Urbanization of the Minnesota Countryside:
Population Change and Low-Density Development Near Minnesota’s Regional Centers, 1970–2000

Report #10 in the Series:
Transportation and Regional Growth Study

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Today's Minnesota settlement pattern and economy were almost completely transformed during the past three decades. "Urbanization of the countryside" is under way in functional terms, and the settlement system is catching up with the economic and social transformation that has been proceeding since World War II. Like the greater Twin Cities area, which spreads over more than 24 counties in Minnesota and Wisconsin, Minnesota's regional centers have been doing the same, whether or not their populations are increasing. Towns, villages and hamlets within highway commuting ranges of regional job centers are becoming bedroom suburbs, and incomes brought home from those jobs brings new vitality to Main Street. Meanwhile, in unincorporated townships surrounding the regional centers and around the state's lakes, new houses are going up for retirees, weekenders, and commuters--especially along major and minor highways and country roads that provide access to nearby malls. The report describes these trends playing out around 24 regional centers in rural Minnesota.
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EXECUTIVE SUMMARY

Introduction

Are the patterns of low-density development that have sprawled beyond the built-up Twin Cities area during recent years being duplicated near Minnesota’s 50 regional trade centers? And if so, are traffic volumes on trunk highways in the vicinity of the centers rising in response to recent patterns of development in and around those centers? This report explores these questions by (1) examining population changes during each decade since 1970 in the towns and townships within the commuting ranges of a sample of 20 regional centers, (2) by investigating the relationship between population change within each commuting field and distance from the regional center of the field, and (3) by measuring rates of change in traffic volumes on the trunk highways serving each sample regional center and its commuting field.

Half the sample centers are in northern Minnesota, half in the southern part of the state. Some were moderate- to fast-growing in the 1990s (more than 3 percent population increase); half had slow growth or lost population during the 1990s:

Northern Areas, Slow Growth or Decline (< 3 % growth in Study Area population in 1990s)
- Duluth-Superior/Hibbing (treated as one study area; commuting fields significantly overlap)
- Grand Forks-East Grand Forks
- International Falls

Northern Centers, Moderate to Fast Growth (≥ 3 % growth in 1990s)
- Bemidji
- Brainerd
- Fargo-Moorhead
- Little Falls
- Park Rapids
- Wadena

Southern Centers, Slow Growth or Decline (< 3 % growth in 1990s)
- Albert Lea
- Marshall
- Montevideo
- New Ulm
- Worthington
Southern Centers, Moderate to Fast Growth (≥ 3% growth in 1990s)

- Alexandria
- Mankato-North Mankato
- Rochester
- Waseca
- Willmar

Commuting fields are composed of the core county containing the regional center—the “key city,” plus any nearby counties that sent at least 5 percent of their workers to that core county to work in 1990. Commuting fields defined this way formed the 19 “study areas” surrounding each of the sample regional centers. Centers generally had two or three counties in their commuting field in addition to the county containing the regional center. In the case of Albert Lea, only Freeborn County qualified. The largest functional region surrounded Grand Forks-East Grand Forks with seven counties, followed by Rochester and Duluth-Superior/Hibbing with six.

In the northern-slow-growth study areas, there are differences between population change in the study area (including the key city) and population change in the key city itself. In the Duluth-Superior/Hibbing area both measures rose at modest rates; in the International Falls area they both declined at significant rates; and in the Grand Forks-East Grand Forks area the overall study area lost population while the key city of Grand Forks gained.

In the northern fast-growth study areas, study-area population and key-city populations rose together in every case, but the rates differed. In the Bemidji, Brainerd, and Park Rapids cases the study-area populations rose much faster in the 1990s than the key cities grew, an outcome undoubtedly related to expanding residential and economic activity in the lake areas surrounding these regional centers.

All but one of the southern slow-growth study areas lost population in the 1990s, but three of their regional centers—Albert Lea, Marshall and Worthington—managed to add population while the overall study area experienced losses. New Ulm experienced slow growth all around, while Montevideo lost population along with its entire 4-county study area.

Finally, the southern fast-growth study areas all added population in the 1990s, as did their key cities. Like the northern study areas that gained population during the decade, these areas and their centers lie in a broad crescent-shaped belt that extends from the southeastern corner of the state, northwestward through Rochester, Waseca, Mankato and New Ulm, through the greater Twin Cities area west to Willmar, then northward through the lake district to Park Rapids and Bemidji, and west to Fargo-Moorhead. Outside this crescent of growth lie two large parts of...
Minnesota: most of the drier farming areas in the far west and southwest, and a wide arc of counties stretching from Grand Forks-East Grand Forks, north to International Falls, and then to the Iron Range and into the Arrowhead Region north of Lake Superior.

**Dynamics of Growth and Decline**

Slow-growth regions are disadvantaged by “situation” because they are remote from population centers. They are further disadvantaged by deficient “site resources,” namely a languishing farm economy, weakness in forestry and mining, and limitations in the recreational opportunities they offer compared with the offerings in other places.

In contrast, the places that experienced moderate-to-fast growth enjoy advantages of proximity to prosperous and growing population centers, valuable site resources, and opportunities to capitalize on scale efficiencies in production that are remote from smaller and declining places. There are cumulative and circular advantages that accompany growth, and that promote further growth. Once underway, and for a variety of reasons, advantages flow to places that grow faster than their local competitors. This process of “cumulative and circular causation” works in reverse as well because when a place stops growing or slides into decline, the negative economic and demographic effects of stagnation feed off one another to promote further decline.

There is some arbitrariness at the outset as to which places will be destined to emerge as economic leaders. Successful entrepreneurship is a key ingredient in determining which ones succeed and which fall behind. For example, in early Minnesota history it was not obvious which among the early major competitors—Stillwater, St. Peter, St. Paul, St. Anthony, Minneapolis—would overtake the others. But once places gain an edge over their competitors they flourish, while others reach a plateau and go no further and still others drop off the map.

There are several reasons why large and fast-growing places gain an advantage. Production costs are lower when volume buying is possible. In growing places there can be a better matching of workers with jobs. When places are growing, it is easy for an employee to leave an unsatisfactory job and find another, so all are better off—the worker, the former employer, and the new employer. Employers are better off when poor or dissatisfied employees leave, and it is easier for an employer to fire a poor employee if it is likely that the worker will find other employment. Skills and attitudes can improve in a fast-changing growth situation, and employers may try harder to keep good employees knowing that they can and will leave for better opportunities elsewhere. In growing places, new competitors arise, so all must sharpen their competitive skills and those that do will prosper. Businesses feel freer to invest in new
plant and equipment when growth prospects are good, and new plant and equipment can improve productivity and profitability.

But the opposite occurs when population and economy of a place slow or go into reverse. Average cost of each transaction rises in the drug store, the county clerk’s office, the hardware, and the doctor’s office. Investments are postponed. Revenues drop faster than costs. The more talented, educated, and ambitious risk takers leave, and those left behind face a harder time. As costs rise, ability to pay declines as the cumulative and circular process goes negative.

New businesses in growing areas such as the suburbs of the Twin Cities metropolitan area and fast-growing regional centers around the state have advantages because their revenues in the short run can rise faster than costs in both goods-producing industries and in services. As the map of economic opportunity slowly is transformed, residents relocate, and newcomers to the state—immigrants as well as domestic migrants—settle in places that appear to offer promise and opportunity. In the process, human capital relocates in both absolute and relative terms from places where it is less productive to places where it will be more productive, magnifying the advantages of the growing places and making it even harder for those places left behind. For example, a high school math teacher may earn $40,000 and teach 100 pupils in a large metropolitan high school, while another math teacher earning $30,000 in a small outlying district may work with only 60 pupils. Thus, what looks like a more “expensive” teacher may be cheaper.

**Transportation and Development**

Modern economic activity depends on accessibility, which is the ease in time, cost and convenience of moving people, products, capital and information among places of production, investment and consumption. Other things equal, places endowed with superior accessibility to other places enjoy advantages over those places in economic development prospects. From earliest days of Minnesota’s exploration by European-Americans, there has been a close and reciprocal relationship between transportation and economic development. Early transportation routes (rivers, lakes, trails) were established and used to exploit the resources of the natural environment (furs, timber, minerals, agriculture), then to pursue other production, distribution and consumption activity. Once business activity got underway, existing transportation-communication routes and the settlements along them influenced the course of subsequent development of railroads and highways as infrastructure already in place guided later investments in land development. Population distribution follows economic opportunity, but
population concentrations once present within a regional center and its commuting field generate additional production and consumption activity within that place. This reciprocal process continues to the present day, with the areas that are growing attracting additional people and investment, which then nurture additional growth as the process continues.

Findings

After defining commuting fields (i.e., study areas) adjacent to the 20 sample regional centers, we used maps and charts to portray population changes within minor civil divisions (MCDs—i.e., cities, towns and townships located outside the key cities but within the study areas) during each of the three recent decades—the 1970s, 1980s and 1990s. Each population change map was accompanied by a scatter diagram illustrating the relationship between (1) the distance each MCD in the commuting field from its regional center, and (2) population change during the decade in the MCD. We expected that if low-density suburban-style residential development were occurring near the center, population would be increasing fastest (or decreasing less rapidly) in MCDs close to the regional center and increasing more slowly (or decreasing) in MCDs farther away from the regional center. In 11 of the 19 study areas, the expected pattern was observed for each of the three decades. Divergence from expectations typically occurred in cases where commuting fields of nearby regional centers overlapped (e.g., Albert Lea, Little Falls, Mankato-North Mankato, New Ulm, Rochester), or where the influence of lake shore developments overrode the influence of distance from regional centers (e.g., Park Rapids, Wadena). In the 4-county Worthington commuting field, steady loss of farm-based populations along with stability or growth of the larger towns in the region yield a statistical profile generally unrelated to distance from the key city.

Traffic occasionally declined on minor highway segments as vehicles apparently shifted to superior and less congested parallel routes (e.g., MN13 north of Waseca; MN30 parallel to I-90 south of Mankato), as loss of population along with farm consolidations yielded reduced demand for movement (e.g., MN40 west of Willmar), or as both occurred (e.g., minor routes north of Moorhead). Nevertheless, in the southwestern and western parts of Minnesota farm consolidations that produced larger farming operations may mean longer hauls with heavier loads on selected segments of trunk highway.

Traffic volumes increased on almost all major highway segments examined in the 1980s and the 1990s. The combination of larger populations, number of households increasing faster than a population, increasing distances between home and work, multiple job holding by workers,
higher discretionary incomes and more recreational shopping, more leisure, more complex household life styles, more cars and trucks, greater participation by women in the paid workforce, better highways, and other factors all contributed to enhanced traffic loads on the trunk highways in our study areas. On selected trunk highway segments in the vicinity of fast-growing regional centers, congestion may be approaching capacity on certain days of the week and at times of day, but this study made no attempt to compare traffic volumes with available or planned trunk highway capacities.

In general, findings are consistent with expectations. Population increases during each decade were greater in MCDs close to the regional centers, and smaller or negative farther away. For regional centers and parts of Minnesota experiencing slow growth or decline, places closer to the regional center appear to be doing better than places farther away. For regional centers and parts of Minnesota within the “crescent of growth” the patterns of growth are more mixed, with growth not necessarily corresponding with distance from regional centers. On the other hand, many of the fast-growing study areas lie within Minnesota’s lake districts and outdoor recreation areas, with the location of amenities providing a pull in the opposite direction and diluting to some extent the effect of highway distance from regional centers.
Chapter 1

MINNESOTA’S REGIONAL CENTERS AND TRUNK HIGHWAYS

Background

The Transportation and Regional Growth (TRG) Study, which got underway in 1997 at the University of Minnesota, has been investigating diverse features of land development and highway transportation within a 24-county commuting range of Twin Cities employment centers. That commuting field was defined on the basis of county-to-county commuting data from the 1990 Census of Population and Housing, and is undoubtedly more extensive today than it was in 1990. The TRG study was undertaken to provide fresh description and analysis of the demand for and supply of highway transportation infrastructure in the greater Twin Cities area, and to investigate relationships between highway improvements and land development involving housing, industry, commerce, and offices.

As work on the Twin Cities area proceeded, additional questions arose whether the sprawling patterns of low-density development throughout the greater Twin Cities commuting field were also occurring in the vicinity of Minnesota’s regional trade centers, and if traffic volumes on trunk highways serving the regional centers were increasing to any notable degree. This report explores these questions.

The objective of this Minnesota Regional Centers (MRC) Project has been to measure and analyze low-density suburban-type residential development after 1970 within commuting ranges of a sample of Minnesota’s smaller metro areas—specifically exurban development in towns and townships beyond any built-up suburban edges of those regional centers. We suspected that low-density development patterns similar to what has been occurring throughout the 24-county Minneapolis-St. Paul MI-WI metropolitan area were being duplicated in the vicinities of the state’s regional centers, but at reduced ranges and intensities.

The MRC project plan envisioned three tasks. The first task was to define criteria for selecting up to 20 regional centers for investigation, and for defining the 1990 commuting fields surrounding them. Data for 1990 county-to-county commuting flows were used in defining the commuting fields because commuting data from the 2000 census would not be available from the Bureau of the Census until mid-2002 or later. The next step was to apply those criteria to define and map the 1990 commuting fields. The commuting fields were to be used as study areas.
The second task included estimating rates of population change by minor civil division (MCDs—cities, towns, townships) within commuting fields for each decade between 1970 and 2000, then mapping rates of population change of MCDs in each commuting field in order to illustrate the extent to which population was dispersing in the vicinity of regional centers. [1] The third task was to portray local population changes within commuting fields along with changing volumes of trunk highway traffic in the 1980s and 1990s.

**Minnesota’s Regional Centers, and the State’s Long-Range Transportation Plan**

A recent report, *Trade Centers of the Upper Midwest*, provided a list of regional trade and service centers of various ranks or levels as of 1999. We used this list to select our sample of regional centers in Minnesota. The 7-county Twin Cities Metropolitan Area was identified as the state’s only “Major Metropolitan Area.” Subsidiary centers in Minnesota and along the state’s border with neighboring states are:

- 5 centers identified as “Level 1—Primary Wholesale/Retail Centers,” a group that includes large places such as Fargo-Moorhead, Duluth-Superior, St. Cloud, Rochester, and LaCross-LaCrescent;
- 22 “Level 2—Secondary Wholesale/Retail Centers,” a group that includes smaller centers such as Bemidji, New Ulm and Hibbing, which provide a full range of wholesale and retail functions to local households and businesses and to their tributary market areas; and at a lower level in the Central Place hierarchy there are:
- 22 “Level 3—Complete Shopping Centers,” a group that includes still smaller and less sophisticated centers such as International Falls and Montevideo (Figure 1.1). [2]

Almost all of these 50 centers are located on one of the state’s principal trunk highways, or at the intersection of two or more trunk highways. It is from the set of 49 regional centers in Minnesota (excluding the greater Twin Cities Metro Area) that we drew a sample of 20 for analysis.

**A Sample of Regional Centers**

We selected twenty regional centers to examine relationships among population growth, dispersion of population, and traffic on major highways serving the sample regional centers (Figure 1.2). Our final selection of 20 met the following criteria:
Figure 1.1. Minnesota Regional Trade Centers
Figure 1.2. Selected Regional Centers in Relation to the 24-County Metropolitan Area
centers located outside the Twin Cities 24-county commute shed; 
- half from northern Minnesota, and half from southern Minnesota; and 
- a mix of fast-growing (in the 1990s) and slow-growing (or declining) centers.

To define study areas surrounding and including the 20 regional centers, and to assess rates of population change during the 1990s within the study areas, we defined commuting fields that were focused on our sample regional centers.

**Journey to Work and Commuting Fields**

Each of the 20 sample regional centers serves as a business and employment concentration and highway transportation node for its tributary area. Portraying population change, trunk highways, and highway traffic in the vicinity of a regional center requires defining and portraying each center’s functional region, which it serves and that, in turn, supports it. Because of data availability, daily journey-to-work commuting activity turns out to be a convenient measure of the extent of a center’s trade and service area and labor market—that is, its functional region. Accordingly, we used county-to-county commuting data from the 1990 Census of Population and Housing to define each center’s commuting field.

Census data report (1) the number of workers living in a county who commuted daily to a job away from home, (2) the destination counties including the home county, and (3) how many workers went to each destination county. Using Census Bureau county-to-county commuting matrices for 1990 along with corresponding journey-to-work data, we identified for each county containing a sample regional center the set of nearby counties that sent at least 5 percent of its workers to that destination county containing the regional center. Centers generally had two or three counties in their functional region or commuting field in addition to the county containing the regional center. In the case of Albert Lea, only Freeborn County qualified. The largest functional region surrounded Grand Forks-East Grand Forks with seven counties, followed by Rochester and Duluth-Superior with six (Figure 1.3).

Commuting fields defined in this way were defined as the “study areas” for each of the sample regional centers. In the case of Hibbing, its commuting field fell entirely within the Duluth-Superior commuting field, so we used only the Duluth-Superior study area and re-labeled it “Duluth-Superior/Hibbing” without separately identifying or analyzing the Hibbing commuting field.
Figure 1.3. Generalized Commuting Fields of Twenty Sample Regional Centers
Population Change in Study Areas

Following the definition of the 19 study areas (with Hibbing’s included with Duluth-Superior), we divided Minnesota into a “northern area” and a “southern area.” The dividing line runs roughly east-west, approximately through Little Falls (Figure 1.4). Grouping the study areas in terms of population growth rates between 1990 and 2000 was accomplished using “more-than-3-percent growth during the decade” as the minimum for qualifying as “moderate-to-fast growth.” Each study area (MSAs in the cases of Rochester, Duluth-Superior, Fargo-Moorhead, and Grand Forks-East Grand Forks) was evaluated against this benchmark by calculating its population change between 1990 and 2000 using complete-count data from the U.S. Bureau of the Census. We assembled population counts for 2000 and population change between 1990 and 2000 for each study area (Table 1.1). We did the same for each regional center, and where two or more cities formed the regional center (e.g., Duluth-Superior/Hibbing) we identified a “key city” and reported its population and how its population changed over the same decade.

In the northern-slow-growth study areas, there are differences between population change in the study area (including the key city) and population change in the key city itself. In Duluth-Superior/Hibbing, both measures rose at modest rates; in the International Falls area they both declined at significant rates; and in the Grand Forks-East Grand Forks area, the overall study area lost population while the key city of Grand Forks gained.

In the northern fast-growth study areas, study-area populations and key-city populations rose together in every case, but the rates differed. In the Bemidji, Brainerd, and Park Rapids cases, the study area populations rose much faster in the 1990s than the key cities grew, an outcome no doubt related to expanding residential and economic activity in the lake areas surrounding these regional centers, a process that will be explored in detail later.

All but one of the southern slow-growth study areas lost population in the 1990s, but three of their regional centers—Albert Lea, Marshall and Worthington—managed to add population while the overall study area experienced losses. New Ulm experienced slow growth all around, while Montevideo lost population along with its entire 4-county study area.

Finally, the southern fast-growth study areas all added population in the 1990s, as did their key cities. Like the northern study areas that gained population during the decade, these areas and their centers lie in a broad belt that extends from the southeastern corner of the state, northwestward through Rochester, Waseca, Mankato and New Ulm, through the greater Twin Cities area west to Willmar, then northward through the lake district to Park Rapids and Bemidji, and west to Fargo-Moorhead (Figure 1.4). Excluded from this “crescent of growth” are two
Figure 1.4. Northern and Southern Regional Centers, and Minnesota’s “Crescent of Growth.”
Table 1.1—Population Change in Study Areas and Regional Center Key Cities, 1990-2000

<table>
<thead>
<tr>
<th>Study Areas</th>
<th>Population Change (%)</th>
<th>Key City Population Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern Areas: Slow Growth or Decline (&lt;3 percent)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duluth-Superior/Hibbing</td>
<td>2.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Grand-Forks-E. Grand Forks</td>
<td>-5.5</td>
<td>0.5</td>
</tr>
<tr>
<td>International Falls</td>
<td>-11.1</td>
<td>-19.5</td>
</tr>
<tr>
<td><strong>Northern Areas: Moderate to Fast Growth (≥3 percent)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bemidji</td>
<td>15.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Brainerd</td>
<td>24.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Fargo-Moorhead</td>
<td>11.1</td>
<td>23.8</td>
</tr>
<tr>
<td>Little Falls</td>
<td>6.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Park Rapids</td>
<td>23.0</td>
<td>14.4</td>
</tr>
<tr>
<td>Wadena</td>
<td>4.4</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Southern Areas: Slow Growth or Decline (&lt;3 percent)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albert Lea</td>
<td>-4.0</td>
<td>0.3</td>
</tr>
<tr>
<td>Marshall</td>
<td>-2.0</td>
<td>5.9</td>
</tr>
<tr>
<td>Montevideo</td>
<td>-4.7</td>
<td>-2.8</td>
</tr>
<tr>
<td>New Ulm</td>
<td>1.7</td>
<td>3.5</td>
</tr>
<tr>
<td>Worthington</td>
<td>-0.3</td>
<td>13.1</td>
</tr>
<tr>
<td><strong>Southern Areas: Moderate to Fast Growth (≥3 percent)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alexandria</td>
<td>11.6</td>
<td>12.5</td>
</tr>
<tr>
<td>Mankato-N. Mankato</td>
<td>4.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Rochester</td>
<td>7.8</td>
<td>21.3</td>
</tr>
<tr>
<td>Waseca</td>
<td>7.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Willmar</td>
<td>4.7</td>
<td>4.7</td>
</tr>
</tbody>
</table>

* Key City identified in italics.
Source: U.S. Bureau of the Census
large areas of the state: most of the drier farming areas in the far west and southwest, and a wide arc of counties stretching from Grand Forks-East Grand Forks, north to International Falls, and then to the Iron Range and into the Arrowhead Region north of Lake Superior.

**Population Change inside the Study Areas**

Next we measured (1) population change in cities, towns, and rural townships, and (2) county population change compared with regional center population change, as indirect ways of inferring low-density suburban residential development after 1970 within commuting ranges of a sample of 20 of Minnesota’s regional centers. We anticipated that population change data would be consistent with our expectation that low-density development patterns similar to those occurring throughout the 24-county Minneapolis-St. Paul MI-WI metro area are being duplicated near the state’s regional centers, but at reduced ranges and intensities.
Notes

1. The term *local government* in Minnesota applies to counties, towns (townships), cities, and special purpose districts such as school districts, soil conservation districts, hospital districts, regional development commissions and the Metropolitan Council. All of these units have essentially the same relationship with the state because they are established by state laws and are subject to the ultimate control of the state.

Minnesota has 854 cities, with four classes based on population: *1st-class cities* have over 100,000 population; *2nd-class cities* have more than 20,000 but not more than 100,000, *3rd-class cities* have populations more than 10,000 but not more than 20,000, and *4th-class cities* have no more than 10,000 (774 cities fall into this 4th class category). There are *statutory cities* (107 cities that have adopted home-rule charters, which are in effect local constitutions approved by local voters) and *home-rule cities* (747 cities that operate under state statutes specifying their rights and obligations.

*Township government* provides governmental services in areas used or developed for agricultural, open space, and rural residential purposes. A *town* is the governmental or political organization, while a *township* refers to the geographical congressional territory without connection to the governmental organization. Minnesota laws, especially state statutes, use the two terms interchangeably. *Town boards* govern most of the land outside cities. In this study, the term *minor civil division* (MCD) refers only to cities and towns. See League of Minnesota Cities, *Handbook for Minnesota Cities*. Chapter 1: “Local Government in Minnesota.” St. Paul, MN, pp. 1-1 to 1-8. http://www.lmnc.org/handpdf/chapter01.pdf

Chapter 2

SUBURBANIZATION OF THE COUNTRYSIDE: POPULATION CHANGE IN COMMUTING FIELDS NEAR REGIONAL CENTERS

Transformation of Work and Life within Sub-areas of Commuting Fields

Each commuting field focuses on one of the regional centers and is composed of one or more counties. County areas are subdivided into incorporated cities and towns and unincorporated townships, all which we normally refer to as minor civil divisions (MCDs). In each study area there is one key city designated. The key city is understood as the functional center of the study area and the largest single job center in the commuting field. Duluth is the key city in the cases of Duluth-Superior and Hibbing where we combined the two commuting fields into a single study area.

In the decades that followed World War II, Minnesota’s agricultural, mining and forest industries have undergone a profound transformation that includes steady consolidation of farms, industrialization of agriculture, and a convergence of lifestyles of what we have traditionally thought of as farm families, and families and other households in cities and towns outside the Twin Cities area. Many households today live on farmsteads, and may or may not own the surrounding agricultural land. If they do own it, they often rent it to a neighboring farmer, but often they own or rent only the farmstead and commute daily to jobs in town or at industrial sites that today are scattered across the countryside. Other households have purchased parcels of land—3, 5, 10 or more acres—and have built suburban-style homes creating a form of ultra-low-density scattered-site exurban development that fundamentally differs little if at all from conventional automobile-oriented suburbanization. What is deceptive in observing and analyzing this phenomenon is the visual impact of the agricultural activity surrounding what is basically urban-type housing.

The problem is that the resource-based economies and ways of day-to-day life of the 1940s have been overshadowed and largely supplanted by new forms of economic activity and in many cases have almost entirely disappeared from Minnesota’s agricultural and mining areas outside the greater Twin Cities area. For example, between 1959 and 1987, the number of farms in Minnesota dropped by 42 percent, from 146,000 to 85,000, while the average size of farm rose 48 percent, from 211 acres to 312 acres. In 1998 the count was down to 80,000 farms with an
average size of 361 acres. [1] To be sure, agriculture remains one of Minnesota’s dominant industries, and mining and forestry remain active. But while farming has become ever more efficient with farm employment dropping steadily, employment in other industries has expanded much faster than resource-based extractive employment has declined. One result is that Minnesota’s settlement patterns and employment profiles across Minnesota have become almost entirely of an “urban-type.”

From early days of settlement up through the 1950s, Minnesota’s major cities were the centers of manufacturing and wholesale trade, along with transportation, finance and business management activity that linked the state with other regional economies of the United States and the world. At the same time, small cities, towns, villages and hamlets functioned as the central places that assembled the products of field, forest and mine while distributing retail trade and services (e.g., stores, shops, banks, lawyers, churches), local business services (e.g., grain elevators, lumber yards) and government services (e.g., public schools, public safety, courts, roads, etc.) to the households and local businesses that were anchored to the land and to their extractive industries. A well-defined “central place hierarchy” existed throughout the Upper Midwest and Minnesota, and the distinction between “urban” and “rural” was a sharp one. [2] Today these two terms have lost most or all of the technical precision they once enjoyed. [3] Before the 1940s, where people lived was directly connected functionally and geographically with where they worked and what they did for a living. Farmers lived on their farms and ran their farm operations. City and town dwellers lived in the city or town and commuted daily to work downtown or to a neighborhood business located within the city or town. Commutes were short, the edges of cities and towns were well defined, and the economies and settlement forms of urban and rural areas were essentially distinct even though they were fully dependent on one another.

But that was then, and this is now. In 2002—more than six decades after 1940—the Minnesota settlement pattern and the economy of Minnesota have been almost completely transformed. When the post-World War II transition of the state’s economy and settlement pattern was well underway in the 1960s, the Upper Midwest Economic Study carried out an assessment that pointed the direction that things were headed. [4] Today we see that the “urbanization of the countryside” is being completed in functional terms, and the settlement system is in the process of catching up with the economic and social transformations that have occurred. Like the greater Twin Cities area, which according to 1990 commuting patterns spread over 24 counties in Minnesota and Wisconsin, the smaller cities and towns in Minnesota have been doing the same whether or not their populations are increasing.
The towns, villages and hamlets within highway commuting ranges of regional centers seem to be becoming bedroom suburbs, and depending on the volume of disposable income brought home from those jobs there can be renewed vitality on Main Street. Meanwhile, in the unincorporated townships surrounding the regional centers, new houses are going up along major and minor highways and country roads to meet the wants of households for country living within a convenient automobile ride to work, school, Main Street and Wal-Mart.

Local Population Changes within Study Area Commuting Fields, 1970-2000

Each of our study areas has three components: (1) a key city (usually the regional center), (2) a collection of nearby small cities and towns, and (3) the study area’s unincorporated townships (Appendix 2). During the period 1970 to 2000, each study area’s population rose or declined due to natural change (births and deaths) and migration change (moves in and moves out). Meanwhile, during the same 30-year period, some households remained within their study area but changed their place of residence. For example, some farming households retired and moved off the farm and into town, while others moved out of town to a farmstead no longer occupied by farmers, or to a new house or to a mobile home on a parcel of one or several acres. Each of these components of population change—natural change, migration change, and local residential mobility—contributed to the reshaping of the settlement pattern in each of the sample study areas. Let us examine each of them in turn.

Natural Change: Natural change within a study area depends in part on its population’s age structure. If it is top-heavy with elderly people, the death rate will be higher than average. If there is a significant number of young adults of child-bearing age, the chances are good that the birth rate will be above average. But natural change also depends on features other than age structure of the population, such as the vitality of the local economy. For example, if there are abundant jobs in an area, young people optimistic about their future may migrate to those jobs while young people from the area who otherwise might leave will be encouraged to stay after they complete their schooling. So natural change depends on age structure, but age structure depends in part on vitality of the local economy compared with the vitality and attractiveness or other destinations.

Migration: Migration flows in and out of a study area vary for different age groups with each group having its own reasons for relocating into or out of the area. Young people migrate mainly to attend school and to pursue economic opportunity, while retired people often migrate seasonally or permanently to warmer climates, or to be closer to their children, or to be
conveniently located to medical and other services, or to move to their retirement home on the lake, or for other reasons.

**Residential Mobility:** Migration is understood as long-distance relocation of home and job, while residential mobility is understood as short-distance relocation and is usually house-related (e.g., bigger, smaller, more expensive, cheaper) or neighborhood related (e.g., seeking certain features; avoiding others). A household that moves from metropolitan area to metropolitan area, or state to state, or country to country is said to migrate. Residential mobility includes households that move from city to suburb, or farm to town, or house to apartment, or other similar short-distance moves.

The decade-to-decade movements in study-area populations between 1970 and 2000 form a complicated set of trends, but the nineteen study areas fall into five classes distinct classes based on their patterns of increases or decreases in each of the three decades:

• (1) **Up** in the 1970s; **up** in the 1980s, and **up** again in the 1990s (7 study areas):
  
  Bemidji, Brainerd, Fargo-Moorhead, Mankato, New Ulm, Park Rapids, Rochester,

• (2) **Up** in the 1970s; **down** in the 1980s; **up** again in the 1990s (6 study areas):
  
  Alexandria, Duluth-Superior/Hibbing, Little Falls, Wadena, Waseca, Willmar

• (3) **Up** in the 1970s; **up** in the 1980s; **down** in the 1990s (1 study area):
  
  International Falls

• (4) **Up** in the 1970s; **down** in the 1980s; **down** in the 1990s (1 study area):
  
  Grand Forks-East Grand Forks

• (5) **Down** in the 1970s; **down** in the 1980s; **down** in the 1990s (4 study areas)
  
  Albert Lea, Marshall, Montevideo, Worthington

To analyze these population shifts in detail would require an age-specific profile of the changes during each decade and would go well beyond the limits of the present study, but a few generalizations are possible. During the 1970s, children born during the first part of the post-World War II Baby Boom (1950s) were completing high school and moving away from predominantly farming areas and the relatively stagnant economies of many small towns and cities to post-secondary schooling or to jobs in larger centers (cf. Groups 4 and 5 above). The recession of 1973-4 probably magnified the tendency of young people to migrate in larger numbers than they otherwise might have. In the 1980s, many parts of the Upper Midwest,
including Minnesota, experienced a major farm recession as debt loads rose and prices for commodities dropped. Nationwide, farm equity dropped 27 percent between 1980 and 1985, while the ratio of farm debt to farm equity rose from 20.4 percent in 1980 to 29.8 percent in 1985—an increase in 46 percent. [5] When the farm economy languishes, the businesses that rely on farms and farm income languish. When farms and businesses go broke or returns fall well below what other ventures somewhere else will yield, people leave. The problems of Minnesota’s farm economy in the 1980s led to population declines in many towns and townships, a story that will be discussed later. On the other hand, these same tendencies may explain the growth in the Grand-Forks-E. Grand Forks area. In each of the Group 4 and Group 5 study areas, the agricultural townships lost population in the 1970s, while the key cities (except Albert Lea) gained.

Changes in the 1990s

We are especially interested in the patterns of population change in the 1990s and how they may be interpreted with regard to changing trends in trunk highway usage. [6] Among the six study areas that lost population in the 1990s, their cities as a group gained while nearby farm-based townships lost in three cases (Albert Lea, Marshall, Worthington) (Table 2.1). The reverse occurred in the Grand Forks and Montevideo areas when cities lost and townships gained population. In the thirteen cases where the study areas gained population in the 1990s, the dominant pattern was study areas where both cities and townships gained population.
Table 2.1—Population Change in Study Area
Cities and Townships, 1990-2000

Study Areas Losing Population in the 1990s

<table>
<thead>
<tr>
<th>Cities Gained Population</th>
<th>Townships Lost Population</th>
<th>Townships Gained Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities Lost Population</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

| Cities Gained Population | Albert Lea | Marshall | Worthington |
| Cities Lost Population   | Grand Forks-E. | Grand Forks | International Falls |

Study Areas Gaining Population in the 1990s

<table>
<thead>
<tr>
<th>Cities Gained Population</th>
<th>Townships Lost Population</th>
<th>Townships Gained Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities Lost Population</td>
<td>X</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cities Gained Population</th>
<th>Alexandria</th>
<th>Bemidji</th>
<th>Brainerd</th>
<th>Duluth-Superior</th>
<th>Little Falls</th>
<th>Park Rapids</th>
<th>Wadena</th>
<th>Waseca</th>
<th>Willmar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fargo-Moorhead</td>
<td>Mankato-N.</td>
<td>Mankato</td>
<td>New Ulm</td>
<td>Rochester</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Notes


6. Minnesota was the fastest growing Midwestern state in the 1990s.  Suburban and selected outlying regional centers had the fastest growth.  What the Census Bureau defines as “rural” population in centers of under 2,500 population or in dispersed households) was expanding in the 1990s after dropping in the 1980s.  Many of the counties that lost population in the 1990s are located along the western and southern borders of the state.  See James Hibbs, “Strong Population Growth Continues in Minnesota,” Population Notes, St. Paul: Minnesota Planning State Demographic Center, (February 2000) pp. 1-8; and Tom Gillaspy, “Implications of Rural Minnesota’s Changing Demographics,” Perspectives, St. Paul: Minnesota Planning State Demographic Center, (July 2000), pp. 2-11; discussing aging of the population, exodus of young adults, and concentrated population growth.
Chapter 3

POPULATION CHANGE IN SPACE AND TIME, 1970-2000

Ways to Describe Population Change in Space and Time

Chapter 2 noted that each of our 19 study areas is a mosaic of three kinds of political units: a key city, a set of nearby smaller cities and towns, and a set of unincorporated townships. Each place and each study area had a population in 1970, which changed over each of the succeeding three decades. The 19 study areas, each with 3 kinds of places and 4 census years, yields 228 separate data points, and 171 percentage changes during the three decades 1970 to 2000.

Simply documenting those counts and their changes is a straightforward exercise, but identifying and summarizing the underlying dynamics that generated the changes and the patterns that resulted is complicated. The best we can do with respect to the statewide picture is to repeat what was noted in Chapter 1, namely that the study areas that tended to gain population in the 1990s lie in a broad arc extending from the southeastern corner of the state, then northwestward through Rochester, Waseca, Mankato and New Ulm, including the 24 county Twin Cities area, west to Willmar, then northward through the lake district to Park Rapids and Bemidji, and west to Fargo-Moorhead. The zones lying outside this “crescent of growth” and that contain the study areas that lost population in the 1990s form two large territories of relatively sparse population: (1) most of the dry farming areas in the far west and southwest, and (2) a wide arc of counties stretching from Grand Forks-East Grand Forks, north to International Falls, and then to the Iron Range and into the Arrowhead Region north of Lake Superior. The sparse populations in these zones are both a cause and a consequence of the limited economic opportunities in those areas compared with better-endowed regions to the south and east.

What follows are two approaches to a geographical analysis of population change within each of the 19 study areas. The first approach uses scatter diagrams to examine the relationship between MCD population changes each decade between 1970 and 2000 compared with corresponding MCD distances from the regional center in their study area. The expectation was that places that are located remote from their respective regional centers would be losing population, while places adjacent to or just a short distance from regional centers will gain population due to suburbanization in the immediate vicinity of the centers, or would lose population but at slower rates than places farther out.
The second analysis uses maps of population change to explore in greater detail the patterns revealed on the scatter diagrams that relate population with distance from regional centers. In each of the two presentations—scatter diagrams and maps—the study areas are grouped into the four classes that were previously identified:

**Northern Study Areas of Slow Growth or Decline** (< 3 percent growth in the 1990s)
- Duluth-Superior/Hibbing
- Grand Forks-East Grand Forks
- International Falls

**Northern Study Areas of Moderate to Fast Growth** (≥ 3 percent growth in the 1990s)
- Bemidji
- Brainerd
- Fargo-Moorhead
- Little Falls
- Park Rapids
- Wadena

**Southern Study Areas of Slow Growth or Decline** (< 3 percent growth in 1990s)
- Albert Lea
- Marshall
- Montevideo
- New Ulm
- Worthington

**Southern Study Areas of Moderate to Fast Growth** (≥ 3 percent growth in 1990s)
- Alexandria
- Mankato-North Mankato
- Rochester
- Waseca
- Willmar

22
Population Change and Distance from Regional Centers

One way to describe and assess possible functional relationships between a regional center and population changes in places within its commuting field is to plot population change of each MCD in the commuting field against its distance from the regional center. In the greater Twin Cities region in recent decades, the fastest-growing places (cities, towns, townships) have typically been located at the suburban edges of the essentially built-up (or urbanized) area and at selected sites beyond the built-up suburban margins. At the same time that fast growth has been occurring at the edges, the central cities and older first-ring suburbs have frequently been stable or losing population.

If the commuting fields surrounding Minnesota’s regional centers have been duplicating the patterns of population change that have been occurring in the vicinity of Minneapolis and St. Paul, then we would expect that the plotted data and the best-fitting regression line would reveal a negative trend—downward toward the right. That is, places located close to the regional center would increase in population the most (or decrease the least in slow-growing or declining areas), while places increasingly distant from the regional center would increase in population the least (or decrease the most). For most of the regional centers and their commuting fields, and for all three decades between 1970 and 2000, that is what happened (Table 3.1).

In more than three-fourths of the cases (44 of 57) the slope of the best-fitting regression line relating population change with MCD distance from the study area’s key city, which is taken as the study area center, is negative meaning that on average the rate of population change diminishes with increasing distance from the study area center, patterns that are clearly visible on most of the scatter diagrams that follow. Scatter diagrams usually contain a few widely deviant cases in which MCDs are plotted far above or far below the best-fitting regression line. Those unusual cases will be noted and discussed in the map analysis that follows the presentation of each study area’s scatter diagrams. The statistical effect of deviant cases is to sharply reduce the correlation measure ($R^2$) that is reported for each scatter diagram. Often the correlation measure turned out to be close to zero due to the effects of “unexplained variance” introduced by the deviant cases—unexplained, that is, by distance from its nearby key city. Examples of such cases include expanding populations in nursing homes and retirement centers, prisons, college dormitories, or expanding employment in a thriving small business where a modest increase in numbers on a small base yields a large percentage change. However the slope of the line is typically well defined and in about four out of five cases the slopes tilt in the expected direction, namely downward and to the right. We considered removing the most deviant cases from the scatter diagrams and then recalculating the correlation measure and the slope, but decided that
Table 3.1–Slopes of Regression Lines Relating Population Change in MCDs and Distance from Regional Centers *

<table>
<thead>
<tr>
<th>Study Area</th>
<th>1970s</th>
<th>1980s</th>
<th>1990s</th>
<th>Study Area Pop’n Change in 1990s (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert Lea</td>
<td>+ .08</td>
<td>− .43</td>
<td>+ .49</td>
<td>− 4.0</td>
</tr>
<tr>
<td>Alexandria</td>
<td>− 1.58</td>
<td>− .59</td>
<td>− .87</td>
<td>+ 11.6</td>
</tr>
<tr>
<td>Bemidji</td>
<td>− 1.26</td>
<td>− .57</td>
<td>− .37</td>
<td>+ 15.2</td>
</tr>
<tr>
<td>Brainerd</td>
<td>− .36</td>
<td>− .31</td>
<td>− .26</td>
<td>+ 24.0</td>
</tr>
<tr>
<td>Duluth-Superior</td>
<td>− .03</td>
<td>− .10</td>
<td>− .04</td>
<td>+ 2.2</td>
</tr>
<tr>
<td>Fargo-Moorh’d</td>
<td>− .13</td>
<td>− .22</td>
<td>− .13</td>
<td>+ 11.0</td>
</tr>
<tr>
<td>Grand F’ks-EGF</td>
<td>− .29</td>
<td>− .13</td>
<td>− .07</td>
<td>− 5.5</td>
</tr>
<tr>
<td>Intern'l Falls</td>
<td>− .02</td>
<td>− .05</td>
<td>− .20</td>
<td>− 11.1</td>
</tr>
<tr>
<td>Little Falls</td>
<td>+ .01</td>
<td>− .83</td>
<td>+ .39</td>
<td>+ 6.0</td>
</tr>
<tr>
<td>Mankato-N.M.</td>
<td>− .79</td>
<td>− .76</td>
<td>+ .04</td>
<td>+ 4.8</td>
</tr>
<tr>
<td>Marshall</td>
<td>− .05</td>
<td>− .25</td>
<td>− .19</td>
<td>− 2.0</td>
</tr>
<tr>
<td>Montevideo</td>
<td>− .44</td>
<td>− .32</td>
<td>− .28</td>
<td>− 4.7</td>
</tr>
<tr>
<td>New Ulm</td>
<td>− .40</td>
<td>+ .40</td>
<td>− .67</td>
<td>+ 1.7</td>
</tr>
<tr>
<td>Park Rapids</td>
<td>+ .88</td>
<td>+ .60</td>
<td>− .16</td>
<td>+ 23.0</td>
</tr>
<tr>
<td>Rochester</td>
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<td>− .71</td>
<td>+ .08</td>
<td>+ 7.8</td>
</tr>
<tr>
<td>Wadena</td>
<td>− .00</td>
<td>+ .07</td>
<td>+ .74</td>
<td>+ 4.4</td>
</tr>
<tr>
<td>Waseca</td>
<td>− 1.80</td>
<td>− 1.16</td>
<td>− 3.60</td>
<td>+ 7.9</td>
</tr>
<tr>
<td>Willmar</td>
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<td>− .68</td>
<td>− .17</td>
<td>+ 4.7</td>
</tr>
<tr>
<td>Worthington</td>
<td>+ .15</td>
<td>− .25</td>
<td>+ .04</td>
<td>− 0.3</td>
</tr>
</tbody>
</table>

* Estimated by ordinary least squares regression. Distance from place to place is measured between place centroids. Data Source: U.S. Bureau of the Census.
those unusual cases were part of the story of what was happening in the vicinity of the regional centers, and deserve to be investigated further after the maps had been presented and discussed.

**Mapping Population Change**

We devised a mapping procedure that is aimed at illustrating population change by minor civil division (i.e., cities, towns and townships) over the decades of the 1970s, 1980s and 1990s, respectively, for each regional center and its corresponding commuting field. The goal in the mapping exercise was to employ a uniform mapping protocol that would convey the principal facts of population gains and losses during each of the three decades, and to present the maps for each study area for each of the three decades on facing pages for convenient visual comparison, leaving room for interpretive discussion alongside each of the three-map sets.

The maps highlight population change simply and vividly, with emphasis on positive changes, for places that are located within daily commuting distance of the regional centers, or the key city when there is more than one major city in the study area as in Duluth-Superior/Hibbing. On each map, the 1998 boundaries of the city that serves as the regional center are precisely outlined and the area covered by the city is shaded black. Populations of the regional center and other cities and towns are represented on the maps by circles that vary in size depending on their populations. The circles (representing cities and towns) and the townships (usually square, 6 miles on the side) are shaded gray if population increased, and left unshaded (i.e., white) if they experienced either no population growth or a population loss during the specified decade.

In addition to portraying population change for townships, towns and cities, we added to each map the principal highways radiating outward from the regional center and serving the study area. Our goal has been to interpret the geographical patterns of population change of MCDs in terms of the areas served by the principal highways, and to investigate to the extent possible whether the population increases that occurred within commuting ranges of regional centers could be interpreted as a form of suburbanization. The discussion of the scatter diagrams and maps sets used to interpret them focuses mainly on the 1990s, with occasional reference to trends of earlier decades. Detailed population data for each study area, each major city, the set of all study area cities, and the set of all townships for 1970, 1980, 1990, and 2000 appear in an appendix.

Chapter 4 discusses our approach to studying the changing volume of traffic on trunk highways in the vicinity of the study areas, and to relating the changing traffic patterns to changes in
population in the MCDs within the study areas. Following that discussion, the data on the individual study areas are presented and interpreted.

The order of the presentation and discussion of the study areas follows the sequence presented earlier:

- Chapter 5: Northern Areas, Slow Growth or Decline (< 3 percent growth in 1990s);
- Chapter 6: Northern Areas, Moderate to Fast Growth (≥ 3 percent growth in 1990s);
- Chapter 7: Southern Areas, Slow Growth or Decline (< 3 percent growth in 1990s);
- Chapter 8: Southern Areas, Moderate to Fast Growth (≥ 3 percent growth in 1990s).
Chapter 4

TRUNK HIGHWAYS AND
CHANGES IN TRAFFIC VOLUMES IN THE 1980s AND 1990s

Introduction

The story of cause-effect relationships between Minnesota’s highways and associated agricultural and town development goes back to 19th century railroad construction and even before. [1] Early European-American settlers and traders cleared ox cart and wagon trails, which defined overland routes that extended inland from the Mississippi River and from the westernmost point of Lake Superior where Duluth-Superior would develop. Early wagon roads tended to follow still older Indian trails and the gentle gradients of watercourses. What eventually became key transportation nodes and town sites in the emerging circulation system were boat landings accessible to uplands such as the bend in the Mississippi River at the mouth of Trout Creek at St. Paul, waterpower sites, and crossing points on the Minnesota, upper Mississippi and Red Rivers.

The Railroads

Railroad builders pushed west and north across the U.S. and Minnesota between the 1860s and 1900, following (and sometimes leading) the frontiers of farming, lumbering, and mining. At first, local rail lines fanned out from river and lake ports, tending to duplicate the wagon and stage routes that had been used to collect resources from tributary areas. By 1880, the national transport system was rapidly becoming an all-rail system with the main rail lines across Minnesota becoming part of the northern transcontinental lines, while branch lines increased in density to serve mainly agricultural areas.

The ways in which natural resource-based economic activity depended on the railroads produced profound effects on urban growth patterns. Raw materials moved to towns and cities for processing and markets, while finished manufactured goods and services moved in the other direction. Almost all rail-based economic activity and associated passenger movements eventually converged on the Twin Cities, Duluth or Chicago. Shipments and personal travel perpendicular to these radial lines was difficult, expensive and often impossible. Urban growth
was encouraged at rail nodes and major switching points, of which Minneapolis and St. Paul were the most important in Minnesota and the Upper Midwest, and along the major rail corridors through the richest agricultural areas such as south-central and southwest Minnesota and the Red River Valley.

The Minnesota railroad network was virtually complete by 1920, and intercity transportation was almost entirely dependent upon it. Although automobiles had come onto the scene during the previous two decades, they were used only for local movement, much of which was purely recreational. After 1920 the railroad network slowly began to thin out, but at the same time passenger train service increased up through World War II while the state highway department was completing the Federal Aid Primary road system (U.S. highways) and the Federal Aid Secondary system (state highways). After the war, rail passenger service slowly dried up and freight service contracted to serve only the main towns and cities and places fortunately located along the main rail lines that remained.

**Highways**

In the early 1920s, with financial support and planning assistance from the federal and state government, a coherent and comprehensive highway system began emerging from the mammoth grid of graded section roads that served the farms and mining areas of rural Minnesota. On the eve of World War II paved roads paralleled the radial rail corridors fanning outward from the Twin Cities and Duluth. At first the effect of the highways was to reinforce earlier patterns of accessibility. But as the major highway system took shape, selected section roads were upgraded along north-south and east-west lines between and among county seats that had been unconnected during the railroad era. In addition, minor radials were paved along routes that had not previously been served by major rail lines because they had not been in the paths from Minneapolis and St. Paul to other major Midwest or Pacific Northwest cities.

Today’s network of highways in Minnesota permits, for all practical purposes, freedom of movement from the main population centers of any county to those of any other county. Comparative advantage of location within a “main line” corridor, or the disadvantage of location outside one, has been pretty much eliminated. The development of the state’s freeway system since the 1960s seems to have reestablished or reinforced those historic corridors of accessibility along routes from the Twin Cities to other major centers—northeast to Duluth; east to Chicago and Milwaukee; southeast to Rochester; south to Des Moines and Kansas City; southwest to Mankato, South Dakota, and west; and northwest to Fargo-Moorhead and points west. But as the
Interstate system was supplemented by other freeways and expressways, interchange between freeways and the remainder of the road system poses none of the problems that changing trains posed in an earlier time. Over the long run, the improved highways seem to have reinforced economic advantages and settlement patterns from an earlier time, while increasing the speed and flexibility of the total system.

But as differences in accessibility among Minnesota’s cities and counties diminished and the capacity and speed of the transportation system improved, other differences among places have emerge to differentiate prospects for economic vitality and population stability or growth. In parts of the state that traditionally depended for their livelihoods on agriculture and mining, the flagging fortunes of those industries have led directly to population declines. Meanwhile, the state’s metropolitan opportunities capitalize on new types of economic bases, among them tourists, shoppers and conventioneers arriving to purchase goods, services and entertainment, while at selected locations around the state retirement settings flourish as retirees arrive with their wealth and divert their income streams into the areas where they choose to live part or all of the year. Outside metropolitan areas the combination of spending by tourists and retirees can supplement and eventually replace a local economy that traditionally was based on natural resource extraction. The new economy is still based on natural resources, but now in forms and fashions that can be sustained if managed properly.

Centers such as Rochester, Mankato, Brainerd, Bemidji and Willmar, once they reach a certain size and level of diversification and sophistication, can compete with the Twin Cities by offering some of the same advantages in the production of goods and services but without certain disadvantages that the biggest cities must endure. In the final analysis, the trunk highways facilitate the activities of the new economy, but are not determinative of which places flourish and which will languish. Nevertheless, the places that are flourishing have occasionally encountered mounting traffic problems in recent years.

**Regional Centers and Interregional Corridors**

Concerns about traffic congestion and reduced mobility on Minnesota’s major highways and Interstates in the 1990s prompted Mn/DOT to undertake an Interregional Corridor Study, which was completed in late 1999. The goal of the study was to develop a base of understanding of the relationship between regional centers and traffic on trunk highways in order to manage proactively the important connections among the state’s regional centers in a cost-effective manner. The study analyzed all the major highways in the state and identified a system of
Interregional corridors based on community use and traffic volumes. The 2,930 miles of trunk highways form the corridors that link the regional centers. The idea of the corridor study was to provide direction through Mn/DOT’s State Transportation Plan, which sets policy for investments on the state’s 12,000-mile trunk highway system. [4] That goal was consistent with Mn/DOT’s strategic objective “to develop an interregional corridor system that enhances the economic vitality of the state by providing safe, timely, and efficient movement of people and goods to regional trade centers.” [5]

Interregional corridors were defined by Mn/DOT as the main transportation channels tying the state together and supporting Minnesota’s economic health by linking people with jobs, distributors with manufacturers, shoppers with retail outlets, and tourists and vacationers with recreation opportunities. The state’s population has been growing steadily in recent decades, with the Twin Cities and the regional centers as a group growing at above average rates. The greatest concentration of growth and economic activity has occurred in a zone stretching from southeast of Rochester, then west and north through Mankato and the 24-county greater Twin Cities area, to counties in the lake district north and northwest of St. Cloud. Areas of sparse population and general economic weakness include most of the counties in far southwestern and western Minnesota, the Red River Valley, and most of far north and northeastern Minnesota throughout the Arrowhead Region.

Mn/DOT notes that growth in some places is leading to traffic congestion on the trunk highways, with the Twin Cities area recently experiencing the most serious congestion problems. They go on to argue that growth trends in the state given the present highway transportation system threaten the efficiency of transportation connections among the regional centers statewide and nationwide. It appears that the state’s system of major highway routes and the state’s pattern of population increase and land development are highly correlated, especially in the zone of growth outlined above. Two kinds of traffic use the state’s major trunk highways intensively: local traffic in the vicinity of the growing regional centers, and traffic on the interregional corridors. Traffic volumes on the interregional corridor system rose by 50 percent in the 1990s, and are expected by Mn/DOT to double by 2020. At present, 30 percent of statewide travel is concentrated on the regional corridors, but these represent only 2 percent of all highways in the state. [6]

As selected regional centers grow in size, complexity and spatial extent, a major challenge for transportation officials is improving mobility or preventing loss of mobility on interregional corridors passing through those developing urban areas. One response to increased traffic and accidents in and near busy regional centers is the installation of more traffic signals, which
improves safety and minimizes cross-street delays, but reduces the ability of highways to handle through traffic rapidly and efficiently. For example, 16 signals added on US-212 between I-494 and Granite Falls over the past 20 years have increased delays and travel times. Eleven signals added on MN-101/US-169 between I-94 and Garrison (by Mille Lacs) led to similar results. [7]

Changing Highway Traffic Volumes

In the 24-county Twin Cities region, steady population growth, more motor vehicles per capita, sprawling low-density residential development, greater labor force participation by women, longer life expectancies, greater affluence and discretionary disposable incomes of households, reorganization of business that is accompanied by disaggregation and geographical dispersal of functions formerly carried out under one roof of a large company (e.g., human resources, advertising, accounting, legal services, etc.), dispersal of jobs from the urban core to suburban and exurban areas, and better highways all have contributed to steadily increased traffic. The question we asked was whether the same increases have been happening around the state’s regional centers, and if so, have they led to congestion problems.

One way to investigate this issue is to examine how traffic volumes have changed along major highways in the vicinity of our sample regional centers, and then to investigate the extent to which the locations of population changes are geographically correlated with the locations of changing traffic volumes along the state’s trunk highways. In the sections that follow, each of the study areas is portrayed with respect to (1) population changes within MCDs, and (2) changing highway traffic volumes on selected routes within the study areas in the 1980s and 1990s.

Measurement of Annual Average Daily Traffic (AADT)

Mn/DOT engineers and planners periodically monitor motor vehicle flow on all their highways and freeways. Counties and MCDs (or consultants retained for them) normally do the same for heavily traveled routes or for route segments for which traffic volumes are rising as a consequence of population and economic change and land development. The monitoring is accomplished by installing a device on a segment of road that counts the number of vehicles passing a convenient point along that segment. From the counts that are tallied, an estimate is made of the annual average daily traffic (AADT) using that segment. On major commuting routes within the Twin Cities area, counters tally separately the vehicle flows in each direction by
time of day. Along stretches of highways in non-metropolitan areas the total flow is recorded without regard to direction or time of day.

In our analysis we used Mn/DOT data on AADT for 1980, 1990, and 1998 in order to assess both volume of flow and changes in volumes during the 1980 and the 1990s. The most recent data available for the 1990s was for 1998. AADT on some routes increased by 50 percent or more during the study period 1980-1998, and on other routes AADT declined. Some traffic declines can be attributed to declines in population and economic activity. Other changes can be interpreted as diversion of traffic from one route to another.

The map sets that follow contain three kinds of information: (1) traffic volumes on selected points along major routes within our study areas; (2) changes in traffic volumes in the 1980s and the 1990s; and (3) population changes in MCDS in the 1980s and 1990s.
Notes


2. Economic and population decline in Minnesota’s agricultural regions has occurred steadily, but continued rural decline is neither inevitable, nor does it appear to yield a net benefit for the state. See: G. Edward Schuh, “A Strategy for Developing Rural Minnesota,” Minneapolis: Hubert H. Humphrey Institute of Public Affairs, 11 April 2000, 8pp, Xerox; also “Rural Development and the University of Minnesota,” paper presented to the Faribault Rotary Club, Faribault, MN, 22 March 2000, 8pp, Xerox; and “Why Rural Human Development Matters,” paper presented in Accra and Cape Coast, Ghana, 4-6 September 2000, 9pp, Xerox.

3. This section summarizes the report: Minnesota Department of Transportation, *Better Connections for Minnesota’s Future: Interregional Corridor Study*. St. Paul: Minnesota Department of Transportation, (No date), 8pp, which is based in part on: SRF Consulting Group, Inc. 1999. *Statewide Interregional Corridor Study*; submitted to: Minnesota Department of Transportation. At the same time that SRF was completing its study, a parallel investigation was underway with staffing by Minnesota Planning. That effort, *A Generic Environmental Impact Statement (GEIS) on Urban Development*, was a statewide study mandated by the 1999 Minnesota Legislature and ordered by the Minnesota Environmental Quality Board (EQB). The legislation directed the EQB to “...examine the long-term effects of urban development, past, present, and future, upon the economy, environment, and way of life of the residents of the state.” The study was ordered because of growing controversy surrounding urban growth and development in Minnesota. See *Final Scoping Document: Generic Environmental Impact Statement on Urban Development in Minnesota*, St. Paul: Minnesota Environmental Quality Board, 21 December 2000.

5. Better Connections for Minnesota’s Future, p.2. Another major daily traffic generator across Minnesota is the state’s collection of colleges and universities—more than 60 public and private campuses, most located in the state’s regional centers and most with increasing enrollments. For example, Minnesota State Colleges and Universities (MnSCU) enroll about 150,000 students on 36 campuses. See MnSCU, Performance (a newsletter of Minnesota State Colleges and Universities), Fall 1999, pp. 1ff, and http://www.mnsu.edu.


7. Ibid.
Chapter 5

NORTHERN AREAS OF SLOW GROWTH OR DECLINE IN THE 1990s

Population and Economic Trends

The Duluth-Superior/Hibbing area population grew by a modest 2.2 percent during the 1990s, while the city of Duluth’s population expanded 1.7 percent (Table 5.1). Meanwhile, the Grand Forks-East Grand Forks area and the International Falls area both lost population. All three of these study areas lie in the northern and western parts of the state and outside the “crescent of growth” discussed earlier. The Duluth metropolitan area dominates the economy of the north-easter part of Minnesota, but the economy of the Iron Range and the recreation areas in that region were relatively weak in recent decades compared with several other parts of the state.

The Grand Forks area is a migration destination from counties to its north and west, but it also lost population to more prosperous places to the south east as well as to destinations outside Minnesota and the Upper Midwest region. The International Falls area lies on the international border in an extremely sparsely populated part of Minnesota where it is hard to earn a living (Table 5.2). Recreation opportunities in the area must compete with attractive intervening options closer to the Twin Cities and other population centers around the state and region.

Table 5.1—Population Change in Northern Slow-Growth or Declining Areas and Regional Center Key* Cities, 1990-2000

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Northern Areas: Slow Growth or Decline (&lt; 3 percent)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duluth-Superior/Hibbing</td>
<td>322,986</td>
<td>330,189</td>
<td>2.2</td>
<td>85,493</td>
<td>86,918</td>
<td>1.7</td>
</tr>
<tr>
<td>Grand-Forks-E. Grand Forks</td>
<td>140,717</td>
<td>133,041</td>
<td>-5.5</td>
<td>49,064</td>
<td>49,321</td>
<td>0.5</td>
</tr>
<tr>
<td>International Falls</td>
<td>16,149</td>
<td>14,355</td>
<td>-11.1</td>
<td>8,325</td>
<td>6,703</td>
<td>-19.5</td>
</tr>
</tbody>
</table>

* Key city identified in italics. Source: U.S. Bureau of the Census.
Three northern study areas experienced slow growth or decline in the 1990s. The diagrams and maps that follow present profiles of population change related to distance from regional centers, population change by minor civil division, and changes in traffic volumes on major trunk highways serving Duluth-Superior/Hibbing (Figures 5.1, 5.2, 5.3), Grand Forks-East Grand Forks (Figures 5.4, 5.5, 5.6), and International Falls (Figures 5.7, 5.8, 5.9).

### Table 5.2—Economic Profile of Northern Slow-Growth or Declining Areas* and Component Counties

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>State of Minnesota</td>
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<td></td>
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<tr>
<td>Duluth-Superior/Hibbing</td>
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<tr>
<td>Bayfield (WI)</td>
<td>10</td>
<td>20,666</td>
<td>6.6</td>
<td>13.5</td>
<td>12,922</td>
<td>396</td>
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<td>26,871</td>
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<td>3.2</td>
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<td>649</td>
<td>-83</td>
<td>16,162</td>
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<tr>
<td>Douglas (WI)</td>
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<td>22,122</td>
<td>1.7</td>
<td>11.6</td>
<td>14,850</td>
<td>312</td>
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<td>25,638</td>
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<td>22,442</td>
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<td>17.5</td>
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<td>-37</td>
<td>13,721</td>
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<td>9.5</td>
<td>15,419</td>
<td>921</td>
<td>-172</td>
<td>13,444</td>
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<td>Grand Forks-E. Grand Forks</td>
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<tr>
<td>Grand Forks (ND)</td>
<td>49</td>
<td>25,162</td>
<td>4.2</td>
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<td>893</td>
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<td>393</td>
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<td>43,453</td>
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<td>20.6</td>
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<td>80,483</td>
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<td>8.1</td>
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<td>1,556</td>
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<td>104,677</td>
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<td>19,926</td>
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<td>11.1</td>
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<td>404</td>
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<td>47,807</td>
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<td>Traill (ND)</td>
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<td>16.4</td>
<td>7.9</td>
<td>15,528</td>
<td>603</td>
<td>-82</td>
<td>107,287</td>
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<tr>
<td>International Falls</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Koochiching</td>
<td>5</td>
<td>23,411</td>
<td>21.7</td>
<td>9.1</td>
<td>14,165</td>
<td>248</td>
<td>-30</td>
<td>20,964</td>
</tr>
</tbody>
</table>

* < 3 percent population increase in the 1990s. Source: U.S. Bureau of the Census. County and City Data Book 1994. Washington, DC: U.S. Government Printing Office, 1994. (1) Tab 4; (2) Tab 79; (3) Tab 135; (4) Tab 136; (5) Tab 143; (6) Tab 156, A farm is any place from which $1,000 or more of agricultural products were produced and sold; (7) Tab 157; (8) Tab 161.
Duluth-Superior/Hibbing Study Area MCDs: Population Change, 1970-1980

Slope = -0.03
$R^2 = 0.0004$

Duluth-Superior/Hibbing Study Area MCDs: Population Change, 1980-1990

Slope = -0.10
$R^2 = 0.0355$
Figure 5.1—Duluth-Superior/Hibbing Area: Population Change and Distance from Center, 1970-2000. The study area had a population of 326,417 in 1970 and 330,189 in 2000—essentially no net change in thirty years. Total city population dropped from 228,103 in 1970 to 204,061, a loss of 24,042, but at the same time townships gained 27,814. There are many independent cities and towns in this study area so we did not expect a well-defined pattern of suburbanization around Duluth-Superior to dominate the scatter diagram and the regression-derived trend lines, and we were not disappointed. The slopes of the trend lines are basically zero for all three decades. This study area contains Grand Rapids, Hibbing, Virginia, and Chisholm, together with other smaller Iron Range cities and towns. Recreation-based development in scattered townships in the lake areas produced some dramatic percentage increases in the 1970s. In the 1990s, Moose Lake experienced a doubling of the prison population and an increase in the population at the psychological treatment facility located there. Beyond these exceptions, the study area population remained relatively stable.
Figure 5.2—Duluth-Superior/Hibbing Area: Population Change, 1970-2000. The Duluth-Superior Metropolitan Statistical Area (MSA) serves as the study area focused on the regional center and central cities of Duluth-Superior. Hibbing was originally selected as one of our sample regional centers, but Hibbing’s commuting field lies wholly within the Duluth-Superior MSA so the pair of overlapping commuting fields was regarded as a single study area. Duluth is the key city for which the scatter diagrams were constructed. The 5-county area (3 in Minnesota: Itasca, St. Louis, Carlton) contains the Mesabi Iron Range and Vermilion Iron Range, plus extensive lake-based recreational areas and forest products industry in and around Itasca County and Grand Rapids. The closing of the U.S. Air Force base in Duluth, ups and downs of the mining industry, closing of the U.S. Steel plant, and fluctuations in the national economy all contributed to major declines in the cities in the 1970s and 1980s while townships grew from suburbanization and recreational developments in lake areas. In the 1990s populations more or less stabilized; range cities continued to lose, but big cities, their suburbs and most of the townships had modest gains. During the three-decade study period, population of area cities dropped by 24,042, but township populations rose by 27,814.

Figure 5.3—Duluth-Superior/Hibbing Area: Change in Average Annual Daily Traffic, 1980s and 1990s. US-53 runs north from Duluth to the Mesabi Range then on to International Falls. US-2 is the main route from Duluth to Grand Rapids and Bemidji. Traffic loads across the area are modest, with slight gains in AADT in the 1980s on some segments, and declines on others especially on the Iron Range. AADT increases are typical in the 1990s, with greatest gains around Duluth, Grand Rapids, and among the Range towns.
Duluth-Superior Study Area:
Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Duluth-Superior Study Area:
Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
Grand Forks-E. Grand Forks Study Area MCDs:
Population Change, 1970-1980

Slope = -0.29
R² = 0.0243

Grand Forks-E. Grand Forks Study Area MCDs:
Population Change, 1980-1990

Slope = -0.13
R² = 0.0216
Figure 5.4—Grand Forks-East Grand Forks Area: Population Change and Distance from Center, 1970-2000. The city of Grand Forks, ND (49,321 in 2000) is the dominant center in this study area and with its twin city, East Grand Forks, MN (7,501), dominates the surrounding agricultural areas and farming centers of the Red River Valley. The 7-county study area had a population of 138,892 in 1970, gained 4,684 in the 1970s, then began losing—2,859 in the 1980s and another 7,676 in the 1990s. Grand Forks managed to increase in population throughout the three decades; East Grand Forks expanded until the 1990s when it lost 1,157. Study-area cities gained population in the 1970s and 1980s while townships lost. In the 1990s both sets of places were losing population. Slopes of the trend lines have the expected negative slopes in all cases, but as a practical matter they are close to zero.
Grand Forks-East Grand Forks Study Area 1970-1980

Grand Forks-East Grand Forks Study Area 1980-1990
Figure 5.5—Grand Forks-East Grand Forks Area: Population Change, 1970-2000. This is an area of large farms, few lakes, and sparse population densities beyond the suburbs of cities and towns, with many areas of low household incomes, especially in the eastern districts. The map for the 1970s illustrates pretty clearly that most places with increasing population in the western part of the 7-county study area were cities or townships adjacent to the cities, while those losing population or showing no change were townships in interstitial areas between major centers. The closing of the U.S. Air Force base a dozen miles west of Grand Forks in the 1980s had a major negative economic and demographic impact. In the 1990s, the largest cities such as Grand Forks and Crookston (just southeast of East Grand Forks) were growing, while smaller cities and townships remote from larger centers generally show no gain or lost population.

Figure 5.6—Grand Forks-East Grand Forks Area: Change in Average Annual Daily Traffic, 1980s and 1990s. US-2 enters from Bemidji, then passes through Crookston en route west to Grand Forks. US-59 runs south from Thief River Falls to Detroit Lakes, while US-75 runs north-south through Crookston just east of the MN/ND border. In the 1980s, AADT increased on main roads in the center of the study area, while dropping along many stretches through areas of stable or declining populations in Marshall County in the north, and in Norman and Mahnomen counties in the far south. In the 1990s, most cities and towns on the Minnesota side gained population, while almost all townships were stable or lost population.
Grand Forks-E. Grand Forks Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.

1990 AADT (vehicles/day)

- ▲ 100
- ▲ 1,000
- ▲ 10,000

- Interstate, US Hwy, State Hwy
- City

Minor Civil Divisions (1980-1990)

- Light gray: Population loss or no change
- Lighter gray: Population growth ≤ 15%
- Dark gray: Population growth > 15%
Grand Forks-E. Grand Forks Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
International Falls Study Area MCDs: Population Change, 1970-1980

Distance from International Falls (miles)

Percentage population change

South Koochiching unorg. terr. (pop. 363)

Slope = -0.02
$R^2 = 0.0002$

International Falls Study Area MCDs: Population Change, 1980-1990

Distance from International Falls (miles)

Percentage population change

Slope = -0.05
$R^2 = 0.0192$
Figure 5.7—International Falls Area: Population Change and Distance from Center, 1970-2000. The study area centered on the international border city of International Falls consists solely of Koochiching County, which covers one of the poorest and most sparsely settled parts of Minnesota. The entire study area’s population of only 10,021 in 1970 rose rapidly to 16,149 in 1990 as jobs expanded, then dropped to 14,355 in 2000. International Falls dominates the study area with a population 6,703 in 2000. The other cities and towns are all under a thousand, led by Littlefork, the study area’s “second city” just southwest of International Falls, which had a population of only 680, while Big Falls at the center of the county counted only 264. During three decades of population change, there were only four instances of a city, town or township gaining population over a decade.
Figure 5.8—International Falls Area: Population Change, 1970-2000. The study area’s MCDs are few and the townships extensive, so patterns are hard to interpret. US-71 connects International Falls with Bemidji to the southwest, and along this road lie some of the area’s few cities and towns. MN-65 runs southeast through the Bois Forte (Nett Lake) Indian Reservation. Population and jobs in the area depend on fortunes of the local resource-based economy, based mainly on pulp and other forest products. When jobs are available, population rises; as they disappear, population drops. The recreation-based economy is weak due to more attractive intervening opportunities located closer to population centers in southern parts of Minnesota. The regression lines on scatter diagrams have the expected negative slopes, but they are close to zero, while correlations between distance and population change are uniformly weak.

Figure 5.9—International Falls Area: Change in Average Annual Daily Traffic, 1980s and 1990s. Major highways in the International Falls area carry modest traffic loads, except for the route east of International Falls to recreation areas on Rainy Lake, and southeast on US-53 to the Iron Range and Duluth. AADT increased on almost all segments in the 1980s, a decade when population throughout the study area was declining except in International Falls. In the 1990s, when all places except the township surrounding International Falls had stable or declining populations, most highway routes had only small gains in AADT, and a few had declines. Note that the scales of the triangles differ between the decades.
International Falls Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
International Falls Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
Notes

Chapter 6

NORTHERN AREAS OF MODERATE TO FAST GROWTH IN THE 1990s

Population and Economic Trends

There are six study areas located in the northern part of the state that gained population at a rate of at least 3 percent during the 1990s: Bemidji, Brainerd, Fargo-Moorhead, Little Falls, Park Rapids, and Wadena. The Brainerd and Park Rapids located in the heart of the lake district gained 24.0 percent and 23.0 percent respectively (Table 6.1). Bemidji followed with 15.2 percent gain, then the Fargo-Moorhead area with 11.1 percent. Bemidji offers plenty of lake-based outdoor recreation, but is farther from the Twin Cities than Park Rapids or Brainerd, and distance from population centers imposes a cost. On the other hand, Bemidji is conveniently located to clientele in eastern North Dakota. The Little Falls and Wadena areas gained more than 3 percent, but trailed the others in this group.

Fargo-Moorhead is the economic capital of its region, and a major migration destination for people leaving weakening economies farther west. Agriculture remains an important element supporting the local economy (Table 6.2). Incomes in the Fargo-Moorhead, although lower than the Minnesota average, generally exceed those of the other study areas in this group.

Table 6.1—Population Change in Northern Moderate- to Fast-Growth Areas and Regional Center Key* Cities, 1990-2000

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<tr>
<td>Northern Areas: Moderate to Fast Growth (&gt;3 percent)</td>
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<tr>
<td>Bemidji</td>
<td>57,690</td>
<td>66,449</td>
<td>15.2</td>
<td>11,245</td>
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<td>Brainerd</td>
<td>78,661</td>
<td>97,550</td>
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<td>Fargo-Moorhead</td>
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<td>11.1</td>
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<td>90,599</td>
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<tr>
<td>Little Falls</td>
<td>52,967</td>
<td>56,138</td>
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<td>7,232</td>
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<td>38,139</td>
<td>4.4</td>
<td>4,131</td>
<td>4,244</td>
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* Key city identified in italics. Source: U.S. Bureau of the Census.

58
Six northern study areas experienced moderate to fast growth in the 1990s. The diagrams and maps that follow present profiles of population change related to distance from regional centers, population change by minor civil division, and changes in traffic volumes on major trunk highways serving Bemidji (Figures 6.1, 6.2, 6.3), Brainerd (Figures 6.4, 6.5, 6.6), Fargo-Moorhead (Figure 6.7, 6.8, 6.9), Little Falls (Figures 6.10, 6.11, 6.12), Park Rapids (Figures 6.13, 6.14, 6.15), and Wadena (Figures 6.16, 6.17, 6.18).

### Table 6.2—Economic Profile of Northern Moderate- to Fast-Growth Areas* and Component Counties

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<td>12,445</td>
<td>460</td>
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<td><strong>Wadena</strong></td>
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<tr>
<td>Todd</td>
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<td>18.0</td>
<td>20.1</td>
<td>12,660</td>
<td>1,946</td>
<td>-166</td>
<td>49,485</td>
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<tr>
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<td>11.6</td>
<td>12,367</td>
<td>689</td>
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* ≥ 3 percent population increase in the 1990s. Source: U.S. Bureau of the Census. County and City Data Book 1994. Washington, DC: U.S. Government Printing Office, 1994. (1) Tab 4; (2) Tab 79; (3) Tab 135; (4) Tab 136; (5) Tab 143; (6) Tab 156; A farm is any place from which $1,000 or more of agricultural products were produced and sold; (7) Tab 157; (8) Tab 161.
Bemidji Study Area MCDs: Population Change, 1970-1980

Slope = -1.26
R² = 0.2492

Bemidji Study Area MCDs: Population Change, 1980-1990

Slope = -0.57
R² = 0.1505
Figure 6.1—Bemidji Area: Population Change and Distance from Center, 1970-2000. The Bemidji study area contains three counties—Hubbard, with Bemidji as county seat, Clearwater to the west with Bagly as county seat, and Hubbard to the south, with Park Rapids as county seat. Hubbard also lies in the Park Rapids study area due to overlapping commuting fields. The 3-county area experienced vigorous population growth after 1970, expanding 48 percent to 66,449 in 2000. Bemidji’s population fluctuated only slightly over the three decades, and had 11,917 population in 2000. Cities overall gained little population over 30 years, from 18,994 in 1970 to 19,913 in 2000. Meanwhile the townships expanded populations steadily, from 25,975 in 1970 to 46,536 in 2000, an increase of 70 percent. The slopes of the trend lines are all in the expected direction, with significant correlations between distance and population change, especially in the 1970s and 1980s.
Figure 6.2—Bemidji Area: Population Change, 1970-2000.
The maps for the three decades portray virtually unremitting growth of population and evidence of land development in most parts of the study area between 1970 and 2000. Bemidji, the regional center, lies at the intersection of US-71 and US-2, with US-71 entering the area from International Falls in the northeast, then running south through Park Rapids to Sauk Rapids and Willmar. US-2 from Duluth-Superior enters from the east, and proceeds west through Bagley to Grand Forks. Most of northern Beltrami County is taken up with the Red Lake Wildlife Management Area, Red Lake Indian Reservation, and Red Lake. There are two main patterns of growth in the Bemidji study area: suburban development immediately adjacent to the main employment centers, and substantial residential development on lakeshores and near the lakes in the three counties. Almost all cities and townships in the forested and lake-dotted southern two-thirds of the study area gained population during each of the last three decades.

Figure 6.3—Bemidji Area: Change in Average Annual Daily Traffic, 1980s and 1990s. In the 1980s, AADT rose on every highway segment we examined, while population increased in more than half the townships and bigger cities and towns. In the 1990s, although population increases were common in townships and towns close to major cities, AADT dropped on almost 20 highway segments while increasing significantly in the vicinity of Bemidji.
Bemidji Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.

1990 AADT (vehicles/day)

- Δ 100
- ▲ 1,000
- ▲ 10,000

- Interstate, US Hwy, State Hwy
- City

Minor Civil Divisions (1980-1990)

- Population loss or no change
- Population growth ≤ 15%
- Population growth > 15%

Miles

64
Bemidji Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.

1998 AADT (vehicles/day)
- 100
- 1,000
- 10,000
- Interstate, US Hwy, State Hwy
- City

Minor Civil Divisions (1990-2000)
- Population loss or no change
- Population growth ≤ 15%
- Population growth > 15%
Brainerd Study Area MCDs: Population Change, 1970-1980

Slope = -0.36
R² = 0.0314

Brainerd Study Area MCDs: Population Change, 1980-1990

Slope = -0.31
R² = 0.0724
Figure 6.4—Brainerd Area: Population Change and Distance from Center, 1970-2000. The setting of the Brainerd study area resembles Bemidji’s in many ways. Here is a 3-county area (Aiken, Cass, Crow Wing) relatively close to the Twin Cities and located in the heart of central Minnesota’s lake district. The study area with 97,550 persons in 2000 had expanded more than 55 percent since 1970, increasing every decade with almost all of the increase occurring in surrounding townships and cities other than Brainerd itself. In 2000 the city of Brainerd, the regional center, had a population of 13,178, while the townships contained 57,447. In each decade, the slope of the line reflecting the relationship between population change and distance from Brainerd was close to zero, but negative as expected. Scattered outliers in each decade diluted the correlations, but visually the trend downward and to the right is unmistakable, especially in the 1980s and 1990s.
Figure 6.5—Brainerd Area: Population Change, 1970-2000. Since early days of Minnesota history and development Brainerd has been a regional center and transportation crossroads. One of the main trails carrying merchandise trade out of the Twin Cities ran northwest through the Big Woods to Monticello, St. Cloud, Sauk Rapids, Little Falls, and Fort Ripley, through Brainerd to Leech Lake and then westward. Later the Northern Pacific (NP) route from the Twin Cities to Brainerd connected with the NP route from Duluth west to Detroit Lakes, Moorhead and the Dakotas. In the 20th century, MN-210 from Duluth passes through the Iron Range towns of Crosby-Ironton through Brainerd before heading west to Fergus Falls. MN-65 connects eastern Aitkin County with Northeast Minneapolis, while US-169 links the western side of Mille Lacs with North Minneapolis. MN-25 south of Brainerd goes to St. Cloud, while MN-371 from Bemidji runs southwest from Brainerd to Little Falls. Early industrial activity based on mining and forestry has largely been supplanted in recent decades by lake-based recreation and year-round recreational development, with the traditional northwest orientation of Twin Cities vacationers continuing and expanding activity in the Brainerd area up to the present time.

Figure 6.6— Brainerd Area: Change in Average Annual Daily Traffic, 1980s and 1990s. Expansion of outdoor recreation activity in the Brainerd area has meant steady increases in AADT on almost all main highway segments in the 1980s and 1990s. Steady population increases in almost all the towns and townships in the area in each of the last three decades added AADT in the 1980s and 1990s. Heaviest loads and greatest increases have been in and around the city of Brainerd, which is not only a destination for local residents living throughout the area, but a major intersection that through traffic copes with.
Brainerd Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.

1990 AADT (vehicles/day)

- 100
- 1,000
- 10,000

- Interstate, US Hwy, State Hwy
- City

Minor Civil Divisions (1980-1990)

- Population loss or no change
- Population growth ≤ 15%
- Population growth > 15%
Brainerd Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.

1998 AADT (vehicles/day)
Δ 100
Δ 1,000
Δ 10,000

Interstate, US Hwy, State Hwy
City

Minor Civil Divisions (1990-2000)

- Population loss or no change
- Population growth ≤ 15%
- Population growth > 15%

Slope = -0.13
R² = 0.0067

Fargo-Moorhead Study Area MCDs: Population Change, 1980-1990

Slope = -0.22
R² = 0.0351
The 6-county Fargo-Moorhead MSA, including four in Minnesota (Becker, Clay, Norman, Wilton) has been a vigorous growth center in a region of eastern North Dakota and northwestern Minnesota that has been in general population decline, but the growth is concentrated in the two main cities. The population of the study area reached 236,945 in 2000, up almost 31 percent in three decades, with the cities of Fargo (90,599) and Moorhead (32,177) accounting for 52 percent of the entire study area population, and 71 percent of study area population growth over the three decades. Meanwhile the townships across the 6 counties contained 51,299 population in 1970, and 49,757 in 2000. The scatter diagrams relating distance from Fargo with rates of population change yield trend lines sloping in the expected directions—downward to the right, but widely deviant cases dilute correlation measures so they are little different from zero.

Figure 6.7—Fargo-Moorhead Area: Population Change and Distance from Center, 1970-2000. The 6-county Fargo-Moorhead MSA, including four in Minnesota (Becker, Clay, Norman, Wilton) has been a vigorous growth center in a region of eastern North Dakota and northwestern Minnesota that has been in general population decline, but the growth is concentrated in the two main cities. The population of the study area reached 236,945 in 2000, up almost 31 percent in three decades, with the cities of Fargo (90,599) and Moorhead (32,177) accounting for 52 percent of the entire study area population, and 71 percent of study area population growth over the three decades. Meanwhile the townships across the 6 counties contained 51,299 population in 1970, and 49,757 in 2000. The scatter diagrams relating distance from Fargo with rates of population change yield trend lines sloping in the expected directions—downward to the right, but widely deviant cases dilute correlation measures so they are little different from zero.
Figure 6.8—Fargo-Moorhead Area: Population Change, 1970-2000. Three major highways and several minor trunk routes intersect at the Fargo-Moorhead regional center near the southern end of the Red River Valley. I-29 from Grand Forks runs parallel with the west side of the North Dakota-Minnesota border, entering from the north and proceeding south through Fargo to Sioux Falls. US-75 runs along the Red River parallel to I-29 just east of the border, through Moorhead then south through Breckenridge. US-10 from Wadena and Detroit Lakes runs through Moorhead, Fargo and West Fargo then connects with I-94 and proceeds west across North Dakota. I-94 enters the area from Alexandria and other points to the southeast, then joins US-10 on the west side of Fargo. The two largest cities outside Fargo-Moorhead are West Fargo, adjacent to Fargo's western city limits, and Detroit Lakes 45 miles east of Moorhead. Maps for the three decades reveal consequences of a weak farm economy and steady farm consolidation in and near the Red River Valley, especially on the North Dakota side of the border, but at the same time show evidence of suburbanization around major cities and population growth in the lake districts, especially in Becker County in and around Detroit Lakes. Townships near the major cities experienced regular population increases in all decades. Detroit Lakes lost population in the 1980s grew from 6,635 in 1990 to 7,348 in 2000 while most nearby cities and towns were growing as well.

Figure 6.9—Fargo-Moorhead Area: Change in Average Annual Daily Traffic, 1980s and 1990s. The AADT on major Minnesota highway segments in the study area increased substantially during the 1980s along US-10 from Fargo-Moorhead toward Wadena and Detroit Lakes, and along I-94 to Fergus Falls and Alexandria. Meanwhile AADT dropped on almost 20 highway segments in northern Norman County and southern Wilkin County. In the 1990s, heavily traveled highway segments near Fargo-Moorhead and around Detroit Lakes got even heavier, partly from through traffic, and partly from local traffic generated by increased populations in the dispersed townships near growing cities and towns.
Fargo-Moorhead Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Fargo-Moorhead Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Little Falls Study Area MCDs: Population Change, 1970-1980

Distance from Little Falls (miles)

Slope = 0.01
R² = 2 x 10⁻⁵

Turtle Creek twp. (pop. 371)

Little Falls Study Area MCDs: Population Change, 1980-1990

Distance from Little Falls (miles)

Slope = -0.83
R² = 0.0777

Culdrum twp. (pop. 487)
Figure 6.10—Little Falls Area: Population Change and Distance from Center, 1970-2000. The 2-county (Morrison, Todd) Little Falls study area appears to have undergone two simultaneous population shifts during the three decades ending in 2000. One was a decline in farm-based and small-town populations, probably due to children of the Baby Boom maturing and leaving home and as farms consolidated. The other was expansion of the Minneapolis-St. Paul and St. Cloud metropolitan areas with suburban and exurban growth and development that replaced those who were leaving. The result was a net decline in city and township populations in the 1980s followed by net gains in the 1990s. Overall, study area population increased from 48,523 in 1970 to 56,138 in 2000. Scatter diagrams and trend lines reveal no distinct patterns except that most places failed to change much during each of the three decades, and correlation coefficients are close to zero. Todd County, the western portion of the study area, also forms part of Wadena’s commuting field, so populations in MCDs close to that regional center undoubtedly are influenced by its proximity. Meanwhile, St. Cloud lying just 30 miles south of Little Falls, evidently makes its presence felt in the MCDs that gained population in southern Morrison County, especially during the 1990s.
At the time of earliest permanent European-American settlement in Minnesota, three broad vegetation patterns covered the area of what would become the state. The northeast third was covered by forests of pine, spruce, fir and bog conifers, while prairie covered the far western and southwestern regions. Between these two zones a strip of deciduous hardwood forest of maple, basswood, oak and oak savanna stretched from west of Red Lake and the eastern edge of the Red River Valley, southeast through Todd and Morrison Counties, the Twin Cities area, and into southeastern Minnesota. The Mississippi River ran north-south through Morrison County, and Little Falls on the river became an important water power and river crossing site. Early trails from Duluth to Long Prairie crossed the river at Little Falls, and a federal trail from St. Cloud to Ft. Ripley passed through the town. Later the city became an important node on the Northern Pacific railroad, setting the stage for its regional-center status on today’s highway network. Today, MN-27 connects Little Falls with Mille Lacs and Duluth to the east, and Long Prairie and Alexandria to the west, while US-10 and MN-371 run to Motley and Brainerd to the north, and St. Cloud and the Twin Cities to the southeast.

The city of Little Falls lost population in the 1970s and 1980s while nearby townships gained. Rapid population increases in almost all MCDs in the Little Falls study area in the 1970s were followed by increases in AADT on all selected segments of main highways in the 1980s. Traffic volumes from St. Cloud are the heaviest, not only from through traffic but from local traffic generated by growing and increasingly dispersed local population. Traffic on MN-371 north to Brainerd and Leech Lake, and northwest on US-10 toward Detroit Lakes increased sharply during the decade.
Little Falls Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.

1990 AADT (vehicles/day)

- ▲ 1,000
- ▲ 5,000
- ▲ 10,000

Interstate, US Hwy, State Hwy
City

Minor Civil Divisions (1980-1990)

- ○ Population loss or no change
- □ Population growth ≤ 15%
- □ Population growth > 15%

Legend:

- To Wadena
- To Brainard
- To Alexandria
- To St. Cloud

Distance Scale:

0 5 10 20 Miles
Little Falls Study Area:  Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
Figure 6.13—Park Rapids Area: Population Change and Distance from Center, 1970-2000. The Park Rapids study area consists of Hubbard County, which also forms part of the commuting field of Bemidji 50 miles to the north. Area population increased almost 75 percent during the three decades, from 10,583 in 1970 to 18,376 in 2000. Park Rapids and the other cities and towns added just under 500 population over the period, from 3,702 to 4,197, while the township populations more than doubled, from 6,881 to 14,179. Scatter diagrams reveal no relationship between distance from Park Rapids and population changes—if anything the trends are the opposite of those expected. Slopes of regression lines confirm the fact that something else accounts for the changes. That something else are the lakes that support recreation and retirement living throughout the area, a process that was going strong in the 1970s, slowed considerably during the economic downturn in the 1980s, then boomed in the 1990s when study area population jumped 23 percent.
Park Rapids Study Area 1970-1980

Park Rapids Study Area 1980-1990
Figure 6.14—Park Rapids Area: Population Change, 1970-2000. The commuting field and outdoor recreation-retirement area centered on Park Rapids consists solely of Hubbard County, an area of second- and third-growth pine forest and dotted with the popular Crow Wing chain of lakes. As a regional center situated on US-71 midway between Bemidji to the north and Wadena to the south, Park Rapids competes with them as well as with Detroit Lakes 40 miles west on MN-34, Walker to the northeast on the same route, and Brainerd about 75 miles southeast. Almost all cities, towns and townships in the study area gained population during each of the three decades, and in most cases by over 15 percent per decade. Although the northern parts of Hubbard County are 200 miles from the Twin Cities, US-10 provides good access to Wadena, from which US-71 runs north to Park Rapids and serves the rest of the area.

Figure 6.15—Park Rapids Area: Change in Average Annual Daily Traffic, 1980s and 1990s. All major highways in the study area carried modest AADT in the 1980s, with highest volume of traffic on the east side of Park Rapids en route to Walker and Leech Lake. A large majority of the townships gained population in the 1970s and 1980s, with all segments of main highways carrying increased AADT, but in all cases traffic volumes remaining modest. In the 1990s, even more townships gained population than in the 1980s, but AADT continued at modest levels on all main highway segments; in three cases they declined.
Park Rapids Study Area:
Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.

1990 AADT (vehicles/day)

Population loss or no change
Population growth ≤ 15%
Population growth > 15%
Park Rapids Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
Wadena Study Area MCDs: Population Change, 1970-1980

Distance from Wadena (miles)

Percentage population change

Staples (pop. 264)
Turtle Creek twp. (pop. 371)

Slope = -0.00
R² = 6 x 10⁻⁷

Wadena Study Area MCDs: Population Change, 1980-1990

Distance from Wadena

Percentage population change

Staples (pop. 397)
Bruce twp. (pop. 602)

Slope = 0.07
R² = 0.0039
Figure 6.16—Wadena Area: Population Change and Distance from Center, 1970-2000. The 2-county Wadena commuting field is a “modest-to-fast growth northern study area, but its population has fluctuated over the three decades, and trends have been inconsistent. With 34,526 persons in 1970, it rose sharply to 39,183 in the 1970s, but then retreated in the 1980s to 36,539. By 2000 population of the area had bounced back to 38,139. Cities and townships gained population in the 1970s, lost in the 1980s, then gained again in the 1990s. Scatter diagrams reveal little change up or down in the MCDs in the study area, and the slopes of the regression lines say little about trends. There is certainly no evidence of the expected relationship between distance from the regional center and population change in MCDs throughout the study area; by the 1990s the slope is positive, meaning that the remote places on average gained the most (or lost the least). On the other hand, the proximity of Wadena and the rest of the study area to nearby regional centers makes it hard to distinguish the effect of Wadena from the effects of other centers of influence.
Figure 6.17—Wadena Area: Population Change, 1970-2000. The Wadena study area consists of two counties: Wadena County on the north, and Todd County on the south (which is shared with the Brainerd study area). Wadena lies on the historic boundary between the pine forests to the northeast and the deciduous hardwood forest to the west and south. This regional center has been an important transportation node since the 19th century. By 1880 the Northern Pacific line connecting Duluth with Detroit Lakes and the Dakotas passed through Wadena. In the 1920s the Great Northern line from the Twin Cities, St. Cloud, and Long Prairie passed through Wadena en route to Park Rapids, Walker, and Bemidji and thence to Crookston and North Dakota. As a major transportation center for east-west and north-south traffic for more than a century, Wadena has been well positioned for doing business as a regional center. Today’s highways reinforce Wadena’s earlier transportation advantages. US-10 and US-71 intersect at Wadena, while minor routes radiate outward as well. Almost all parts of the study area gained population in the 1970s, then the growth pattern reversed in the 1980s. In the 1990s, patterns of growth and decline are mixed.

Figure 6.18—Wadena Area: Change in Average Annual Daily Traffic, 1980s and 1990s. The four areas of population gain in the 1980s are nearby the city of Wadena, which lost population in the 1980s while the surrounding township gained; townships in far northern Wadena County close to Park Rapids; townships in the east close to Brainerd; and in the southeast east and south of Long Prairie where townships appear to be absorbing exurban spillover from nearby Little Falls and Sauk Centre. AADT rose on every measured highway segment in the 1980s. In the 1990s, seven segments lost AADT, mainly on highway segments midway between cities and towns.
Wadena Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.

1990 AADT (vehicles/day)

- △ 1,000
- △ 5,000
- △ 10,000

- Interstate, US Hwy, State Hwy
- City

Minor Civil Divisions (1990-2000)

- Light gray: Population loss or no change
- Light yellow: Population growth ≤ 15%
- Dark yellow: Population growth > 15%
Wadena Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.

1998 AADT (vehicles/day)
- Δ 1,000
- Δ 5,000
- Δ 10,000
- Interstate, US Hwy, State Hwy
- City

Minor Civil Divisions (1990-2000)
- Light gray: Population loss or no change
- Light gray: Population growth ≤ 15%
- Gray: Population growth > 15%

To Fargo-Moorhead

To Brainerd

To Sauk Centre

0 5 10 20 30 Miles
Chapter 7

SOUTHERN AREAS OF SLOW GROWTH OR DECLINE IN THE 1990s

Population and Economic Trends

Five study areas each had less than a 3 percent increase in population in the 1990s: Albert Lea, Marshall, Montevideo, New Ulm and Worthington (Table 7.1). In fact, all but the New Ulm area actually lost population over the decade. These regional centers and their surrounding areas are located on the margins (New Ulm, Albert Lea) or outside (Marshall, Montevideo, Worthington) Minnesota’s primary zone of population increase and economic advance. With the exception of Montevideo, the key cities managed to increase in population but overall the regional centers and their commuting fields struggled in the 1990s.

The economic profile of these five study areas reveals that in every county median household income and per capita personal income fell below the state average (Table 7.2). With the exception of Freeborn (Albert Lea) and Nicollet (New Ulm) counties, agriculture is a dominant economic activity so difficulties in the farm economy and substantial farm consolidation in these five study areas may go a long way in explaining why population and income growth rates lag state averages. In cases where manufacturing accounts for an important share of employment, the manufacturing industries are often based on processing farm output for weak and highly competitive markets.

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* Key city identified in italics. Source: U.S. Bureau of the Census
Southern Areas of Slow Growth or Decline (< 3% growth in 1990s)

Five southern study areas experienced slow growth or decline in the 1990s. The diagrams and maps that follow present profiles of population change related to distance from regional centers, population change by minor civil division, and changes in traffic volumes on major trunk highways serving Albert Lea (Figures 7.1, 7.2 and 7.3), Marshall (Figures 7.4, 7.5, 7.6), Montevideo (Figures 7.7, 7.8, 7.9), New Ulm (Figures 7.10, 7.11, 7.12), and Worthington (Figures 7.13, 7.14, 7.15).

### Table 7.2—Economic Profile of Southern Slow-Growth or Declining Areas * and Component Counties

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* < 3 percent population increase in the 1990s. Source: U.S. Bureau of the Census. County and City Data Book 1994. Washington, DC: U.S. Government Printing Office, 1994. (1) Tab 4; (2) Tab 79; (3) Tab 135; (4) Tab 136; (5) Tab 143; (6) Tab 156, A farm is any place from which $1,000 or more of agricultural products were produced and sold; (7) Tab 157; (8) Tab 161.

Distance from Albert Lea (miles)

Percentage population change

Slope = 0.08
R^2 = 0.0004

Clarks Grove (pop. 620)
Albert Lea twp. (pop. 1,675)


Distance from Albert Lea (miles)

Percentage population change

Slope = -0.43
R^2 = 0.0242

Clarks Grove (pop. 675)
Geneva (pop. 444)
Manchester (pop. 69)
Twin Lakes (pop. 154)
Figure 7.1—Albert Lea Area: Population Change and Distance from Center, 1970-2000. The Albert Lea study area consists of Freeborn County, and is one of four sample southern areas that experienced slow growth or decline in the 1990s. In Albert Lea’s case, study area population has been declining steadily since 1970 as its trade-center function and industrial base weakened and nearby farm-based populations declined. From 38,064 in 1970 the county’s population dropped to 36,329 in 1980, to 33,954 in 1990, and to 32,584 in 2000. The city of Albert Lea had a population of 19,418 in 1970, which dropped to 18,356 in 2000 while the other cities and towns in the county saw their combined populations rise slightly from 4,447 to 4,566. The population of the townships was 14,199 in 1970, then down to 9,662 in 2000. Several things appear to be occurring in Freeborn County. Farm consolidation brought about a steady decline in farm households and farm populations. Meat packing and low-wage food processing in Albert Lea have become increasingly mechanized, thereby reducing the need for workers while some of this activity has shifted to other states. Meanwhile, some of the townships have gained suburbanites while losing farm households. The scatter diagrams show no consistent patterns or trends relating distance from Albert Lea with population change in the other MCDs. Only one of the regression lines displays the anticipated negative slope.
Albert Lea Study Area 1970-1980

Albert Lea Study Area 1980-1990
Figure 7.2—Albert Lea Area: Population Change, 1970-2000. The commuting field and study area centered on Albert Lea consists solely of Freeborn County. The city has been one of southern Minnesota’s most important industrial and transportation centers for most of its history. Located in the heart of the state’s most productive agricultural zone, several of the state’s most important railroads served the city and its agricultural processing industries in 1920 including the Rock Island Line, the Milwaukee Road, the Illinois Central, and the Minneapolis & St. Louis. Trunk highways followed the railroads, reinforcing earlier centrality for the city, and today I-35 and I-90 intersect at Albert Lea. But farm consolidation and sharp reductions in employment in food processing industries have left their mark throughout Freeborn County during each decade since 1970 as almost all cities, towns and townships steadily lost population. In the 1990s, Albert Lea showed a gain as did an adjacent township and some towns along the main highways.

Figure 7.3—Albert Lea Area: Change in Average Annual Daily Traffic, 1980s and 1990s. A substantial fraction of AADT throughout the study area is undoubtedly through traffic, although a large truck center has developed on the north side of the city. I-35 from the Twin Cities to Des Moines and points south carries a steadily increasingly AADT through the Albert Lea area, while I-90 between Rochester and Worthington carries similar through-traffic loads. With the study area and the city of Albert Lea steadily losing population, additional AADT from locally generated sources is probably modest compared with the through traffic. In the 1980s, all measured highway segments had increases in AADT—except one. In the 1990s, most of the main highway segments had increases, and on the busy Interstates the increases were substantial, while five segments had declines in AADT.
Albert Lea Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Albert Lea Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicated declines in AADT.

Distance from Marshall (miles)

Percentage population change

Slope = -0.05
$R^2 = 0.0005$

St. Leo (pop. 147)


Distance from Marshall (miles)

Percentage population change

Slope = -0.25
$R^2 = 0.0488$

Figure 7.4—Marshall Area: Population Change and Distance from Center, 1970-2000. The 5-county Marshall commuting field, located in a region of languishing farm incomes and farm consolidation in far southwestern Minnesota, is another of the slow-growth or declining study areas. It lost population in each of the last three decades, dropping from 78,956 in 1970 to 68,914 in 2000. Although the study area overall lost population, the cities gained while the farm-based townships lost. The city of Marshall gained population slowly but steadily in each decade, from 9,886 in 1970 to 12,735 in 2000. The set of cities in the study area, including Marshall, gained modestly over the three decades, but the townships lost each decade—a total of 11,396 persons over 30 years. The scatter diagrams and trend lines reveal a slight relationship between distance from the regional center and rates of population gains and losses, but although each of the slopes is negative, the overall correlations between distance and rate of change are close to zero.
Figure 7.5—Marshall Area: Population Change, 1970-2000. The 5-county Marshall study area is classic farm country on the Upper Midwest dry prairie. Farm consolidation has been underway for years, farm populations have declined, and almost all of the agricultural townships lost population in each of the last three decades. In its earlier agricultural heyday, Marshall was an important node on the Chicago & Northwestern Railroad. Later, a dense network of highways served this area of diminishing population and growing towns and cities. US-59 connects Marshall with Montevideo to the north and Slayton and Worthington to the south. MN-19 runs straight west of Marshall toward Brookings and east to Redwood Falls. MN-23 arrives from Pipestone in the southwest and continues northeast to Willmar. Aside from a few lakes in northern Murray County, which probably contributed to population gain there in the 1990s, the townships in the study area that gained are mostly on main roads close to cities that were growing, although many other townships similarly located continued to lose population.

Figure 7.6—Marshall Area: Change in Average Annual Daily Traffic, 1980s and 1990s. Population declines along with declines in farm incomes in the 1980s show up in AADT patterns for the decade; increases were modest even on the most important routes, and 20 segments had declines in AADT. The situation was different in the 1990s as township populations continued dropping while the larger cities and towns across the study area increased. Meanwhile AADT in the 1990s rose, some by 50 percent or more around Marshall and on highways to the east. At the same time, a dozen other highway segments mainly in southern Murray County and in the northwest corner of the study area carried reduced AADT by 1998.
Marshall Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Marshall Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
Montevideo Study Area MCDs: Population Change, 1970-1980

Slope = -0.44
R² = 0.0217

Montevideo Study Area MCDs: Population Change, 1980-1990

Slope = -0.32
R² = 0.0983
Figure 7.7—Montevideo Area: Population Change and Distance from Center, 1970-2000. The 3-county Montevideo study area has been in a declining situation similar to that of the Marshall area. As difficult as the past three decades have been for the Marshall area, the farming areas around Montevideo have had an even harder time. The overall population dropped each decade from 40,691 in 1970 to 32,235 in 2000. Most of the population loss occurred in the agricultural townships, which declined by almost a third, from 19,650 to 12,905. The cities shared in the loss, declining from 21,041 to 18,981, including Montevideo itself which had 5,661 in 1970, gained a bit in the 1980s, then declined in the next two decades to 5,346 by 2000. The scatter diagrams and trend lines show a clear correspondence each decade between distance from Montevideo and population change, and the correlations are significant even though they are small.
Montevideo Study Area 1990-2000

Figure 7.8—Montevideo Area: Population Change, 1970-2000. Montevideo is located in far western southern Minnesota on the east side of the Minnesota River, which forms the boundary between Chippewa County to the east and Lac Qui Parle and Yellow Medicine Counties west of the river. Montevideo is a regional center in a low-income and increasingly sparsely settled part of the state. As a regional center it competes with the more robust economies in and around Willmar, Litchfield and Hutchinson to the east and northeast, Benson and Morris to the north, and Marshall to the south. US-212 and MN-7 connect Montevideo with the Twin Cities to the east, while US-212 continues west to Watertown, and US-59 links Montevideo with Marshall to the south. In the days of railroading, the site of Montevideo was never as important as Granite Falls 13 miles southeast along the Minnesota River Valley. Although the Milwaukee Road from Minneapolis arrived at the Minnesota River at Granite Falls, then followed the river valley northwest through Montevideo to Ortonville and Wheaton before making an easy crossing into South Dakota, the Great Northern crossed the Milwaukee Road and the river at Granite Falls, thereby endowing that town with superior centrality. With the exception of a handful of townships and even fewer cities and towns, population losses were common throughout the study area during all three decades.

Figure 7.9—Montevideo Area: Change in Average Annual Daily Traffic, 1980s and 1990s. As the population of the study area dropped by more than 20 percent from 1970 to 2000, most of the loss occurred in the agricultural townships, which declined by almost a third. The agricultural situation in the 1980s was especially difficult for this area, and AADT dropped on 23 highway segments throughout the area. In the 1990s, almost all places—cities, towns and townships—had stable or declining populations, including the city of Montevideo and most of its surrounding townships, but AADT picked up, especially in the eastern portions of the area. The 7 highway segments that recorded drops in AADT are in the western part of the area.
Montevideo Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Montevideo Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
New Ulm Study Area MCDs: Population Change, 1970-1980

Distance from New Ulm (miles)

Percentage population change

Slope = -0.40
$R^2 = 0.0376$

New Ulm Study Area MCDs: Population Change, 1980-1990

Distance from New Ulm (miles)

Percentage population change

Slope = 0.40
$R^2 = 0.0149$
Like the Mankato area, the New Ulm study area consisting of Brown and Nicollet counties added population only modestly between 1970 and 2000—from 53,405 to 56,682. The city of New Ulm itself grew little over the same period—from 13,051 to 13,594, but cities and towns across the study area including New Ulm advanced from 37,337 to 43,777 while township populations dropped from 16,068 to 12,905. In other words, the pattern here is similar to that around the Mankato area, with farm populations declining faster than they are being replaced by suburbanites. In the 1970s and again in the 1990s there is a well-defined relationship between distance from New Ulm and population change in the MCDs throughout the study area. In the 1980s, when there was almost no significant population change in the MCDs, a few deviant cases (Belgrade and Oshawa townships) distorted the regression line to a positive slope, but the typical situation was one of no relationship between distance and population change.

Figure 7.10—New Ulm Area: Population Change and Distance from Center, 1970-2000.
New Ulm Study Area 1970-1980

New Ulm Study Area 1980-1990
Figure 7.11—New Ulm Area: Population Change, 1970-2000. The New Ulm study area consists of Nicollet and Brown counties. Nicollet County is shared with the Mankato-North Mankato study area. New Ulm is the seat of Brown County. The site of New Ulm lies 30 miles upstream from Mankato at the confluence of the Minnesota and Cottonwood rivers, on high land and river terraces that once formed an island in glacial River Warren. The city of New Ulm was founded and developed in the mid-1850s by German land societies based in Chicago and Cincinnati. It was served by a single line of the Chicago and Northwestern railroad, which passed through from Mankato en route to Marshall and Lake Benton but was never an important rail node. Today, US-14 enters the area from Mankato on the east, and proceeds westward toward Brookings, SD. MN-15 enters from Hutchinson about 50 miles to the north, and connects New Ulm with Fairmont, about 50 miles south. The other local competitor is St. Peter, straight east of New Ulm and the seat of Nicollet County. In each of the three decades illustrated on the maps, the townships that gained population lay close to the major cities, while the townships that lost were relatively remote from the major centers of New Ulm, Mankato, and St. Peter.

Figure 7.12—New Ulm Area: Change in Average Annual Daily Traffic, 1980s and 1990s. Like the Mankato area immediately to the east, the New Ulm area added population modestly but steadily between 1970 and 2000. Declines in most of the townships in each decade were more than offset by gains in cities and towns. It is fairly clear from the maps that township gains in the 1980s are due to suburban and exurban development from Mankato and North Mankato, while in the 1990s the township population growth occurred at the edges of New Ulm. Modest growth in AADT on most highway segments during both decades is consistent with the patterns of population change, with faster growth of AADT in the 1990s occurring on highways serving eastern parts of the area.
New Ulm Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
New Ulm Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
Worthington Study Area MCDs: Population Change, 1970-1980

Distance from Worthington (miles)

Percentage population change

Slope = 0.15
R² = 0.0152

Worthington twp. (pop. 433)

Hadley (pop. 137)

Worthington Study Area MCDs: Population Change, 1980-1990

Distance from Worthington (miles)

Percentage population change

Slope = -0.25
R² = 0.0524

Kinbrae (pop. 18)
Worthington is the regional center for a 4-county (including Osceola County in Iowa) area in the southwestern corner of Minnesota. Population trends in the area are the consequence of a weak agricultural economy and associated population relocations like those in the Marshall and Montevideo areas during the last three decades, namely rapid population loss from agricultural townships and modest gains in some of the cities, but not enough to offset the heavy losses in farming areas. The study area lost almost one in six residents after 1970, dropping from 57,869 to 48,268 in 2000, but the townships lost at almost twice that rate, dropping from 31,574 to 22,022. The cities in the area gained in the 1970s as the townships lost, but during the agricultural depression of the 1980s all classes of places and Worthington itself lost population. In the 1990s, city populations gained slightly while farming townships continued their slide. The city of Worthington had 9,825 population in 1970, and 11,283 in 2000. The scatter diagrams reveal that almost all places lost population in all three decades, but no pattern of correspondence with distance from Worthington is evident.
Worthington Study Area 1970-1980

Worthington Study Area 1980-1990
Figure 7.14—Worthington Area: Population Change, 1970-2000. The Worthington area illustrates how excellent transportation facilities cannot by themselves bring about population growth and economic prosperity. The area has good highway facilities, but is losing population steadily. During the railroad era, Worthington was well served by the Chicago & Northwestern Railroad and the Rock Island Line. In recent years, I-90 runs east toward Albert Lea and west to Sioux Falls. US-59 comes down from Marshall and heads south into Iowa. MN-60 connects Worthington with Mankato to the northeast and Iowa to the southwest. The area’s problem is not the availability of high quality highways; it is the fact that the agriculture-based economy of the region is weak. Commodity prices have been low for years, and as farms consolidate those that remain are often profitable but insufficient in number to continue to support the businesses that depend on them. The result has been steady population losses in the townships and smaller cities and towns.

Figure 7.15—Worthington Area: Change in Average Annual Daily Traffic, 1980s and 1990s. The study area lost almost one in six residents between 1970 and 2000, but the townships lost at almost twice that rate. Cities and towns in the area gained in the 1970s as townships lost, but during the agricultural depression of the 1980s all classes of places and Worthington itself lost population. AADT volumes on main highways in the study area were modest throughout the 1980s with gains on some segments of major highways and losses on only seven. In the 1990s, the long period of population and agricultural decline is more noticeable in levels of AADT, especially in Murray County in the north, lying midway between Marshall and Worthington and unable to compete with them.
Worthington Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Worthington Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
Chapter 8

SOUTHERN AREAS OF MODERATE TO FAST GROWTH IN THE 1990s

Population and Economic Trends

Five southern Minnesota regional centers with their commuting fields posted solid population growth of well over 3 percent in the 1990s: Alexandria, Mankato-North Mankato, Rochester, Waseca, and Willmar (Table 8.1). Each study area is located within Minnesota’s crescent of growth, with their performances helping to define that zone of population expansion and economic advance. The Alexandria area added population at the fastest rate among the five, posting a gain of well over 11 percent, but the city of Rochester was the clear leader among the centers themselves, adding over 15,000 persons for a gain of over 21 percent in just ten years.

The economies of these study areas appear to be diversified. Household incomes and per capita incomes are often close to the state average, and in a few cases they exceed the state average (Table 8.2). Agriculture is important in all of the counties included in these five study areas, but manufacturing and services dominate these regional economies. In addition, population densities in these study areas are generally higher than in the study areas in the other three categories. High population densities, population increases, and economic prosperity occur together.

Table 8.1—Population Change in Southern Moderate- to Fast-Growth Areas and Regional Center Key* Cities, 1990-2000

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* Key city identified in italics. Source: U.S. Bureau of the Census.
Southern Areas of Moderate to Fast Growth (≥3% growth in 1990s)

Five southern study areas experienced moderate to fast growth in the 1990s. The diagrams and maps that follow present profiles of population change related to distance from regional centers, population change by minor civil division, and changes in traffic volumes on major trunk highways serving Alexandria (Figures 8.1, 8.2, 8.3), Mankato-North Mankato (Figures 8.4, 8.5, 8.6), Rochester (Figures 8.7, 8.8, 8.9), Waseca (Figures 8.10, 8.11, 8.12), and Willmar (Figures 8.13, 8.14, 8.15).

Table 8.2—Economic Profile of Southern Moderate- to Fast-Growth Areas* and Component Counties

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* ≥ 3 percent population increase in the 1990s. Source: U.S. Bureau of the Census. County and City Data Book 1994. Washington, DC: U.S. Government Printing Office, 1994. (1) Tab 4; (2) Tab 79; (3) Tab 135; (4) Tab 136; (5) Tab 143; (6) Tab 156. A farm is any place from which $1,000 or more of agricultural products were produced and sold; (7) Tab 157; (8) Tab 161.

Distance from Alexandria (miles)

Slope = -1.58
R² = 0.2145

Percentage population change

Minnewaska twp. (pop. 490)

Lund twp. (pop. 323)


Distance from Alexandria (miles)

Slope = -0.59
R² = 0.1764

Percentage population change

Minnewaska twp. (pop. 490)

Lund twp. (pop. 323)
Figure 8.1—Alexandria Area: Population Change and Distance from Center, 1970-2000. The Alexandria study area consists of Pope and Douglas Counties in west central Minnesota, and is the first of the set of study areas that had moderate-to-fast growth in the 1990s. Study area population of 34,299 in 1970 rose briskly to 39,496 in the following decade, remained unchanged in the 1980s, then took off in the 1990s and reached 44,057 by 2000. In the 1970s, more than three-quarters of the population gain occurred in the townships. In the 1980s there was little change in any class of place. Then in the 1990s, over 60 percent of the study area’s population gain occurred once again in the townships. The scatter diagrams illustrate a strong and consistent statistical relationship between population change and distance from Alexandria, the regional center. In addition, the measure of correlation is robust, especially in the 1970s. Evidently over the three decades, population gains in the townships were accompanied by growth in Alexandria’s population, which rose steadily from 6,973 in 1970, to 7,608 in 1980, to 7,838 in 1990, and 8,820 in 2000.
Alexandria and the many lakes and recreation areas lying within its 2-county (Douglas in the north; Pope in the south) commuting field are easily reached today from the western Twin Cities on I-94/US-52 and MN-55. Douglas County was originally covered with oak-hickory and maple-birch forest and dotted with lakes. Pope County was originally prairie with only a few glacier-formed lakes. In earlier decades Alexandria lay on the mainline of the Northern Pacific railroad from St. Cloud and the Twin Cities to Fergus Falls and Fargo-Moorhead. Migration paths into the Twin Cities from the northwest over the years were reciprocated by recreational travel back in the same directions, providing the Alexandria area with a strong clientele in the post-World War II decades for weekend and vacation travel. Alexandria connects with Wadena to the north via MN-29 and to Montevideo to the south on the same route. Population gain is notable in townships adjacent to Alexandria, as well as around the cities of Glenwood and Starbuck in Pope County.

Area population rose briskly in the 1970s, was unchanged in the 1980s, and expanded in the 1990s. More than three-quarters of the 1970s gain occurred in the townships, but in the 1980s there was little change in any class of MCD. In the 1990s the 1970s pattern of growth resumed with over 60 percent of study area population gain occurring in townships. Population increase in and around Alexandria and in townships south to Glenwood around Lake Minnewaska in the 1980s were accompanied by significant AADT increases, trends that generally continued and expanded throughout the 1990s. Although population gains continued in the 1990s close to the important centers, a few highway segments recorded declines in AADT for reasons not obvious from the map.
Alexandria Study Area:
Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Alexandria Study Area:
Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
The Mankato-North Mankato area consisting of four counties (Blue Earth, Le Sueur, Nicollet, Waseca) is one of Minnesota’s important smaller metropolitan areas, belonging to the class of prominent regional centers that includes Rochester, St. Cloud, Duluth-Superior, Fargo-Moorhead and Grand Forks-East Grand Forks. Nicollet County is shared with the New Ulm Study area, and Waseca County is also part of the Waseca study area. The traditionally high population densities in this part of Minnesota coupled with the close spacing of the cities and towns means that commuting fields, facilitated by a dense network of good highways, overlap and interpenetrate in many places. Study area population rose in each decade, from 114,808 in 1970 to 130,664 in 2000. Mankato’s population of 30,895 in 1970 dropped in the following decade, but reached 32,427 by 2000. Meanwhile, North Mankato population rose in each decade from 7,347 in 1970 to 11,798 in 2000. Township populations were 37,777 in 1970 and 38,797 in 2000. Farm-based populations have declined steadily over the three decades, but they appear to have been more than replaced by suburban developments in the vicinity of the cities and towns in the area. Scatter diagrams reveal a clear relationship between MCD population changes in the 1970s and 1980s and distance from the regional center. Regression lines display prominent negative slopes in those decades, but those trends disappear in the 1990s due to suburbanization around cities located just outside the Mankato-North Mankato study area.
Figure 8.5—Mankato-North Mankato Area: Population Change, 1970-2000. Mankato is located on the great bend of the Minnesota River where it turns sharply north toward the Twin Cities and is joined by the Blue Earth River from the south. It lies in a valley 1.5 miles wide and from 150 to 200 feet deep. With a diversified economy and location at the heart of southern Minnesota’s most densely settled and prosperous agricultural region, the Mankato-North Mankato area has prospered from early days. By 1880 Mankato was well served by railroads, and more than a half-dozen rail lines radiated outward from the city in all directions during the first half of the 20th century. Today US-169 enters from the north and links the Mankato area with St. Peter and traffic with the Twin Cities—one of four major highway traffic spokes radiating outward from the Twin Cities and linking its economy (and increasingly its commuting field) with those surrounding Duluth-Superior, St. Cloud, and Rochester. In addition to the US-169 route, which proceeds southwards to Blue Earth and Iowa, US-14 comes from Owatonna and Rochester in the east, and proceeds west to New Ulm. MN-13 runs north-south across the study area, from New Prague in the north to New Richland and on to Albert Lea in the south, and MN-60 runs southwest toward Worthington. Along these routes, the cities and towns grew throughout the study period, with growth spilling into adjacent townships. On all three maps of population change, the townships remote from growing cities and towns are the ones losing population, while those close to Mankato-North Mankato and the other cities and towns appear to be flourishing, especially in the 1990s.

Figure 8.6—Mankato-N. Mankato Area: Change in Average Annual Daily Traffic, 1980s and 1990s. Mankato-North Mankato’s status as a small but expanding metropolitan area enjoying good links with other major Minnesota centers like the Twin Cities and Rochester shows up well on maps of population change for all three decades after 1970. Outlying townships in the west of the study area mostly declined in population except those close to New Ulm. Meanwhile population increased with suburbanization near Mankato and North Mankato and exurban development in almost all MCDs in the east. In the 1980s, AADT dropped at several points along highways serving southern and western areas. In the 1990s, AADT dropped all along MN 13 along the east side and along MN-30 on the south edge. At two other points near the city where AADT dropped it appears that increases on adjacent routes explain the drops.
Mankato Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.

1990 AADT (vehicles/day)

\[ \begin{array}{c|c}
\text{1,000} & \text{1,000} \\
\text{5,000} & \text{5,000} \\
\text{10,000} & \text{10,000} \\
\end{array} \]

- Interstate, US Hwy, State Hwy
- City

Minor Civil Divisions (1980-1990)

- Population loss or no change
- Population growth ≤ 15%
- Population growth > 15%
Mankato Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.

Distance from Rochester (miles)

Fountain twp. (pop. 381)
Eyota (pop. 1,244)
Oronoco twp. (pop. 1,696)
Taopi (pop. 96)
Greenfield twp. (pop. 943)

Slope = -0.38  
R² = 0.0296

Rochester Study Area MCDs: Population Change, 1980-1990

Distance from Rochester (miles)

Mantorville twp. (pop. 2,595)
Cascade twp. (pop. 6,102)

Slope = -0.71  
R² = 0.1004
Figure 8.7—Rochester Area: Population Change and Distance from Center, 1970-2000. The Rochester study area consists of the 6-county Metropolitan Statistical Area focused on the city of Rochester. From 1970 onward, the study area population increased dramatically, from 211,399, to 226,113, to 248,142, to 267,470 in 2000. As the economy and population of the study area expanded, all components of the area grew except for townships in the 1990s, which lost population due to annexation of unincorporated areas. Rochester Township, for example, lost much of its population in the 1990s. Rochester is Minnesota’s fourth largest city, after Minneapolis, St. Paul and Duluth, and grew from 53,766 in 1970 to 85,806 in 2000. Although Rochester is the largest city in the study area, there are other prominent centers in and near the study area that influence employment, population distribution, and commuting. They include Red Wing, Wabasha, Winona, LaCrosse-LaCrescent, Austin, and Owatonna, and many smaller centers. The scatter diagrams and slopes of the regression lines take the expected forms in the 1970s and 1980s. In the 1990s, with highway steady population and job growth and highway improvements throughout the area, the well-defined relationship between population change and distance from the regional center disappeared.
Rochester, the seat of Olmsted County, began as a crossroads campground in the 1850s for groups pouring into the southeastern section of the state. It was a prosperous agricultural service center that began its transformation into a world-renowned center of hospital-medical practice when Dr. William W. Mayo and his sons, William J. Mayo and Charles H. Mayo developed their medical practice in Rochester in the 1870s and 1880s. In 1889, St. Mary’s Hospital became the nucleus of a chain of hospitals linked with the Mayos’ clinical practices and Rochester flourished. Cities and towns in the area grew in the 1970s and 1980s while populations declined in many townships, especially in southern Mower and Fillmore counties. In the 1990s, declining farm populations were being replaced by sprawling suburban developments around Rochester and other cities of the area. US-52 connects Rochester with the Twin Cities to the north, then heads southeast to Iowa. I-90 enters from LaCrosse-LaCrescent in the northeast corner of Fillmore County, and after passing Rochester heads southwest to Albert Lea. Meanwhile US-14 from Winona to the east passes through Rochester en route to Mankato to the west. In other words, Rochester enjoys excellent centrality, making it possible for the study area’s population to spill out across the countryside, which it has been doing for the past thirty years.

The Rochester MSA added over 56,000 persons between 1970 and 2000. In the 1970s and 1980s, population increased fastest in the cities, towns and in townships close to fast-growing cities, while most townships in western sections of the study area remained stable or lost population. In the 1990s, growth centers continued growing, but many townships that had been losing now gained from exurban development facilitated by a network of good-quality highways serving the region. Many highways carried significant increases in AADT in the 1980s and 1990s, meanwhile several segments of minor routes lost AADT as traffic shifted to major commuter routes.
Rochester Study Area:
Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Rochester Study Area:
Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.
Figure 8.10—Waseca Area: Population Change and Distance from Center, 1970-2000. The Waseca study area and commuting field consists of Waseca County, which is also part of the Mankato commuting field. It is one of the six southern Minnesota study areas that added population at a moderate-to-brisk pace in the 1990s. Population of the county was 16,663 in 1970. It rose to 18,448 in 1980, then dropped slightly to 18,102 in 1990 before rising to 19,526 by 2000. The incorporated cities and towns of Waseca County increased in population in each of the three decades, from 9,744 in 1970, to 11,632 in 1980, to 11,832 in 1990, to 12,041 in 2000. Meanwhile, farm-based townships lost population in each decade. In each of the decades, the scatter diagram discloses the expected relationship between distance and population change, and the regression line has the appropriate slope and a highly significant correlation of distance from Waseca with population change.
Figure 8.11—Waseca Area: Population Change, 1970-2000. Waseca (an Indian word meaning “rich or fertile in provisions”) sprang up in a wheat field in 1867 when a railroad from Winona reached it in 1867. Throughout the first half of the 20th century, the Minneapolis & St. Louis Railroad running north-south from the Twin Cities, and an east-west line of the Chicago and Northwestern helped Waseca retain its importance as a rail node and regional center. Today MN-13 runs north-south through Waseca through New Richland to Albert Lea, and US-14 comes from Rochester on the east then passes through Janesville en route west to Mankato. Townships along these routes tended to gain population in each decade, while those farm-based townships away from the cities and the main highways tended to lose population.

Figure 8.12—Waseca Area: Change in Average Annual Daily Traffic, 1980s and 1990s. Population of the area rose in the 1970s, then dropped slightly in the 1980s before rising again in the 1990s. Although surrounded by farmland and farm consolidation, the area has a diversified economy with almost a third of its labor force in manufacturing. Population maps disclose the correlation of population growth with the alignment of the major highways serving Waseca and the area—east-west on US-14 and north-south on MN-13. In the 1980s, AADT increased on all but one major highway segment in the area. In the 1990s, MN-30 running east-west along the southern edge of the area paralleling I-90 and US-14 lost AADT, probably the result of local as well as through traffic shifting to those other faster routes.
Waseca Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.

1990 AADT (vehicles/day)

- ▲ 1,000
- ▲ 5,000
- ▲ 10,000

- Interstate, US Hwy, State Hwy
- City

Minor Civil Divisions (1980-1990)

- Population loss or no change
- Population growth ≤ 15%
- Cities

To Mankato

1.56

To Rochester

1.50

1.19

To Albert Lea

0.86

1.16

1.15

0.86

1.12

1.11

1.10

0.86

0
2.5
5
10
15
Miles
Waseca Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.

1998 AADT (vehicles/day)

- $\Delta$ 1,000
- $\Delta$ 5,000
- $\Delta$ 10,000

- Interstate, US Hwy, State Hwy
- City

Minor Civil Divisions (1990-2000)

- Blank: Population loss or no change
- Light gray: Population growth ≤ 15%
- Medium gray: Population growth > 15%
- Dark gray: cities

To Mankato

To Rochester

To Albert Lea

Miles

0 2.5 5 10 15
Willmar Study Area MCDs: Population Change, 1970-1980

Distance from Willmar (miles)

Percentage population change

Willmar twp. (pop. 817)
Dovre twp. (pop. 1,450)
Pennock (pop. 410)
Regal (pop. 70)
Clontarf (pop. 196)

Slope = -0.61
$R^2 = 0.1178$

Willmar Study Area MCDs: Population Change, 1980-1990

Distance from Willmar (miles)

Percentage population change

Willmar twp. (pop. 1,239)
Grace twp. (pop. 150)
Maryland twp. (pop. 124)

Slope = -0.68
$R^2 = 0.3242$
Figure 8.13—Willmar Area: Population Change and Distance from Center, 1970-2000. The Willmar study area consists of Swift, Chippewa and Kandiyohi counties, with Willmar the seat of Kandiyohi. Patterns of population change from 1970 onward closely resemble those of Waseca County, although this study area is much larger. Population was 59,570 in 1970, rising to 64,624 in 1980, then declining to 63,292 in the 1980s before rising to 66,247 in 2000. The city of Willmar gained population in each decade, from 12,869 in 1970 to 18,351 in 2000. Cities as a group (including Willmar) added population from 33,211 in 1970 to 41,077 in 2000. In other words, all the study area’s net population gain and more occurred in the cities. Township populations totaled 26,359 in 1970 and 25,170 in 2000, but as will be shown the declines in farm-based populations were offset typically offset by suburbanization of the countryside around Willmar and other cities in the area. The scatter diagrams illustrate the relationship between distance and population change in each of the three decades. The regression lines have steep negative slopes, and the correlation of distance with population change is significant, especially in the 1970s and 1980s. In the 1990s, Appleton and Willmar Township dilute the correlation measure.
Willmar Study Area 1990-2000

Figure 8.14—Willmar Area: Population Change, 1970-2000. Willmar, the seat of Kandiyohi County, was founded on the southern shores of Foot Lake as a railroad town in 1869 and platted on St. Paul and Pacific railroad land. During the first half of the 20th century it was an important division point and rail node on the Great Northern. Today good highways radiate in every direction from Willmar. The main routes include US-71 from Sauk Centre, which serves Willmar from the north, then runs south to Olivia and Redwood Falls. US-12 from Litchfield and the Twin Cities arrives from the east, and runs northwest to Benson before heading west to South Dakota. MN-40 runs west of Willmar to Lac qui Parle, part of the headwaters of the Minnesota River, which provides a notable recreation setting in region generally lacking lakes. MN-23 enters the area in the northeast Kandiyohi County from Paynesville, and leaves to the southwest en route to Marshall. From the maps of population change we see that that population has been increasing for thirty years around Willmar and especially in the townships north of the city that are dotted with lakes—Long Lake, Eagle Lake, Green Lake and others. The same patterns occurred around Benson in the 1970s and 1990s, and around Appleton in the southwest corner of Swift County by Lac qui Parle. Away from the major cities and lakes, farm-based townships lost population in every decade.

Figure 8.15—Willmar Area: Change in Average Annual Daily Traffic, 1980s and 1990s. Willmar is one of Minnesota’s strongest regional centers and steady population increases in the city and surrounding towns and townships reflect the strength of the local economy. Most agricultural townships in the western portions of the area remote from the major towns and highways have been in decline for three decades. AADT declines in the 1980s on more than a dozen highway segments in the southern and western parts of the area reflect population losses and economic decline in those areas. On the other hand, AADT rose briskly on highways close to Willmar, and along routes east and northeast to Litchfield, Paynesville and Sauk Centre. In the 1990s, AADT increases were common across the area, reflecting greater prosperity and exurban development in formerly agricultural townships. Only four highway segments lost AADT in the 1990s.
Willmar Study Area: Change in Annual Average Daily Traffic 1980-1990

Measurements are ratios of 1990 AADT to 1980 AADT, inverted triangles indicate declines in AADT.
Willmar Study Area: Change in Annual Average Daily Traffic 1990-1998

Measurements are ratios of 1998 AADT to 1990 AADT, inverted triangles indicate declines in AADT.

1998 AADT (vehicles/day)
- 1,000
- 5,000
- 10,000

Interstate, US Hwy, State Hwy
City

Minor Civil Divisions (1990-2000)
- Population loss or no change
- Population growth ≤ 15%
- Population growth > 15%
Chapter 9

POPULATION DISPERSAL AND MINNESOTA’S REGIONAL CENTERS: SUBURBANIZATION OF THE MINNESOTA COUNTRYSIDE

The Big Picture

So what have we learned? Minnesota covers a large territory with significant internal diversity in population, environment, settlement, and economic activity. The heterogeneous physical environment includes northeastern pine forests, a lake region where mixed deciduous forests are common, and western and southwestern prairie lands that have supported commercial agriculture for more than 150 years.

Population of the state was initially distributed according to agricultural activity, exploitation of forest products, and metal mining. Following World War II, the fortunes of the mining industry were mixed at best, with ups and downs due to business-cycle fluctuations in domestic demand, redistribution of the American population and economic activity from the Northeast to the South and West, the introduction of the taconite enrichment process, the petering out of the best deposits of hematite and magnetite ores, and competition from foreign ores. Forestry remains an important industry in terms of value of construction products manufactured from wood, but the share of workers engaged in forestry and the forest products industry has shrunk to low levels. Agriculture remains one of the state’s leading industries, but it is highly mechanized and industrialized, so only a tiny fraction of the state’s labor force works in farming even though it remains vitally important in the agriculture-based manufacturing supply chain.

As resource-based industries were transformed, construction, manufacturing, trade, utilities, business and personal services, and government expanded, with the expansion occurring almost entirely inside cities and the larger towns, and the greatest concentration occurring in the 24-county Twin Cities metropolitan region, the economic capital of the Upper Midwest region. Population pursues economic opportunity, so for more than half a century population has shifted away from extensive resource-based economic activity and toward urban-based jobs. The shifts in population reflect a transition from older ways of life to new forms that involve greater geographical separation of work place and home place, smaller families, more labor force participation by women, more single-person households, more discretionary incomes and more free time to engage in recreational shopping, indoor and outdoor recreation, and other leisure-
time pursuits. As these structural changes in economy and society have occurred, there has been a corresponding reshaping of the state’s settlement patterns, with an intensification of vehicular flows on the state’s principal highways. In western and southwestern Minnesota, for example, as farms consolidated, farm populations declined but crop yields remain approximately the same leading to fewer, longer and heavier truck loads on the state’s highways as commodities move to elevators and terminals.

The changes that occurred in Minnesota and the Upper Midwest after 1950 were possibly most prominent in the Twin Cities area, or perhaps they were only more noticed and reported. After all, the major news media are concentrated in the Twin Cities, and it has been convenient for them to pay attention to events in their own back yard rather than survey and analyze on a consistent and comprehensive basis the transformations underway across the entire state. Nevertheless, in the past two decades it has become increasingly evident to most observers, professional and lay alike, that Minnesota’s regional centers were assuming some of the functional attributes and visible features of the Twin Cities area. They were developing economies that were more diversified, and less dependent on serving agriculture. They were erecting business developments at low densities at the edges of their built-up areas, and they were producing new housing and within easy commuting distances from new jobs in and around the regional centers. These trends prompted a question whether Minnesota’s regional centers might be headed toward some of the problems of sprawl and highway congestion that currently afflict the Twin Cities region. The results presented in the previous chapters of this report are generally consistent with those suspicions.

Transformation of Work and Life in Sub-areas of Commuting Fields

This study identified 20 regional centers located throughout Minnesota. Adjacent to each center is a commuting field composed of one or more counties focusing on the jobs that are concentrated in and near the regional centers. County areas are subdivided into incorporated cities and towns, and unincorporated townships, all of which we refer to as minor civil divisions (MCDs). In each study area there is one “key city” designated. The key city is understood as the major city that is the functional center of the study area, and the largest single job center in the commuting field. Duluth was designated as the key city in the cases of Duluth-Superior and Hibbing where we combined the two commuting fields into a single study area because of their extensive overlap.

In the last 50 years, as Minnesota’s agricultural lands, mining districts and forest areas underwent a transformation that included consolidation of farms and industrialization of agriculture, there
occurred a convergence of lifestyles for farm families and households living in cities and towns. Many households today continue living on farmsteads, but they may or may not own the adjacent agricultural land. If they own it, they often rent it to a neighboring farm operation, but often they own or rent only the farmstead, and commute daily to jobs in town or at industrial sites that today are scattered across the countryside. Other households have purchased several acres of farmland or forestland and have built suburban-style homes to create a type of ultra-low-density scattered-site exurban development that differs little if at all in style and function from conventional automobile-oriented suburbanization. What is deceptive in observing and analyzing this phenomenon is the distracting visual impact of the agricultural activity surrounding what is basically modern, urban-type housing accompanying the modern, urban-type daily activity patterns of the residents.

**The Transformation of Minnesota’s Central Place Hierarchy**

From early days of settlement up through the 1950s, Minnesota’s major cities were centers of manufacturing and wholesale trade, along with transportation, finance and business management activity that linked the state with other regional economies of the United States and the world. Meanwhile small cities, towns, villages and hamlets functioned as local “central places,” which assembled the products of field, forest and mine while distributing retail trade and services (e.g., retail stores and shops, banks, lawyers, churches, etc.), local business services (e.g., grain elevators, lumber yards), and government services (e.g., public schools, public safety, courts, roads, etc.) to households and local businesses that were anchored to the land and to extractive industries. A well-defined “central place hierarchy” existed across the Upper Midwest and Minnesota, and the distinction between “urban” and “rural” was a sharp one. Today these two terms have lost most or all of any technical precision they once enjoyed. Before the 1940s, where people lived was directly connected functionally and geographically with where they worked and what they did for a living. Farmers lived on their farms and ran their farm operations. City and town dwellers lived in the city or town and commuted daily to work downtown or to a neighborhood business located within the city or town. Commutes were short, edges of cities and towns were well defined, and the economies and settlement forms of urban and rural areas were essentially distinct even though they were largely dependent on one another.

Today the Minnesota settlement pattern and the economy of Minnesota have been almost completely transformed. Today we see that the “urbanization of the countryside” is being completed in functional terms, and the settlement system is in the process of catching up with the economic and social transformations that have already occurred. Like the greater Twin Cities
area, which according to 1990 commuting patterns spread over 24 counties in Minnesota and Wisconsin, the smaller cities and towns in Minnesota have been experiencing a similar suburbanization whether or not local populations are increasing. The towns, villages and hamlets within highway commuting ranges of regional centers often have become bedroom suburbs, and depending on the level and stability of incomes brought home from those jobs there can be new vitality on Main Street. Meanwhile, in the unincorporated townships surrounding the regional centers, new houses are going up along major and minor highways and country roads to meet the wants of households for country living—but within a convenient automobile ride to work, school, Main Street and Wal-Mart.

A Crescent of Growth; A Zone of Slow Decline?

Our study to assess some of these changes and their impacts on highway usage divided Minnesota into a northern zone and a southern zone, with the boundary between them running east-west through the Little Falls area north of St. Cloud. Study areas within each of the zones were grouped according to their population change during the 1990s. Study areas with population growth equal or exceeding 3 percent for the decade were classified as “moderate- to fast growth.” Study areas with population growth below 3 percent during the 1990s were termed “slow-growth or declining.” With these distinctions we defined four classes of study areas:

- Northern areas of moderate to fast growth
- Northern areas of slow growth or decline
- Southern areas of moderate to fast growth
- Southern areas of slow growth or decline

When the regional centers at the heart of these study areas were highlighted on a map of the state and distinguished as to whether they were in the fast-growth or slow-growth category, it was evident that all of the fast-growth study areas lie within a “crescent of growth” that extends from southeast of Rochester, northwest through Mankato and the greater Twin Cities area, northwest through St. Cloud, and into the lake district north to Park Rapids and Bemidji. The study areas in the “slow-growth or decline” category lie in the far southwestern and western parts of Minnesota, and in the far north from the Red River Valley across to the Arrowhead Region.

The slow-growth regions are disadvantaged by location: they are remote from population centers. Additionally they are disadvantaged by their site resources: a weak farm economy, weakness in forestry and mining, and limits to the recreational opportunities they can offer.
compared with the offerings of other places.

In contrast, the places that have experienced moderate-to-fast growth enjoy advantages of relative location closer to prosperous and growing population centers, a rich array of local site resources, and opportunities for capitalizing on scale efficiencies that are absent from smaller and declining places. There are cumulative and circular advantages that accompany growth and that promote further growth. Once underway, and for a variety of reasons including the opportunity to attract new capital investment from outside, additional advantages flow to places that grow faster than their local competitors. This process of “cumulative and circular causation” works in reverse as well, for when a place stops growing or goes into decline the negative economic and demographic effects of stagnation feed off one another and promote further decline.

There is a certain arbitrariness in at the outset of a growth cycle as to which places will become economic leaders. In early Minnesota history it was not obvious which of several early centers—Stillwater, St. Peter, Mankato, St. Paul, St. Anthony, Minneapolis, etc.—would overtake the others. But once a place gained an edge over the others it kept going while others fell behind, and some disappeared. There are many reasons. Costs to producers are lower when volume buying is possible. In growing places there is a better matching of workers with jobs. When places are growing, it is easy for an employee to leave an unsatisfactory job and find another, so all end up better off—the worker, the former employer, and the new employer. Employers are better off when poor or dissatisfied employees leave, and it is easier for an employer to fire a poor employee if it is obvious that the worker can find other employment. Skills and attitudes can improve in a fast-changing growth situation, and employers may try harder to keep good employees knowing that they can and will leave for better opportunities elsewhere. In growing places, new investment flows in and new competitors arise, so all must sharpen up and those that do will do better. Businesses feel freer to invest in new plant and equipment when growth prospects are good, and new plant and equipment can improve productivity and profitability.

But the opposite occurs when population and economy of a place slow or slip into reverse. Average cost of each transaction rises at the drug store, the county clerk’s office, the hardware store, the grocery store and the doctor’s office. Investments and refurbishing are postponed. Revenues drop faster than costs. The talented, educated and ambitious risk takers leave, with those left behind facing a harder time. As costs rise, ability to pay declines as the cumulative and circular process goes negative.
New businesses in growing areas such as in the suburbs of the Twin Cities metro area or in growing regional centers enjoy special advantages because their revenues in the short run can rise faster than costs in both goods-producing industries and in personal and professional services. As the state map of economic opportunity slowly transforms, residents relocate, and newcomers to the state—immigrants and domestic migrants—settle in places of economic promise and opportunity. In the process, human capital relocates from places where it is less productive to places where it will be more productive, thereby magnifying the advantages of the growing places, and making things even tougher for places left behind.

**Transportation and Development**

Economic activity depends on accessibility, and accessibility facilitates economic development. From earliest days of Minnesota’s exploration by European-Americans, there has been a close and reciprocal relationship between transportation and development. Early transportation routes (rivers, lakes, trails) were developed and improved to exploit the resources of the natural environment (furs, timber, agriculture), then used to pursue additional forms of economic activity. Once natural resource exploitation and trade were underway, the existing routes and settlements along them influenced the course of subsequent development of railroads and highways while infrastructure already in place guided later investments in land development. Population distribution follows economic opportunity, but population concentrations once in place generate additional economic activity. This reciprocal process continues to the present day, with the places that are growing attracting additional people and investment, which nurtures additional growth as the process rolls on.

The maps and diagrams presented in Chapters 3 and 4 defined the tributary commuting fields adjacent to the 20 sample regional centers, and portrayed population changes within MCDs during the 1970s, 1980s and 1990s. Each set of population change maps was accompanied by a set of scatter diagrams illustrating the relationship between distance of MCDs (cities, towns, townships) in the commute sheds from the regional center, and population change during each decade in each MCD.

Traffic volumes generally increased on all major highway segments examined in the 1980s and the 1990s. To some extent, traffic occasionally dropped on minor road segments as traffic apparently shifted to superior parallel routes. The combination of larger populations, number of households increasing faster than a population, increasing distances between home and work, multiple job holding by workers, higher discretionary incomes with wider consumer choices and
more recreational shopping, more leisure, more complex household life styles, more cars and trucks, greater participation by women in the paid workforce, better highways, and other factors all contributed to the enhanced traffic loads on the trunk highways in our study areas.

In general, our findings are well aligned with expectations. Population increases during each decade were greater in MCDs closer to the regional centers, and smaller or negative farther away from the centers. For regional centers and parts of Minnesota experiencing slow growth of decline, places closer to the regional center are doing better than places farther away. For regional centers and parts of Minnesota within the “crescent of growth” the patterns of growth are more mixed, with growth not necessarily corresponding with distance from regional centers. On the other hand, many of those fast-growing study areas are in the lake and outdoor recreation areas of the state, so the location of the amenities provides a pull in the opposite direction and dilutes to some extent the effect of highway distance from regional centers. In other parts of the fast-growing region of the state, the regional centers are more closely spaced and their respective commuting fields overlap one another. No one can know whether the fast-growth experience of Minnesota in the 1990s will be repeated during the present decade, but whether population and economic growth rates speed up or slow down, it is likely that the state’s map of residential population distribution in 2010 or 2020 will resemble the map of today. But stability in spatial patterns is not the important story. Even though today’s map appears to have changed little in recent decades, ways of life across the state appear to have converged, and daily and weekly travel behavior have changed significantly.

These findings raise many new questions that Census 2000 can shed additional light on through analysis of the detailed sample data that became available in mid-2002. For example, how did population age structures and household composition within study areas changed between 1970 and 2000? How have sources and levels of personal income—wages and salaries; dividends, interest, rentals; transfer payments—changed since 1970? How have the occupational structure and industrial structure of the labor force changed since 1970? How did commuting fields change in the 1990s compared with changes that occurred between 1970 and 1990? How did the housing inventories within the study areas change in the 1990s? Does the decline in housing values in areas of outmigration provide an incentive for workers to engage in long-distance commuting, that is, trading off commuting expenses in time and money for lower housing costs plus agreeable life in small-towns and other low-density settings, which in turn helps stabilize populations in those small places? Do low-house-price incentives attract retirees to such settings? Would a larger supply of modestly priced housing opportunities in outlying areas have any significant influence on the stability of populations and health of the economies of those areas? We hope to pursue some of these and related questions in subsequent studies.
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Kilborn, P. T. “In Rural Areas, Interstates Build Their Own Economy.” The New York Times (14 July 2001), pp. A1, A12. [“Because of economic transfusions from the Interstates, “we now know that the depopulation of rural America stopped in the ‘80s,” said David Schultz … “Companies said, ‘Look, I need to have a single floor for my plant. All my materials come in and my products go out by highway.’”]

Kunstler, J. H. “Home from Nowhere.” The Atlantic Monthly, (Sept 1996), pp. 43-6. [“Can the momentum of sprawl be halted? America’s zoning laws, intended to control the baneful effects of industry, have mutated, in the view of one architecture critic, into a system that corrodes civil life, outlaws the human scale, defeats tradition and authenticity, and confounds our yearning for an everyday environment worthy of our affection.”]

Lucy, W. H. and D. L. Phillips. “Suburbs and the Census: Patterns of Growth and Decline. The Brookings Institution Series (Dec 2001), pp. 1-12. Washington, DC: The Brookings Institution. [While suburbs as a whole grew between 1900 and 2000, population growth across individual suburbs was highly uneven; declining suburbs were predominantly located in slow-growing metropolitan areas in the Northeast and Midwest; declining suburbs were not simply those immediately adjacent to or near central cities, but were found throughout the metropolitan area; small suburbs are not buffered against the forces of decline; and population growth in the 1990s was faster in unincorporated areas and in new suburbs than in existing suburbs.]


Minnesota Department of Transportation. Better Connections for Minnesota’s Future: Interregional: Corridor Study. St. Paul. MN: Minnesota Department of Transportation, 2000. [“A strong system of interregional corridors that provides safe and efficient transportation between Minnesota’s regional trade centers will ensure competitive access to markets and services and easy connections to tourist and recreation areas.” Elwin Tinklenberg. See http://www.oim.dot.state.mn.us/projects/irc/index.html]


Minnesota House of Representatives. Session Weekly 17:11 (14 Apr 2000). P. 24. St. Paul, MN: Minnesota House of Representatives, Public Information Office. [Miles of street and roadway in Minnesota, 1998—130,613; vehicle miles traveled, 1998—46.9b; registered vehicles—3.77m.; licensed drivers—3.49m; workers driving alone to work—85 percent; driving up to 10 miles one way—56 percent; between 30 and 120 miles one way—12 percent; 30 minutes or more—24 percent; miles of congested roadway in the Twin Cities metro freeway system, morning rush hour, 1998—123 (25 percent); in 1993—91.]


Schuh, G. E. “Rural Development and the University of Minnesota.” A presentation to the Faribault Rotary Club, Faribault, MN, 22 Mar 2000. Minneapolis, MN: Humphrey Institute of Public Affairs, University of Minnesota. 7pp. [A more rational development policy would put more emphasis on decentralizing the development process so as to reduce the costs that are imposed on both ends of the migratory process. This would create a more balanced, efficient, and equitable pattern of economic development.]


APPENDICES

Appendix A. Population Change in Study Areas and Regional Center Key Cities, 1990-2000

Appendix B. Study Area Populations 1970-2000, with Primary City Populations and MCD Subtotals

Appendix C. Population Changes of Level 1 and Level 2 Trade Centers, 1970-2000

Appendix D. Economic Profiles of Study Areas and Component Counties
Appendix A. Population Change in Study Areas and Regional Center Key Cities, 1990-2000

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* Key City identified in italics.
Source: U.S. Bureau of the Census
## Appendix B. Study Area Populations 1970-2000, with Primary City Populations and MCD Subtotals

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Appendix B. Study Area Populations 1970-2000, with Primary City Populations and MCD Subtotals
## Appendix B. Study Area Populations 1970-2000, with Primary City Populations and MCD Subtotals (continued)

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Note: MCD = Multi-Community District
## Appendix B. Study Area Populations 1970-2000, with Primary City Populations and MCD Subtotals

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Source: U.S. Bureau of the Census.
## Appendix C. Population Changes of Level 1 and Level 2 Trade Centers, 1970-2000

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Source: U.S. Bureau of the Census.
### Appendix D. Economic Profiles of Study Areas and Component Counties

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**Southern Areas: Slow Growth or Decline (≤ 3 percent)**

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### Southern Areas: Moderate to Fast Growth (> 3 percent)

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Source: U.S. Bureau of the Census. *County and City Data Book 1994*. Washington, DC: U.S. Government Printing Office, 1994. (1) Tab 4; (2) Tab 79; (3) Tab 135; (4) Tab 136; (5) Tab 143; (6) Tab 156. A farm is any place from which $1,000 or more of agricultural products were produced and sold; (7) Tab 157; (8) Tab 161.