking, bicycles, or horses in summer.

The major water transportation corridors are also the prime highway-scenic corridors — the Lake Superior North Shore and the Hiawatha Valley. Hence the interchanges between highway, rail and water freight transport will continue to be developed within these corridors. Increasing pressures are likely to contain these industrial interchanges and preserve the natural amenities.

Resource Management

Principal natural resources are the agricultural land, forest land, iron ore, waters, and scenic areas. These are the underpinnings of four of the state's largest basic industries — farming, forestry, mining, and tourism. Recognition of resource regions as a framework for resource management will become more urgent.

In the Main Agricultural Region, management goals will stress:

    (1) Priority for agricultural use of the land resource.
    (2) Control of the quality of ultimate water runoff.
    (3) Importation of water necessary for supplemental crop irrigation or pure water requirements.
    (4) Shift of marginal land out of farming.

In the Forest and High Water Runoff Region management goals will stress:

    (1) Consolidation of holdings to facilitate systematic management of timber and wildlife.
    (2) Allocation of adequate water supply for heavy water users.
    (3) Quality control of discharge by major water users.
    (4) Development of storage to protect recreational lake levels and provide for urban and agricultural uses. This may suggest major reservoir construction on the upper Mississippi rather than the Minnesota.

In the Lake Regions, management goals will vary for different areas:

Low-runoff agricultural areas:
    (1) Identification and quality maintenance of major recreation lakes.
    (2) Identification of agricultural and wildlife lakes for water retention, aquatic food production, and wildlife management.

Low to moderate-runoff, marginal agricultural areas:
    (1) Zone major recreational lake chains and their drainage basins for clean water production.

(2) Remaining lake chains and their basins may include agricultural land use.

In the Metropolitan Rivers Region, likely management goals are:

(1) Assignment of heavy-industry water users to the low-quality cropland runoff (Minnesota River basin).

(2) Protection of the high quality forest-pasture runoff (Upper Mississippi-St. Croix) from polluting uses.

(3) Maximum treatment of Metropolitan sewage discharge to protect downstream recreational waters.

The Scenic Regions include the major areas of rough land and lakes. The prime areas are located where these two resources occur together. They are the single most important positive physical aspect of the state's popular image. Management goals for these scenic areas should include:

(1) Minimization of unsightly features through zoning, site selection, and landscaping.

(2) Design of highways to blend with the natural landscape.

(3) Acquisition of easements to protect panoramic views.

The Mineral Resource Regions are highly localized and will never occupy more than a fraction of one percent of the state's land resource. Management goals might well include the following:

(1) Expansion of the zone of mining waste accumulation on the Mesabi Range carefully and as necessary.

(2) Prohibit disposition of mining or processing wastes in other areas.

(3) Establishment of waste disposal zones adjoining any future new metallic ore mining regions.

(4) Establishment of priorities and restrictions for future exploitation of untapped sand and gravel deposits.

(5) Regulation and monitoring of waste water discharge from mining, quarrying and ore processing operations, especially in the northeastern high-runoff water source region.

(6) Exploring the feasibility of converting mine waste areas to planned recreational use.

These development trends suggest certain policy needs:

● Encourage improved maintenance of older housing and innovation in the financing, marketing, and manufacturing of new housing to meet the housing needs of projected population growth.

● Encourage a non-metropolitan transportation system which

(1) maintains and improves the prime highway network;

(2) facilitates development plans and land-use zoning within each of the urban clusters;

(3) eliminates redundant rural roads, builds needed new roads for development, finances roads on the basis of use or planned development investment;

(4) defines the basic railway network and encourages its use as part of an integrated system.

● Encourage planning for whole urban districts with respect to the location and operation of public recreation, health care, welfare, and waste management, transportation, higher education, etc. Correlate these plans with state and regional highway plans.

● Encourage correlation of possible out-state new city development with the urbanization process now taking place in the urban clusters.

● In public land ownership and development policy, give priority to (a) large, contiguous management units, (b) major natural resource concentrations, and (c) accessibility to population.

Some policy questions are raised:

● To what extent and for how long should local government in high-cost areas be subsidized?

● Should Minnesotans — public and private — encourage federal government policies which will help to maintain the state's recent rate of population and economic growth?

● Should public investments aim to reduce the Minneapolis-St. Paul metropolitan area share of total population growth and increase the share of the state's population in the out-state urban clusters?

● Should measures be sought to control the trend toward farm enlargement? If such measures are sought, should the goal be to speed the enlargement process or to retard it?

● Should measures be prepared to ease the task of consolidating the dispersed land holdings which comprise the typical family farm, if such consolidation should become necessary to keep Midwest agriculture competitive with other regions?

● Should the state's pollution control regulations and standards prevent economic development where the local environment cannot accommodate the anticipated waste load?

● Should the state encourage long-range plans for development of major new water storage reservoirs to avoid probable future water shortages in the Twin Cities metropolitan area, and possibly also in the main agricultural region? If so, what are the criteria for reservoir location?

● Should public transportation policy include the development of a network of trails which permit people to make pleasure trips across country on foot, horse, bicycle, or snowmobile without using the highways?

● Should state housing policy encourage planned obsolescence or sustained maintenance?

These policy issues lead to further, more specific questions:

● How much of what kind of land is used where for what purposes by how many people?

● How much new housing is needed where, by whom, and in what priority?

● What is the explanation of high-cost (in relation to personal income) local governments? Do they reflect geographic concentrations of low-income and needy people? Do they reflect the high cost of services in sparsely-settled areas? Are the higher costs justified?

● What is the income level and geography of the *people* (rather than the local governments) who are beneficiaries in the present system of taxation and transfer payments from the state to counties, municipalities, and school districts?

● How much of the state's basic income is earned by the Twin Cities metropolis? How much is redistributed within the state and by what process? And to what extent are the resources needed to earn that basic income dependent upon the size and quality of the metropolis?

● Is the presence of a large and growing metropolis in the national system of cities a net asset or a net liability in the state's economy?

● Is there an optimum size of and density of settlement appropriate for Minnesota?

● What is the mileage and condition of the roads and railroads which are not needed either now or in the foreseeable future? Could and should these rights-of-way be converted to a

state-wide trail system?

- What is the present degree of integration of rail, truck, water, and air freight? What are the trends and their causes?

- What is the present availability, need, and feasibility of public transportation links throughout the non-metropolitan urban clusters?

- Within the non-metropolitan urban clusters, what are the likely needs for land and buildings for new public health, educational, and recreational facilities; for private industrial and commercial facilities? What are the potential locations for these?

- What is the long-term character of growth-rate variability? Are the *Growth Regions and urban clusters,* for practical purposes, *permanent features* simply with different frequency and magnitude of variation in growth rates? How does the variation in growth rate affect planning for financing, building, and rebuilding an area?

- What are the "birth, death, and net increase" rates for different types of businesses within the urban clusters? What are the trends and forecasts?

- What are the industrial vital statistics for the urban clusters and regions -- "births, deaths, in-migration, out-migration, net increase, life expectancy"? What are the trends and outlook?

- What are the most delicate and the most receptive areas for waste discharge, storage, and treatment?

- What are the feasible procedure and timing for building major "interchange.' facilities (motel, restaurant, indoor recreation, parking, marina,

hostel, stables, picnic and camping areas) along the Mississippi "Hiawatha Valley" and North Shore of Lake Superior? What are the best sites?

- How can planning of regional *public* facilities (highways, education, health, recreation) be better coordinated with planning for *private* facilities (industry, trade and services, housing). What can be done to assure

/ that public community plans consider private plans and constraints? What can be done to assure that private construction and development plans include, from the outset, public goals and plans?

Data Management
Answering these policy questions requires repeated data monitoring, which is accurate, comparable, and closely enough spaced — both geographically and chronologically — to provide the necessary record of performance. Observations are needed in the following broad data classes:

- physical quality, use, and ownership of land;

- value of land and improvements;

- personal and corporate income;

- construction and demolition;

- population and migration characteristics;

- traffic flow;

- governmental revenues and expenditures;

- business and industrial establishments by size and function; and the

- quantity and quality of water.

Most of these data series already exist within local governments, school districts, state agencies, and private directories. Each series is collected to carry out the provisions of a regulation or a law, or to monitor the location and performance of a particular type of industry or business. But the information is seldom used to answer policy or planning questions. The data collected by different agencies often lack comparable definitions, are not reported at the same time, are not summarized in the same way, and are not quickly and easily available. A few key items need to be added to the existing series — notably information about migration; and coverage needs to be increased substantially in some series — for example, stream and lake quality.

A final policy called for is the encouragement of current efforts to make data more useful and more intensively used for state planning and management.

The main needs for these data series will continue to be the different, special management purposes of each of the agencies that collect each type of information. These agencies are dispersed among various state offices and many county and municipal office buildings across the state. Furthermore, although their data must be combined for broad policy questions, it is more often needed by individual agencies for their own special purposes; and the daily operational uses commonly are not closely related to one another. Hence a final *policy question:* To what extent should collection, processing, storage, and analysis of data continue to be decentralized? To what extent is a single central data bank called for?