AN HISTORIC REVIEW AND ANALYSIS OF THE DEVELOPMENT OF PLANNING IN A POLITICAL REGION

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ABSTRACT

AN HISTORIC REVIEW AND ANALYSIS
OF THE DEVELOPMENT OF PLANNING
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by James E. Farmer

It has only been recently that regional planning agencies have been established to guide the physical development of metropolitan regions. Each attempt by such an agency to comprehensively plan for the functional and spatial relationships of land use areas and transportation, utility and service systems has been essentially a pioneering effort. The little experience gained has seldom, if ever, been systematically recorded to aid other regional planning efforts. Consequently, those undertaking such efforts for the first time are forced to rely mainly upon their own intelligence and knowledge. This study examines in detail the preparation of the first comprehensive plans for a specific region, in the hope that this experience may help guide future regional planning efforts in other regions.

The thesis first examines the physical, economic, social, and political conditions in the region under study, and outlines the history of the Regional Planning Commission, in order to illuminate the setting in which the regional planning project took place. It then

examines the attempts of the regional agency to prepare a work program and schedule for the preparation of comprehensive regional land use, sewage disposal, and water resource development plans. Finally, it discusses the actual preparation of the plans, and highlights some of the basic strengths and weaknesses of the total planning effort.

The major conclusions of the study were as follows:

1) Until regional planning agencies have the power to implement plans, it is essential that they be in a position to favorably influence local officials who have that power. By providing professional planning assistance to local governmental units, the regional agency can build support for the total regional planning program.

2) Strong Commission guidance of staff operations is important to sound planning for the total region, as it acts as a brake on program alterations and limited viewpoints.

3) The amount of detail to be incorporated in a work program and schedule depends upon the agency's limitations of staff, money, time, and basic inventories.

4) Plan maps, as opposed to mere statements of policy, facilitate sound decisions by local officials who have the power to implement plans.

5) Plans for land uses, sewerage and water systems, and major thoroughfares should be interrelated, thus simplifying many decisions that would be difficult to make if the plans were done separately.

6) Sound regional planning must draw from many fields of knowledge.

7) A general outline for a regional planning program might include the following steps:

   a. Collect general background information on the physical, economic, social, and political conditions in the region.

b. Prepare an outline for a planning program.

c. Enlist support for regional planning by providing local planning assistance and establishing contact with local, state, and federal officials.

d. Collect detailed, up-to-date information on all relevant existing conditions and project demands for the future.

e. Prepare sketch plans to focus Commission attention on issues and check adequacy of assembled data.

f. Prepare a work program and schedule.

g. Prepare concurrently comprehensive land use, sewage disposal, water resource development, and major thoroughfare plans.

h. Enlist support for the plans and initiate measures to get action on plan proposals.

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PREFACE

Originally, the scope of this thesis was to be limited to an examination of the formation of a program and schedule for the preparation of a region's land use, water resource development and sewage disposal plans. However, at the suggestion of several members of the faculty of the Department of Urban Planning, the scope was later broadened to include presentation of background information on the region under study and discussion of the actual preparation of the regional plans, in the hope that this would make the study more valuable to others who might be engaged in the preparation of similar plans.

I would like to take this opportunity to gratefully acknowledge the assistance of Professor Joseph M. Prochaska. His careful scrutiny of and comments on the drafts were of immeasurable value.

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INTRODUCTION

Comprehensive planning for land and water uses, transportation routes, and public facility and utility systems for metropolitan regions is a relatively recent undertaking in this country. It is only in the last decade that most regional planning agencies have been formed. Because of this recent origin, there are few precedents to guide regional planning programs.

The purpose of this study is to provide a detailed picture of the preparation of a region's first plans. The procedure to be followed is to first examine the physical, economic, social, and political environment in which the planning program operated. This provides a basis for understanding why the specific planning procedure was selected. Next, the task of preparing the regional land use, water resource development, and sewage disposal plans will be discussed. Finally, comments will be made in the hope that the experience will aid other regional planning efforts.

A study of this kind requires an intimate knowledge which can best be gained through actual participation in a regional planning program in a responsible position. Such a position in itself imposes a respon-

sibility which limits the critical nature of the study. This study seeks to reduce this limitation by avoiding specific identifications of persons and locations. The resulting freedom of discussion should make the study more valuable to others engaged in or studying similar programs.

CHAPTER I

THE BACKGROUND FOR PLANNING

This chapter describes the major highlights of 1)the physical, economic, social and political conditions in the region 2)the past regional planning efforts and 3)the state of the planning operation at the time the program and schedule for the preparation of the regional plans were adopted in the fall of 1961, in order to provide a basis for understanding why the particular program and schedule were proposed and adopted.[1]

Regional Conditions

The Regional Setting

The region under study is located in the midwestern United States and contains a land area of over 1300 square miles. It contains three counties with a population of nearly 700,000 people and a central metropolitan

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[1]The data on the physical and economic conditions in the region is based on physical inventory, population and economic base reports prepared by the agency. The information on social and political conditions is based on personal observations and discussions with public officials, public employees, and newspaper reporters. The section on past planning efforts is based on discussions with members of the Planning Commission, past and present staff members, and Planning Commission records.

core area of nearly 400,000 people.

Three other metropolitan areas are within 50 miles. The largest of these has a population of about 2,500,000 people and is exerting considerable suburban development pressure along one edge of the region. This development may merge with the development of the suburbs of the region's core area in the next few decades. The other two metropolitan areas are exerting no appreciable effect on the region.

The Physical Conditions

The region is inland and contains the headwaters of five major watershed areas. This, coupled with the fact that the surface of the entire region has been molded by glaciation into a rolling topography with predominantly impervious soils, has resulted in a current preoccupation with the problems of obtaining an adequate water supply and properly disposing of sewage wastes. Many potential industries have avoided the region because of water and sewerage problems. The underground water supply, with a few localized exceptions, is not sufficient to support intensively developed areas which would be solely dependent upon wells. In many parts of the region, the surface water supply is being used to transport domestic and industrial sewage wastes and, because of the consequent pollution, is not usable for other purposes. Water can be piped from some distance

away, but the cost of doing this could hamper the region's further economic development.

Except in a few isolated areas, the soils of the region are unsuitable for use as septic tank disposal fields. Septic tank disposal fields fail frequently, with the result that water-borne diseases such as hepatitis are becoming increasingly frequent health problems.

The Development Pattern

With the exception of a few isolated much soil areas where truck farming occurs, the soils are rated as moderately productive for agriculture. Since the land has only moderate value for farming and is highly taxed, it costs comparatively little in the rural fringe of the core area. After World War II, the cheap land, coupled with good access by all-weather roads, inadequate rural health, building, and zoning laws, and a good housing market, invited exploitation by builders. Subdivisions, individual homes, and industrial and commercial uses scattered over the countryside. The farm land left vacant soon became idle. Today there is more land left unused in this scattered development pattern than is occupied by all urban uses in the region.

Public facilities, particularly sanitary sewer and water systems, are urgently needed. The cost of providing needed services and facilities is bringing local governmental units to the verge of bankruptcy. The

public finance dilemma is growing: public services must be provided, but the cost of providing them to such a scattered pattern is prohibitively expensive. Many community leaders are attempting to attract business and industry as a panacea. It is politically unpopular to point out that such uses require more public service expenditures at the same time they provide more tax money.

As the metropolitan core has grown in complexity, investors have frequently failed to understand where they could best locate. This has resulted in an uncoordinated arrangement of land uses and in business failures.

The Economic Base

The most important segment of the economy is manufacturing. Forty-seven percent of the labor force is employed in manufacturing. Of this forty-seven percent, nearly one-half is employed in one major type of industry. This industry is quite sensitive to economic fluctuations. Area manufacturing has been diversifying in recent decades and is expected to further diversify, though high labor costs are expected to act as a deterrent to many industries.

The region's geographic location (aided by new transportation routes) has attracted many motor freight companies in recent years. This industry and related

wholesale trade activities are expected to grow in importance in the near future.

Only two percent of the labor force and approximately forty percent of the land area are devoted to agriculture. Business, professional, educational, and governmental services occur in proportions not unusual for an area of this size.

The Social and Political Situation

Industrial dominance of the economy has resulted in a well-defined class structure, with disproportionate emphasis on both the upper and lower classes. While both labor and management, as groups, profess an interest in improving public facilities and services, individual voting tendencies indicate personal opposition to capital improvements. Local elected officials have of course acted, or failed to act, accordingly. Low levels of state assistance for education, welfare, and so on, have contributed to heavy property tax burdens for the maintenance of existing facilities and services.

A deteriorating central city, coupled with the presence of a large minority group, has contributed to the scattered development pattern of the fringe areas and its accompanying problems.

County elected officials wield considerable political power. The County Engineer is elected.

Past Regional Planning History

Forming the Regional Planning Commission

In 1956, a private non-profit corporation interested in industrial promotion established a committee to investigate the need for a regional planning agency. This committee recommended that another committee be formed to draw up recommendations which would lead to the establishment of a Regional Planning Commission. This was done, and recommendations were made on the area the agency would serve, the immediate work program, proposed budget, sources of income, and personnel needed. After an intensive "selling job," the Commission was established in 1957, serving a three-county region. It was composed of all the major county elected officials, and representatives from all member incorporated areas and the townships. Later, representatives from business, industry, and education were added, raising the number of Commission members to nearly eighty.

Early History

The Commission held its first meeting in February, 1957. Two months later, a professional planner was hired as director. In the next three months, two additional professional planners were hired and work was started on a program of studies which were basic to the preparation of regional plans.

Since the regional planning agency was primarily

an advisory body, actual decisions regarding various areas of concern to the planners were made by various boards and county and local officials. Reportedly there was much resentment on the part of these decision-making organs of the agency's concern with their traditional spheres of influence. Particular difficulty was apparently encountered with one County Engineer.

Agency operations were financed by county contributions of ten cents per person and contributions of five cents per person for participating communities. The result was that the central county was paying over three times as much as the other two counties combined, while at the same time supporting its own county planning commission. Officials questioned whether they could afford to participate in the regional planning effort.

Controversies also arose concerning the orientation of the agency and the work which should be undertaken first. The staff stressed the need to prepare regional comprehensive plans. At the same time, several local communities were clamoring to have the agency contract to prepare local comprehensive plans. This was perhaps the result of overly vigorous promotional efforts by the industrial promotion agency which originated the Regional Planning Commission. In addition, there was considerable pressure to study existing problems rather than to prepare long range plans.

The director of the industrial promotion agency, fearing that the Commission was not going to survive, prepared an eight-point work program. This program was first presented to officials of the central county and then to the Commission and the staff. The program recommended that the Commission

1)survey water needs
2)survey sewer needs
3)inventory existing plans
4)restore Program Committee
5)get federal funds
6)temporarily postpone financing amendments
7)continue present method of financing
8)hire an engineer.

The Commission directed the staff to carry out this program.

In 1958, newspaper stories undermined public confidence in the staff. Staff morale declined, and all three professionals resigned in the fall of that year.

The Struggle for Survival

A young lawyer who worked for the industrial promotion corporation became the second director of the agency in 1959. The new director was politically oriented and public relations conscious. A new staff completed studies which were already under way and, aided by a federal grant,[2] embarked on further basic research and inventory studies.

Emphasis was placed on providing limited planning

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[2]Section 701 of the National Housing Act of 1954 provides grants for regional planning studies.

assistance to local governmental units. This assistance was primarily on zoning matters, with subdivision problems and other planning concerns less frequently requested.

Since federal planning grants have become available to communities in the region, the agency has acted as planning consultant to fifteen communities, ranging in size from a few thousand to 50,000 people. This program has been extremely successful and merits a few comments here. In each case, community leaders have been very actively involved in the effort. This has resulted in plans and implementing measures (zoning ordinances, subdivision regulations, and other administrative recommendations) that have been accepted as community laws and policies. Since the contract work is done by a governmental unit, the community is assured of the availability of continuous professional advice on its plans and implementing measures. This program has generated a great deal of local support for regional planning efforts. In brief, it can be simply stated that eventually the change in emphasis from regional planning studies to the provision of local planning assistance led to increased support for regional planning activities.

The Existing Situation: 1961

The Role and Status of the Commission

By 1961 the Commission was well established as an advisory agency. In this role it depended upon adequate communication of its recommendations to local governmental units and upon the willingness of local units to adopt and carry out those recommendations. As today, the only legal powers the Commission had consisted of ma mandatory referral of township zoning changes, except that when plans had been adopted by the county commissioners, no public improvement or utility could be located except in conformance with those plans unless the three county commissioners voted unanimously to amend them. This role necessitated a political sensitivity and a continual effort to enhance the status of the Commission and the staff.

Staff Organization

The staff was divided into three divisions: regional studies, research, and local assistance. The organization of personnel was not rigid, however, and personnel in one division had specific assignments in other divisions to take advantage of professional skills and interests, to even work load, and to provide a more diversified experience.

Tooling Up Studies

In the process of making inventories and studying the region's social and economic situation and the probable future conditions, seventeen major reports were issued. These studies, listed in chronological order, were:

Physical Geography--an analysis of the principal geographic considerations and soils, and their implications.

Population Projections--population analysis and projections for 1975.

Water and Sewer Facilities--an inventory of existing water and sewer facilities, their capacities, and projected needs for 1975.

Manufacturing Complex--a broad look at manufacturing in the region.

Major Highways--an inventory of major highway proposals prepared by the various local, state, and federal agencies.

Industrial Requirements--results of a questionnaire on existing manufacturing plants and sites, with plans for future expansion.

Schools--an inventory of existing facilities and identification of facilities needed by 1980.

Recreation and Open Spaces--an inventory of major existing facilities and identification of the needs for 1980.

Shopping Habits--a study to determine trading areas and consumer buying habits to aid prediction and planning of needed facilities.

Population and Labor Force--projections of area population for 1970, 1980, and 2000 with emphasis on the portion that will make up the labor force.

Existing Land Use--an inventory of existing land use, history, discussion, and a 20 year comparison.

Trades and Services--an examination of wholesale, retail and service trades in relation to their role in the region's economy and their future effect on the economy.

Major Industries--a depth study of the area's most important industries and their anticipated development as it affects the area.

The Economy--a comprehensive report summarizing the findings of previous reports and making recommendations to strengthen the economic base of the region.

Land with Industrial Potential--an inventory of sites with a possible industrial potential and their selected characteristics.

Public Utilities--Transmission Lines--an inventory of the major power line locations.

Major Thoroughfare Plan

The rapid rate of highway building resulting from the federal interstate defense highway program made the preparation of a preliminary plan to guide pending highway location decisions a necessity. A plan showing very general recommendations for the location of expressways and major highways was prepared, based on the information collected and the best thinking of the staff, and state, county, and local engineers and planners. The plan was well accepted, and was formally adopted by the county commissioners of each county and nearly every city and village.

A Change in Emphasis

The second director was encouraged by personal opportunities and Commission pressures to resign in

early 1961, after the completion of the basic inventory studies. The planner in charge of community assistance became the third director. The Commission applied for a second federal grant--for land use and utility plans --increasing the emphasis on the regional planning program. Figure 1 illustrates the personnel changes in relationship to the orientation of the agency.

Date	Staff and Commission Actions
1957	Commission Formed
	First Director Appointed
	General program prepared
	Local plans wanted
1958	Financing problems arise
	County wants sewer and water study
	Industrial agency prepares program
	Staff Resigns
1959	Second Director Appointed
	Political support sought
	Local plans started
1960	Population studies made
	Economic base studies made
	Physical inventories started
	Second Director Resigns
1961	Third Director Appointed
	Local contracts increase
	Thoroughfare plan started
	Regional Planner Hired
1962	Land use and utility plans started
1963	Regional plans finished

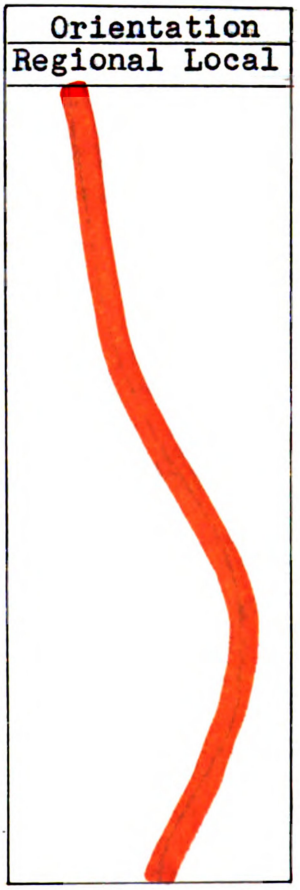

Figure 1.--Personnel changes and Commission orientation

The Regional Planning Program During the First Six Months

During the first few months of work on the grant to prepare the regional land use and utility plans, the

planner in charge of the regional planning operation resigned. Apparently he had differences of opinion with the third director, and he was perhaps troubled by the orientation of the agency. The background studies were completed and it was an appropriate time to leave.

The Consultant's Program

Meanwhile, a planning consultant retained by the Commission prepared a report for the staff on the Regional Land Use Plan. This report was designed to

1)point out preparatory aspects which should be considered by the staff prior to involvement in technical operations

2)specify the scope and sequence of the technical procedures

3)set forth how the staff studies should be reviewed and disseminated.

Since this report did much to influence the planning program, some detailed attention is warranted.

The first section of the report discussed how the Land Use Plan would be applied and what major elements should be incorporated in it. The plan was said to function as

1)an informational device

a.furnishing data
b.serving as a guide to trends
c.reflecting policies
d.stimulating the public

2)an action device

a.indicating community goals
b.providing a lever to coordinate development
c.underlying a program of implementation

d. serving as a guide to the future land use pattern
e. correcting deficiencies in the existing pattern.

Next it was pointed out that the Land Use Plan should

1) identify and shape the forces acting on the area
2) be coordinated with other plans the agency contemplated
3) be a design that requires implementation
4) be designed to utilize emerging governmental programs.

The report stated that residential areas, employment centers, transportation media, and open spaces were the major land uses which should be treated. The first part of the report concluded with a discussion of the determinants of the land use plan. The determinants of the most suitable use for land were listed as:

1) location and interrelations of land use areas
2) quantities of land for various uses
3) physical features.

Density and service requirements were also discussed as determinants of land development.

The second part of the report outlined a procedure for formulating the Land Use Plan. This procedure is outlined below:

A. Establishment of Goals

1) Area-wide Objectives
2) Social and Economic Goals
3) Physical Planning Objectives

B. Survey of Land Potential

1) Natural Features
2) Transportation and Access
3) Community Services and Facilities

C.Determination of Land Quantities

1)For New Population and Economic Activity
2)For Relocated Population and Economic Activity
3)For Renewal

D.Drafting Land Use and Density Patterns

1)Land Needed by Use and Priority
2)An Interrelated System of Uses
3)A Transportation Network
4)A Pattern of Community Facilities

E.Formulation of the Sketch Plan

1)Alternative Plans (30 or more years in the future)
2)Statement Describing
a.Principal Proposals
b.Regulatory Tools Available
c.Governmental Programs Required

F.Formulation of the Long Range Plan and Short Range Action Program

1)Statutory Measures Needed
2)Administrative Organization and Procedures
3)Fiscal Programs Needed
4)Civic-Governmental Relationships Needed
5)Inter-Governmental Machinery Needed.

The third part of the report contained a table to guide the scheduling of staff activities.

The Director's Program

Apparently the consultant's program did not completely satisfy the director, because just four months later he proposed another land use plan program to the Commission. This program consisted of four parts:

A.Identification of Goals and Major Policy Decisions
B.Cataloguing of Necessary Information
C.Study of Major Land Use Plan Elements and coordination of Local Plans
D.Land Use Plan Coordination.

The only significant detail of Part A worth

mentioning here was the suggestion that a Land Use Plan Policy Committee be formed. Part B proposed the mapping of

> soils, areas of ten percent slopes, water bodies and flood plains, existing and projected population, natural resources, woodlands, land with industrial potential, and existing principal cultural facilities and institutions of higher learning.

Part C simply listed the Major Land Use Plan Elements as follows:

1) Translation of projected population into densities and land use requirements
2) Industrial areas
3) Commercial areas
4) Regional cultural facilities and institutions of higher learning
5) Regional open spaces
   a. Inventory of agencies concerned with open spaces
   b. Identification of open space usage
   c. Identification of potential open space areas.

Part D was described simply as coordination of the elements identified in Part C and publication of a regional land use plan in easily readable map form.

Comments on the Proposed Programs

Since neither of these proposed programs was adopted by the Commission, a detailed comparison of them is not warranted. However, since both programs greatly influenced the program which was eventually adopted, several significant points should be noted.

Both programs essentially ignore the utility plans which the grant included. It is especially significant that over one-half of the grant ($55,000 out of $100,000)

was allocated to the utility plans. At this time it was still not decided what these plans would include. It is pure speculation why this was the case. Perhaps the county engineers were sensitive about the subject. Or perhaps the director, who had only superficial knowledge of utility planning, considered it only a technical problem for the staff engineer. The engineer had been given one month to prepare a preliminary sewage disposal plan for the region after the planner in charge had resigned. No water supply or land use plans were available to aid in this task.

Project Progress

During the first six months, the engineer was the only member of the regional planning operation. He was unable to communicate adequately with the director and soon began to aid the community assistance operation by working on subdivision proposals, zoning petitions, and similar projects. To his credit, some basic mapping work delimiting drainage areas and existing utility systems was completed.

The director apparently felt during this period that it was best to postpone further activities until the new project planner was hired. Consequently little work was done on the land use plan.

During this period, one-fifth of the money was spent and one-fourth of the time passed. The project

balance sheet at the end of the first six months read:

	Amount Budgeted	Amount Spent	% Spent
Land Use Plan	$45,000	$13,000	29%
Utility Plan	$55,000	$5,400	10%.

The apparent discrepancy between the amount of work completed and the amount of money spent can be attributed to

1) the inventory of agencies concerned with open spaces, which had little bearing on the land use plan
2) the charging of salaries for staff members in other divisions to regional planning accounts.

The agency had the reputation of being local planning oriented at this time. A great deal of effort was made to get contracts to do local planning for communities and to "keep consultants out." This led to "cut rate" planning programs for local communities and the subsidizing of the local work with other monies. The rationale for doing this was to pave the way for acceptance of the agency and of regional planning. Consequently, the attitude of the staff toward the regional planning operation appeared to be mixed. Staff members had a certain amount of apprehension concerning the way the regional plans would affect their local planning recommendations. Would the uses proposed in the local plans appear illogical when viewed from the regional point of view: Would the local plans fit into the regional pattern? At the same time, the majority of the staff believed that regional planning was vitally necessary.

CHAPTER II

FORMING AND FITTING THE WORK PROGRAM AND SCHEDULE

A mere presentation of the work program and schedule which were drafted to guide the preparation of the regional land use and utility plans would be of relatively little value to guide future efforts. A basic understanding of the factors which influenced the program's emphasis is needed. This chapter discusses the limitations on the program and the assessment of the region's most pressing planning needs. This provides a basis for understanding the underlying philosophy of the specific program and schedule which were adopted.

Program Limitations

Any environmental planning program is carried on within an institutional framework which places many limitations on the content, scope, and depth of the program. To be able to fully evaluate the situation under study, the reader should be aware of the limitations placed on this project by the particular framework within which it was carried on.

Contract Limitations

Since the program was partly financed by the provisions of Section 701 of the Housing Act of 1954, approval by the Housing and Home Finance Agency of work completed was necessary. The contract for the project specified the maximum amount of money the Federal government would contribute. Since the Commission's budget was strained to provide the local share, very definite financial limitations were placed on the project.

The contract time of two years also placed a limitation on the project. Normally the time limitation would not create any problem as the work could be programmed over the full contract period; however, personnel problems delayed the starting of this project a full six months. This one-quarter reduction in the amount of time available for completion of the project compounded scheduling and programming problems to an unfortunate degree.

Social and Political Limitations

As in most other areas in this country, there was a serious lack of general public concern and support for planning efforts. Regional planning efforts were watched with suspicion by many local officials who did not want to relinquish any of their powers to people outside their political boundaries. Developers and real estate interests, too, were wary that planning might limit

their speculative activities.

There was continual friction between the planning staff of the central city and the director of the regional planning agency. This friction stemmed in part from a lack of confidence in the abilities of the city planners, and in part from the desire of each agency to plan for the entire area. There was, however, rapport between the regional planning director and most other community officials in the region.

The largest newspaper in the region supported the regional planning operation and gave the agency good publicity. This gave the agency a good reputation and immeasurably aided the regional planning efforts.

The fact that part of the region was affected by development pressures from an adjacent metropolitan area placed obvious limitations on the program. This area had no general land use plan with which the plans could be coordinated. This void introduced doubts concerning the proper development of the area mentioned.

Inventory Limitations

The inventory studies were deficient in several major respects, although in general they were quite good. First, they did not effectively point out the major regional needs. Specifically, suburban sprawl was not pinpointed as a key problem, nor was the problem of uncoordinated land use arrangements sufficiently

discussed.

The inventory studies were also deficient in several technical respects. First, the physical geography study soils map was inadequate even though the text of the study was good. More money should have been allocated to permit a decent generalized soils map to be completed. Second, no usable information on underground water was collected. This had to be done before water resource development plans could even be intelligently discussed. Finally, no information was collected on surface water reservoir sites. Sewage disposal plans as well as water resource development plans could not be prepared without this information. In addition, the land use information was nearly three years old and had not been kept current. This proved particularly troublesome at the design stages.

Commission Guidance and Staff Problems

The abnormal size of the Commission (80 members) necessitated work by committees. The director advised these committees and consequently had a free hand in operating the agency. The officers of the Commission, being effective business executives, believed in delegating responsibility. The absence of firm guidance by the Commission made it easy to change the program at will. Consequently, projects were frequently altered or interrupted. This hampered the completion of the total

project and seriously damaged staff morale.

The size of the staff also limited the project. After one-half of the contract time had expired, the staff was limited to the planner in charge and the engineer, plus two part-time draftsmen. A great deal of difficulty was experienced in hiring planners to work on the project. Finally, two geographers with planning knowledge and a part-time graduate student in geography were hired. They greatly aided the project, particularly in regard to the utility plans.

Although the staff included six trained urban planners, none had much knowledge of resource planning at the outset. This problem was overcome by working closely with health officials, civil engineers, geographers, geologists, hydrologists, soil scientists, and other skilled professionals. The staff did have adequate knowledge of environmental design planning to prepare the regional land use plans. The staff engineer specialized in highway planning and had to learn more about planning sewerage systems and water collection systems as the project progressed.

The Region's Planning Needs

This section is not intended to serve as a detailed examination of the region's planning needs. Its purpose is rather to set forth the regional planning needs which the planner in charge felt to be most ...

important at the outset of the program.

First and foremost, it was felt that there was a need to discourage, and hopefully curb, urban sprawl. Cursory study revealed that the displacement of agricultural activities caused by skyrocketing tax rates, damaged crops, land speculation, sewer and water system assessments, and vanishing market centers, was a serious problem. This problem was obviously of concern to all communities but also one which no local governmental unit could alleviate by itself. It was a problem for the older central cities as well as the suburban areas, for it would be extremely difficult to renew the older cities as long as cheap land was readily available in the suburbs.

Another major need was the provision of urban services to urban land use areas. Too frequently, builders in sprawl areas operated under laws established to regulate rural areas which did not require services now needed.

Coordination of land use areas, transportation facilities, sanitary and storm sewer and water systems, and other services between local governmental units was also needed. Local governments were simply not cooperating with each other. Mutually beneficial cooperative efforts had to be promoted. Regional plans were badly needed to provide a framework for local planning efforts.

Another area of concern was the proper development

and conservation of the region's resources. There was an obvious need to preserve good industrial and water reservoir sites. There was also a need to preserve open land for recreation, wildlife, and agricultural uses.

The Underlying Philosophy

The philosophy of planning programs is more often implicit than explicit. Since there is no formal, commonly accepted philosophical approach to regional planning, a great deal of thought was given to the preparation of the work program. The work of many regional and county planning agencies was reviewed. Most of this work applied city planning techniques and concepts to regional planning problems.

In view of the present status of regional planning, it soon became apparent that the objective should be to produce plans of optimum usefulness. Thus a pragmatic philosophy--finding out which of many alternative policies would bring about the largest amount of real improvement in the region's environment, social conditions, and economy--was evolved.

It was felt that, to be useful, the plans had to serve as aids to the decision-makers. It was also felt that the local officials who held the power to implement the plans would not support the agency's recommendations merely because they were professional opinions. Thus, all proposals would have to be based on concrete facts

and supported by specific reasons. For example, local officials had to be told that the shale bedrock in a particular area would not yield an adequate water supply to support intensive development, and shown the exorbitant cost of developing other supplies. Again, the inability of mahoning soils to absorb septic tank effluent on one-half acre lots had to be pointed out and related to the costs of providing central sanitary sewer systems to scattered residential uses.

Forming the Work Program

The Need for a Work Program

A work program gives a step by step outline of work to be accomplished. Progress is checked against it and it keeps the project moving forward toward established goals. A properly used work program also reduces the tendency for the planner to become sidetracked and bogged down by items which are not absolutely essential to the total program. Briefly, then, the value of establishing a work program is that it necessitates a comprehensive examination of the work involved and the preparation of a statement showing the relative values of parts of the project. It also establishes the order of work to be completed. If a time schedule and financial schedule are also prepared, the program can keep familiarity or concern with a specific part of the project from warping judgement concerning the value of that

part to the total project.

The director insisted on a formal detailed outline of the program and a firm schedule for the completion of the plans in order to secure Commission approval of the program and to facilitate administration of the project. A planner preparing such a program is somewhat like an explorer who draws a map of unexplored wilderness and then attempts to explore that wilderness by following the trails drawn on the map.

Basic Decisions

Upon starting work, the planner in charge was given one month to prepare a program and schedule for the preparation of the regional plans. Several days were devoted to gaining familiarity with the operation and the area, learning about other area agencies, reading Commission reports, and studying the limited number of regional plans in the agency library. The utility plans were given much consideration during this period since nothing had been done about them previously.

The planner and engineer who were preparing the program believed that there was an excellent opportunity to present truly comprehensive plans for the region's future development, in the sense that they would cover all major land uses, sewerage and water resource development systems, and major thoroughfares for an entire region.

Obviously, plans to be prepared on an $80,000 budget for an area of 1300 square miles and a projected population of 1,100,000 for 1980 would have to be of a general nature. Such plans could only be concerned with land uses and service systems of "regional significance," though this concept later proved impossible of precise definition.

The planner in charge recognized that it would be necessary to avoid conflicts with the established local assistance operation, and first considered structuring the regional plans to avoid conflicts by having the regional plans serve as long range guides and the local plans as short range guides. The short range local plans could then serve as a basis for zoning plans, capital improvement programs, and other implementation measures which would be of immediate value to local officials. However, the local assistance operation had already started preparing "ultimate" plans for local communities. By comparing populating estimates with the population holding capacities of the prepared local plans, it was discovered that this "ultimate" was 40 to 80 years away. It was then decided that there was an opportunity to guide the growth of the region over a time span and an opportunity to avoid conflicts by designing, or staging, the plans to show development approximately 20 and 40 years in the future. To permit utilization of projected population and projected land

needs information, it was decided to stage the plans for the years 1980 and 2000.

Neither the planner nor the engineer were very concerned with communication with the public, but the director felt strongly that "every community should agree" on the plan before it was published. Consequently, the work program was revised so that newsletters and reports would be released frequently throughout the project.

Program Organization

The program was organized into five phases. The purpose of Phase One was to identify purposes and limitations of the plans as a basis for major policy decisions. Phase Two involved the delineation of natural and man-made features and social and economic forces which determine land use and the provision of sewerage and water supply systems. Phase Three consisted of the design of the land use and utility plans. Phase Four involved the preparation of a summary booklet to present the plans to the public. Phase Five was a program evaluation and recommendation for action based on the knowledge gained in the preparation of the plans. An outline of the program follows.

Phase One: Regional Planning Framework

Purpose: to acquaint leaders and public with purposes of the regional land use and utility plans, the existing situation, influencing forces, policy decisions, and goals of the plans.

Land Use Planning Framework

1)Regional Planning Needs and Purposes--a newsletter pointing out the growing complexity of the region as a background for discussing planning needs.

2)Regional Forces and Problems--a newsletter focusing attention on growth pressures and major problems.

3)Significant Trends and Assumptions--a statement identifying premises used for decision making.

4)Planning Determinants--a newsletter identifying factors influencing the location of land uses and transportation routes.

5)Basic Alternatives--a newsletter suggesting various arrangements for the location and spatial relationship of land uses, with discussion of social and economic implications.

6)Goals--a newsletter containing the tentative goals recommended by the Land Use Plan Policy Committee.

Utilities Planning Framework

1)Highlights of the Sewer and Water Situation --a newsletter updating data and providing a background for understanding sewer and water problems.

Phase Two: Regional Planning Determinants

Purpose: to identify natural and man-made features and social and economic forces which largely determine the use of land and the provision of sewerage and water supply systems.

Land Use Determinants

1)Natural Determinants

a.Water (ground, surface, and flood plains)
b.Topography
c.Soils
d.Vegetation
e.Other natural resources
f.Climate
g.Geography.

2)Man-Made Determinants--existing development and transportation and service systems.

3)Social and Economic Determinants--social desires and economic capabilities.

4)Public Interest as a Determinant.

Utility Determinants

1)Natural Determinants

a.Topography
b.Soils
c.Surface drainage areas
d.Climate
e.Geography.

2)Man-Made Determinants--development patterns, transportation routes, and existing facilities.

3)Economic Determinants--capital and operating costs.

Phase Three: Land Use and Utility Plan Design

Purpose: to design plans for the location of major land use areas, transportation routes, water supply and sewage disposal systems for the years 1980 and 2000.

Land Use Plans

1)Land Use Potential Study--analyzing the potential of land for various uses

a.Industrial
b.Recreational
c.Residential
d.Agricultural.[3]

2)Land Use Demands

a.Projected population and economic growth
b.Land use trends
c.Land use needs (by community).

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[3]Commercial uses were not included at this point because they are subservient to other uses and are more dependent upon demand than specific land characteristics.

3)Equating Potentials and Demands into Realistic Plans

a.Balancing demand for land and water for various uses with natural resource potentials.
b.Resolving conflicting demands for uses of the same land.
c.Developing an orderly, efficient, and functional regional land use pattern through the use of planning principles and design standards.

Utility Plans

1)A presentation of the water resource development and sewage disposal plans.

Phase Four: Plan Summary

Purpose: to present the plans to the general public.

Phase Five: Program Evaluation and Recommendations

Purpose: to suggest courses of action to

1)Keep plans current

2)Detail specific areas

3)Effectuate plans through

a.Governmental action--fiscal, zoning, subdivision, and public health policies
b.Private action--financing and building decisions.

The program was presented to the Plans and Program Committee of the Commission for its recommendations. A representative of the largest county felt that the program was weak in one very important aspect--it was not sufficiently oriented to alleviation of existing problems. The planner in charge stressed that he felt that the planning program's greatest value would be in preventing future problems, but he agreed with the

objection. The committee agreed to recommend that the Commission approve the program with the understanding that their comments be considered by the staff, and that the program represented staff goals rather than a firm committment to complete all the items listed. The Commission approved the program.

Scheduling the Program

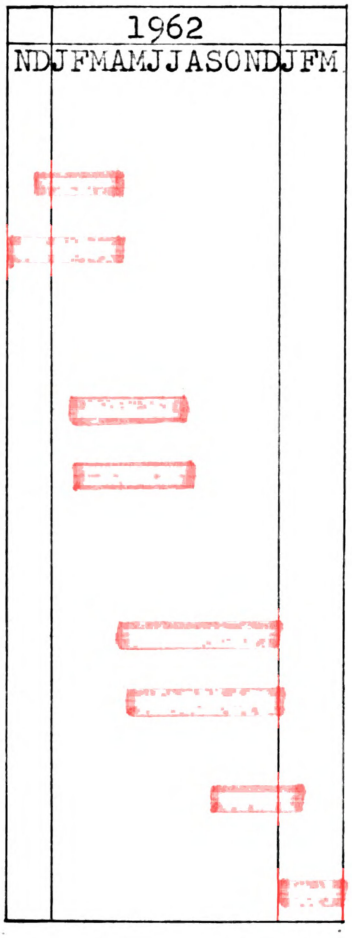
The program was scheduled in detail over the eighteen months left in the contract period. To be more accurate, the program was scheduled to be completed in fifteen months. This was done to allow 1)for unexpected problems which might arise 2)time to get the plans and reports printed, and 3)completion of the plans during the Commission President's term of office as a gesture of appreciation for his work.

The schedule was prepared as directed by the planning director, even though the planner in charge of the project protested that 1)he had not had time to become familiar with all the information which was available or to explore the problem of getting further needed information 2)there was not an adequate staff to complete the program, and 3)the hiring of new staff would take an undetermined length of time.

Figure 2 shows the outline of the program and the schedule that the Plans and Program Committee and the Commission approved.

Program Outline

Work Schedule



Phase I: Regional Planning Framework

Land Use Planning Framework

Utilities Planning Framework

Phase II: Regional Planning Determinants

Land Use Determinants

Utility Determinants

Phase III: Regional Land Use and Utilities Plans

Land Use Plans

Utility Plans

Phase IV: Regional Land Use and Utilities Plans Summary

Phase V: Program Evaluation and Resulting Recommendations

Figure 2.--Outline of program and schedule

The Program and Schedule in Retrospect

Prior to describing how the regional land use, sewage disposal and water resource development plans were prepared, some comments on the program are warranted to assist others in preparing similar administrative aids in the future.

First, the reader may have recognized one basic fallacy in the entire approach. This is that the program and schedule should have been completed prior to the beginning of the program. Working out a program and

schedule prior to contracting for the project would have permitted much more realistic estimates of the time and money necessary to complete the project. Moreover, even a rough project outline and a clear statement of the purpose and scope of the project should have indicated that additional information was needed before the project could be undertaken. But more important yet, the preparation of a program and schedule would have indicated the necessity to contact and consult with other people in the area concerned with water supply, conservation, sewage disposal, and land use planning. The failure to establish a close working relationship with these people prior to contracting for the work hindered the progress of the project.

Theoretically, it might seem advisable to have worked on the major thoroughfare plan in conjunction with the land use, sewage disposal and water development plans. In actuality, however, it worked extremely well to have the preliminary thoroughfare plan already completed. There were two reasons for this. First, the thoroughfare plan was very general in regard to new facilities. This permitted a considerable amount of flexibility in working out land use and service areas in conjunction with the plans. Second, it presented an excellent opportunity to get across the basic difference between community plans and plans for a building or sewer project: Community plans must be subjected to

periodic revision so that they always represent the best of current thinking.

The schedule, as it turned out, was overly ambitious. The three month margin was not sufficient to absorb actual problems encountered.

The program was too detailed, especially in regard to the presentation of reports. It would have been better to let the reports come out of the work on the plans rather than having the plans appear to stem from the reports. The program was fortunately not precisely followed. Had it been, the plans would have been deficient in several respects. Scheduling in excessive detail should be avoided, though it is difficult to say what degree of detail is excessive.

The program did recognize the close interrelationship between land use, sanitary sewage disposal, and water resource development planning, and the arrangement of the program was to later greatly facilitate the preparation of the plans.

CHAPTER III

PREPARING THE PLANS

This chapter describes in detail the preparation of the regional land use, sewage disposal and water resource development plans. A mere diary of the events leading to the completion of the plans would be the simplest method of presenting this information. However, a diary seldom presents a coherent picture of events which occur over an extended period of time, because the reader is required to shift from subject to subject. Historians learned long ago that shifting of subjects makes description of events impossibly confusing. This section, then, discusses events as subjects. It should be realized that such a procedure of necessity blurs the chronological perspective, but this is preferable to blurring the subject matter. Particular attention is given to the major technical, administrative, and political problems encountered in the process of preparing the plans.

Initial Problems and Prospects

The adoption of a work program and schedule was not a panacea for the troubles which had plagued the

regional land use and utility planning project from its inception. Concurrently with the beginning of Phase One, an intensified effort was made to correct inadequacies and inaccuracies in the basic information.

Questionnaires seeking to pinpoint the problems of each community were sent out as suggested by the Commissioners. While the information obtained from the questionnaires was not complete, it did provide a valuable insight into many specific problems.[4]

Newsletters

The writing of newsletters was to begin immediately. Some of the material, however, was too technical to be presented in that form. In addition, some of the staff members were having literary difficulties. At the same time, the director became concerned that the newsletters did not have a wide enough circulation. He began to feel that people could be reached more effectively through the press.

During the first month after the work program was prepared, effort was made to get evidence of work completed on maps and charts, so that additional Federal funds could be released for the project. Emphasis was placed on preparing a very preliminary open spaces sketch plan, shopping and cultural centers plans, and maps depicting the growth of developed areas and pol

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[4]See the Appendix for questionnaire.

political units, flood plains, and other miscellaneous information. Consequently the preparation of the newsletters was further delayed.

When the federal inspector came, he mentioned that newsletters did not qualify as a project expense. This, in addition to the limited circulation of the newsletters, caused them to be dropped from the project. The information prepared for the newsletters was, however, very useful in formulating and further defining the course of the project.

It was decided that the complications with the newsletters could not be allowed to delay other phases of the project. The information that was ready to be released would be reorganized into a report. Work on this report would have to be done during slack periods on other projects. Finally, a graduate student in planning, who was hired for the summer, was assigned to work on this report. The report was considerably expanded to provide the Commission and other public officials with a basic understanding of the past, present, and future development of the region, the basic problems of this development, and the alternative patterns which were possible for future development.

Goals

The establishment of goals was intended to involve citizens and public officials in the planning process by

getting their concurrence on the general objectives which guide the planners. It was hoped that after general concurrence on the goals was obtained, there would be greater understanding and acceptance of the proposed plan.

Before the planner in charge started to work, a Land Use Plan Policy Committee had been created. The committee was composed of the planning director from the central city, the planning director from the central county, a planning director from another city, and three citizen members. This arrangement was specifically designed by the regional planning director to enlist the support of the two local planning directors who had been extremely critical of the Regional Planning Commission. However, it was later feared that these two members might adversely influence the rest of the committee to oppose staff proposals. Consequently, the committee never met. This, of course, left no group to serve as a sounding board for the establishment of goals. The absence of established goals did not, however, hinder the project when the design stage was reached.

A Specific Problem: Urban Sprawl

The prospects for the planning program were not all bleak at this time. The problem of suburban sprawl was being discussed quite effectively. It was soon found that to discuss suburban sprawl merely in terms of

vanishing, never-to-be-regained open space was insufficient. But when suburban sprawl was discussed in terms of the costs of providing services, the consequences suddenly became quite clear to audiences. Since the widespread use of septic tanks facilitated suburban sprawl, the consequences of their use on small lots was stressed. The newspaper editorialized against their use.

A map portraying the region's developed areas in 1875, 1906, 1939, and 1959 was prepared, utilizing old county atlases, United States Geological Survey maps, and aerial photographs. This map illustrated the orderly development of the region prior to the widespread use of the automobile, and was extremely helpful in discussions of suburban sprawl problems.

Another map, portraying the growth of the number of incorporated areas set up to provide governmental services to the developed areas, was prepared. This map was very helpful in explaining and stressing the need for inter-community cooperation.

The Search for a Factual Basis for Planning

Soil Information

The search for information on soils, underground water resources, and river and stream flow was fruitless during the first few months. It began to appear that there would be no basis whatsoever for water supply plans and that the sewage disposal plans would not be

able to take into consideration the effluent-receiving capabilities of the receiving streams and rivers. Much attention was focused on getting this needed information.

Contacts were made with Soil Conservation Service and Agricultural Extension Service personnel. These people were very helpful in explaining the land use implications of various soils and the inadequacies and inaccuracies of the existing generalized soil maps.

On a visit to the state capitol to collect information and establish contacts, a staff member made an enquiry about erosion problem areas to a soil scientist of the State Division of Lands and Soils. The soil scientist agreed to prepare a generalized soil map of the region. This soil map furnished a good basis for making decisions in sufficient detail concerning the suitability of soil for various land uses.

Water Information

The primary purpose of this same trip was to ascertain what information the state water resource agency had that would aid in the preparation of the water resource development and sewage disposal plans. The state agency had information on the expected water yields from wells for large parts of the region. This information was based on well logs that drillers were required to submit to the state. The test that the well drillers were required to make of a new well showed the

yield in gallons per minute. These tests were not indicative of the sustained yield that could be drawn from the wells over a long period of time. The state agency agreed to supply information on the rest of the region as soon as it could be mapped.

Since the region contained headwaters for many small streams there was little good information available on the quantity of stream flow, even though such information was of critical importance for water supply and sewage effluent dilution planning purposes. The state water resource agency agreed to supply all the information they had available and to use estimating techniques to fill in the gaps in the information.

During this same period, all the potential water reservoir sites in the region were identified on United States Geological Survey topographic maps. The previous inventory studies of sewer and water facilities were also brought up to date.

Knowing where potential reservoir sites were located was extremely helpful, but before any preliminary water resource development plan proposals could be made, the sustained yield of the reservoir sites (or how much water could be obtained for the dryest year in the design period) had to be calculated. This was an extremely complicated task and was beyond the engineer's ability to accomplish. One geographer had some knowledge of the procedures involved and was sent to the

state capitol for a week to calculate the necessary information with the help of the hydrologist of the state water resource agency. The sustained yield of the reservoir sites was of critical importance to permit economic evaluations of the advantages of developing alternative water supply sources.

Once all this information was obtained, the prospects for preparing comprehensive plans for land uses, sewage disposal and water supply facilities were considerably brighter. The information was worth many times the amount of time and effort expended in its acquisition, and it made many late planning decisions relatively simple.

Phase Two: Determinants Report

The objectives of Phase Two had to be somewhat altered because of the alterations in Phase One and personnel limitations. The land use and utility sections were combined in the interest of economy, because much of the information applied to both problems. Separate reports would have meant needless duplication of maps. Social and economic determinants were not given as much attention as physical determinants. The purpose of the report was expanded, and it was designed to serve as an aid to land developers as well as a basis for Commission evaluation of the regional plans.

The Search for Design Criteria

During the first six months after the preparation of the work program, a clearer philosophy of approach to the design of the regional plans began to evolve. When the program was prepared, it was strongly felt that the land use, water resource and sewage disposal plans should be closely coordinated. But it was obvious that everything could not be done at once, so one plan had to be undertaken at a time.

Water Resource Development Planning Criteria

It soon became apparent that the key to urban development in the region was water. If an ample quantity of water was available at the right time and place, for a reasonable cost, urban development could occur. Without water, residential development would soon be stifled. Without water, fire insurance rates would limit industrial development. Because of the critical importance of water, the water resource development plan was undertaken first.

Before the water plan could be developed, criteria to enable evaluation of the alternative sources of supply needed to be developed. The selection of one system as the proposal would primarily depend upon economic factors and the adequacy of the supply. Although underground and surface water supplies are directly related, it was decided that each should be studied separately

first. The following general principles to guide evaluation were developed:

1) Underground supplies are less expensive than surface supplies where the quality and quantity of the underground supply are adequate.

2) Underground supplies generally are not adequate for central supply systems in areas where well yields are less than 100 gallons per minute.

3) Underground supplies are generally not adequate for communities larger than 100,000 to 200,000 people.

4) Underground well yields of less than ten gallons per minute generally will not support a population density much greater than one family per five acres.

5) Surface supplies are generally not economically feasible for communities of less than 5,000 people.

The staff engineer and the geographers, with the assistance of the geologist and hydrologist of the state water resource agency, were able to further refine criteria for the adequacy of the underground water yield areas for specific uses. The information they developed could not be precisely proven, but it did represent the best of their collective expert opinions. Table 1 presents these criteria.

Evaluating the potential of surface water systems was more complex. Each watershed had to be examined separately to enable an economic evaluation of potential reservoir sites. The multipurpose benefits of each reservoir site for water supply, flood control, low flow augmentation, and recreation purposes were considered, but no attempt was made to assign dollar values to the

Table 1.--Underground water yield evaluation for various uses

The values listed are for guidance only. Actual design and use should be based on test results at site locations.

Potential Yield (in gallons per minute)	Private Individual Wells		Public Central Water Systems[3]
	Rural[1] Residential Use	Industrial Use[2]	
5-10	Probably adequate for 1 lots 5 acres or larger[4]	Inadequate	Inadequate
5-25	Probably adequate for 1 to 5 acre lots[4]	Inadequate	Inadequate
25-100	Probably adequate for 1 acre lots[4]	Adequate for small shops which use little water	May be adequate for very small systems (village)
100-500	Adequate for 1 acre lots[4]	Adequate for some industries	Adequate for small size systems
500-1000	Adequate for 1 acre lots[4]	Adequate for most industries	Adequate for medium size systems

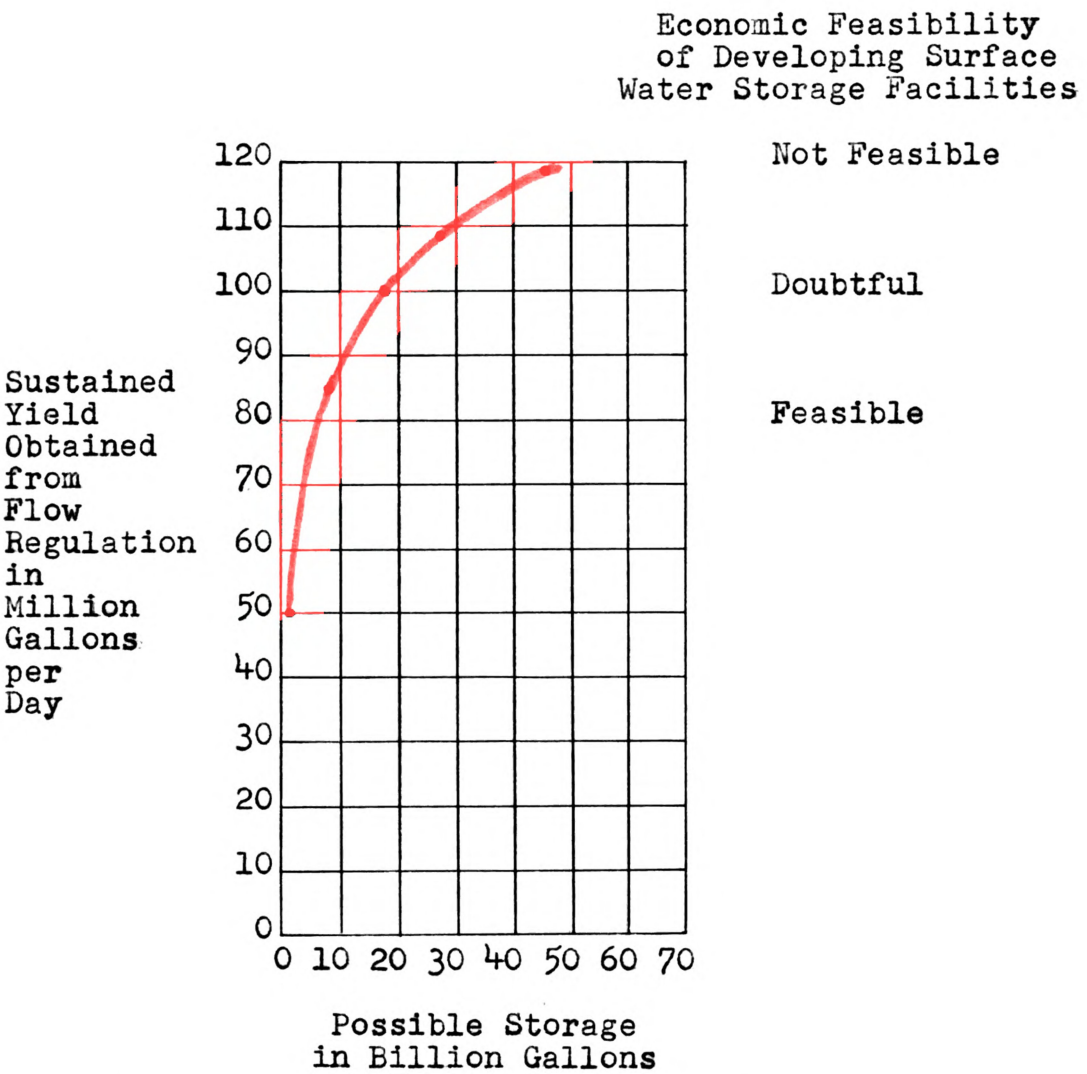
[1]Residential areas with lot areas less than one acre need central water systems. Individual wells are not recommended.

[2]Most industries need public central water systems to secure reasonable fire insurance rates.

[3]The supply or quantity of water for central water systems cannot be determined on the basis of potential yield. More detailed aquifer tests must be undertaken to determine the adequacy of the source for each particular requirement. The information on the map can aid in determining where to make detailed tests.

[4]Other factors must be considered such as: soils, surrounding land uses, existing services and facilities, and past development growth patterns. The number of wells, their distribution, and the rate of withdrawal are interdependent. Even with large lots, the supply can be exhausted by a large well concentration. The percent of land developed should be kept to a minimum. In cases where central system is based on other than underground supplies the development of smaller lots would be more economical.

latter three. Figure 3 shows a chart constructed to permit the staff to make a general evaluation of how much storage was feasible on a particular watershed.



(Points represent storage and yield from reservoir sites. Cost and the amount of storage are usually directly related.)

Figure 3.--Surface water storage criteria

Sewage Disposal Planning Criteria

It was decided that, as a policy, areas proposed for urban and suburban land uses should also have central

sanitary sewerage and water supply systems. It was determined from cost studies and discussions with developers that it was not feasible to provide sanitary sewers to lots larger than one-half acre for average cost housing and one acre for high cost housing.

It was also established, with the aid of the state health department, that, to keep health and odor problems to a tolerable level, there should be 2000 acres of watershed plus 10 acres per 1000 gallons per day of effluent above a small sewage disposal plant (aerobic) to provide sufficient watershed for runoff to adequately dilute the effluent from the plant. Assuming one-half acre lots and 400 gallons of sewage per family per day, this rule of thumb works out as illustrated in Table 2.

Table 2.--Watershed needs for sewage disposal

Number of homes	Area used for homes	Watershed area needed	Watershed area per home
200	100 acres	2,080 acres	10.4 acres
2,000	1,000 acres	2,800 acres	1.4 acres
20,000	10,000 acres	10,000 acres	.5 acres

This standard, and the rough topography, indicated that many areas would have to rely upon individual sewage disposal systems which utilize leaching fields. It was decided that wastes from individual systems, as a policy, should be disposed of on the owner's property because of the difficulty of controlling the degree of treatment. The effectiveness of leaching fields depends

upon the ease with which water can be absorbed by the soil. With clay soils so predominant in the region, the density of development in areas dependent upon individual disposal systems became a critical consideration. The staff engineer and the geographers, with the aid of charts prepared by soil scientists, prepared a chart which listed the suitability of soils for septic tanks, bearing foundations, and agricultural uses. Table 3 shows this chart.

Land Use Planning Criteria

This section sets forth the general criteria used to guide the preparation of the regional land use plans. The criteria have been (somewhat artificially) divided into four categories:

1)Future projections of the demand for land

2)Suitability of the physical characteristics of land for major industry, open spaces, and residential areas

3)Criteria for the functional organization of land uses and transportation and utility facilities and other services

4)Design considerations.

The Demand for Land.--The total amount of land expected to be developed by the years 1980 and 2000 was calculated utilizing population projections for each local political unit. These calculations were not considered as precise since they were based on population projections and the existing densities of development. These

Table 3.--Selected soil characteristics

Slope	Suitability for Septic Tanks (1)	Bearing Value for Foundations		Normal Depth to		Source of Topsoil
		Subsoil	Substratum	Substratum	Bedrock	
0-6 %	good	poor to fair	fair to very good	2' - 3'	10+' deep	fair to good
2-12%	good	poor to fair	fair to very good	2' - 3'	10+' deep	fair to good
6-25%	fair	poor to fair	fair to very good	2' - 3'	10+' deep	fair to good
0-2 %	very poor	poor to fair	poor to good	6'	10+' deep	good
0-6 %	good	poor to fair	poor to very good	3' - 6'	10+' deep	fair to good
0-6 %	fair	fair	fair	2' -2.5'	10+' deep	fair
2-12%	fair	poor to fair	fair	2' -2.5'	10+' deep	fair to good
6-25%	fair	poor	fair	2'	10+' deep	good
12-25%	poor	poor	fair	2'	10+' deep	good
0-6 %	very poor	very poor to poor	poor to fair	3' - 4'	10+' deep (3)	poor to fair
2-12%	very poor	very poor to poor	poor to fair	2.5'- 3'	10+' deep	fair to good
6-25%	very poor	poor	poor to fair	2.5'	10+' deep	good
12-25%	very poor	poor	poor to fair	2.5'	10+' deep	good
2-12%	poor	fair	very good to excellent	2.5'	2.5'	fair
6-25%	poor	poor to fair	poor to excellent	2.5'	2.5'-10+' deep	fair to good
0-6 %	poor	poor	poor to fair	3.5'	10+' deep	good
2-12%	poor	poor	poor to fair	3' -3.5'	10+' deep	fair to good
2-12%	fair	poor	poor to fair	2' - 3'	10+' deep	fair to good
0-2 %	very poor	poor	poor to good	4'	10+' deep	fair to good
0-2 %	very poor	very poor to poor	very poor to poor	3.5'- 5'	10+' deep	poor to good
0-2 %	very poor	(5)	poor	4' - 1'	10+' deep	good to excellent
0-2 %	very poor	poor	poor to good	1' - 4'	10+' deep	good to excellent
0-2 %	very poor	very poor	very poor	variable	variable	excellent
0-2 %	very poor	very poor	very poor to poor	variable	(6)	excellent

calculations were considerably modified when the design stage was reached and topographic conditions, ease of access, and the feasibility of water supply and sewage disposal systems were taken into consideration.

Land Suitability.--Since the location of all major land uses is partially dependent upon the suitability of the land for specific uses, criteria were established to reflect this relationship.

This task was considerably facilitated by the survey of industrial land use requirements done earlier by the Commission. This survey asked industries to rate their land and service needs by order of importance. Table 4 shows the results of this portion of the survey.

Table 4.--Criteria for industrial site selection

Which of the following considerations in selecting a site are important to you? Please rate 1, 2, 3, etc.

Factor	Rating			
	1st	2nd	3rd	Other
Adequate water supply	57	33	31	37
Stable tax base	36	11	44	30
Area zoned exclusively for industry	32	16	17	33
On major highway	30	11	15	16
Existing sewer system	15	38	44	38
Large tract available	17	11	18	9
Rail siding	15	13	17	11
Natural drainage	5	4	17	7
Sub-soil conditions	3	3	7	2
Other	8	11	11	5

Criteria for metropolitan recreation facilities were established with the assistance of the metropolitan park board staff. These were

1)Slope characteristics--rugged topography with some

isolated usable open spaces.

2)Vegetation--heavy woods of interesting and educational vegetation.

3)Soil characteristics--soils poorly suited for intensive land uses.

4)Water bodies--flood control, flow augmentation and secondary water supply reservoir, lakes and streams.

5)Distance to population--varies with size and function of the facility.

6)Access to major highways--convenient access to the users.

7)Historical significance--old homesteads, canals, and other historical features.

8)Site size--100 to 300 acres minimum.

It was also necessary to select criteria for open spaces other than metropolitan park facilities. It was decided that flood plains, swamps, unstable soil areas, areas of very rugged topography, heavily wooded areas, and the better agricultural land would have characteristics suitable for open spaces.

Residential areas were divided into two classes: urban residential areas and rural residential areas. It was decided that urban residential areas should have slopes of less than twenty percent and the provision of central sewerage and water systems should be feasible. Rural residential areas (areas dependent upon individual wells and sewage disposal facilities) should have underground water supplies and suitable soils for drainage. Land suitable for urban residential uses was also considered suitable for major commercial uses. No land

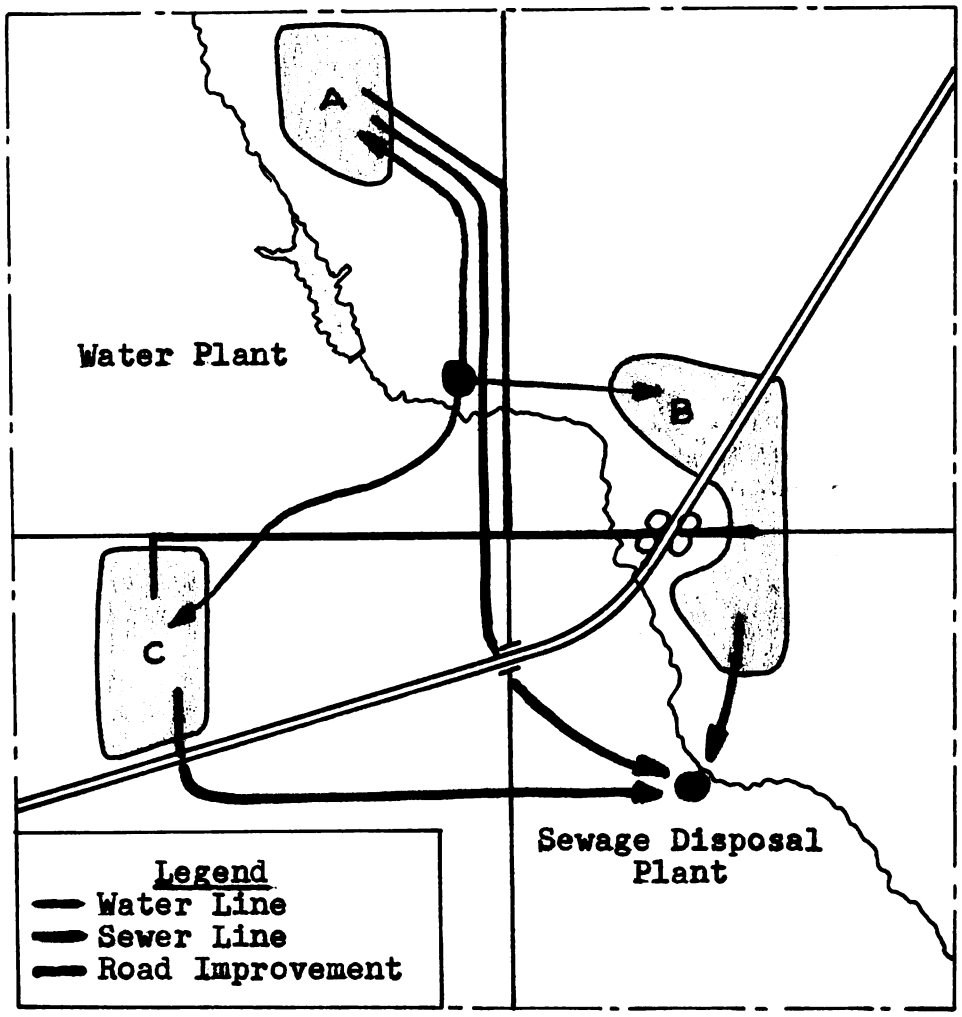
suitability criteria were established for major institutions, airports, or other such uses.

Functional Organization.--It was decided that, as far as it was possible, land uses which would need costly major public facilities and services for the movement of people, goods, supplies, and wastes (highways, water, sewer, and power lines) would be located to minimize both the capital outlay and operating costs for such facilities and services. Figure 4 illustrates the application of this criterion.

Planning Design Criteria.--It is difficult to set up general design criteria to guide the design of land use plans because most frequently the specific circumstances determine the best design solution. Only two fairly traditional design solutions to the problem of conflicting use areas were established at the outset. The first, the buffer area, was to be used primarily by placing industrial areas adjacent to open areas such as swamps, woods, flood plains, and poor soil areas. The second solution, the transitional area, would place a moderately intensive use between a very intensive use and a less intensive use.

During the formative stages of the project, much consideration was given to the development of alternative patterns for the region's future development. The patterns given detailed consideration were

1)Contained growth--urban and suburban development



One of three alternative industrial sites is to be chosen.

	Public Costs			
Site	Water	Sewer	Road	Total
A	$13,500	$41,000	$57,000	$111,500
B	$ 9,000	$ 9,000	$ 6,000	$ 24,000
C	$15,000	$25,000	$57,000	$ 92,000

Figure 4.--Functional organization of land uses and major services

limited to areas served by central water and sewerage systems, major highways, and other services.

2) Dependent communities--communities dependent upon the central city for employment.

3) Independent communities--self-sustained cities

with balanced employment and residential functions.

4)Radial corridor--the central city with communities spreading outward in a star-like pattern.

5)Linear communities--ribbon-like communities stretching along transportation facilities.

6)Interchange communities--communities located at freeway interchanges.

7)Vertical city--communities with tall buildings to preserve open areas and reduce transportation costs.

8)Green belts--open spaces around communities to limit growth, promote community identity and provide amenities.

9)Green wedges--pie-shaped open spaces radiating outward from urban areas.

10)Green ribbons--open spaces following stream beds, flood plains, steep slopes, and other physical features throughout the region.

Each of these patterns was evaluated by the staff to determine the applicability and value of the concept to the future economic and social needs of the region. The practicality of each solution was also evaluated. In the final analysis it became very apparent that no single one of these rather ideal solutions could be applied to the entire region with a reasonably satisfactory result. Depending upon the particular circumstances, a green belt community, a linear community, or any of the other patterns mentioned might be the best solution. The concepts would have to be applied as the particular circumstances warranted in each case if the region was to develop in the most prosperous and livable manner.

CHAPTER IV

OBSERVATIONS IN RETROSPECT

This chapter summarizes some of the procedural findings resulting from the regional planning program under study, in the hope that they may prove helpful to others. It is only because guidelines are so urgently needed that this is done in spite of the knowledge that only time and unbiased appraisal can really provide the proper perspective and objectivity to soundly assess these efforts. It must be remembered that planning as a governmental activity is carried on within a particular social, economic, and political environment. Obviously this environment can vary widely, so that some observations made here may not be applicable to other situations.

Implementing Plans

The large number of autonomous local political units presents the greatest problem for effective regional planning. Each local governmental unit has direct control over the effectuation or implementation of land use plans. Since highway, water supply, and sewage disposal plans are dependent upon land use plans, local

governments indirectly control the implementation of all other plans as well.

As long as a regional planning agency must depend upon local governmental units to implement plans and policies, the success of the agency is largely dependent upon the ability of the agency to influence local decision makers. This can best be done if the regional agency serves a dual role by 1)preparing regional plans and 2)preparing local plans and providing other local assistance. At present, nearly one-third of the local governmental units have either contracted or have contracts pending with the Commission for comprehensive planning programs. This has paved the way for regional planning.

Commission Guidance

A large Commission may be a weak Commission, because the various aspects of concern must be relegated to separate committees for consideration. In a large Commission, personal opinions and passions are diluted, but so is personal dedication to improvement. When a large Commission is combined with a successful community assistance program, staff members may succumb to pressures from local officials to make decisions unfavorable to the development of the total region.

It is recommended that strong Commission guidance of staff operations be fostered, and that planners

involved in regional projects make every effort to enlist the cooperation of staff members involved in local projects.

Programming and Scheduling

The amount of detail which should be incorporated in a work program and schedule depends upon the particular circumstances in which the planning agency finds itself. If there is an ample, well-trained staff and complete, up-to-date background information, a detailed program and schedule may greatly facilitate the carrying out of a regional planning project. Otherwise, a program which outlines major work items and a schedule which sets general goals for completion of the major work items are adequate.

Plans vs. Policies

There has been a recent trend in planning toward statements of policies as a replacement for plan maps. At the outset of the program, this approach was considered and rejected.

When a community assumes the power to regulate the use of land, it at the same time incurs the obligation to determine the best use of that land. Decisions concerning new land uses, highways, water and sewer systems, annexations, and so on were being made every day. Plan maps represent the application of policies to specific situations. This is a job for the professional planner,

who is trained to resolve conflicts of policy which may arise. The availability of plan maps makes it much easier for local officials to determine, defend, and implement measures leading to proper development.

Functional Organization

The value of relating land use and utility plans needs to be emphasized. By working on land use, sewage disposal, water resource development, and major thoroughfare plans at the same time, marginal decisions can be simplified. For example, the decision whether an urban or rural residential density would be a better proposal for a certain area was easily made when the problems of providing central sanitary sewerage and water supply systems were considered.

For ages, plans have been prepared for isolated aspects of the community, but it is only recently that man has attempted to plan for the entire functioning of the future community.

Professional Skills

Planning as a general field must draw from and synthesize the knowledge of many disciplines. In the case under study, knowledge of the following disciplines was absolutely essential:

1)Physical Geography
2)Economic Geography
3)Engineering
4)Geology
5)Soil Science

6)Economics
7)Marketing
8)Statistics
9)Law
10)Sociology
11)Political Science.

Obviously, the success of any effort which draws upon such a diverse range of skills and knowledge depends upon teamwork and the recognition by each member of the team of the contributions of other members.

Conclusion

Since the body of the thesis discussed alternately what had been, what might have been, and what should have been, perhaps it would be well to conclude with a general outline of a model program suggested by the case under study. Conditions permitting, other regional planning agencies might consider taking the following steps:

1)Collect general background information on the physical, economic, social, and political conditions in the region.

2)Prepare an outline for a planning program.

3)Enlist support for regional planning by

a.providing local planning assistance
b.establishing contact with local, state, and federal officials.

4)Collect detailed, up-to-date information on all relevant existing conditions and project demands for the future.

5)Prepare sketch plans to focus Commission attention on issues and check adequacy of assembled data.

6)Prepare a work program and schedule.

7)Prepare concurrently comprehensive land use, sewage disposal, water resource development, and major thoroughfare plans.

8)Enlist support for the plans and initiate measures to get action on plan proposals.

APPENDIX

The following questionnaire was sent to officials of local governmental units to aid the Commission in determining the specific problems that local officials felt to be important.

CHECK LIST OF POSSIBLE PROBLEMS

Please consider each of the problems listed below as it applies to your community area and rank in the space provided at the right according to the following order:

1. prime importance and urgency
2. secondary importance and urgency
3. minor importance and urgency.

If the problem does not apply to your area, please place a check after the heading. We would greatly appreciate your additional comments and any problems not listed.

At the same time, please circle specific problem areas on the map where possible (preceding page) and identify the problem by the appropriate number (for example use 1b to designate an area where there is water polluted by residential wastes).

1. Polluted water (both ground and surface) resulting from

   a. agricultural wastes and fertilizers ____
   b. residential wastes ____
   c. industrial and commercial wastes. ____

2. Polluted air (particularly industrial smoke and odors blowing on residential areas). ____

3. Scattered built up areas which are very expensive to provide with necessary health and safety facilities and services--

   a. public water supply needed ____
   b. sanitary sewers needed ____
   c. storm water drainage facilities needed. ____

4. Disposal of wastes--

   a. dumps needed ____
   b. sanitary land fill needed ____
   c. existing dump problem area ____
   d. existing land fill problem area. ____

5. Buildings are located in flood plains. ____

6. Swamps need draining. ____

7. Traffic hazards--

   a. street pattern not separating local traffic from traffic going through the community ____
   b. intensive commercial, industrial and residential uses along major roads resulting in many turning movements which decrease road's traffic capacity and create a hazard. ____

8. Streets are congested. ____

9. Commercial and industrial uses near homes are making areas undesirable as living places. ____

10. Working areas are too far away from living areas. ____

11. Shopping areas are unrelated to the residential areas they serve. ____

12. Schools and other public buildings are inconveniently and dangerously located. ____

13. Mixing of industrial, commercial and residential uses is causing early deterioration of areas. ____

14. Residential land uses hamper development of industrial areas. ____

15. Wasteful use of limited natural resources--

   a. water ____
   b. prime farm land and vegetation ____

c.open land. ____

16.Rapid population and area growth makes financing of needed public facilities and services difficult. ____

17.Cooperation among local communities needs to be improved. ____

18.Zoning needs to be coordinated in adjacent communities. ____

19.Public understanding of problems needs to be improved. ____

20.The state should give local communities more power to solve their problems. ____

21.Prime areas for recreation uses and historic sites are not being preserved. ____

22.Utilities should be located in corridors to avoid creating strips of unusable land between lines. ____