An Analysis of Urban Sprawl and its Impact on Sioux Falls, South Dakota and Adjacent Areas

Robert G. McKay

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AN ANALYSIS OF URBAN STRAIGHT AND ITS
IMPACT ON SIoux FALLS, SOUTH
Dakota AND AdjACENT AREAS

BY

ROBERT G. MCKAY

A thesis submitted
in partial fulfillment of the requirements for the
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This thesis is approved as a creditable and independent investigation by a candidate for the degree, Master of Science, and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.
ACKNOWLEDGEMENTS

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A special note of thanks and appreciation are extended to the Sioux Falls Planning and Design Office and the Southeastern Council of Governments for their insights into urban sprawl within Sioux Falls.

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Finally, a heartfelt thanks to the author's wife, Eunice, for her sacrifices during this research.

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CHAPTER I

INTRODUCTION

Many urban areas are experiencing rapid growth. With each major influx of population, more area has been needed for expansion. To date, much growth has been in the form of urban sprawl, which is defined by Raymond Murphy as "... the continuous expansion that goes on around the average large city with a belt of land always in the process of conversion from rural to urban use."¹

Sprawl occurs in three major forms. The least offensive or unpleasant form of sprawl is low density, continuous development in the rural-urban fringe (see figure 1). Harvey and Clark refer

Figure 1

to it as a gluttonous use of land where higher density development would have been more appropriate. Ribbon development, a second form of sprawl, is made up of compact segments of built up areas extending axially along transportation routes (see figure 2). This results in leaving the interstices undeveloped. A third type of

![Diagram](image)

**Figure 2**

urban sprawl is leap-frog development (see figure 3). It consists of discontinuous compact patches of urban uses in an essentially rural area and requires large amounts of capital expenditures to provide basic urban services. When this type of sprawl occurs very few services such as water, sewer, and curb and gutters are available, thus the costs of providing these services are high. These services are usually extended from existing ones but sometimes must be newly built.

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2 Ibid., p. 499.
Sprawl occurs at the peripheries of expanding urban areas predominately in advance of principal lines of growth. It is most noticeable during times of rapid expansion around growing cities. Apparently, one cause is the independence of decision making among monopolistic competitors. Many developers produce a variety of unrelated and discontinuous developments when the economic base of an urban area increases rapidly. Competition in the housing market is stimulated by a rapid growth rate and usually produces fragmented, randomly located projects. Speculation has been blamed for sprawl through the withholding of land for development and, conversely, through premature development. Other causes of sprawl include physical terrain, public regulations, transportation lines, real property tax, income tax methods and the land policy of the United States.\(^3\)

\(^3\) Ibid.
Physical Terrain. Because of physical barriers such as mountains, rivers, and soil suitability, the physical terrain may not be well suited for development. The pattern of development follows the land that is readily accessible and, therefore, most economical.4

Public Regulations. Because of zoning differences within some urban areas, public regulations contribute to sprawl by encouraging development in those sections having least stringent controls, which work against continuous development.5

Transportation lines. Considered catalysts, transportation lines produce strip development which is the equivalent to ribbon development. Development of expressways often leads to sprawl by creating avenues of travel that are easily accessible to the majority of people.6

Real Property Tax. When agricultural land is platted or divided into lots, it is taxed at urban rates. To avoid this tax, developers are likely to resist excessive platting. This resistance causes fragmented and scattered developments.7

Income Tax Methods. Because developers are taxed on the basis of per lot allocations of development costs, they minimize the amount of property developed in any one year. This results in

4 Ibid.
5 Ibid.
6 Ibid.
7 Ibid.
piecemeal or scattered developments from discontinuous construction.  

Land Policy of the United States. The land policy in the United States favors dispersed rather than concentrated ownership. Land for subdivision development becomes available periodically rather than continually. This is a result of the city or county trying to contain or limit new areas of growth.  

Much land for future growth of our urban areas is located beyond existing corporate city limits. Since 1920 or 1930, the suburb has been the major focus of growth. This is, in part, influenced by the early utilization of much of the vacant land formerly available in city centers.  

Today, land is used more freely in suburbs than in the older city sections. Residential lots in suburban areas are typically larger than those which were delimited toward the urban centers fifty or more years ago. This is also true of commercial and industrial cites. Large scale shopping centers with ample space for parking occupy far more land than the downtown department 

8 Ibid.

9 Ibid.


11 Ibid., p. 21.
store. The modern, peripheral factory with its spacious parking area uses more land than did the older factories. 12

American land use activities are influenced by several major forces. One of these forces is the pressure from developers to receive as large a profit as possible from land development, usually by increasing the intensity of land use. 13 A second force is pressure from neighboring residents to protect the environment by decreasing the intensity of land use. 14 Third, there is the tendency for migrants to concentrate in the outer regions of urban areas which often results in central city decay and the concentration of the lower income population within the central areas. 15 A fourth force is the realization of opportunities within the suburbs such as better services and more pleasant surroundings that are generally unavailable to the lower income groups desiring them. 16 Finally, there is a resistance by the suburbs to any new residential developments. People who moved to the suburbs to escape the congestion and overcrowding of the central cities tend

12 Ibid.
14 Ibid.
15 Ibid.
16 Ibid.
to resist new development for the same reason. These forces form a system of checks and balances upon land uses within metropolitan areas.

Industry constitutes a major portion of the low-density urban development we identify as sprawl. Manufacturing and residential construction along with many of the commercial and institutional functions appear to be migrating out from the densely built-up areas of the urban core into the open areas beyond. Because of independent motives and varying environmental requirements of the numerous land uses, opportunities and problems are present for core cities and the peripheries. The removal of the larger plants is a blessing to urban residents. But, how do the residents of the peripheries feel? They are the recipients of these industrial activities. New industry stimulates growth and prosperity but often epitomizes the least positive aspects of urban living. It attracts employees, but is also directly responsible for the congestion of major transportation routes.

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17 Ibid.
18 Ibid.
19 Jean Gottman and Robert Harper, Metropolis on the Move (New York: John Wiley and Sons, Inc., 1967) p. 102. The use of commercial and institutional functions refer to profitable businesses and organizations such as schools, churches and hospitals respectively.
20 Ibid.
21 Ibid.
Approximately 151 million people or 73 per cent of the country's population in 1975, as compared to 69.9 per cent in 1960, now live in metropolitan areas. Since 1970, the central cities have decreased in population by about 2 per cent. A belief still persists that urban sprawl is the result of flight from farm to city. However, in many cases it is an effect of the flight of manufacturing and warehousing away from dense built-up areas as well as the migration of city dwellers to the open space that fringe areas offer. Therefore, urban sprawl results from both demographic and economic expansion. With continued peripheral growth projected, more land will be required to meet future needs.

As a consequence of growth, unless cities annex land, it appears that vacant land will have soon disappeared. For cities that cannot expand horizontally, growth of city population and employment will not be possible save through increased densities and more intense or vertical land uses.

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24 Ibid.

Annexation is a common procedure. Most of the nation's older cities are underbounded because the geographical city has expanded and outgrown the corporate city limits. The corporate city must then add new areas to its borders so it will not become too underbounded. Wherever possible this is accomplished by the process of annexation. Annexations are brought about by conforming with the laws of the state in which the city is located.26

According to David Queal of the Southeastern Council of Governments, there are three ways in which annexation can take place. The first of these is voluntary annexation in which requests are made by fringe area residents to receive city services. The second form of annexation involves contiguous or adjacent platted land. These areas may be annexed by the city as a natural process of expansion without permission of the residents or the county. The third type is annexation involving the approval of the county. The county must give approval for the city to add any areas not previously platted. This enables the county to keep a form of control on the use of land within its own boundaries and acts as a system of checks and balances upon sprawl.27

The city has the obligation to its taxpayers of comparing costs of utilities to be extended into the annexed area with taxes.


to be derived from the new areas. The city voters may also have doubts about the low quality of the area to be annexed.28

Aim of Study

It is the intention of the writer to recognize and analyze urban sprawl as a continuing process of urbanization. The general purpose of the study is to better understand the patterns of growth of urban sprawl and its impact upon future expansion. It is also intended to examine problems and benefits that are products of urban sprawl.

Sioux Falls, located in the southeastern portion of South Dakota, constitutes the study area. The study examines the growth of that city during a ten year period, beginning from 1966 through 1976. It is the purpose of the study to determine the causes and effects of urban sprawl as it relates to Sioux Falls and adjacent areas and to find possible solutions for guiding future expansion of urban areas.

The following questions serve as the major foci of the study.

1. What are the assets and liabilities of urban sprawl?
2. What has been the extent of growth beyond the Sioux Falls Corporate limits between 1966 and 1976?

3. What has been the impact of urban sprawl upon Sioux Falls?

4. What can be done to plan for future development?

The Need for the Study

Urban areas have been expanding in size and relative importance for many years. With widespread use of the automobile, movement of population into urban areas has been increasing each decade.\(^29\) Concurrent with the rapid growth of population and its spatial ramifications, it is natural that geographers should become more involved in urban studies.\(^30\)

Approximately one million acres of land are being developed at the urban fringe each year, often without the input of the public regarding pattern, density or functional relationships (proximity of activities having a common concern, e.g. a housing development and a school). As yet, there are no effective public measures to reserve land for development of industrial parks, highways, parks and open space or other public improvements. Thus, the high rate of urban growth presents a formidable challenge to metropolitan planning in this nation.\(^31\)

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\(^30\) Ibid.

The study attempts to inform the reader about urban sprawl and the impact it has on the corporate city and surrounding areas. If urban sprawl were better understood more effective planning for future growth might be achieved.

The Sioux Falls Planning and Zoning Department has stressed concern about problems that have occurred outside that city's corporate limits from improper planning techniques. This study is being undertaken in response to that concern.

The Procedure

In order to determine the potential impact of urban growth, maps depicting the growth of Sioux Falls during a ten year period, 1966 to 1976 will be examined. These maps will serve as the basis of an analysis of the types of sprawl. They provide the initial step of any attempt to determine how to control and plan for growth. This will be accompanied by an examination of problems and benefits that are associated with sprawl as they relate to the corporate city and adjacent areas. Finally, an attempt will be made to introduce possible solutions to sprawl and make recommendations for future growth.
CHAPTER II

ASSETS AND LIABILITIES ASSOCIATED

WITH URBAN SPRAWL

Assets

Urban sprawl is a phenomenon which has occurred in most urban areas at one time or another. It gives the casual observer the impression of an unorganized or unnatural growth and is often considered detrimental to our society. The suburban land conversion process which has been occurring over the past years has had several advantages. Private persons and organizations have directed their capital toward building new residences, commercial districts, and industrial plants in the newly organized suburban areas. Many people, much industry and substantial trade has moved from the central city to the suburbs. The process of this land conversion has produced good housing along with many pleasant neighborhoods. New communities with institutions such as schools and churches have also been built as a result of the process of sprawl. The economic opportunities at the periphery of the growing city exert a pulling force upon rural and urban migrants. The


2Ibid.

3Ibid.
larger and faster growing cities provide a wide range of economic and cultural facilities to encourage the relocation of a diversified group of migrants. These people respond to limitations in the area of potential growth within the central city by relocating in the fringe. Any new educational facilities such as schools or libraries desired by area residents must be paid directly by those residents; whereas, non-limited growth produces a larger number of families. Thus, per capita cost of the facilities are spread over a larger population keeping the costs at a lower rate.

Sprawl has had a major impact upon employment opportunities. As investors begin to realize that the peripheral area is growing, they may choose to direct their capital to such a location where a more promising future is evident. Thus, sprawl gives an indication of growth which may help stimulate employment opportunities. This stimulation also helps to strengthen the local labor market by raising and equalizing incomes.

Urban sprawl creates new spaces for development. These new spaces provide locations for new industry and warehousing and

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6Ibid.

serve as relocation sites for older services. This process creates space within the central cities for redevelopment and makes possible urban renewal projects. These projects encourage movement back into the central area that is needed in many metropolitan cities today.

Liabilities

Land use has been considered a problem in most cities for many years. It is a phenomenon that has evolved as a consequence of the concentration of growth within metropolitan areas along with widespread physical development. One major difficulty encountered by expanding urban areas is adjusting administrative or legal boundaries to conform to spatial expansion. The overlapping of administrative boundaries and functions makes control of the areas difficult and often leads to financial complications. Problems arise for rural townships and counties because they can not provide the urban services demanded by the people who have entered the area. Various costs are normally charged against sprawl. Costs per person per dwelling unit are higher in low

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10 Ibid., p. 278.

density sprawl than the costs per unit in higher density areas.\footnote{12} The most common of these costs is that charged for the extension of utilities to the new, partially developed areas located on the urban-rural fringe.\footnote{13} Another cost is the loss of agricultural land. The spreading of urbanization into agricultural areas has meant spiraling land prices, special assessments and higher property taxes, stiffer regulations for farm activities, such as noise and odors, and an increase in trespassing and vandalism problems for the farmer. Scattered development often prevents viable economic use of the remaining interspersed agricultural land.\footnote{14} Many farmers turn to land speculation and soon the farm operations deteriorate.

Another cost cited is the loss in value of urban property due to conflicting and undisciplined land use.\footnote{15} When two conflicting land uses occur such as industry and residential areas one usually suffers financially by the loss in value of the property for future use. These are costs that reflect the lack of

\begin{itemize}
\item \footnote{12}{Ibid., p. 500.}
\item \footnote{13}{Ibid.}
\item \footnote{14}{Metropolitan Council, "Development Framework Chapter," Metropolitan Development Guide (March 27, 1975) p. 57.}
\end{itemize}
planning and zoning which frequently characterizes areas of the urban-rural fringe.\textsuperscript{16}

Speculation in land values is a sprawl-related phenomenon. This could have a paralyzing effect on future development by raising land prices severely.\textsuperscript{17} As fringe areas incorporate around the central cities, residents and businesses move to sites beyond the central areas.\textsuperscript{18} As this movement takes place the older residential and business sections gradually reach a state of disrepair, causing the city's tax base to decline. As the city's tax base declines, those who remain must share the increases in costs of government. As smaller corporate units encircle the city, it is feasible that the central city could become stagnant. Encirclement reduces the possibility of controlled annexation.\textsuperscript{19} Development on the fringe area requires public financing that could be used in improving the conditions of the central cities and existing suburbs where public and private investments have been substantial.\textsuperscript{20} These central areas are facing problems of

\begin{itemize}
  \item \textsuperscript{16}Ibid.
  \item \textsuperscript{17}J. Beaugieu-Gernier and G. Chabot, \textit{Urban Geography} (New York: John Wiley & Sons, Inc., 196?) p. 292.
  \item \textsuperscript{19}Ibid.
  \item \textsuperscript{20}Metropolitan Council, "Development Framework Chapter" \textit{Metropolitan Development Guide} (March 1975) p. 9.
\end{itemize}
neighborhood deterioration and wearing out of some roads and
utilities. They are increasingly characterized by elderly and
lower income population groups. 21

Costs of scattered developments are shared by everyone
in the metropolitan area through higher utility rates and tax
increases. Much of the growth that was expected in some suburban
areas has not yet occurred; therefore, the communities are paying
for their public services with a smaller tax base. 22

The corporate city suffers when the people located in
peripheral areas are able to deliver smaller amounts of tax
revenues than they utilize in city services. 23 A related problem
is that productive people are moving out of the city to the
surrounding areas, thus decreasing the availability of funds and
public services. 24

The core city provides services for the suburbanite
including transportation routes, traffic control, fire protection,
police protection, water supply and sewage disposal facilities.
But the suburban dweller normally does not help pay directly for
these services. 25 Often his only financial contribution is through

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21Ibid.

22Ibid.

23William S. Foster, "Urban Misconceptions," The American
City (June 1969), p. 149.

24Ibid.

25Raymond Murphy, The American City: An Urban Geography
utilization of basic services provided by the city. Since many of the suburban dwellers earn their living in the central city, some cities have countered with a payroll tax to absorb some of the costs to the city government.²⁶

Urban sprawl has caused or aggravated a variety of problems. It has also been associated with favorable expansion. In the following chapter we will examine the impact of sprawl on an urban area in greater detail.

²⁶Ibid.
CHAPTER III

THE IMPACT AND GROWTH OF URBAN SPRAWL ON SIOUX FALLS

Located on the Big Sioux River in southeastern South Dakota, Sioux Falls is the largest city in the state, Figure 4. Sioux Falls is a dynamic metropolis and serves as a hub of agricultural, commercial and industrial activity in the area. Sioux Falls serves as a regional trade center for approximately 600,000 people, triple the number served ten years ago.¹

In 1965, the city had a population of 71,200 and a Standard Metropolitan Statistical Area (SMSA) of 84,370.² According to the 1970 Census of Population, Sioux Falls had a population of 72,483 and a SMSA population of 95,209. Between 1970 and 1975 the city's population increased 10.6 per cent, reaching a total of 81,100. The metropolitan area has grown faster than the corporate city. The increase from 1970-1975 was estimated at 12.6 per cent bringing the total population of the SMSA to 108,900.³

¹Folk's Sioux Falls City Directory 1975.
²Folk's Sioux Falls City Directory 1964-1965. The SMSA consists of the total urban area including but not limiting it to the corporate city. It is defined as an urban area of at least 50,000 inhabitants or more.
The spatial limits of the corporate city have been expanded substantially during the past ten years. The city has grown from an estimated 20.6 square miles in 1966, to 34.0 square miles in 1975. Figure 5 shows the tight corridors or compact corporate limits of Sioux Falls, in 1966, as compared to the total platted area (land that has been subdivided for development purposes). A limited amount of developable land existed within the corporate city thus encouraging growth beyond the limits into the fringe area.

Figure 6 exhibits the amount of land that had been annexed by 1970 to accommodate the new growth taking place. These annexed areas are depicted on the map by large arrows. Through empirical observation it was found that most of the areas identified as new annexed development represent residential use which seem to be the most rapidly expanding portions in the city. In 1973, Sioux Falls had added a substantial portion of land to the corporate limits (represented by the arrows in the northeast corner of figure 7.) The other arrows represent additional areas that had been added through 1973.

A comparison of growth from 1966 to 1976 is represented by figure 8. This figure shows the extent of spatial expansion through annexation for a given ten year period. Areas platted

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4 Folk's Sioux Falls City Directory 1966.

5 Ibid. 1975.
Figure 7
outside of but adjacent to the corporate limits must be considered as future potential sites of annexation if present trends continue because much early platting has already been annexed by Sioux Falls.

Population

The following table shows the annual population in ten year increments beginning with 1940 and following through to 1950. This table represents past population and future estimates by Harland Bartholemew and Associates of the Sioux Falls area.6 As seen in the "Percent Change" Column each ten year increase was approximately the same. Assuming the annual percentage increases will remain constant, the population for the Sioux Falls SMSA should reach 150,000 by 1970.7

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Percent Change</th>
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<tr>
<td>1940</td>
<td>45,120</td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>53,692</td>
<td>+28.6</td>
</tr>
<tr>
<td>1960</td>
<td>78,905</td>
<td>+28.8</td>
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<tr>
<td>1970</td>
<td>95,000</td>
<td>+25.1</td>
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<tr>
<td>1980</td>
<td>120,000</td>
<td>+25.0</td>
</tr>
<tr>
<td>1990</td>
<td>150,000</td>
<td>+25.0</td>
</tr>
</tbody>
</table>

Sample Studies

The following study was prepared by the Sioux Falls Planning and Design Project Office. The study was done in response to a


7Ibid.
subdivision requesting assistance from the city to extend its sewer system into the area because of septic tank failures. The study was selected because it is representative of the problems that can occur from "leap-frog" development.

The Prairie Meadows Sanitary District (see figure 9) is a subdivision of Sioux Falls requesting assistance from the city to help solve sewage problems. At present there are thirty-seven residences and one church located within the Sanitary District. All of the homes are served by individual water wells and most have private septic systems for waste disposal. Some of the homes have experienced septic system failure due to unfavorable soil conditions, which are present throughout the entire area. Well contamination has also resulted from septic tank failure, thus presenting a serious health hazard to those now residing in the District. Much concern has been raised because of the proposed solution of bringing municipal sanitary system services to the District. Since it would be economically infeasible to use the proposed system to serve the number of families presently living in the District, additional construction would be mandatory. Concern can be summarized as follows:

A. Construction of the sewer system would encourage 200 or more families to move into the District and out of the city limits. This would contribute to a loss in the city's tax

\(^8\)City of Sioux Falls Planning and Design Project Office, Prairie Meadows Sanitary District (June 24, 1976).
base and often involves a number of families enjoying city services without having to contribute to their cost. 9

B. The area must be considered sensitive, from an environmental viewpoint, because of soil conditions and high water table. Of significance, the land comprises some of the most productive agricultural land in the county. 10

C. The demand for services such as education, street maintenance, fire and police protection would increase as additional residential units are constructed. Thus, fiscal pressure upon the city would be increased.

Because additional construction will be needed to ensure the economic viability of the proposed system, this new growth must be considered a major impact of the project. Consequently, many problems that are associated with fringe area urban sprawl may be irritated if the sewer system is made available to the District. Some of these are urban out-migration, cost-benefit spillovers, central city containment, local government fragmentation and service inefficiencies. 11

Stimulated growth of rural subdivisions such as Prairie Meadows occurs at the expense of Sioux Falls because, if accelerated

9 Ibid.
10 Ibid.
11 Ibid.
out-migration of families from the city continues, it will most likely lead to a decline in the tax base, median income level and the sense of community within Sioux Falls. Also, housing production within the city could be retarded if the trend continues. At the same time, it is inevitable that areas situated on the fringe will benefit from facilities and services provided by the city without having contributed effectively to their financial support.

Continued development within the fringe may lead to the encirclement of the city. These developments may serve as barriers to the orderly growth of Sioux Falls. Fringe area developments and their haphazard patterns and frequent conflicts of land use create significant problems for the city. To increase special purpose governmental units means that fragmentation of public services will increase also. Long range planning could be seriously reduced with a greater number of governmental bodies responsible for services in the area.

As the population of the metropolitan area increases and spreads over a wider area in low-density sprawl, per capita costs for providing public services and facilities will greatly increase. In order to serve scattered developments, longer major streets and

12 Ibid.
13 Ibid.
14 Ibid.
15 Ibid.
utility lines will be needed along with more police and fire protection for the larger areas. The city's wastewater treatment facility is presently overloaded and in need of major improvements. Future expansion of dispersed subdivisions on low cost land will place increased pressure upon the already overtaxed facilities. Thus, additions to the city's sewage treatment will contribute directly to overloading and the need for expansion of the wastewater treatment facilities.

An asset of unplanned "leap frog" sprawl is that the areas offer a less congested atmosphere. However, only the small number of families located within the sprawl actually benefit. A recent survey taken by the Sioux Falls Planning and Design Office reports the advantages given for moving into the fringe areas. These include space, privacy, quiet, less traffic, lower taxes, clean air, less crime, no neighbors and "freedom land" to use as they desire. But often for the few who benefit there are a greater number of people who are disadvantaged in providing those few families with an improved quality of life.

Ribbon Development is another form of sprawl that has occurred to some extent within Sioux Falls. It is readily

16 Ibid.
17 Ibid.
18 Ibid.
19 Ibid.
noticeable because of its linear-long and narrow patterns along transportation routes. The northeast portion of Sioux Falls east of the airport, represented by the arrows in figure 10, demonstrates this type of sprawl. According to Robert Fox, City Planner, ribbon development offers no advantages to the city.\textsuperscript{20} However, it does seem to offer an advantage to those that are responsible for the development through the initial low cost of land. Because of the small scale of this sprawl in Sioux Falls, the city has not been overwhelmed by problems. However, a burden has been placed on the corporate city through the extension of city utilities into the developed strip.\textsuperscript{21}

Ribbon development requires less lot space because of its linear pattern of growth but actually spreads out more thus taking up more land. There seems to be little advantage to the corporate city from this type of sprawl.

Low density continuous development is a difficult type of urban sprawl to recognize because of its common occurrence in expanding urban areas. This type of sprawl consists of all development located directly in line of principal growth in the rural-urban fringe. This type of development utilizes more space because of large lot requirements. Low density continuous development is considered the least offensive form of sprawl because of

\textsuperscript{20} Ibid.

\textsuperscript{21} Ibid.
its close proximity to city service extensions. As Sioux Falls expands, the developments are added to the city through annexation. Because the areas are adjacent to previous developments which are serviced by city utilities there are few adverse effects on the corporate urban area.

In Sioux Falls, low density sprawl has offered a lifestyle advantage and initial land costs have been lower.\(^\text{22}\) It is the least expensive for extension of utilities and seems to be a natural type of growth. It does involve more land because of larger lot requirements.

Leap-frog development has been the most difficult form of sprawl for Sioux Falls to deal with. There has been a substantial amount of problems associated with this type of sprawl as compared to low density or ribbon development. Sioux Falls faces a loss in population to these areas, thus, decreasing the tax base. This type of sprawl grows at the expense of the city which provides them with extension of utilities. Leap-frog development leads to retarded housing production in the city and may eventually lead to encirclement of the city which hinders orderly growth. These areas are far more scattered and require longer major streets and utility lines than do the other forms of sprawl. Advantages to the city from this type of sprawl do not exist. But advantages for the people who live in these developed areas do. The advantages cited are privacy, space and lower taxes.

\(^{22}\)Ibid.
their future will be determined by Sioux Falls as it continues to
grow in size.

2. Much good cropland is being used up for housing. Adjacent communities are basically agriculturally oriented and they are afraid that much good agricultural land will be taken by housing as the city expands.

3. There is concern about annexation of adjacent land for city development. The communities feel that they have what they need and do not think Sioux Falls can benefit them. If the city spreads out and engulfs them they would be in the same situation that they moved away from in the beginning. Reasons given for moving to the suburbs were a lower tax base and less congestion.

According to Steve Metli, City Planning Director for Sioux Falls, most of the fears are unfounded. He says that those areas under consideration for annexation are almost a portion of the city now. The city gives them emergency police and fire protection, treats their sewage and they are in the city's school district.\(^{24}\)

Since housing costs are already high, a principal reason for piecemeal development in rural areas is the lower construction cost of housing there. Rural housing costs are lower, initially, because there are few urban services if any. But, when the population increases, people need these services and must pay for them with a much smaller tax base. Since it is necessary to

\(^{24}\)Ibid.
replace the wells and septic tanks with public water systems and sanitary sewers, the residents must pay twice for the same systems. Therefore, housing in rural areas actually can be more expensive for the suburban dweller although the initial cost was less.25

Cities will continue to grow and urban sprawl will expand at an increasing rate. Surely this is to be desired. Therefore, the problem is not to reduce urban sprawl, but to guide it, thereby reducing its frictions.26


CHAPTER IV

CONCLUSION

The citizen's dream is to combine all the advantages of rural and urban life and exclude all the shortcomings of both. He wants excitement, opportunity, security and comfort all at the same time.¹

Is there an end to sprawl? There is evidence that controlled or managed growth is becoming a predominant trend in land use decision-making. As the trend continues and matures, more consideration will be given to growth alternatives.² Planning of land use and other aspects associated with suburban growth can be improved by sharpening methods of economic analysis, thereby, more precisely estimating the costs and benefits used in determining the best alternative. This approach is certainly superior to past practices in some communities which consisted of mere assertions that the alternative chosen was positive or favorable. In addition benefit-cost calculations should include estimates of


who shall gain and who shall lose according to the alternative selected.³

The Federal Government is increasing its role in the guidance and direction of growth. Since 1965, the national government has required metropolitan and regional planning as a prerequisite for federal funding of many facilities and programs. Such programs include highway and mass transit construction, urban renewal, air and water pollution control systems, sewage and water supply systems and land acquisition for parks, open space and other public services.⁴

In addition to these positive incentives, there are some uses of "police power" by governing bodies. Zoning, which is one of the most widely used of the policing powers, has been a useful device in the regulation of land uses. Zoning consists of dividing the area into separate use zones such as residential, commercial and industrial, and is usually broken down further into subzones which restrict height, number of occupants and others. Zoning, therefore, actually regulates future land use in the city.⁵

Subdivision regulations are a second form of the "police power" imposed in order to achieve a more desired pattern of land uses.


for continued growth in fringe areas. This form of policing power regulates lot size, area of placement and physical size of the subdivisions. It also makes mandatory such facilities as sewers, paved streets and water systems for the area served in such a development. Finally, the use of eminent domain which is the condemnation of private lands at fair market prices, may be instated to ensure that properties are used according to an outlined plan for development.

The analysis of sprawl has revealed the following data concerning the aforementioned problem questions:

1. What has been the extent of growth beyond the corporate city limits of Sioux Falls, South Dakota between 1966 and 1976?

Sioux Falls' population has grown by approximately twelve per cent between 1966 and 1976 and has increased its total metropolitan population by approximately thirty per cent. The Sioux Falls' metropolitan area has increased substantially faster than the corporate city. The corporate area of Sioux Falls has also increased spatially from 20.6 square miles in 1966 to 34.0 square miles in 1975, an increase of approximately 70 per cent.

During the past ten years the city's residential areas have been growing to the southwest, south and east. Most


7Ibid.
industrial development has been in the northeast, which represents the largest tract annexed between 1966 and 1976.

2. What are the assets and liabilities of urban sprawl?

Through the process of sprawl large investments of capital have been made for building new residences, shopping districts, and industry. Along with this construction have come new and pleasant neighborhoods and the building of community facilities such as schools and churches. Another advantage of sprawl is the equalizing of incomes and stimulation of employment opportunities. Urban sprawl also creates new spaces in the core area, which enables urban renewal projects to begin thus encouraging movement back into the central portions of the city.

Sprawl is also associated with many problems. Among the many costs of horizontal spread are extension of utility services to new areas, loss of agricultural land, and loss in land value from conflicting use. When areas incorporate around the central city, older residential and business sections deteriorate as residents and businesses move out into areas where taxes are lower and there is less traffic congestion. For those who remain the cost of government increases.

3. What has been the impact of urban sprawl upon the Sioux Falls Corporate city?

As Sioux Falls expands, more money is needed for the growing area and without it the central city will suffer. One basic impact is that productive people are moving out of the city
into the suburbs. Sioux Falls supplies the suburbanite with amenities of the city but receives no direct payment for their use. As industry moves out to surrounding areas, the tax base decreases and central city residents must share the higher payments. Sioux Falls has kept the balance of growth in check through controlled annexation. The city is continuing to expand but still exists as a compact and orderly growing urban area. The major problem faced by Sioux Falls at the present time is "leap-frog" development which may hinder future development and cost the city in services expanded to these developments. The only asset of "leap-frog" development has been to the families located in these projects, not to the corporate city. Ribbon development and low density development have occurred during the past ten years, but not to the extent that they pose major problems for the orderly development of the corporate city.

4. What can be done to plan for future development?

Since 1967, the Metropolitan Council, a regional planning commission located in Minnesota, has been involved in long range growth planning centered around Minneapolis-St. Paul. The commission has designed a guide which may be applied toward directing the growth of other urban areas. The Metropolitan Council's suggestion ensures a sufficient amount of land on which to develop public services required for future growth. Their method divides the planning area into sectors rather than attempting to plan the metropolitan region as a whole. The demand for land
in each sector has been forecasted for the 1973 to 1980 period. The amount forecasted is then compared to the amount of vacant land presently served by metropolitan services in each section. In those sectors in which the demand would exceed the current supply, expansion was proposed. In the areas where supply was exceeded by demand funding was guided elsewhere.

The Urban Service Area was defined using the following criteria:

1. The Urban Service Area should have enough developable land in each sector to accommodate forecasted demand. This can be done by annexing ahead of growth.

2. The Service Area in each sector should include enough developable land for five years. This oversupply of land will allow a choice within sectors, will accommodate variations in growth rates, will provide adequate time for planning and construction of public services, and will reduce any tendency toward the inflation of land prices caused by the shortage of land for development by ensuring that more land will always be available. Land prices rise because of land shortages; thus, if land is available for five years of development, increases in land prices may be held to a minimum.


9 Ibid.
3. The Urban Service Area should be defined within a temporal framework and its boundaries should be expanded periodically to meet forecasted need.

4. The Service Area should utilize existing investments in metropolitan and local services, thereby minimizing the cost of providing additional services.

5. Areas having soil limitations should not be considered as part of the potential land supply for future development.

6. Agriculture should be considered a major asset. Land well suited for commercial agriculture should not be considered in the total supply of potential land for development.

To determine the amount of land needed in each sector for future needs, the Council suggests that the area be divided into three rings—the inner ring, developing ring, and outlying communities. Forecasts of numbers of dwelling units demanded are made for each ring, and recommendations for residential land use densities are then made based upon the past utilization of land and the amount of land currently available for urban growth. After the demand for residential land is forecasted, land needs for industrial, commercial, and other land uses can be projected by using employment forecasts for each sector.\(^{10}\) Potential supplies of developable land for each sector are determined utilizing maps

\(^{10}\)Ibid., p. 23.
showing the extent of urbanization up to the present time and of land features which might constrain development.\textsuperscript{11}

The land commitments proposed for each sector are similar to, but significantly greater than, actual urban land needs. At least a five year excess of developable land is provided in each sector at all times through the planning period. The proposed oversupply of land is large enough to enable both private enterprise and local planning to function and, at the same time, allows retention of some control of the costs of public services in the region. The Urban Service Area is large enough to ensure local municipalities that they can anticipate growth of population and employment that will be needed to pay for the urban services that will be required for the area.\textsuperscript{12} Managed growth is well on its way to becoming a predominate trend in land use decision-making.\textsuperscript{13}

The Metropolitan Development Guide is a management technique that may be used in guiding the future growth of our urban areas. The Guide should be studied in greater detail and compared to other urban areas that may benefit from this type of planning.

\textsuperscript{11}Ibid.

\textsuperscript{12}Ibid., p. 28.

Recommendations

Planning of land uses in Sioux Falls can be improved and urban sprawl better controlled if a few recommendations are followed. These include:

1. Continued orderly growth through annexation which will help eliminate randomly located developments.

2. More precise estimation of costs for service extensions to outlying areas.

3. More detailed studies of growth alternatives to determine the future impact on Sioux Falls.

4. Determination of future allocations of land which Sioux Falls will require for growth.

5. The Sioux Falls Comprehensive Plan should be reviewed on a year to year basis because of the increasing changes taking place.

6. More precise estimation of costs and benefits in considering growth alternatives in order to cut costs of planning and time delays in implementation.
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