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I am submitting herewith a thesis written by Gary G. Hayes entitled "Institutional Alternatives for Providing Programmed Water and Sewer Services in Urban Growth Areas: A Case Study of Knoxville-Knox County, Tennessee." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science in Planning.

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INSTITUTIONAL ALTERNATIVES FOR PROVIDING PROGRAMMED WATER AND SEWER SERVICES IN URBAN GROWTH AREAS: A CASE STUDY OF KNOXVILLE-KNOX COUNTY, TENNESSEE

A Thesis

Presented to

the Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Planning

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by

Gary G. Hayes

June 1972

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daughter, Kristine, who always had cheerful smiles during the most difficult of times, and who were always willing to help no matter what the circumstances.

ABSTRACT

The purpose of this study was to evaluate the various institutional alternatives for the provision of water and sewer services in urban growth areas and their implications for urban growth control. Particular attention was paid to the Knoxville-Knox County situation in order to determine the inhibiting effects of present organizational arrangements.

A variety of methods and procedures were used in gathering the data for this thesis. Government documents and other library sources were extensively consulted in the evaluation of the basic institutional alternatives. Personal interviews were relied upon to shed light on the Knoxville-Knox County situation.

The major findings of the thesis were that there is no "best" institutional arrangement for all urban growth areas, and that there was need for both adaptive and structural changes in the water and sewer institutional arrangement in Knoxville-Knox County. Moreover, it highlighted the strategic role which the Knoxville-Knox County Metropolitan Planning Commission must play in the utilization of water and sewer systems to guide the urban growth of the area and in the development process in general.

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CHAPTER I

INTRODUCTION

I. GENERAL INTRODUCTION

Statement of the Problem

Urban development and growth in metropolitan areas takes place through a complex series of decisions, both private and public, in which a multitude of actors participate. The specific nature of the role of the professional planner in this development and growth process is often ambiguous. That metropolitan growth is a proper focus of a planner's attention, however, is a difficult assertion to refute. F. Stuart Chapin, Jr., a major writer in the field of planning, has commented:

> There is not likely to be dissent to the proposition that the major function of the urban planners is to assist the community to make more rational decisions on matters of physical development.[1]

Indeed, Chapin's definition of planning is undeniably "development" oriented, defining it as:

> . . . a means for systematically anticipating and achieving adjustment in the physical environment of a city consistent with social and economic trends and sound principles of civic design. It involves a continuing process of deriving, organizing, and presenting a broad and comprehensive program for urban development.[2]

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[1] F. Stuart Chapin, Jr., and Shirley F. Weiss, Urban Growth Dynamics (New York: John Wiley and Sons, Inc., 1962), p. 214.

[2] F. Stuart Chapin, Jr., Urban Land Use Planning (Urbana: University of Illinois Press, 1964), p. vi.

Thus, planning, both functionally and definitively, is at least partially geared toward an understanding of the growth processes of our metropolitan areas. It follows that public policy decisions which affect development and the ultimate form of urban life should be of direct concern to the planning profession. Yet

> . . . it appears that practicing urban planners and others concerned with development of the physical city have largely overlooked the vital function and effect that public water and sewerage systems can and should have in shaping healthy appendages to the growing urban community.[3]

The planning and programming for water and sewage development on a metropolitan basis tends to be viewed as "utility" or service-oriented rather than development-oriented, with public improvements being scheduled so as to meet demonstrated service needs in the present and future. Ideally, planning and programming of water/sewer systems should include consideration of both the service and shaping function of the systems. The Advisory Commission on Intergovernmental Relations has attempted to place the importance of the utility systems' shaping function in the proper perspective:

> "Utility"-oriented water and sewer planning takes little account of the other planning values involved in the configuration which water sewage planning may produce. The potential of water and waste disposal facilities as a tool for shaping communities has been ignored in most urban communities. The "utility" approach to most water and sewer planning is a product of the profit orientation of the contract system, the constraints imposed by the normal methods of financing water and sewer facilities and the narrow

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[3]Kenneth B. Kenney, "Public Policy Alternatives Affecting Water and Sewer Service in Urban Growth Areas" (unpublished Master's thesis, University of North Carolina, Chapel Hill, 1963), p. 1.

> perspectives of the technicians with water and sewer planning responsibilities. Even in those areas where regional planning is undertaken, extension of water and sewer services tends to follow rather than shape or guide development. In many areas, control of water and sewage facilities can be the key to shaping the development of the metropolitan community.[4]

This control, however, has traditionally been maintained within institutional arrangements which often provide inefficient service and which preclude any shaping role the water and sewer systems might perform. Recognition of the potential which water and sewer systems possess for shaping and guiding urban growth bears little fruit without the existence of an institutional framework capable of implementing sound policies of urban growth control. In addition, the institutional balkanization which has pervaded urban government in recent years has not bypassed water and sewer systems, a fact which further complicates the efficient utilization of both the service and shaping functions of the systems.

A water/sewer institution's ability to guide or shape urban growth is incumbent on the programming of its extension policies, since the systems' extensions provide an incentive for additional growth or "healthy appendages" of the urban community. Regardless of whether they are positive or negative in the manner in which they induce growth, extension policies can be considered growth policies. As growth policies they evolve through the decision-making process within the

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[4]Advisory Commission on Intergovernmental Relations, Intergovernmental Responsibilities for Water Supply and Sewerage Disposal in Metropolitan Areas (Washington: U. S. Government Printing Office, 1962), p. 109.

water and sewer institutional framework and are influenced by the character of that framework. It is therefore logical to assume that the institutional arrangements of water and sewer services in urban growth areas can play a key role in the direction, sequence, and quality of urban growth. In other words, the quality of the decisions pertaining to the extension of these utility systems would seem to be some degree based on the make-up of the institution and the position that the institution holds in the area's governmental structure. Yet research into the effects which particular institutional arrangements have upon an urban area's growth potential and growth guidance has been sparse.

Knoxville-Knox County, Tennessee, provides an excellent opportunity to remedy this research deficiency. Knoxville's public policies concerning the direction, sequence, and quality of its urban growth, unrecognizable as those policies may be, have thus far resulted in apparently unabated leapfrog development and it appears that traditional regulatory controls such as zoning and subdivision regulations have failed to effectively contain urban sprawl. What is needed is some mechanism(s) which will afford opportunities for orderly, managed growth. The shaping function of water and sewer systems could play a key role in such a situation.

Present circumstances in Knoxville encumber the utilization of these utility services in urban growth control; the provision of water by various institutions has produced inefficiency, confusion, and overlapping jurisdictions; the sewer systems are continually operating at a low level of service. Since the late 1950's the latter systems have

periodically come under the attack of health officials and local civic groups. Institutional reorganization has been called for on numerous occasions yet little has been done to alleviate the problems.

Purpose of the Study

This thesis will analyze the various institutional alternatives which might be made available for the provision of water and sewer services in urban growth areas and their implications for urban growth control. With particular reference to the Knoxville-Knox County situation this thesis will attempt to determine the inhibiting effects of present organizational arrangements. In so doing it will identify what changes are possible, feasible, and politically realistic to contribute to a more orderly and responsible provision of water and sewer services in Knoxville's developing areas.

During the course of the study, five primary objectives will be maintained. First, an attempt will be made to clarify the shaping roles which utilities can play in urban development, and which heretofore have been ignored. Second, after a comparative analysis of institutional alternatives has been conducted, there will be an endeavor to synthesize the resultant information in order to obtain an ideal institutional approach to the provision of programmed water and sewer services. Third, an in-depth analysis of the Knoxville-Knox County institutional situation will be undertaken for the purpose of identifying existing adequacies and deficiencies. Fourth, if conditions are found to be detrimental to the efficient guidance of urban growth in Knoxville-Knox County, this thesis intends to offer a reorganization

proposal. Such a proposal will take into account the feasibilities and limitations of any institutional change. Finally, there will be an attempt to draw some conclusions from the attainment of the foregoing objectives.

Methods of Analysis

A number of approaches have been used in an effort to attain the five primary objectives of the thesis. Initially, traditional roles of water and sewer systems have been examined in order to provide a comparative setting for an investigation of the roles which the systems can play, but which have largely been ignored.

The case study approach is used for this thesis in order to view the impact of water and sewer institutional arrangements on urban growth in a realistic setting. To arrive at a true assessment of the Knoxville-Knox County situation, an in-depth analysis of institutional alternatives for providing water and sewer services in urban growth areas has been conducted, during which time the reports of the U. S. Advisory Commission on Intergovernmental Relations, the Tennessee Municipal Technical Advisory Service, and various library sources were consulted. In addition, personal interviews and newspaper articles have been utilized to lend credence to the Knoxville-Knox County situation with regard to any proposed reorganizational change.

Scope and Limitations of the Study

Realizing that a study of this scale cannot look at any aspect of the provision of water and sewer services in isolation, this thesis

takes into consideration present limiting conditions imposed by political, fiscal, and legal constraints in suggesting optimal institutional arrangements. It must be maintained, however, that the primary concern of this thesis is to investigate the institutional alternatives for providing water and sewer services in urban growth areas with particular reference to their impact on urban growth and its control, and that other considerations such as detailed service rate structures are of secondary importance.

While other components of the urban environment, such as the transportation network, can be, and are employed as mechanisms for urban growth control, detailed analysis of them is beyond the scope of this thesis.

Except where necessary for comparative purposes, the service aspect of water and sewer systems receives only cursory treatment throughout the body of the thesis while their shaping function is the primary focus.

II. THE TRADITIONAL ROLE OF PUBLIC UTILITIES

Previous attempts to define the term "public utility" have proven fruitless with regard to precise categorization. Prominent examples such as "a business the product of which serves the public generally,"[5] "a business affected with the public interest,"[6] "an

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[5]William A. Prendergast, Public Utilities and the People (New York: D. Appleton-Century Company, Inc., 1933), p. 2.

[6]Herman A. Trachsel, Public Utility Regulation (Chicago: Richard D. Irwin, Inc., 1947), p. 3.

organization that performs a public service for which measured charges are levied upon the users of the service"[7] have done little to clearly delineate a distinction between public utilities and certain private industries. For purposes of this thesis, however, the following definition is as acceptable as any other:

> A business organization deemed by law to be vested with public interest usually because of monopoly privileges and so subject to public regulation such as fixing of rates, standards of service, and provision of facilities.[8]

While lacking in rigid definition, individual public utilities constitute a distinct sector of the economy, a position acquired through legislative and judicial declaration. And, because of their peculiar position and nature, public utilities:

> . . . impose special responsibilities on public officials for regulation, operation or representation of the interests of consumers and of the public generally.[9]

Such responsibilities emerge through the public utilities' association with the elusive "public interest."[10]

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[7]Public Administration Service, Public Officials and Public Utilities (Chicago: Public Administration Service, 1958), p. 3.

[8]G. and C. Merriam Company, Webster's Third New International Dictionary of the English Language, Unabridged (Springfield, Massachusetts: G. and C. Merriam Company, 1971).

[9]Public Administration Service, op. cit.

[10]The term "public interest" has perennially been a topic of debate within planning circles. Like searching for a definition of "public utility," any attempt to define the "public interest" would deviate from the main objective of this thesis. Suffice it to say that public utilities have traditionally been required to be "affected with a public interest" to earn their title, with the degree of effect being determined by judicial attitudes through the years. (See Munn vs. Illinois, 94 v.s. 113 (1877), and Nebbia v. New York, 291 v.s. 502 (1934).)

In an attempt to distinguish public utilities from other businesses affected with the public interest, Garfield and Lovejoy have proffered five salient characteristics of public utilities. They are:

1. Free from business competition to a substantial degree, and are often pure monopolies;
2. Required to charge only reasonable rates that are not unjustly discriminatory;
3. Allowed to earn but are not guaranteed a reasonable profit;
4. Obligated to provide adequate service to the entire public on demand; and
5. Closely associated with the processes of transportation and distribution.[11]

Water and sewer services, with the exception of small individual systems such as wells and septic tanks, possess these traits, and in most cases, are included in the public utilities sector of the economy. With regard to their being "affected by the public interest," water and sewer systems, like most utilities, are granted a monopolistic franchise because it is deemed to be in the public interest that a limited number of institutions provide public service in a particular jurisdiction or area. In return they are charged with the necessity of complying with public health requirements and, in the case of water systems, of providing adequate flow capacities for sufficient fire

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[11]Paul J. Garfield and William F. Lovejoy, Public Utility Economics (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964), p. 2.

protection,[12] and of developing long-range water resources to meet future needs.

Thus, public utilities have performed a traditional role of providing facilities and services in response to a demonstrated need. Water and sewer systems, probably more than other utilities, have limited themselves to this function.

III. SOME NEW CONCEPTS OF THE ROLES WHICH PUBLIC UTILITIES CAN PERFORM IN URBAN DEVELOPMENT

The Planning/Utility Interface

The traditionally myopic view that the function of public utilities in the urban arena is to strictly provide a service rather than shape urban development has met with criticism from planners and utility officials alike. Most of the self-imposed criticism is directed towards the past inability of both disciplines to coordinate their activities. In the words of Charles D. Laidlaw, Community Planning Representative with the Cleveland Electric Illuminating Company, the differences between the two are marginal:

> Planners are concerned with the pleasantly efficient use of limited land with minimum resource expenditure. Utility men are concerned with efficient distribution of service to an optimum, long-range market composed on those land uses. So,

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[12] Concern for adequate fire protection and flow, particularly in newly-annexed areas of a city, is due to the fact that if an area is not properly protected, a low fire insurance classification could be given to the new area.

> since all our eggs are in the same basket, we can just as well make a good omelette as waste them in an egg fight.[13]

Such an analysis of the relationship between utilities and overall planning is admittedly simplified. The importance of it, however, lies within the identity of the speaker rather than its profundity.

One can certainly argue that the planning profession is directly concerned with the "public interest" and, while public utilities are certainly "affected by the public interest" their motivating force is often self-interest. Such a belief often moves planners to disregard a public utility's role in the urban development process. Even if one were to accept the self-interest theory, however, the roles which utilities can play are not necessarily negated. Assuming that a utility's primary planning concern lies in its motivation to render profitable service at reasonable economic cost, it follows that it could only do so if there exists a sound service-using economic base in the form of customers which in turn is produced by a prosperous, functioning community. Furthermore, profit is most likely to be realized when that community complex is well-planned for the long run with development occurring in an efficient pattern. Thus, the planning required to accommodate the economic base, and the regional community it creates, is vital to a utility.[14]

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[13]Charles D. Laidlaw, "Utilities In and Out of Planning" in Urban Problems and Techniques, ed. by Perry Norton (W. Trenton, N. J.: Chandler-Davis Publishing Company, 1959), p. 154.

[14]Ibid., 136.

Beyond the concept of self-interest, three related conditions entangle any public utility in the planning process.

1. A utility is basically a land use in itself. So it must be included in any land use plan, as well as in any plan for the provision of widespread public service to other land uses;

2. The very location of utility facilities tempers the location of land uses, thus making utilities a determinant of land uses to varying extents;

3. The land use pattern, in terms of both location and density, is a primary determinant of the utility's load, and thus of its market efficiency and profit.[15]

With this in mind, urban planning and its precepts should no longer remain peripheral to the main mission of public utilities, and vice-versa.

Realizing that a total commitment to physical technology and scalar economies will not provide solutions to their future problems, some utility officials are beginning to search in other directions for new solutions to the urban-utility development "crunch."[16] Much of the search has resulted in the hiring of planners by utility companies, thereby infusing the planning process into utility development. In a similar fashion, concern over environmental quality has led some planning agencies to hire specialists in utilities planning and occasionally planning convention seminars have emphasized the importance

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[15] Ibid., p. 132.

[16] Kenneth W. Kipp, Jr., "A New Role for Community Planners with Electric Utility Companies," Public Utilities Fortnightly, LXXXIII (June 19, 1969), p. 57.

of the relationship between the two disciplines.[17]

Shaping the Urban Pattern

More importantly, and seemingly less problematic, is the role which utilities can play in the determination of where housing, and other land uses as well, should be located, through the availability or non-availability of facilities. Typically, as has been indicated, the provision of such facilities has been viewed as being provided in response to a need, with little attention being paid to the shaping effect on the location and pattern of land uses. While it has long been recognized that policies concerning the extension of public utilities can have a significant impact on determining the direction and timing of development,[18] only on rare occasions have such policies been implemented consciously.

Why such mechanisms for control over land development have not been widely used is difficult to understand. Certainly few planners

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[17]Laidlaw, op. cit., p. 144. The 1971 American Society of Planning Officials Conference in New Orleans included a special session entitled "Utility Company as Planner and Developer." Intended to serve as a "vehicle for bringing city planners and the corporate segment of the community together to discuss problems of mutual concern," the discussion focused primarily on the role public utilities can play in helping to rectify the low and moderate-income housing shortage in our larger cities. When questioned in a February 26, 1971 letter after the ASPO conference as to why the shaping function of utilities was not discussed, Stratman Cooke, Toledo Edison Company, discussion chairman, replied that the discussion title was admittedly inadequate, and he went on to acknowledge the shaping potential of utilities. (Correspondence form Stratman Cooke, April 23, 1971.)

[18]Frank H. Beal, "Defining Development Objectives," in Principles and Practice of Urban Planning, ed. by William I. Goodman (Washington, D. C.: International City Manager's Association, 1968), p. 345.

could disagree with Chapin that techniques used for shaping urban growth today are a:

> . . . curious patchwork of devices, many an outgrowth of special-purpose efforts to meet particular problems and needs of their time, and many bearing the mark of the fragmented governmental situations that have prevailed during the period when the techniques evolved.[19]

Over-reliance upon such regulatory devices as zoning and subdivision regulations has resulted partially because of the travail encountered in establishing the control techniques in the first place.

> Zoning offers a classic illustration of a war horse which has achieved great strength by dint of the battles it has been through. . . . To survive, therefore, techniques such as zoning have become so thick-skinned that they seem to have an immunity to re-evaluation and modification.[20]

But, despite their persistence, there is little doubt that present land use control techniques cannot adequately handle development on a modern scale. Such regulations are "out of scale, their administration is out of scale, even picayunish, when they try to cope with today's mass building and construction methods."[21] Furthermore, these controls have been "ineffective as techniques to preserve those assets we wish to keep, or to carry out a predetermined pattern of land use."[22] (Underscoring added.)

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[19]F. Stuart Chapin, Jr., "Taking Stock of Techniques for Shaping Urban Growth," Journal of the American Institute of Planners, XXIX (May, 1963), p. 77.

[20]Ibid.

[21]Dennis O'Harrow, "New Techniques for Shaping Urban Expansion," American Society of Planning Officials Planning Advisory Service, Information Report No. 160 (July, 1962), p. 2.

[22]Ibid.

Moreover, these control techniques constitute a negative containment of growth, what Gaffney terms the "Truman Doctrine" policies of the cities,[23] crying "Thou Shalt Not!" to would-be developers, rather than a more positive policy of "This way, please."

> All zoning, indeed, partakes of this negative quality. Zoning is never mandatory, only restraining. It is effective only where it undershoots the market, never where it overshoots . . . a zoner is only a nay-sayer.[24]

Total reliance on these negative controls inspired Reps, in his treatise "Requiem for Zoning," to comment:

> Zoning is seriously ill and its physicians--the planners--are mainly to blame. We have unnecessarily prolonged the existence of a land use control device conceived in another era when the true and frightening complexity of urban life was barely appreciated. We have, through heroic efforts and with massive doses of legislative remedies, managed to preserve what was once a lusty infant not only past the retirement age but well into senility. What is called for is legal euthanasia, a respectful requiem, and a search for a new legislative substitute sturdy enough to survive in the modern urban world.[25]

While these comments on zoning might seem unduly negative, one must recognize that recent innovations in zoning have not been transmitted to the local zoning process. Of course, this is not to say that these regulatory devices cannot prevent actions which are not in the public interest. Rather, it is an indication that, "by themselves,

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[23]Mason Gaffney, "Containment Policies for Urban Sprawl," in Approaches to the Study of Urbanization, ed. by Richard L. Stauber (Lawrence, Kansas: University of Kansas Publications, 1964), p. 122.

[24]Ibid.

[25]John W. Reps, "Requiem for Zoning," Planning 1964 (Chicago: American Society of Planning Officials, 1964), p. 56.

they cannot bring about the positive steps that are most important for the community's development."[26] If, however, such controls are applied in accordance with a long-run plan and in concert with a variety of other implementation techniques which provide the public impetus to good development, mutually enforcing each other, the community has "powerful implements with which to make its future development healthful, economical, and, if some care is taken, beautiful."[27]

In this same vein, Chapin lists five major techniques that might be used, preferably in combination, to shape urban growth:

1. A general plan for a metropolitan region which is imaginative, practical, and feasible, and technically sound while at the same time reflecting the general desires and wishes of a majority of the population for their city some years in the future;

2. Urban development policies instruments, consistent with the general plan, for the use of various units of local governments, all directed toward the common goals of the general plan;

3. Metropolitan area public works programs, for transportation, sewerage, schools, and other services . . . , to carry out the plan and the policies;

4. An urban development code, including zoning, subdivision regulations, building codes, health ordinances, and other devices, all integrated to achieve the broad objectives of the general plan; and

5. An informed metropolitan community, which has participated in preparation of the general plan and is prepared to

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[26]Robert E. Coughlin, "Programming Public Facilities to Shape Community Growth," Yearbook of Agriculture 1963: A Place to Live (Washington, D. C.: U. S. Government Printing Office, 1963), p. 461.

[27]Ibid.

defend and support it.[28]

Stressing the importance of the interrelationship between these techniques, Chapin amplifies the role which utilities can play in shaping community development in the following manner:

> The programming of public works properly grows out of the general plan and is an important link between planning and the decision-making process. As a mechanism for guiding growth, the scheduling of public works provides a means of influencing the location, timing and intensity of development in an urban area. . . . Therefore, to insure that these facilities are located and timed in harmony with other techniques used in shaping urban growth, the programming of public works will need to be done in project combinations, probably with the make-up of these combinations changing with each growth stage.[29]

Bringing this "package" concept of growth techniques into a more contemporary framework, Bacon criticizes "the almost total lack of any coherent guidance of urban extension in developed nations." Adhering to the proposition that "orderly, desirable growth can be achieved by developing a new combination of political and technological forces on the American scene," he lists three "elements" which, when placed in juxtaposition, become "the force in shaping the direction and character of urban growth":

1. Concern for ecology provides the generating force;
2. A clarification of the effect this new policy will have on both the rights of landowners and developers along

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[28]Chapin, op. cit., p. 78; Marion Clawson, Suburban Land Conversion in the United States (Baltimore: The Johns Hopkins Press, 1971), p. 164.

[29]Chapin, op. cit., pp. 82-83.

with the responsibilities of government provides the shaping element; and

3. A nationwide program of co-ordinated and purposeful public service facility delivery systems provides the developmental energy and control.[30] (Underscoring added.)

The last "element" is directly related to the shaping function of utility or "public service delivery" systems which Bacon deems an essential input into growth guidance.

Stating that the "integration of these great, skeletal, centralized, service systems into a consistent regional development framework deserves a high place on the agenda of metropolitan affairs,"[31] Perloff and Wingo emphasize the fact that the importance of these systems and their impact on growth in metropolitan areas can best be understood through the analogy of a "tree."

> Its core is a trunk and a root subsystem which serves the whole tree; its distribution net is the structure of successively diminishing and proliferating branches terminating in a vast number of small twigs--the "end" of the system. Although the state of any one twig will be a matter of indifference to its neighbors in any direct sense, indirectly it exacts demands on the core of the system which in term affects the state of the entire system.[32]

Thus, wherever and whenever growth occurs in the metropolitan area, its impact is transmitted throughout the system.

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[30]Edmund N. Bacon, "Seven Principles for an Urban Land Policy," Urban Land (April, 1971), p. 3.

[31]Harvey S. Perloff and Lowdon Wingo, Jr., "Planning and Development in Metropolitan Affairs," Journal of the American Institute of Planners, XXVIII (May, 1962), p. 83.

[32]Ibid.

Failure to utilize these systems as implementation tools in the growth process, then, constitutes not only negligence of effective policy instruments but can also create damage within the system itself.

The utilization of these systems for growth control certainly has its problems. Kenney sees the major problems being the institutional arrangement (special district, metropolitan council, etc.) for the provision of services and that arrangement's commitment to the developmental planning of the region,[33] while Clawson sees the major problems as threefold:

1. Legally, questions may arise as to what local units are empowered to do to control private use of land;
2. Politically, it is difficult for governing boards to be independent of special interests; and,
3. Administratively, most metropolitan areas have too many governmental units for a coordinated approach to the use of public techniques to be easily successful.[34]

The enunciation of these difficulties is by no means intended to shroud the potentialities of these techniques. On the contrary, they are brought forward here in an effort to be realistic, since any effort to change the existing order is likely to be successful only if the difficulties are clearly understood.

Why Guide Growth?

Up to this point, we have been primarily concerned with the justification for using public service systems as mechanisms for

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[33] Kenney, op. cit., p. 50.

[34] Clawson, op. cit., p. 164.

urban growth control. Perhaps we have been remiss in answering the fundamental questions of "why guide urban growth", why contain urban sprawl?"

Simply put, the purpose is to:

> . . . minimize the waste resulting from irrational, haphazard development patterns. With a relatively clear concept of the location, density, and sequence of urban growth, the chance of the "best" private enterprise decisions as well as public capital investment decisions being made are considerably enhanced. Coordination and effectuation of physical development objectives and goals of the community demands planning and guidance of urban growth.[35]

Furthermore, according to Chapin, without a "guidance system to give urban expansion patterns a more rational form, metropolitan areas face problems which will be truly staggering by today's standards,"[36] entangling both public and private decisions within the land development process.

In a somewhat passionate plea, Gaffney calls for the guidance of growth and the containment of sprawl for the following reasons:

> Containment for the City's Sake--Our most valuable natural resource is the tiny fraction of land surface best fitted by location to bring men together for cooperation, exchange, and fraternization.
>
> Containment for Urban Efficiency--An "efficient" city is one that maximizes ease of contact among individuals, giving people, in their character of both consumer and producer, the widest choice among alternative contacts with the least difficulty.
>
> Containment to Help Cities Grow Larger--"Larger" meaning more populous and more wealthy.

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[35] Kenney, op. cit., p. 184.

[36] Chapin, op. cit., p. 87.

> Containment for Urban Flexibility--Containment is desirable to make cities more flexible. They are now becoming poorly co-ordinated spastics. The word "sprawl" is well-chosen--the arms and fingers are so over-extended that the co-ordinating mechanism can hardly control them.[37]

While Gaffney's analysis of the sprawl problem has definite merit, it is apparent that he is advocating a "Truman Doctrine" of his own, if only by his choice of phraseology. While "containment" can certainly be translated into "growth" with regard to filling in land left vacant by suburban "leapfrog," Gaffney's application of it has more of a taint of "farmland protection" than urban development.

The perennial adage that urban sprawl is "wasting our rural croplands" has long since been laid to rest.[38] This is not to say that recent outcries are any less boisterous or pervading. Bahl decries the occurrence and plight of sprawl in the following manner:

> Cities across the nation have been experiencing a large scale centrifugal movement, which to a great extent has been guided by an expectation on the part of builders that on the fringe of urbanized areas land would be available at reasonable prices. However, a constraint to orderly compact expansion is provided when the owners of those tracts adjacent to the urbanized area either hold their land off the market or ask exorbitant prices. The result is that land developers are leapfrogging over such open land sites . . . where they can acquire realty at lower prices, thereby causing a sprawling pattern of suburban development which leaves many square miles of land within the urbanized area effectively idle.[39]

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[37] Gaffney, op. cit., pp. 116-122.

[38] For amplification of both sides of this argument see Wilbur R. Thompson, A Preface to Urban Economics (Baltimore: The Johns Hopkins Press, 1964), pp. 321-322; and Gaffney, op. cit., pp. 115-116.

[39] Roy W. Bahl, Jr., A Bluegrass Leapfrog (Lexington, Kentucky: University of Kentucky Press, 1963), p. 1.

Utilities, in particular, feel the crunch of urban sprawl. As was mentioned earlier, a utility's planning problem is entangled in the land uses and activity patterns over which planners fret. Sprawl and scatteration horrify utility men as well as planners, and for the same basic reasons. Premature, helter-skelter extension of service to scattered clusters of suburban density requires excessive capital outlay for minimal revenue.[40]

The following comment by the director of one of the nation's more progressive-thinking utilities, Detroit Edison, is exemplary of the utilities' plight with regard to urban sprawl.

> Let me just briefly comment on the urban sprawl fanning out from the metropolitan Detroit area. It is of direct economic significance to Detroit Edison as well as to our customers. As our Detroit area continues to sprawl out with low-density housing, the providing of all services is becoming prohibitively costly, and the total lack of any centralized planning or control agency has led to massive "land pollution," if I may use that phrase. Edison found itself unable to get any reasonable sense of direction in planning its future expansion of lines and utilities.[41]

Thus, in the final analysis, public utilities and services have a vested interest in the growth and development of our urban areas, a public interest in the character of that growth, and a role to play in the location, sequence, and timing of that growth. And more than any other utilities or services, water and sewer systems are most

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[40] Laidlaw, op. cit., pp. 132-133, 152.

[41] Edwin O. George, "Utility Company as Planner and Developer," Planning 1971 (Chicago: American Society of Planning Officials, 1971), p. 123.

often cited and suggested as prime factors in controlling urban sprawl.[42]

Water and Sewer as Selected Tools

Water and sewer systems occupy a unique position within the community fabric. While they perform extremely vital functions, somewhat analogous to the artery and vein system of the human body, they seem to attract public attention only in crisis situations. Despite their invisible, underground character, the importance of these systems and their effect upon urban growth control is beginning to be realized.

> Probably no single governmental domestic policy is of more importance to the future pattern of development in the United States than is that of water. It has been said, without exaggeration that "you could write the story of man's growth in terms of his epic concerns with water." Man is utterly dependent upon it. . . . It controls the size to which a city, whether it be Denver, New York, or Los Angeles, may grow.[43]

Emphasis upon water and sewer systems is by no means intended to belittle the role which transportation facilities can play in urban growth. Indeed,

> The public development of transportation systems and the provision of sewage and water utilities have been key factors in determining the extent and types of private building in all communities.[44]

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[42] Laidlaw, op. cit., p. 132.

[43] Charles R. Adrian, John L. Hazard, and Frank W. Suggirt, Land and Water Policies for the Future (East Lansing, Michigan: Michigan State University Press, 1959), pp. 30-31.

[44] Coughlin, op. cit., p. 460.

Few urban specialists would question the assertion that transportation facilities are the most important shaping factors in urban areas today. Whether they are looked upon as performing such a function, as opposed to providing a service, is still open to discussion, but early returns suggest that they are.

The inadequacies of traditional controls, indicated earlier, have led some urban areas to search for new and comprehensive control devices, including water and sewer extension policy.

> Instead of usual methods of slowing and upgrading the quality of growth through zoning and subdivision regulations, some municipalities are now approaching the problem of timing urban growth and shaping a balanced community by more systematic means. The controls employed are closely related to carefully drawn plans for integrating all aspects of community development. . . .
>
> . . . The methods include: (1) public purchase of outlying land (or development rights thereto) to be placed on the market as needs dictate; (2) limiting the number of building permits that are issued each year; (3) demarcation of an urban service district until such time as the city is prepared to extend its service zone; (4) high zoning in the outlying sections of the municipality with the understanding that the requirements will be lowered when a certain percentage of development has been attained in the intervening area; (5) high zoning restrictions in the outlying sectors of the community with the intention of reducing these when the city is ready to extend sewer and water utilities.
> . . . . . .
>
> The last three devices are similar in character. Each relies on high zoning restrictions to accomplish its objective: one by exclusive agricultural zoning, the others by minimum lot and house size requirements. . . . The use of sewer and water extension as a means of control is probably the most practical of these devices. A municipality can budget funds for the extension of these utilities to coincide with the development of the intervening area. The rationale here is that the higher requirements will discourage premature subdivision of outlying areas and yet meet the judicial test of

reasonableness since larger lot areas are normally needed for individual septic tanks and wells.[45] (Underscoring added.)

The effectuation of water and sewer extension policies to guide growth, like the use of other public facilities is not realized without difficulties. The legality of such controls can certainly be questioned, and it has been in a number of cases [46] The equity of their application depends to a large degree upon judicial interpretation and reasonableness of their use.

Politically, the predetermined provision or denial of any vital urban service, whether for growth control purposes or not, hints of underlying special interests, creating problems in the efficient operation of such control devices. The common practice of central cities using water and sewer extensions as a "club" to force annexation of fringe areas is an example of how political friction can be created.

Administratively, the extension of water and sewer services is made more difficult by the fragmented and underdeveloped nature of suburban governmental authorities. In other words, the institutional arrangement for the provision of these services in growth areas is a determining factor in whether or not these implementation tools will be applied, and, if so, whether or not they will be supplied with minimum friction, legally, politically, and administratively.

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[45] Henry J. Schmandt, "Municipal Control of Urban Expansion," Fordlam Law Review, XXIX (April, 1961), pp. 651-653.

[46] For example, see Reid Development Corp. V. Parsippany. Troy Hills Township, 10 N. J. 229, 89 A. 2d 667 (1952).

IV. SUMMARY

This chapter has attempted to fulfill the first objective of the thesis, as well as to provide a general introduction.

The roles which utilities can play in urban development are only just beginning to be used. Water and sewer extension policies occupy a unique position in urban development, whether consciously applied or not. The control and guidance of urban growth today, through the use of such policies, will shape the expanded urban environment of tomorrow. Unfortunately, the fragmented governmental organization of our urban areas today limit the potentialities of such policies.

It is appropriate at this juncture, therefore, to investigate the various governmental or institutional alternatives available for providing water and sewer service in urban growth areas.

CHAPTER II

INSTITUTIONAL ALTERNATIVES FOR PROVIDING WATER AND SEWER SERVICES IN URBAN GROWTH AREAS

I. INTRODUCTION

The governmental setting is a key element in the provision of water and sewer services to urban growth areas. With this in mind, this chapter investigates six basic institutional or governmental alternatives which, when internal variations are considered, encompass the majority of approaches being followed in urban areas today. These six are: city government, county government, special districts, public authorities, private agencies, and metropolitan/regional approaches. While septic tanks, package treatment plants, wells, and other small independent systems deserve attention in the provision of water and services in urban growth areas, consideration of them is beyond the scope of this thesis.

Different institutional arrangements for water and/or sewer service operate well or poorly in different growth areas for entirely different reasons. For example, soil conditions and political climate, two seemingly unrelated considerations, might very well dictate the type of approach which is feasible in any one given area. Thus, it must be realized that any advantage or disadvantage noted for any particular alternative might readily be contradicted. While an efficient, working example of all of the alternatives is probably in

existence, this thesis is attempting to evaluate them in a vacuum in order to determine their relative merit.

To furnish a comparative setting for the evaluation of the alternatives, some basic institutional principles are offered, identifying the positive and negative aspects of each alternative. The importance of these principles is borne out throughout the bulk of this chapter and in Chapter III where they are applied in a real-world situation. Building on this analytical base, an optimum institutional approach will be constructed.

Before moving on to the comparative analysis, however, it would be well to discuss the plight of current governmental forms dealing with water and sewer services. The fact that such a variety of approaches exists seemingly diminishes the possibility of finding "the" arrangement for all urban areas. The Advisory Commission on Intergovernmental Relations (A. C. I. R.) has this to say:

> (The) various methods devised by local governments to meet their water supply and sewage disposal responsibilities exist in an infinite number of combinations. Generally a number of different approaches are used simultaneously in different parts of a single metropolitan area. . . .
>
> Furthermore, the arrangements for water supply and sewerage disposal in a particular metropolitan area are often quite different.[1]

More important than the variety of approaches in existence is the inherent character of existing institutional arrangements.

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[1]Advisory Commission on Intergovernmental Relations, Intergovernmental Responsibilities for Water Supply and Sewage Disposal in Metropolitan Areas (Washington: U. S. Government Printing Office, 1962), pp. 15-16. (Hereafter known as A. C. I. R., Intergovernmental Responsibilities.)

> The present powers, jurisdictions, and structures of local governments, and the status of intergovernmental relations in the metropolitan areas, make it increasingly difficult for the local governments to perform many functions which are inevitably areawide in nature.[2]

In a later discussion of governmental difficulties confronted in the performance of urban functions, the A. C. I. R. has noted:

> The effects of new service demands upon a complex structure of local governments are nowhere clearer than in the case of water supply and the closely associated function of sewage disposal. . . . The inadequacy of strictly local approaches, fragmented governmental responsibility, lack of coordinated planning, and conflicts of interest between different groups of water users are all significant issues.[3]

Noting that these problems can and should be rectified, the A. C. I. R. has made the following comment with regard to potential change in the existing order:

> There is considerable room for improvement in the manner in which water decisions affecting metropolitan areas are reached and implemented. Certainly the allocation of responsibilities for planning, policy-making, and administration in the urban water field should not be considered unalterable.[4]

In the belief that current institutional arrangements are not unalterable, some basic institutional principles which provide a framework for analyzing the alternatives will be examined.

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[2] Ibid., p. 5. Water and sewer services, and air pollution control are two sets of functions which the A. C. I. R. considers most conducive to area-wide jurisdiction.

[3] Advisory Commission on Intergovernmental Relations, Metropolitan America: Challenge to Federalism (Washington: U. S. Government Printing Office, 1966), p. 29. (Hereafter referred to as A. C. I. R., Metropolitan America.)

[4] A. C. I. R., Intergovernmental Responsibilities, p. 11.

II. BASIC PRINCIPLES IN THE PROVISION OF SERVICES

The Advisory Commission on Intergovernmental Relations has developed "ideal" criteria for evaluating the performance of governmental functions in metropolitan areas. Entitled "Standards for Government Performance," the following eight criteria are concerned not only with providing public goods and services efficiently, but also with "resolving conflicting interests and assuring democratic control of government within a realistic and political context."[5]

1. The governmental jurisdiction responsible for providing the service should be large enough for the benefits from that service to be received primarily by its own population. Neither the benefits of the service nor the social costs of failing to provide it should "spill over" into other jurisdictions.

2. The unit of government should be large enough to permit realization of the economies of scale. For example, it costs less per million gallons to provide sewage treatment in a ten million gallon capacity facility, than it does in a one million gallon facility.

3. The unit of government carrying on a function should have a geographic area of jurisdiction adequate for effective performance.

4. The unit of government should have the legal, financial and administrative ability to perform services assigned to it.

5. Every unit of government should be responsible for a sufficient number of functions so that its governing processes involve a resolution of conflicting interests and a balancing of governmental needs and resources.

6. The performance of public functions should remain subject to public control.

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[5] A. C. I. R., Metropolitan America, pp. 30-32.

7. Functions should be assigned to a level of government that provides opportunities for active citizen participation and still permits adequate performance.

8. Approaches to reorganization of local government conforming to any or all of the foregoing criteria should have political feasibility--the potential for receiving the approval required by the State constitution, statutes, or local government charter.

Stringent application of these criteria would be quite difficult. In the first instance, they are admittedly approaching the ideal, a factor which blemishes their real world usefulness. Furthermore, political realities preclude shattering the existing system in order to remold it in conformity with an ideal model. Thus, while criteria such as these are useful in obtaining a "feel" for optimum approaches, they must be tempered with real-world considerations.

Dealing directly with "adequate" governmental machinery for sewage systems, the Fels Institute of Local and State Government has postulated four criteria to be utilized in the evaluation of institutional alternatives:

1. Ability to plan effectively for all of the physically related parts of one or more drainage areas;
2. Acceptance of responsibility for providing sewage facilities when and where they are needed, throughout the drainage area being served;
3. Ability to finance the construction and operation of facilities with reasonable economy; and
4. Responsiveness to public control through usual democratic processes.[6]

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[6]Fels Institute of Local and State Government, Physical and Governmental Organization for Regional Sewage Facilities (Philadelphia: The Institute, 1960), pp. 28-29.

A number of similarities are evident in these two sets of criteria which require further emphasis. Both allude directly to the importance of obtaining an institutional arrangement which has area-wide jurisdiction, sufficient jurisdiction to provide a function not only in the area of present need but also in the area of obvious future growth of the metropolitan area. Another common strain is the requirement that the governmental form possess adequate financial capabilities and resources to perform its function in the most equitable and efficient manner. Maintaining a degree of public control over the institution is also an important feature in both sets of criteria.

While these three, geographical jurisdiction, financial resources, and public control, might be considered the most "basic" factors in the determination of "adequate" governmental machinery for water and sewer services, there are other considerations which, although ignored by some authorities on the subject, deserve mention here.

Any institutional alternative for water and/or sewer service should recognize the importance of coordination ot merely with the administration of other utilities, but also with metropolitan planning, zoning, and public health to foster a more growth-conscious operation. This requirement cannot be emphasized enough. The ability to effectively employ utility extension policies to guide urban growth is enhanced or hindered by the degree of coordination between the utility agencies and responsible planning agencies. The facilitation of coordination between sewer, water, and drainage planning and other regional and local planning is, therefore, a necessary (but not

sufficient) condition for the successful use of extension policies.

An important consideration which has risen out of the current concern over environmental problems is whether or not existing or proposed institutional forms meet State and Federal Water Quality Management guidelines. While guidelines vary from state to state, the federal guidelines spell out clearly the institutional requirements necessary to receive federal funding and to meet quality standards.

The U. S. Department of Housing and Development requires close coordination between the responsible water and sewer agencies and area-wide planning organizations to foster close association between the area's land-use and water/sewer elements.[7] Without so doing, local agencies jeopardize the possibility of receiving federal funds for water and/or sewer service. The Environmental Protection Agency Guidelines state:

> . . . jurisdictional problems can exist because of the vested interests of many institutional entities which may exist in a metropolitan area. Where conflicts of interest affect any of the abatement alternatives, they must not only be recognized as constraints in the analysis, but organizational or other institutional remedies should be proposed.[8]

In summary, the following represents a helpful synthesized guide for the evaluation of the major institutional alternatives. They are heavily relied upon in both this chapter and Chapter III.

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[7]U. S. Department of Housing and Urban Development, Circular MPD 6415 IA (Washington: U. S. Government Printing Office, 1971), pp. 1-21.

[8]Environmental Protection Agency, Guidelines: Water Quality Management Planning (Washington: U. S. Government Printing Office, 1971), p. 33.

1. The water and/or sewer agency should possess sufficient geographical jurisdiction to enable it to plan and operate effectively for all of the related parts of one or more areas (a drainage basin, for example), thereby partaking of the advantages of economies of scale. Political boundaries should not be a constraint upon overall efficiency and effectiveness;

2. The responsible institution(s) should be organized in a way that encourages, rather than discourages, a close working relationship with all other government departments and services. Particularly close association and coordination should be cultivated between the water/sewer agency, planning organization, other utilities, and public health offices, in order to foster a more comprehensive growth of the systems and the area itself;

3. The institution should possess legal, financial, and administrative capabilities commensurate with its responsibilities;

4. There should exist some degree of public control over the institution with officers elected through traditional democratic processes;

5. There should be a high degree of adherence, on the part of the institution, to state and federal guidelines for water and sewer management and development; and

6. If conditions are found wanting with regard to the foregoing five guidelines and reorganization is called for, that reorganization should be conducted in accordance with political feasibility, as well as in accordance to the five guidelines.

With these six basic guidelines in mind, an evaluation of the alternatives will be conducted.

III. CITY GOVERNMENT

The central city is possibly the earliest and most widely used entity for the provision of utility services in metropolitan areas.

The Advisory Commission on Intergovernmental Relations states:

> The water supply and distribution systems and sewage collection and treatment facilities of the central cities remain the dominant element in the provision of water utilities in urban areas.[9]

History, however, would probably not substantiate the notion that this was a deliberate approach to supplying services in a metropolitan area. The central city, some observers believe, just happened to be the first to face the need for water and other utility services and service beyond city boundaries most likely "just grew."

Regardless of when and how they acquired the responsibility, cities providing utility services have a legal obligation to supply these services to all applicants, within the boundaries of the municipality under terms of a reasonable extension rule,[10] and also have an ethical, in some states legal, responsibility to supply services outside of their corporate limits.[11]

Fundamental Approaches

There are four basic approaches which central cities can follow when extending water and sewer services to fringe areas. These are: extraterritorial powers, contractual agreements with other municipalities or unincorporated areas existing at the fringe, annexation,

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[9] A. C. I. R., Intergovernmental Responsibilities, p. 15.

[10] Orville P. Deuel, "Public Service Commission Viewpoint" in "Extension of Public Services to Suburban Areas," Journal of the American Water Works Association, August, 1958, p. 954.

[11] W. R. Seeger and P. F. Walsh, "Problems of Service Extension to Fringe Areas: Joint Discussion," Journal of the American Water Works Association, March, 1959, p. 342.

extension of the central cities service area despite political boundaries, and various combinations of all four.

Extraterritorial powers. Extraterritorial powers are defined by the Advisory Commission on Intergovernmental Relations as:

> . . . powers which a city exercises outside its ordinary territorial limits to regulate activity there or to assist in providing service to its citizens within its own boundaries.[12]

The term "extraterritoriality" has also frequently been used to refer to the power of a city to furnish services to areas outside the city. With this power, development in the urban fringe can be regulated, aiding the city in making decisions of future importance without making decisions of future importance without making the fringe area a part of its incorporated area.

The most common applications of extraterritorial powers have traditionally been in the exercise of municipalities' police power, particularly planning, zoning, and subdivision control. Of particular importance to the extension of water and sewer services are subdivision regulations.

> Subdivision regulation controls the arrangement and width of streets, length and depth of blocks . . . provision of sewer and water distribution systems. Such subdivision regulations are frequently required to conform with the provisions of the comprehensive plan of the municipality

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[12]Advisory Commission on Intergovernmental Relations, Alternative Approaches to Governmental Reorganization in Metropolitan Areas (Washington: U. S. Government Printing Office, 1963), p. 20. (Hereafter known as A. C. I. R., Alternative Approaches.)

> concerned . . . in order to assure orderly development of the entire area.[13] (Underscoring added.)

A 1961 study revealed that approximately thirty states authorize some form of extraterritorial powers to municipalities, with the area of jurisdiction varying from one to five miles.[14]

Basically, the use of such powers constitutes an extension of a city's geographical jurisdiction when providing water and sewer services. Obvious advantages which result are better developmental control over fringe areas, which in turn strengthens the movement toward area-wide land use planning, greater potential for annexation of the fringe areas by the central city (assuming annexation is a desired goal) by giving the fringe area characteristics harmonious with those of the central city, and less disturbance than some other methods in the political status quo.[15]

The major weakness of extraterritorial powers is their limited applicability. Such powers are useful only when there are unincorporated areas adjacent to the central city, a condition which is long past for many urban centers. Moreover, from the standpoint of the metropolitan area as a whole, the use of extraterritorial powers may prove harmful if the city is deterred from cooperating with other communities in an

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[13] Ibid., p. 21.

[14] Charles R. Adrian, Governing Urban America (New York: McGraw Hill Book Company, Inc., 1961), p. 288.

[15] This, of course, is assuming that existing fringe government is not involved, at least not actively, in providing urban-scale services to its constituent areas. Should the reverse be the case, the political upheaval would undoubtedly be considerable.

area-wide approach yielding greater overall benefits.[16]

Contracts and agreements. Intergovernmental contracts and agreements are the most widely used formal methods of accommodating governmental problems to geographic boundaries.[17] They take a wide variety of forms ranging from informal agreements and understandings to binding legal arrangements based on formal agreements or contracts. The character of the arrangement can be "horizontal" or "vertical,"[18] the former pattern representing agreements among similar scale governments for mutual undertakings. An example of this would be two villages establishing a joint police force. A "vertical" arrangement, on the other hand, is a network of agreements developed between larger units and smaller units of government. This is the normal arrangement in urban areas where the city government is the primary water and/or sewer institution and the intergovernmental approach is followed. A common example of such an arrangement is where the city provides water to outlying municipalities who in turn handle distribution to the customer.

The most advantageous aspect of this approach is that:

> . . . where agreements are used by a city to provide services to adjoining areas, they may be helpful in guiding the orderly

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[16]A. C. I. R., Alternative Approaches, p. 22.

[17]Advisory Commission on Intergovernmental Relations, A Handbook for Interlocal Agreements and Contracts (Washington: U. S. Government Printing Office, 1967), p. 18. (Hereafter known as A. C. I. R., Handbook.)

[18]Ibid., p. 13.

> growth of the adjoining areas, thus fostering a larger-area approach to planning and development.[19]

Other strengths of this approach include high political feasibility because such arrangements require a minimum number of official and voter approvals and involve little modification of existing governmental structure. Also such an arrangement can tend to broaden the geographical base for planning and administering governmental services and controls.

An apparent weakness of intergovernmental agreements and contracts is the fact that conflicts between area-wide and immediate local interests are apt to arise in handling functions which require an area-wide approach,[20] particularly water and sewer.

Beyond this, intergovernmental contracts are disadvantageous where the "seller" municipality has a virtual monopoly of the service. This is normally the case with water and sewer services.

> If one community controls the water supply in the area, for example, only its own self-restraint protects the purchasing communities from being exploited on price and service. As another example, state health regulations might place restrictions on the number and location of sewage disposal facilities creating a monopoly advantage for one or more local governments.[21]

Annexation. Annexation is defined as the absorption of territory by a city.[22] While the territory annexed can be either incorporated

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[19] A. C. I. R., Alternative Approaches, p. 29.

[20] Ibid., p. 30.

[21] Ibid., p. 31.

[22] Ibid., p. 58.

or unincorporated, usual procedure finds it unincorporated and smaller than the annexing city. The technique has been used throughout the history of the United States and it is the most common approach presently employed to adjust the boundaries of local governments.[23] As city populations move outward, city boundaries are extended to include the area of growth and to provide not only water and sewer services but most other municipal services as well.

While annexation of unincorporated area continues to show vitality in some emerging metropolitan areas of the country, it has become virtually impossible in most of the older and larger metropolitan cities whose boundaries have been frozen by the creation of an impenetrable band of incorporated satellite cities, plus as assortment of special districts and other units of government.[24]

Annexations are carried out in five principle ways:

1. Legislative determination, when municipal boundaries are extended by special act of the State legislature;

2. Popular determination, in which voters determine whether a territorial extension shall take place;

3. Municipal determination, in which the annexing municipality makes a unilateral determination;

4. Judicial determination, in which the State judiciary decides whether a proposed annexation shall take place;

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[23]Keith J. Ward, "The Expansion of Federalism to the Metropolitan Region: Councils of Governments in Tennessee" (unpublished Ph. D. dissertation, The University of Tennessee, 1971), p. 32.

[24]Norman Beckman, "New Solutions to Urban Problems," address given before the Annual Conference of the National Association of County Officials, New York, 1962.

5. Quasi-legislative determination, in which a commission or board makes the determination.[25]

States vary as to the number of annexation methods available to municipalities, but usually may use more than one of the above methods.[26]

The most evident advantage of utilizing annexation to extend services to outlying fringe areas is that it usually provides ample geographic jurisdiction for area-wide planning and economies of large scale operation by placing additional territory under the jurisdiction of one policy making body for the regulation of future development. It also extends a complete package of police powers for development regulation and control. In conjunction with this facet, annexation can forestall incorporations or creation of limited purpose special districts, thereby preventing the governmental pattern of water and sewer service from becoming overly complex. On the other hand, in states which have weak incorporation statutes, annexation may precipitate "defensive" incorporations by fringe communities that do not want to be absorbed by their neighbor. The result is additional fragmentation of political authority.[27]

> In addition, annexation has often proved inadequate because of the inability to bring within one boundary enough area to permit the resolution of city and urban fringe problems. Urban growth in many instances has simply spread over too wide an area for annexation to provide a feasible one government approach.[28]

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[25] A. C. I. R., Alternative Approaches, p. 58.

[26] Ibid.

[27] Ibid., p. 64.

[28] Ward, op. cit., p. 32.

There have been cases where central cities have abused their annexation power by providing services such as water and sewer to fringe areas only if annexation is agreed upon, in other words using water and sewer extension policies as a "club" to force annexation. Another abuse has been the annexation of only those outlying areas which can "pay their own way" because of high taxable values and minimum problem conditions. Ploys such as these have diminished the political feasibility of annexation in many urban areas. Annexation proposals frequently meet with citizen friction, from both the city and the fringe areas. The city is threatened with the possibility of paying higher costs at least during the initial servicing of the newly-annexed areas, while the latter, although desirous of the municipal services, often resent the removal of political self-determination.

Direct extension. A final approach which cities can follow when providing water and sewer services to fringe areas is direct extension of lines without revamping of geographical boundaries. When used conscientiously, independent extension can be an important tool in growth guidance. Like the previous approaches, simple extension has inherent strengths and weaknesses. One author states:

> At best, sale of service by the central city provides better service than numerous unincorporated and suburban areas could afford to furnish for themselves. It also eliminates duplication of equipment and prevents the waste of both natural resources and governmental funds.
>
> At its worst, neither the city or the suburban area will be benefitted by that buyer-seller relationship which leads to friction and conflict. Without careful cost records and adequate contractual safeguards, the city may find itself

> performing services for the fringe areas at the expense of its own taxpayers. On the other hand, the fringe areas may be left at the mercy of a capricious city.[29]

Supporters of this system contend that it is basically an extension of the central city's technical competence and financial capabilities, thereby sparing the fringe areas the necessity of using their credit and bonding capacity to develop less efficient facilities.[30] That such an approach can be followed without the creation of new layers of government, and that local "freedom of action" is preserved, are direct extensions' major advantages.

Opponents of the system base their arguments on the monopolistic position of the city as the sole provider of services. Such a situation means that the fringe area's water and sewer service levels are determined by political processes over which they have no control. Furthermore, profits which can result from the system's operation almost always accrue to the city. In addition, the current financial plight of many of our larger cities[31] weakens the city's position as the basic provider of urban services to the fringe areas. Indeed, many cities do not want that responsibility. The popular policy of charging rate differentials for supplying out-of-city service is "surely a sign that this was done grudgingly."[32]

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[29]Betty Tableman, "How Cities Can Lick the Fringe Problem," Public Management, XXXIV (March, 1952), p. 53.

[30]A. C. I. R., Intergovernmental Responsibilities, p. 35.

[31]"Empty Pockets on a Trillion Dollars a Year," Time, March 13, 1972, pp. 66-74.

[32]Henry D. Harral, "The Metropolitan Approach to Utility Services," Journal of the American Water Works Association, March, 1965, p. 60.

Advantages and Disadvantages

The advantages and disadvantages of city government being the institution responsible for providing water and sewer services in urban growth areas quite obviously depends upon which approach or combination of approaches the city follows when extending lines. Most remarkable is the fact that supporters of one approach will praise its worth along the same lines that its opponent proclaim its detriments. An example of this is the monopolistic position most cities have when following the independent extension approach.

Its opponents feel that the monopolistic arrangement hinders "representative" government. Supporters see its merit in a different manner.

> Where a city has a more or less monopoly position regarding water supply, this can be a tremendously big stick in guiding urban development, especially in the all too rare case where the local health department clamps a tight lid on development.[33]

This paradoxical situation underscores what was stated earlier in the introduction section of this chapter. Different institutional arrangements work well or poorly in different areas for different reasons, and depending upon differing viewpoints.

With regard to the six basic principles outlined in the previous section, city governments are first of all, somewhat constrained by

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[33]Kenneth B. Kenney, "Public Policy Alternatives Affecting Water and Sewer Service in Urban Growth Areas" (unpublished Master's thesis, University of North Carolina, Chapel Hill, 1963), p. 43.

political boundaries, regardless of the extension approach they follow, thereby limiting their area-wide effectiveness.

Second, while the degree of working relationship with all other governmental departments and services is difficult to determine, city institutions would seem to have an advantageous position with regard to coordination with other similar efforts, assuming that services such as planning and other utilities are city-controlled. This reasoning runs afoul, of course, when the local public health agency is at the county level, which it so often is. The fact that area-wide "certification" for receiving federal funding for water and sewer facilities is dependent upon the area-wide comprehensive planning of a regional planning agency and not the city water/sewer institution negates somewhat the hindrance imposed by constricting political boundaries.

Legal, financial, and administrative capabilities must also be viewed in a situational context. Legally, most cities have the capability to extend services beyond their corporate limits, with or without annexation. Administrative capabilities, on the other hand, are highly dependent upon the character of the city's internal organizational network which in turn is determined by the state and/or local legislation. Financially, while cities have the power to levy taxes, fees, assessments and service charges and the ability to float a variety of bonds within their boundaries, many cities only have the service charge available to them as an enforceable revenue source outside their limits, thereby decreasing their financial base. Although

it is true that cities can, and do, charge differential rates outside their limits to increase the revenue from fringe area extensions, such a practice can lead to:

> . . . the creation of new water supply and distribution systems outside the central city. Thus they eliminate the central city as the agency to supply service to its metropolitan area.[34]

By maintaining the water and sewer services within city government, public control over their operation is reasonably assured.

The degree of adherence to state and federal guidelines is, again, a situational consideration. However, if a city institution is hampered by political boundaries so as to hinder area-wide planning, it is seemingly jeopardizing the possibility of receiving federal funds for the system.

With regard to political realities, the political position of the central city, like the attitude of most fringe areas, is likely to be based on immediate self-interest rather than projected long-range regional benefits.

IV. COUNTY GOVERNMENT

Counties, with the exception of such highly urbanized areas as Los Angeles County, California, have not traditionally performed the function of providing water and sewer services. More commonly, they have been viewed as dormant administrative subdivisions of the state government.

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[34] Harral, op. cit.

Recent indications, however, point to the fact that counties within metropolitan areas and other counties with large populations are, in varying degrees, providing services to their urban residents. The increasing demands of fringe area residents for municipal type services have compelled many counties to assume functions previously supplied only by municipalities. Such actions have culminated in the designation of a new form of local government, the "urban county."

> An urban county is one which began as an administrative arm of the state and has become a government providing a significant number of services of a municipal character throughout all or part of its jurisdiction. This development may occur through piecemeal transfer of functions from municipalities or special districts; through the gradual expansion of some counties from the status of rural government to one performing many functions; or through the states simultaneous granting of a number of functional powers to counties in metropolitan areas.[35]

While it is true that most counties in the United States have not yet developed into urban counties, many arrangements exist where counties and other units of local government cooperate to provide the services needed in metropolitan areas. Each arrangement has been developed to serve the area concerned. Therefore, it is often necessary to explain them in terms of the metropolitan areas involved.

Proponents of using existing county governments as water and sewer institutions in urban growth areas agree with the A. C. I. R. that:

> Where the boundaries of a county approximate the boundaries of a metropolitan area, which is the case in about two-thirds of the metropolitan areas in the country (primarily

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[35]League of Women Voters of Massachusetts, "New Patterns in County Government" (Boston, 1968), pp. 2-3.

> the smaller ones), the transformation of the county into a unit of urban government can mean the provision of area-wide services without any basic changes in geographical jurisdictions of existing units. It thus provides better control over area-wide problems and a better relationship between taxes and benefits, at the same time that local responsibility for non-area-wide services is preserved. . . .
>
> The use of an existing government rather than the creation of a new one gives the urban county approach high political feasibility. Where the urban county evolves on a function-by-function piecemeal basis, political feasibility is even greater.[36]

Bernard F. Hillenbrand, Executive Director of the National Association of Counties also extols the ability of counties to handle area-wide problems. He bases his reasoning on five principal advantages of county government:

1. Political Accountability. "By political accountability, I mean the representatives are elected by the people, they reside in the community, and they can be held accountable";

2. Broad Tax Base. "This virtue of financial stability will become more and more valuable as we proceed into more complex, and hence more costly, local government programs";

3. Economy of Scale. "One observer put it very succinctly when he said; the county was designed to handle those problems which are too big for the smaller cities and townships and too small for state administration and too dangerous to democracy to be administered directly by the federal government";

4. Areawide Jurisdiction. "The county has jurisdiction in rural, suburban, and central city areas. This virtue is going to be increasingly important as we progress into the area of stricter public regulation"; and

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[36] A. C. I. R., Alternative Approaches, p. 44.

5. Closer Ties with the State and Federal Government. "As a political and administrative subdivision of the state, the county has had a much longer history of working relationships with the state than have municipalities. The same is true with regard to the federal government.[37]

While Mr. Hillenbrand's official position explains an obvious bias, his viewpoint has a reasoned basis.

Another prominent advantage inherent to counties in the performance of water and sewer tasks, although not regularly cited, is the county's police power. In particular, since most public health departments are located at the county level, the use of their enforcement powers could go a long way to not only insure a healthy environment with regard to potential water and sewer problems, but also to enhance an efficient development process.

While Mr. Hillebrand has not seen fit to expose some of the weaknesses of counties in providing urban services, particularly water and sewer, other writers have not been as kind. For one thing, regardless of its applicability in almost two-thirds of the metropolitan areas, the fact that it is totally inapplicable in a third of the areas whose problems which were once contained in a single county and have stretched beyond county boundaries, should not be ignored.

A somewhat more fundamental weakness of county governments is that, despite the strides counties have taken to cope with metropolitan

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[37]Bernard F. Hillenbrand, "The Role of the County in the Solution of Urban Problems," Address given at the Conference on Community Planning 1967-1968, Pacific Lutheran University, Tacoma, Washington, 1969.

problems, most existing county governments are not organized or equipped, administratively, financially, or politically to move easily into the business of providing such urban-type services as water and sewer. One author states that "county government essentially is still in the horse-and-buggy stage."[38] The A. C. I. R. reports that:

> Counties as a class of governmental units probably have been the most backward with respect to modern organization and administration, due to the diffusion of policy-making and administrative authority among a number of independently elected officials.[39]

Of course this has not entirely been the counties' fault. They have traditionally had their hands tied because of constitutional prohibitions.

All is not bleak for county level approaches, however. The failure of other consolidation and coordination attempts makes attention to the urban county approach quite significant. Extensive structural changes in traditional county government, however, would have to be brought about in order to equip counties with the tools to provide high quality water and sewer service.

Advantages and Disadvantages

County government lends itself readily to evaluation on the basis of the six principles set forth in section II. First of all,

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[38]John C. Bollens, "Metropolitan Areas: Puzzle and Challenge," Public Management, May, 1956, p. 102.

[39]A. C. I. R., Alternative Approaches, p. 45.

while counties possess greater geographical jurisdiction than central cities, they are still inhibited by political boundaries.

The ability to develop a working relationship with other agencies, again, must be viewed in a situational context. It is, however, common knowledge that, in the infancy of county government as the water and/or sewer institution, most other vital agencies, such as those responsible for planning, subdivision regulation, zoning and other utilities would probably not be operating within county government.

As they currently exist, most counties do not possess the legal, financial, and administrative capabilities to carry out an effective water and sewer program. By and large, they do not have the capabilities to provide efficient service, to say nothing of utilizing water and sewer extensions to guide urban growth.

A high degree of public control would presumably be in existence.

Adherence to state and federal guidelines would probably be a situational item, although counties, as indicated above, are known to have a good working relationship with state and federal agencies.

Finally, should county government be designated as the institution to handle water and sewer services, such a proposal would probably meet with minimum political friction.

V. SPECIAL DISTRICTS

Special districts have been described as the "new dark continent of American politics,"[40] partially because they have become a significant

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[40]John C. Bollens, Special District Governments in the United States (Berkeley: University of California Press, 1957), p. 1.

part of the local governmental pattern without much notice or concern being displayed, and partially because they are unique governmental forms which avoid precise categorization. Attempts to define "special district" have been as frustrating as attempts to define "public utility." The A. C. I. R. Report, The Problem of Special Districts in American Government, while not eluding the definitional problem completely, elects to characterize the phrase rather than rigidly define it. John C. Bollens, a noted authority on special districts, has taken the same route. Bollens characterizes special districts as:

> Organized entities possessing a structural form, an official name, perpetual succession, and the rights to sue and be sued, to make contracts, and to obtain and dispose of property. They have officers who are popularly elected or chosen by other public officials. They have a high degree of public accountability. Moreover, they have considerable fiscal and administrative independence from other governments. The financial and administrative criteria distinguish special districts and other governments from all dependent or subordinate districts and from most authorities, which, lacking one or both of these standards, are not governmental units. . . . Unlike most other governments, individual special districts usually provide only one or a few functions.[41]

Another writer in the field, Max Pock, states that regardless of their size, locality, and functions, special districts always exhibit the following identical characteristics:

1. They exist as separate corporate entities, though they may have been created under any of several types of formation procedures;

2. They are entrusted with one or more governmental function or proprietary service vested with a public interest,

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[41]Bollens, Special District Governments in the United States, p. 1.

although these may range from the operation of a mass transit system to the control and eradication of noxious weeds;

3. They are entrusted with corporate powers commensurate with the performance of their activities;

4. They are governed by a board of directors, although these may have been installed pursuant to any of several different selection procedures;

5. Their jurisdiction, with few exceptions, is delimited by territorial boundaries; and

6. They are possessed of one or more revenue sources and financial powers found in conventional units of local government.[42]

The rise in the use of special districts to solve a variety of urban service problems can be attributed to a number of factors. First of all, the formation of a special district is often advocated as the answer to service problems when existing units of local government are either unwilling or unable to solve the service dilemma.

Second, local governments might be financially hamstrung by state constitutional and legislative restrictions on their taxing limits and bonded indebtedness limits, thereby paving the way for special districts.[43]

> Inadequate and unrealistic tax and debt limitations often lead to the creation of new units of local government, typically special districts, to extract more revenue from the same tax base to provide a specific urban service that

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[42]Max A. Pock, Independent Special Districts: A Solution to the Metropolitan Area Problems (Ann Arbor, Michigan: The University of Michigan Law School, 1967), pp. 10-11.

[43]Bollens, Special District Governments in the United States, p. 17.

might better be provided by an existing unit, especially if more flexibility could be built into areal limits.[44]

Another high-ranking reason for the establishment of special districts is that existing boundaries of local government often do not coincide with the area appropriate for a particular function. The A. C. I. R. reports that two types of boundary situations exist which influence the creation of special districts.

> The first is where numerous units of general local government exist within the service area which is necessary for the efficient and effective management of the particular function. Second is the problem created when the geographic features of the area dictate the territorial scope for the function. Geographic or efficient service area requirements pay no heed to the territorial boundaries of existing units of local government.[45]

A fourth reason for the creation of special districts is that existing units of local government simply may not possess the power to perform a desired service or function.[46] Such a lack of functional authorization, when combined with the negative attitude of some local governments which possess the legal authority to provide services but fail to do so, has greatly stimulated a rise in special districts.

Other important causes of their creation include the desire to provide the services without the "stain" of local politics, and the

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[44]Kenney, op. cit., p. 148.

[45]Advisory Commission on Intergovernmental Relations, The Problem of Special Districts in American Government (Washington: U. S. Government Printing Office, 1964), p. 56. (Hereafter known as A. C. I. R., Special Districts.)

[46]William H. Cape, Leon B. Graves, and Burton M. Michaels, Government by Special Districts (Lawrence, Kansas: The University of Kansas Publications, 1968), p. 4.

desire to refrain from "adding another function to the already complicated list performed inadequately through confusion by general function local governments."[47]

While the reasons special districts are created can be quite varied, the methods employed for their creation are quite regular. The State legislature occupies the key initiating position in the establishment of practically all special districts.[48] As governmental entities, special districts require prior enabling legislation or other statutory authority before they can be created or can undertake the performance of any function.[49] There are occasions, however, when a State legislature will pass a special act for the formation of a certain district in a certain locality.[50] Once the method for the creation of the district is established, further action must be taken either by the residents of the area and/or appropriate units of general local government or a designated State agency.[51] The type of action followed depends heavily upon local circumstances and therefore needs no further amplification here. Suffice it to say that the establishment of special districts, while requiring legislation in the initial

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[47] Ibid.

[48] Bollens, Special District Governments in the United States, p. 15.

[49] A. C. I. R., Special Districts, p. 7.

[50] Bollens, Special District Governments in the United States, p. 15.

[51] A. C. I. R., Special Districts, p. 9.

stages, depends upon local conditions for implementation and, as of this writing, implementation has not been overly difficult in most urban areas.

Up to this point in the discussion of special districts, this thesis has identified some of their general characteristics, reasons for creation, and methods of creation. It would be well to delineate special districts further into functional and jurisdictional typologies.

A functional delineation of special districts differentiates between limited purpose and multi-purpose districts. The former ordinarily perform a single service such as sewage disposal, water supply or flood control rather than any regulatory function.[52] The latter, as their title indicates, perform a variety of services. In reality, multi-purpose districts capitalize on the strengths of the limited-purpose approach while preventing the fragmentation of government.[53] While multi-purpose districts should be lauded (where they can be found), for their comprehensive attack on urban problems, few special districts have viewed their responsibility as that of providing a wide variety of functions.[54] Limited-purpose districts are much

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[52] A. C. I. R., Metropolitan America, p. 95.

[53] Ibid., p. 96.

[54] Bollens, Special District Governments in the United States, pp. 68-69.

more common. For purposes of this thesis, only the latter will be considered further.[55]

Jurisdictional delineation also reveals two major types: urban fringe or suburban districts; and metropolitan districts. Both will be evaluated here on a limited-purpose basis.

Fringe districts are those special districts which have been created to supply an urban service or services to a usually unincorporated area lying outside the legal boundaries of an existing city. Such an area commonly has urban service needs but lacks comprehensive urban government.[56] Characteristics of these district types include limited service areas, confusing and overlapping boundaries, extremely small scale operations, and heavy reliance upon property taxation or assessment, often in combination with the issuance of bonds, as a financial base.[57]

Advantages of fringe districts include the fact that their boundaries cover a specific area, the area needing service, and do not have to conform in any way to those areas of existing local governmental units which are sometimes hampered in attempts to cross county

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[55]This is not to say that multi-purpose districts are not worthy of consideration. They are being omitted because the qualities that they possess will be discussed in a later section on metropolitan/regional approaches. Their untested nature further inhibits an accurate evaluation here.

[56]Bollens, Special District Governments in the United States, p. 93.

[57]Ibid., pp. 104-105.

lines; they have power to finance their operations from revenue secured from within the district, thereby avoiding the tax and debt limitations indicated earlier; because they have distinct governing organizations they do not disturb existing governmental and political relationships.[58] An additional strength in the short-run is that fringe districts permit one interested area to obtain water and sewer services without being hampered by slow-acting disinterested areas.

A primary disadvantage of urban fringe districts is that they usually result in a series of small, costly operations, lacking recognizable boundaries. Another disadvantage is that emphasis on a limited number of services, without coordinating them with other services and without exercising needed regulation and controls, fosters poor fringe development which is expensive to undo in the future.[59] In addition, the use of fringe districts adds to the growing confusion of local governmental organization in a single metropolitan area by creating additional layers of government.

Metropolitan districts have been defined by the A. C. I. R. as "independent units of government organized to perform one or a few urban functions throughout part or all of a metropolitan area, including the central city."[60] Bollens defines them simply as "special

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[58]Tableman, op. cit., p. 53.

[59]Bollens, Special District Governments in the United States, p. 114. This criticism can obviously be applied to other limited purpose districts as well.

[60]A. C. I. R., Alternative Approaches, p. 49.

districts whose territory covers a substantial part or all of a metropolitan area."[61] To further distinguish a metropolitan district from other special districts, Bollens asserts that the former can acquire its title,

> Only if it performs an urban function and includes the central city (or at least one central city if there are more than one) and a major part of the remainder of the territory or population of a metropolitan area.[62]

Unlike fringe districts, metropolitan districts are usually characterized as having large and flexible service areas and large scale operations. In contrast to fringe districts, metropolitan special districts have the opportunity to effectively plan and program functions which necessitate area-wide jurisdiction such as water supply or sewerage disposal.

While a good number of the strengths and weaknesses of a metropolitan district differ from those of a fringe district only in area of jurisdiction, the former does possess its own inherent advantages and disadvantages. Unlike fringe districts, the track record of metropolitan districts indicates that they are usually effective in the performance of their responsibilities and, in spite of their deficiencies, they often represent the nearest existing approximation to area-wide government in many metropolitan areas, and therefore can

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[61] Bollens, Special District Governments in the United States, p. 52.

[62] Ibid., p. 53.

rtake of area-wide planning and economies of scale in their opera-
ion.[63]

Two of the most common criticisms levied against metropolitan
istricts are that they are:

> . . . too remote from public influence and regulation, and that they have substituted control by a professional administrative guild of experts and an allied interest group for public control.[64]

more general disadvantage is their restricted functional nature.
heir limited purpose scope, like that of fringe districts leads to
increase in the number of governmental units, to citizen confusion,
d to a reduction in the impetus and interest in obtaining more
orough comprehensive approaches.[65] Thus, metropolitan districts are
sically expedients rather than long-run solutions to providing vital
rban services such as water and sewer.

vantages and Disadvantages

With regard to the six basic principles, special districts should
evaluated by jurisdictional type. Fringe districts, for example,
ve an extremely limited geographical jurisdiction, while metropolitan
stricts are not so limited.

Neither type of special district encourages a close working re-
tionship with other governmental departments and services.

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[63] Ibid., p. 92.

[64] Ibid., p. 90.

[65] Bollens, "Metropolitan Areas: Puzzle and Challenge," p. 102.

While a number of writers in the field, notably Pock, indicate that all special districts possess the legal, financial and administrative authority commensurate with their responsibilities, such authority has only on rare occasions been evident. Experience indicates that metropolitan districts have been less prone to mismanagement than fringe districts although both types have operated at much less than desirable efficiency.

The degree of public control over special districts has been, despite Bollens' claims, minimal at best, except in very unusual circumstances.

While the degree of adherence to state and federal guidelines is, again, a situational concern, the inability of special districts to coordinate their activities with other governmental entities precludes close conformity to such guidelines.

The political feasibility of establishing special districts as the responsible institutions for providing water and sewer services in urban growth areas, although heavily dependent upon local situations, is normally quite high.

In the final analysis, however, despite their political feasibility and their potential worth in providing immediate solution to fringe service problems, special districts are not unlikely to create more problems in the long run than they solve.

VI. PUBLIC AUTHORITIES[66]

> By nature, a public authority is an agency with a public purpose to be achieved by methods more common to private business than to government. It is something of a hybrid; a governmental agency using non-governmental techniques to achieve governmental goals.[67]

It is just such a hybrid nature that prevents a public authority from possessing a clear-cut definition in all situations. For purposes of this thesis, however, a public authority may be defined as "a corporation clothed with the power of government but possessed with the flexibility and initiative of a private enterprise."[68]

Much of the analysis which has been conducted in regard to public authorities has been geared to either state or interstate level agencies, such as the Port Authority of New York. Most of the writers in the field, however, feel that local level authorities exhibit some of the same characteristics as the higher level ones. The following paragraph explains the characteristics of public authorities in general:

> Public authorities generally are corporate bodies authorized by legislative action to function outside of the regular structure of . . . government in order to finance and construct and usually to operate revenue-producing public enterprises. Their organizational structures and powers are of the type usually associated with public corporations and like

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[66]The terminology "public authorities" is intended to include independent boards and commissions, as well as other autonomous public entities.

[67]The Council of State Governments, Public Authorities in the States (Chicago: The Council of State Governments, 1953), p. 106.

[68]F. Burke Sheeran, "Public Authorities: What Are They?" (Pittsburgh: Graduate School of Public and International Affairs, 1966), p. 4.

> the latter they have relative administrative autonomy. Public authorities are authorized to issue their own revenue bonds, which ordinarily do not constitute debt within the meaning of constitutional debt limitations, since they are required to meet their obligations from their own resources. They lack the power to levy taxes, but are empowered to collect fees or other charges for use of their facilities, devoting the resulting revenue to payment of operational expenses and of interest and principal on their debts.[69]

Public authorities, however, are governmental instrumentalities. The governmental standing is emphasized in their non-taxable status. All authorities are exempt from federal taxes, including the application of federal income taxes to interest on their bonds.[70] Yet, while such authorities are customarily exempt from paying property taxes, or payments in lieu of taxes, there are occasions when constitutional or legislative enactments specifically make them subject to such payments.[71]

One further characteristic of public authorities which should not be ignored is their self-liquidating or self-supporting basis of operation. It is just such a self-supporting character which justifies granting the freedom and autonomy to a public authority. The importance of this principle is emphasized by the fact that one well-known expert in the field, Austin Tobin, considers it foremost in his criteria for determining whether a public authority set up should be used. The criteria ask five basic questions:

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[69]The Council of State Governments, Public Authorities in the States, p. 3.

[70]Ibid., p. 79.

[71]Ibid., p. 80.

1. Is the program self-supporting?

2. Is the program one which requires business efficiency?

3. Is the enterprise one for which decisions to be made are essentially of a commercial and business character?

4. Is the enterprise one for which decisions cannot be governed by considerations of party policies or political boundaries?

5. Is the enterprise one which requires initiative, imagination, risk-taking?[72]

If the answer to each of the above questions is affirmative (as they so often are when dealing with water and sewer services), Tobin feels that the public authority form of institutional arrangement is justified.

There are instances when a public authority resembles a special district quite closely. One basic point of difference usually separates the two. Normally the special district has the power to tax but not to issue revenue bonds, while in the case of the authority the situation, again normally, is exactly reversed.[73] To complicate the analysis, however, there are special districts, as there are also authorities, which possess both powers, hence the distinction cannot be pressed too far. Nevertheless, the bonding capabilities of authorities cannot be overlooked.

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[72]Council of State Governments, Public Authorities in the States, p. 111, quoting Austin Tobin, Executive Director of the Port of New York Authority.

[73]Roscoe C. Martin, Metropolis in Transition (Syracuse: Maxwell Graduate School, 1963), p. 10.

> The bond market likes to see a unit which proposes to float bonds on a "businesslike" basis; an authority, which as a public corporation can be represented as being immune to the politics of local government, has greater appeal in the investment market than does an ordinary special district.[74]

It is apparent, therefore, that a major factor stimulating the use of public authorities in the area of water and sewer service has been its financial advantages. As indicated, such an institutional alternative usually has the means of financing public improvements without the conflict of constitutional debt limitations. A further reason for the development of authorities has been the desire to establish a highly flexible administrative instrument to oversee the provision of such urban services as water and sewer.

While public authorities may be established in a number of ways, two methods are most often followed.[75] Second (and the method which is most often employed in the establishment of local authorities for water and sewer service), they may be created under general enabling legislation authorizing establishment of such authorities. The latter method injects the decision of whether or not to establish an authority into the local decision-making process. If the public authority is selected as the institution to provide the services, it is usually established through a city charter or some other reasonable facsimile.

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[74] Ibid.

[75] Council of State Governments, Public Authorities in the States, p. 38.

Obviously, the most espoused advantages of public authorities are their freedom from political pressures and management control.[76] Beyond these strengths lies the fact that public authorities with the notable exception of toll road authorities, customarily have an excellent credit rating in the bond market.[77]

Removal of the operations of public services, such as water and sewer, from the control of the public is undoubtedly the greatest disadvantage of using public authorities to provide the services. When the utilities are under such an authority it is all too easy for that authority to develop plans (and extend services) which run counter to those of the other governmental decision-making bodies in the metropolitan area. One writer believes that, it, in time, the authority can actually become the governing body in the area,[78] depending upon the importance of the shaping function of water and sewer services in the area. The dual nature that public authorities possess, that of being required on the one hand, to be subject to public control and to be held publicly accountable, while at the same time autonomous and free of the controls that ordinarily govern the creation of governmental agencies, has proven quite difficult to balance.

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[76]Seeger and Walsh, op. cit., p. 335.

[77]Council of State Governments, State Public Authorities (Lexington, Kentucky: The Council of State Governments, 1970), pp. 18-20.

[78]The foregoing opinion was offered in correspondence from Winfred G. Dodson, Head, Urban Development Services, Industrial Development Division, Georgia Institute of Technology, letter, June 29, 1971.

The self-liquidation principles of operations can also be disadvantageous, particularly in a situation where there is a desire to utilize water and/or sewer extension policies to direct growth. Such a principle tends to limit extensions only to areas which exhibit immediate financial return, rather than to areas which have been characterized by low-return urban sprawl, these latter areas needing additional growth to make them economically feasible to serve.

Advantages and Disadvantages

Further advantages and disadvantages can be realized through an evaluation of six principles.

First of all, it should be fairly obvious that public authorities, by their operational nature, exhibit a minimal degree of public control. While consideration of this principle is somewhat out of order here, its importance necessitates proper emphasis.

Depending upon the manner in which they were set up, public authorities, by and large, have not been constrained by limited geographical jurisdiction or political boundaries. In fact, although they are not considered in depth by this thesis, state level public authorities have crossed local, regional and state boundaries where appropriate.

The development of working relationships with other governmental agencies is extremely limited with public authorities. Their scheme of operations is frequently foreign from that of normal governmental procedures.

While their legal, administrative, and financial capabilities are quite often commensurate with their responsibilities in the short-run, their inability to tax or assess property can reduce the breadth of their financial base, in the long run.

Adherence to state and federal guidelines, is, again, a situational concern. It would appear, however, that an exhibited inability to work well with local governmental agencies could very well carry over to state and federal cooperation and coordination. This is not to say that detailed guidelines such as engineering principles would not be followed. Rather, it is an indication of a public authority's unwillingness or distaste at getting involved in traditional governmental "red tape."

Political feasibility is a moot question. It would appear, however, that the removal of the operation of such vital public services as water and sewer from the requirement of public accountability could lead to resounding political ramifications.

VII. PRIVATE COMPANIES

A private utility may not seem to be a serious approach to the provision of utility services. The fact remains, however, that private companies normally provide the electricity, gas, and telephone service desired by residents of the urban fringe. There also are occasions when private companies provide water and sewer service to the urban fringe areas. Indeed, some of the earliest efforts to provide water for urban growth areas--Boston in 1652, Bethlehem,

Pennsylvania in 1754, and Providence in 1772--were put forth by private utility companies.[79] These accommodations often were found lacking, however, as the following explanation indicates:

> Water works involved a large initial outlay of capital and heavy subsequent expenditures in maintenance and extension. But the actual and prospective profits of the (private) companies were rarely great enough to induce the directors to build systems adequate to provide all needs. The companies laid their pipes through the districts that promised the largest returns and left the poorer or remote districts without a supply. The larger the cities grew, the more serious this lag in essential service became. Moreover, the companies naturally gave priority to the needs of their private customers. Some provision, though rarely adequate, was made for fire hydrants; water for other important civic purposes was usually not available.[80]

The high rates and inferior service of private companies often gave way to lower rates and better services of some of the governmental forms which have been evaluated thus far in this thesis. A recent survey, however, has indicated that there are possibly as many as 5000 private companies within the United States in the business of planning, financing, constructing, and managing water supply and sewerage facilities.[81] It should be pointed out however that most of these are small in scale.

Private owners defend their right to determine their areas of service discriminantly. The following represents their reasoning.

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[79] A. C. I. R., Intergovernmental Responsibilities, p. 13.

[80] Ibid., quoting Nelson Manfred Blake, Water for the Cities (Syracuse: Syracuse University Press, 1956), p. 77.

[81] Henry P. Caulfield, "Techniques of Water Resources Planning, Water Law, and Institutions," Water Resources Bulletin, March, 1968, p. 28.

> There are those who argue that a utility is a monopoly, that it therefore has a moral obligation to extend its services to fringe areas, regardless of the conditions, either physical or economic. On the surface this appears to be a valid argument. In many fringe developments the physical burdens placed on the utility are obvious, and the economic problems are less obvious. The (private) utility management must never lose sight of its obligation to its owners, the stockholders who furnish the capital, or to its present rate payers, whose rates are affected by the utility's investment in new facilities. These serious obligations make it incumbent on management to extend service only on a sound financial basis.[82]

Despite their past inadequacies private utilities have performed well in certain situations where existing governmental machinery was either unable or unwilling to provide water and sewer services or the governmental machinery was simply not in existence.

Once in operation, private companies have an obligation to render service, usually provided for in its main extension rules and regulations, within its certificated and contiguous areas.[83]

In the majority of the urban areas where they are in existence, private utility companies are more or less subject to the control and supervision of a state regulatory commission.[84] Since most local governmental agencies responsible for providing services are devoid of such a high degree of control, private owners often plead discrimination. It should be pointed out, however, that government-ensconced operations are designed to render service, not to make a profit.

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[82] Seeger and Walsh, op. cit., pp. 348-349.

[83] Ibid.

[84] Herman A. Trachsel, Public Utility Regulation (Chicago: Richard D. Irwin, Inc., 1947), p. 511.

The privately-owned utility, on the other hand, must be concerned about profits, thereby developing an inherent divergence between private and public interests. Consequently, it is essential for the regulatory body to see to it that rates and service standards are maintained at reasonable levels.[85]

Advantages and Disadvantages

One practical way of determining the strengths and weaknesses of private companies as institutions for the provision of water and sewer services is to evaluate them on the basis of the six principles, which we have used in evaluating institutional arrangements thus far.

While private companies are not often inhibited by political boundaries, they rarely possess sufficient geographical jurisdiction to operate effectively for all of the related parts of one or more drainage areas.

A private company's usual disenfranchisement from other governmental operations frequently negates the possibility of developing a strong working relationship with such agencies as planning groups and the like.

Private companies quite often do not possess the legal, financial and administrative authority commensurate with their responsibilities because of their limited scale of operations.

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[85] Ibid. This is not to assert that governmental agencies are free of regulatory control. The control is of a different nature and evolves from a local source such as a county-level health department rather than a state-level public service commission.

Where local public control was earlier indicated as being minimal with regard to public authorities, it is virtually non-existent with private companies.

Adherence to state and federal guidelines is a situational concern once again, although it seems highly unlikely.

The degree of political feasibility is often quite difficult to determine in regard to private utility companies. If conditions are such that opposing governmental agencies are conflicting over which agency has the power to do what, a private company might be politically feasible. If, however, there is a desire to obtain more public control over the operation of vital services, it would undoubtedly prove not feasible. Such a principle is highly dependent upon the temperament of the area.

VIII. METROPOLITAN/REGIONAL APPROACHES[86]

The institutional alternatives which have been evaluated thus far in this chapter have to be considered conventional alternatives. The successes and failures of these arrangements are well documented, thereby affording easy access to an understanding of their strengths and weaknesses.

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[86]The title of this section is not intended to exclude all other approaches than those mentioned herein from consideration as metropolitan/regional approaches. Certainly the urban county is a metropolitan approach if an area's urban growth is consumed within one county. Metropolitan Districts, if only by title, are certainly area-wide approaches. The point of this section, however, is to evaluate some of the "new" area-wide approaches which have been clamored for by political scientists and utility planners alike.

The remaining institutional alternatives which are to be evaluated are still in their infancy. A concrete evaluation, therefore, does not avail itself. Nevertheless, a brief description, which in turn will hopefully indicate some of the advantages and disadvantages of each alternative, will be offered for types of metropolitan government including geographical and functional consolidation and federation. Councils of government, another metropolitan approach, will also be described.

Before describing each alternative, it would be well to discuss the reasons for the recent suggestions that metropolitan/regional approaches handle urban functions in general, and water and sewer services in particular.

In recommending such area-wide approaches, Gulick describes the inability of conventional forms of government to cope with the ever-increasing demands for urban functions.

> The structure of government, political and administrative, was never designed or evolved to meet these needs. For many of the new requirements there is no machinery at all; for others there was a system, but that system is now sadly inadequate and obsolete, and the effort of inadequate jurisdictions to deal with the problems which have grown beyond them, results in awkward arrangements, makeshifts, frustration, and generally partial or complete failure.[87]

Gulick further concludes that the breakdown of local government in metropolitan regions is thus found in four facts:

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[87]Luther Gulick, "Changing Problems and Lines of Attack" (Washington: Governmental Affairs Institute, 1968), p. 9.

1. A governmental vacuum--many of the things that now need doing for the people who live in the metropolitan area have never been assigned to or undertaken as a task by any government, Federal, state or local;

2. Fractionalization of assigned duties--many problems of local services and controls have coalesced while the governmental jurisdictions have remained as they were. Thus, each has but a fraction of a now unified problem to handle;

3. Political imbalance--produced by population and economic movements with respect to inflexible boundaries which leave many a governmental unit with an unbalanced population and a truncated economy, neither of which is equal to the governmental activities now required;

4. The lack of clear-headed and courageous political leadership and a recognition that we face a metropolitan problem--due in large measure to ignorance, jurisdictional fractionalization and political imbalance.[88]

What this amounts to is that area-wide functions and responsibilities should be treated as such. Many observers feel that conventional forms of government simply cannot handle area-wide functions. Some form of structural adaptation is required.

Nowhere is this requirement more accentuated than in the A. C. I. R. report, Alternative Approaches to Governmental Reorganization in Metropolitan Areas:

> The need for changing the geographical jurisdictions and power of local governments in many of our metropolitan areas arises because of the growing maladjustment between what these governments are called on to do and their ability to perform. More specifically, the present powers, jurisdictions and structures of local governments, and the states of intergovernmental relations in the metropolitan areas, make it increasingly difficult

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[88] Ibid.

> for the local governments to perform independently many functions which are inevitably area-wide in nature.[89]

In an A. C. I. R. study ranking urban functions from "most local" to "most area-wide," water supply and sewage disposal were ranked second and third behind air pollution control as functions which were most conducive to area-wide control.[90] One of the primary reasons for this area-wide scope is consideration of economies of scale.

> Water and sewage service can be provided at a lower unit cost on an areawide than a locality-by-locality basis due to (1) lower unit cost of fixed charges, (2) avoidance of duplication of facilities, such as sewer and water lines and pumps, and (3) taking advantage of gravity flow by following the contours of natural basins and thus avoiding costly pumping.[91]

To be sure, the economic benefits to be derived from area-wide operation and control, and the fact that political boundaries bisect watersheds and drainage basins, are strong incentives for structural adaptation in those metropolitan areas where water responsibilities are fragmented. Such structural adaptation would hopefully resemble what the Advisory Commission on Intergovernmental Relations recommends in its study, Intergovernmental Responsibilities for Water Supply and Sewage Disposal in Metropolitan Areas. Area-wide control and planning:

> . . . should integrate the provision of water and sewer services with other metropolitan functions, insure economies of scale, and promote sound overall patterns of

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[89] A. C. I. R., Alternative Approaches, p. 5.

[90] Advisory Commission on Intergovernmental Relations, Performance of Urban Functions: Local and Areawide (Washington: U. S. Government Printing Office, September, 1963), pp. 8-23. (Hereafter known as A. C. I. R., Performance of Urban Functions.)

[91] A. C. I. R., Alternative Approaches, p. 5.

> metropolitan development. Full use should be made of water and sewer planning and development as a basic tool for directing overall urban development along desirable and orderly lines. Primary responsibility for this function is best lodged in an area-wide agency.[92]

In short, the needs for water and sewer services are not dependent on jurisdictional boundaries. They are metropolitan and regional in scope and therefore should be handled by a comparable agency. This is not to suggest that all aspects of the services should be operated on a regional basis. One author has commented:

> A plan for a regional system does not necessarily mean that a region has to have a single integrated regional facility. It merely means that all of the alternatives for supplying water or disposing of it have been studied, and that combination adapted which is best suited to the topography and geography of the region, and will most efficiently and economically provide the required service with the least disruption or damage to people, property and resources. The selected combination might very well include several sources of water, several points of waste disposal and several separate systems and operating agencies.[93]

Metropolitan Government

Metropolitan government is defined as "some form of centralized government which would assume responsibility for some or all of the functions of the metropolitan area normally provided by units of local

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[92]A. C. I. R., Intergovernmental Responsibilities, p. 108.

[93]Melvin E. Scheidt, "Planning Regional Sewerage Facilities," Planning 1962 (Chicago: American Society of Planning Officials, November, 1962), p. 152.

government."[94] Major forms of metropolitan government include consolidation and federation.

Consolidation. Geographical consolidation includes mergers between a city and a county, between two or more cities, between two or more counties, and any combination thereof. Functional consolidation refers to cooperation between existing local governments rather than modification of existing boundaries. Strictly speaking, however, both refer to the merger of two or more units of government, which then assumes the powers and responsibilities of the original units.[95] The most prevalent type of merger is city-county consolidation. Indeed, city-county consolidation, at its ultimate, represents metropolitan government in form.[96] The consolidation of all units of government within a county provides a sound base for a unified, coordinated approach to area-wide problems within the county. In addition, economies and efficiencies should be achieved, since there is a reduction of overlapping and duplicating services.

A key factor to keep in mind with regard to consolidation is that such a joining not only constitutes a relinquishment of local governmental units' power and responsibilities but almost universally

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[94] Victor Jones, "Local Government Organization in Metropolitan Areas," in Coleman Woodbury (ed.), The Future of Cities and Urban Redevelopment (Chicago: University of Chicago Press, 1953), p. 508.

[95] National Service to Regional Councils, "Special Report" (Washington: National Service to Regional Councils, 1968), p. 5.

[96] Ibid.

requires approval by the voters in the jurisdictions consolidated. Resistance to such a loss of identity is one of the strongest barriers to consolidation, thereby often precluding its approval.

Another obstacle which stands in the way of adoption of city-county consolidation is the fact that a number of state constitutions do not authorize it. Even when they do, enabling legislation is still needed and not easy to obtain.[97] A further difficulty is that such a merger tends to reduce local participation and control in local affairs, thereby evoking citizen and official opposition.

A final detriment of the city-county consolidation method is that although it is in vogue as far as consolidations are concerned it still possesses inflexible boundaries when dealing with area-wide functions.[98] Other forms of consolidation would possibly be of more benefit when dealing with such functions.

Federation. The federation of governments approach is similar to that of the urban county in that the local governments transfer some of their functions to one government. Basically, it involves the division of local government functions in the metropolitan area between two levels of government. Area-wide functions, such as water supply and sewage disposal are assigned to a "metropolitan" government while local-type functions are retained by the municipalities, which

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[97] A. C. I. R., Alternative Approaches, p. 74.

[98] Ibid., p. 75.

are often called "boroughs" in a federation.[99]

The most significant differences between the federation form and other types of metropolitan approaches are that the former has as its governing body leaders of the local governments which are its constituents, and that local governments retain all those functions or powers not specifically delegated to the federation.[100]

A major advantage of the federation approach is that it provides a clear delineation between area-wide and local functions, facilitating the establishment of the optimal levels of service. Consequently, the structure and existence of local government is not threatened.

An obvious detriment of the federation approach is that it diminishes the strength of the lower tiers of general purpose governments. Hence, the political feasibility of it as a reorganization proposal can be severely limited. The fact that such an alternative normally requires voter approval via referenda in each participating jurisdiction highlights the importance of political feasibility.

In the final analysis, the success stories of these conventional forms of metropolitan government have been limited. The A. C. I. R. has indicated some basic reasons for the failure of their acceptance.

> There exists no clear evidence that urban civic and political leadership in the United States are as yet favorably disposed to the concept of "metropolitan government" as such. . . . The conceptual ties to traditional forms of local government are very strong, and the image of a single new form of general

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[99] Ibid.

[100] National Service to Regional Councils, op. cit., p. 5.

> government covering an entire metroplitan area is distasteful to many.[101]

Such reasoning has withstood numerous attempts to alter local government over the years. Different forms of consolidation have met with failure more times than not. Federation does not have a working example in operation in the United States to this day,[102] although New York City is often considered a form of federation.

Councils of Governments

Since metropolitan government seems to be making little headway, "metropolitan councils" may be "the greatest hope in binding together common interests and action programs."[103] Metropolitan councils or "councils of government," which is their current title, are defined by the A. C. I. R. as:

> . . . voluntary associations of elected public officials from most or all of the governments of a metropolitan area, formed to seek a better understanding among the governments and officials in the area, to develop a consensus regarding metropolitan needs, and to promote coordinated action in solving their problems.[104]

Generally speaking, COG's have no operating functions. Rather they are forums for discussion of current area development issues including ways of meeting emerging needs and achieving a consensus on an acceptable approach. The purpose of such councils is to develop a

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[101] A. C. I. R., Alternative Approaches, p. 80.

[102] Ward, op. cit., p. 36.

[103] Kenney, op. cit., pp. 50-51.

uniform approach to metropolitan needs and to coordinate governmental action to overcome problems.

The council of governments movement is described in the following terms:

> The COG, as a voluntary association, is not a governmental body, except insofar as its decisions are implemented by its member governments. It has no legal power to enforce its finding. No government is required to join and any can withdraw at will. The COG has no power to legislate or levy taxes. Problems are solved through consensus rather than through legal sanctions. As a federation requiring no surrender of local sovereignty, it is politically palatable to its constituent local governments.[105]

Thus, with no implementary authority, no taxing or other governmental authority, COG's have no "teeth." There are indications, however, that they have the potential for providing more functional programs, particularly water and sewer services.[106] As well as providing means for area-wide cooperation, policy-making, and coordination, COG's have the potential capacity to develop into institutions performing operating programs for metropolitan area governments. There is, however, little possibility that councils of government are destined to become "metropolitan governments" in the classic sense. Rather,

> They appear to be developing, first into the planning phase of cooperative decision-making, and second, into a limited, step by step realization that it is better for local governments cooperatively to program and implement decisions than

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[104] A. C. I. R., Alternative Approaches, p. 34.

[105] Metropolitan Washington Council of Governments, Proceedings of the First National Conference of Councils of Governments (Washington: Metropolitan Washington Council of Governments, 1967), p. 14.

[106] Ibid., p. 15.

> to turn regional affairs over to a legally and financially autonomous special district over which elected officials in a region have little, or no, control.[107]

Prominent advantages of the council approach of providing such urban services as water and sewer include the fact that it is useful for broadening the geographical base for discussion, research, and planning; it has a high degree of political feasibility because it does not disturb existing units of government; and it also has the ability to provide services without regard to rigid boundaries.[108]

Weaknesses of councils of government center upon their non-implementary character, although their potential for greater involvement in functional programs tempers weakness somewhat.[109] Their voluntary nature can be a distinct limitation on their ability to make effective, enforceable area-wide decisions on issues of governmental services and controls. This drawback, however, can be viewed in a different light. The voluntary, cooperative basis of COG's requires that the responsibility for adapting the regional proposals of the council remain within those units of government which have that responsibility, rather than permitting the relinquishment of that authority and obligation.

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[107] Royce Hanson, Metropolitan Councils of Government (Washington: Advisory Commission on Intergovernmental Relations, 1966), p. 30.

[108] These advantages are highly dependent upon the type of activities the COG is involved in.

[109] Ward, op. cit., pp. 46-47.

In the final analysis, then, it appears that councils of government, assuming that they begin to become involved in functional programs such as water and sewer services, might provide the solution to metropolitan/regional service problems and fill the void which has been created by unsuccessful attempts at metropolitan government reform.

Metropolitan/regional approaches, then, are either unacceptable at the polls or untested. Nevertheless, there is little doubt that water and sewer services require such an area-wide approach because of their areal nature.

Of course COG's, or any other alternative, cannot be expected to be the ideal institutional approach for providing such services in all urban areas. The A. C. I. R. reports:

> There is a great danger in prescribing an approach which all metropolitan areas should follow. The particular nature of the problem, specific organizational forms in the water field, traditional methods of undertaking regional problems, governmental structure, and political conditions and customs vary widely from one metropolitan area to another. Usually these factors will dictate the content and form of a regional approach to water problems in a particular metropolitan area.[110]

IX. THEORETICAL CONSTRUCT OF AN OPTIMUM APPROACH

The foregoing analyses on institutional alternatives emphasize the fact that a metropolitan region exists as an entity, regardless of its fragmented governmental structure which does not normally conform to the region's natural drainage basins and logical service areas. By

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[110] A. C. I. R., Intergovernmental Responsibilities, p. 47.

allowing the control and operation of a water/sewer system to remain within the jurisdiction of local governmental units while urging that the planning and programming of such a system be conducted on an area-wide, metropolitan/regional scale, Federal, State, and local decision-makers are merely satisfying their assigned responsibilities for fear of local political repercussions. Where conditions permit, the optimum approach dictates the necessity of having a regional agency for operation and control as well as for planning and programming.

The justification for larger scale control is basically two-pronged. On the one hand, as has been indicated throughout this chapter, maximum economies of scale and efficiencies can best be realized through a system which is area-wide in scope. At the same time, the increased scale of the system offers the governments and communities of the region an important tool in their array of development controls. The drawbacks of functional fragmentation can only be removed when public services are coordinated and integrated to afford the public a far greater measure of control over the direction and quality of development.

One interesting point which should be evident in this discussion of an optimum approach is that water and sewer services have been referred to in the singular as a water/sewer system. This has been done for an expressed purpose. Water supply and sewage disposal have traditionally been viewed as separate functions of local government and are commonly administered as such. It has become increasingly apparent, however, particularly in metropolitan areas, that they are two phases

of the single function of "water resource management."[111] The reasons for this are threefold:

1. The contiguity of many units of government in urban centers, so that one community's sewage disposal seriously affects another community's water supply;

2. The increasing reliance on the re-use of water because of expanding demand for water; and

3. The greater variety of uses of water, particularly for recreational purposes in metropolitan areas.[112]

Such a single-system concept is somewhat analogous with Perloff and Wingo's concept of the water/sewer system as a "tree," where any change to the "core" or "twig" is reverberated throughout the entire system.[113]

Further clarification of this unified network theory is offered by Scheidt:

> The physical arrangement of waste water disposal facilities in metropolitan areas is best understood if it is viewed in its proper context as one phase of the total problem of urban water management. The sources of water supplied to urban areas are, of course, the surface streams, lakes, and underground aquifers from which it is withdrawn. These all generally lie within the public domain and their use is subject to public regulation. Little of the water supplied to urban areas is actually consumed, however. Almost all of it is used as a solvent, cleanser, or coolant to carry away dirt, grime, wastes, or heat, following which it is usually discharged through the sewer system to some stream or other water body. In other words, it is returned to the owner, that is, the public, after use, usually with some of the transported substances left in it. Thus, a municipal water

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[111] A. C. I. R., Performance of Urban Functions, p. 193.

[112] Ibid.

[113] See Chapter I, page 14.

> supply should really be looked upon as a vehicle rented from the public to provide a transportation service, following which the vehicle is returned to the owner for use by the next renter downstream or by the owner himself, for his own purposes.[114]

Any attempt, therefore, to operate, control, and/or plan for water and sewer services as completely separate functions is working at cross-purposes with engineering and administrative economies as well as effective growth guidance. It is logical to assume then, that an optimum institutional arrangement would include water/sewer service under the same administration umbrella for planning, programming, operation and control.

Carrying the optimum approach one step further would be the integration of water/sewer service, air pollution abatement and solid waste disposal. Current practices rarely include all three as parts of one overall function. As the pollution problem increases in each of these three mediums, however, efficient and economical waste disposal programs will more and more be based on recognizing the interdependencies between them. Ideally, tradeoffs will be achieved between the three mediums in order to obtain some optimum combination of waste generation and waste disposal. Such a process has been termed the "materials balance" approach.

> Given the population, industrial production and transport services in an economy (a regional rather than a national economy would normally be the relevant unit), it is possible to visualize combinations of social policy which could lead to quite different relative burdens placed on the various residuals (waste) receiving environmental

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[114] Scheidt, op. cit., p. 147.

media. And, given the possibilities for recycle and less residual-generating production processes, a lighter overall burden can be placed on the environment as a whole.[115]

Such an approach would truly be a comprehensive waste management program thereby constituting a major advance toward reducing functional fragmentation.

A discussion concerning the integration of functions should not be concluded without re-emphasizing the importance of close association between utility development and planning. Most utility agencies, staffed mainly by engineers, are likely to concentrate on utility-oriented planning and programming and to ignore broader questions of urban development. While the service role of utilities such as water and sewer systems is of unquestioned importance in a growing metropolitan area, their contribution as shaping devices in urban development deserves equal recognition. An optimum approach, therefore, includes the positioning of planners within the water/sewer institutional framework; planners who enter actively into the developmental processes of the metropolitan area, influencing these processes in the direction

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[115]Allen V. Kneese, Robert V. Ayres and Ralph C. D'Arge, Economics and the Environment: A Materials Balance Approach (Baltimore: The Johns Hopkins University Press, 1970), p. 10. Also see Robert V. Ayres and Allen V. Kneese, "Pollution in Environmental Quality," in Harvey S. Perloff (ed.), The Quality of the Urban Environment (Baltimore: The Johns Hopkins Press, 1969), pp. 35-40, for a detailed account of the "materials balance" approach. The importance of it in the context of this thesis is that a comprehensive waste management plan and implementation program based on a materials balance concept can only take place when the geographic scope of each of the programs (air pollution abatement, solid waste disposal, and water and wastewater treatment) is broad enough to encompass the majority of pollution sources within the region.

of rational urban development, through the use of the shaping function of water and sewer systems.

In the final analysis, an optimum institutional arrangement would exhibit to a high degree the six basic principles outlined earlier in this chapter. In addition, it would integrate the water and sewer systems as tightly as possible, as well as facilitate the utilization of the materials balance approach. Moreover, it would recognize and utilize the shaping function of the systems to further the efficient guidance of urban growth.

X. SUMMARY

In summary, this chapter has described and appraised the various institutional alternatives for providing programmed water and sewer services in urban growth areas. It has been an extremely frustrating chapter to write because it has afforded no pat answers. But then analyses conducted in a vacuum rarely do. Eventually, each urban growth area requires a study of its own problems and its own growth characteristics in order to determine the best metropolitan approach for the adequate and effective provision of its utility services. Hopefully, the selected alternative will reflect the qualities espoused in the theoretical construct of an optimum approach. With this in mind, the next chapter will analyze the institutional factors involved in the provision of water and sewer service in Knoxville-Knox County, Tennessee.

Before getting into the case study, however, there are a number of generalizations which should be advanced from the evaluation of

strengths and weaknesses of city government, county government, special districts, public authorities, private companies, and metropolitan/regional approaches. Such generalizations will be carried forward for consideration in the case study.

First, there is no best single approach for providing water and sewer services in all situations.

Second, the approaches outlined in the body of this chapter are not mutually exclusive, and frequently can be used in conjunction with one another.

Third, a few of the approaches can often be used as stepping stones for more area-wide, comprehensive solutions.

Finally, institutional arrangements should reflect the optimum approach as closely as possible in order to insure efficient provision of water and sewer services and effective guidance of urban growth.

CHAPTER III

INSTITUTIONAL FACTORS IN THE PROVISION OF WATER AND SEWER SERVICES IN KNOXVILLE AND KNOX COUNTY, TENNESSEE

I. INTRODUCTION

The Knoxville-Knox County area is centrally situated in the eastern part of Tennessee between the Southern Appalachian Mountains and the Cumberland Plateau (see Figure 1). Knox County comprises a total of 528 square miles and had a 1970 population of 276,293, according to U. S. Census figures. The City of Knoxville, the only incorporated area within Knox County, accounts for 77.6 square miles of the County with a 1970 population of 169,766.

The physical features of the area are quite striking and more importantly are powerful elements in shaping the area's development pattern. Topographically, the area is a series of valleys, formed by strong ridge lines which cut across the County from the southwest to the northeast. Development is therefore directed and contained by the ridges. In addition, three major bodies of water, the Holston and French Broad rivers, which in turn form the Tennessee River, transverse the area.

Of importance to this thesis is the geology of the City-County. The area is underlaid mainly by limestone, dolomite, and shale. Such geologic formations normally produce clay as the predominant soil. Clay is characteristically very low in permeability, with poor internal

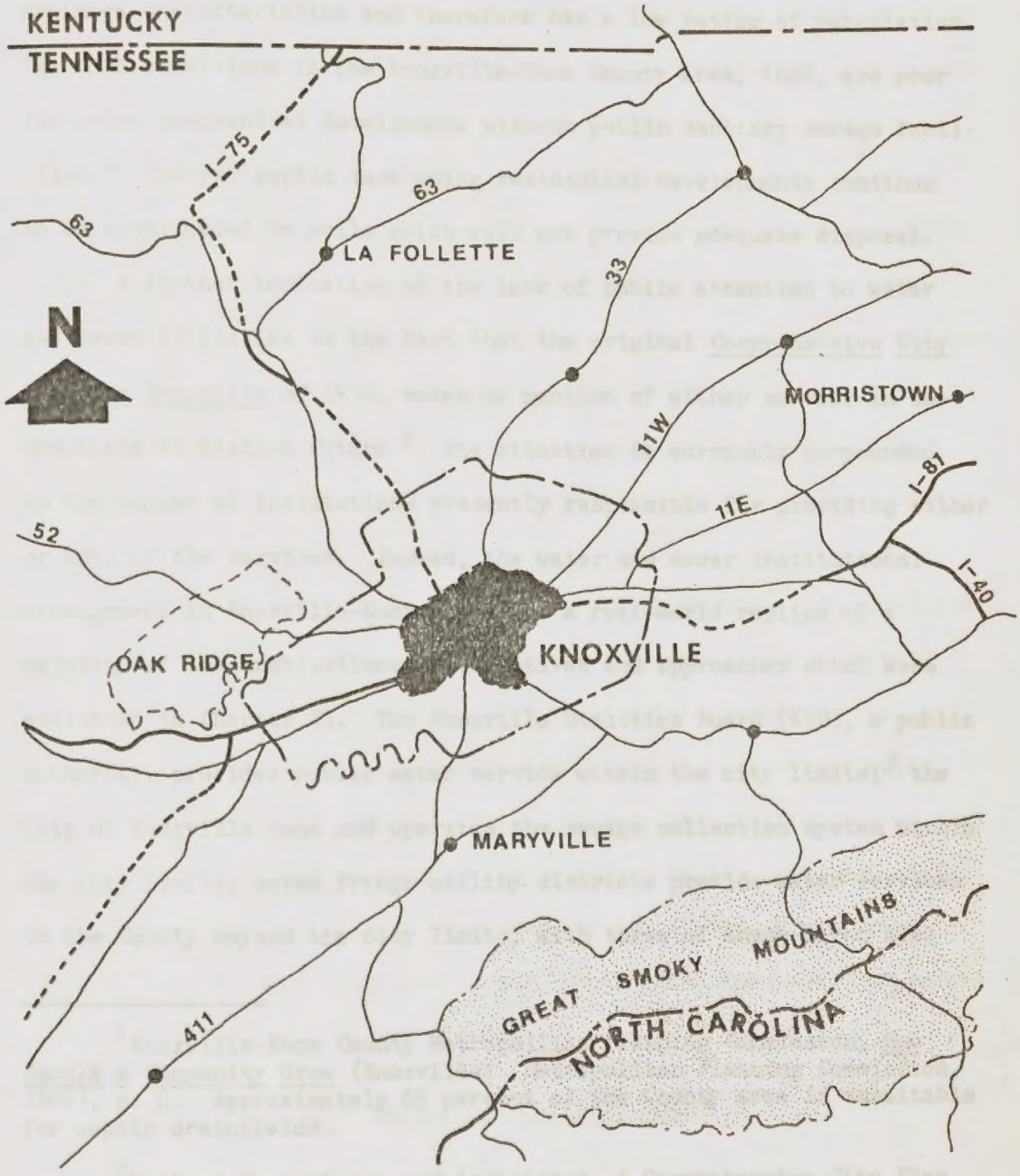


FIGURE 1

REGIONAL SETTING: KNOXVILLE-KNOX COUNTY, TENNESSEE

drainage characteristics and therefore has a low rating of percolation. The soil conditions in the Knoxville-Knox County area, then, are poor for urban residential development without public sanitary sewage facilities.[1] And yet septic tank using residential developments continue to be constructed on soils which will not provide adequate disposal.

A further indication of the lack of public attention to water and sewer facilities is the fact that the original Comprehensive City Plan for Knoxville of 1930, makes no mention of either service in the immediate or distant future.[2] The situation is currently compounded by the number of institutions presently responsible for providing either or both of the services. Indeed, the water and sewer institutional arrangement in Knoxville-Knox County is a real-world replica of a majority of the institutional alternatives and approaches which were evaluated in Chapter II. The Knoxville Utilities Board (KUB), a public authority, provides public water service within the city limits;[3] the City of Knoxville owns and operates the sewage collection system within the city limits; seven fringe utility districts provide water services in the County beyond the city limits, with three of these seven also

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[1]Knoxville-Knox County Metropolitan Planning Commission, How Should a Community Grow (Knoxville: Metropolitan Planning Commission, 1969), p. 6. Approximately 65 percent of the County area is unsuitable for septic drainfields.

[2]Harland Bartholomew and Associates, A Comprehensive City Plan for Knoxville (St. Louis: Harland Bartholomew and Associates, 1929).

[3]KUB also provides water beyond the city limits but only in rare instances.

providing public sewer service; two private companies provide water service to areas in the County which are contiguous to the city limits. A 1962 annexation which tripled the area of the City of Knoxville to its present size was instrumental in providing services to fringe areas. A metropolitan government attempt in 1960 proved unsuccessful. Such a reorganization, it will be seen, would have had an important effect upon the institutional arrangement for providing water and sewer services in Knoxville and Knox County. The County has played a small role in providing services and it is currently being urged to take a more active part. Finally, there also exists a Council of Governments (COG) in the study area.

With this in mind, each institution will be investigated on the basis of background, organizational framework, powers and responsibilities, financial capabilities, and their participation in the planning function of Knoxville-Knox County. Each institution will then be evaluated in a similar fashion as were the alternatives of the preceding chapter with a heavy reliance under the six basic principles. This chapter will conclude with an examination of the growth trends of the area and an identification of the inputs which the water and sewer institutions have had in that growth.

II. KNOXVILLE UTILITIES BOARD

Background

Residents of Knoxville are furnished electrical power, gas, and water utility services by a public authority known as the Knoxville

Utilities Board (KUB). KUB is divided into four divisions, one for each of the services, and a fourth, Accounts, which is responsible for monetary transactions.[4]

Prior to 1939 the water and electric properties of Knoxville were operated as separate departments within the City government, although the latter was operated by the Electric Department for less than half a year. The Tennessee Public Service Company had responsibility for the power network in the City before that time. The water properties, on the other hand, had been the responsibility of the Water Department since 1909 when they were purchased from the Knoxville Water Company following lengthy court suits.[5]

The Water Department belabored under problems of mismanagement and political interference until 1938 at which time Knoxville Mayor Walter Mynatt requested the Tennessee General Assembly to pass a private act creating a power and water board to perform these functions.[6] Such a board was to be completely separated from the normal functioning of city government. The request bore fruit in 1939 with the enactment of Chapter 106 of the Private Acts of Tennessee, amending the Knoxville City Charter to set up the Knoxville Electric Power

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[4]Tennessee, Private Acts (1945), Chapter 387, pp. 1222-1223.

[5]Knoxville Utilities Board, A History of Water (Knoxville: Knoxville Utilities Board, 1964), pp. 10-12.

[6]Stephen F. Humphrey, Jr., "An Analysis of the Financing Policies of the Knoxville Utilities Board from 1946 to 1966" (unpublished Master's thesis, The University of Tennessee, Knoxville, Tennessee, 1967), p. 11.

and Water Board.[7] The responsibility for providing natural gas to city residents was given to the Board in a 1945 amendment.

The present title of "Knoxville Utilities Board" was created in 1947. The collection of fees for the Knoxville Sewage System was assigned to KUB in a 1953 amendment.[8]

The Bureau of Water of the Knoxville Utilities Board presently has approximately 57,000 metered water connections, serving more than 190,000 persons within an area of about 100 square miles.[9] (See Figure 2.) It is by far the largest water system in operation in the Knoxville-Knox County area.

Organizational Framework

Basically, KUB displays all of the characteristics of a public authority, as denoted in Chapter II. Its position within the City of Knoxville organizational chart lies under the local legislative body, the City Council (see Figure 3). Initially appointed by the Mayor and confirmed by the City Council, five Commissioners act as KUB's governing body. Current appointment procedures require the nomination of a potential member candidate by the remaining four Commissioners and the Mayor, with final approval being vested in the City Council. Appointed

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[7] Ibid.

[8] Tennessee, Private Acts (1945), Chapter 387, pp. 1219-1220.

[9] Allen and Hoshall, Comprehensive Plan Report: Water Supply and Distribution for Anderson, Blount, and Knox Counties, Tennessee (Memphis: Allen and Hoshall, 1971), p. 46. (Hereafter known as Allen and Hoshall, Water Supply.)

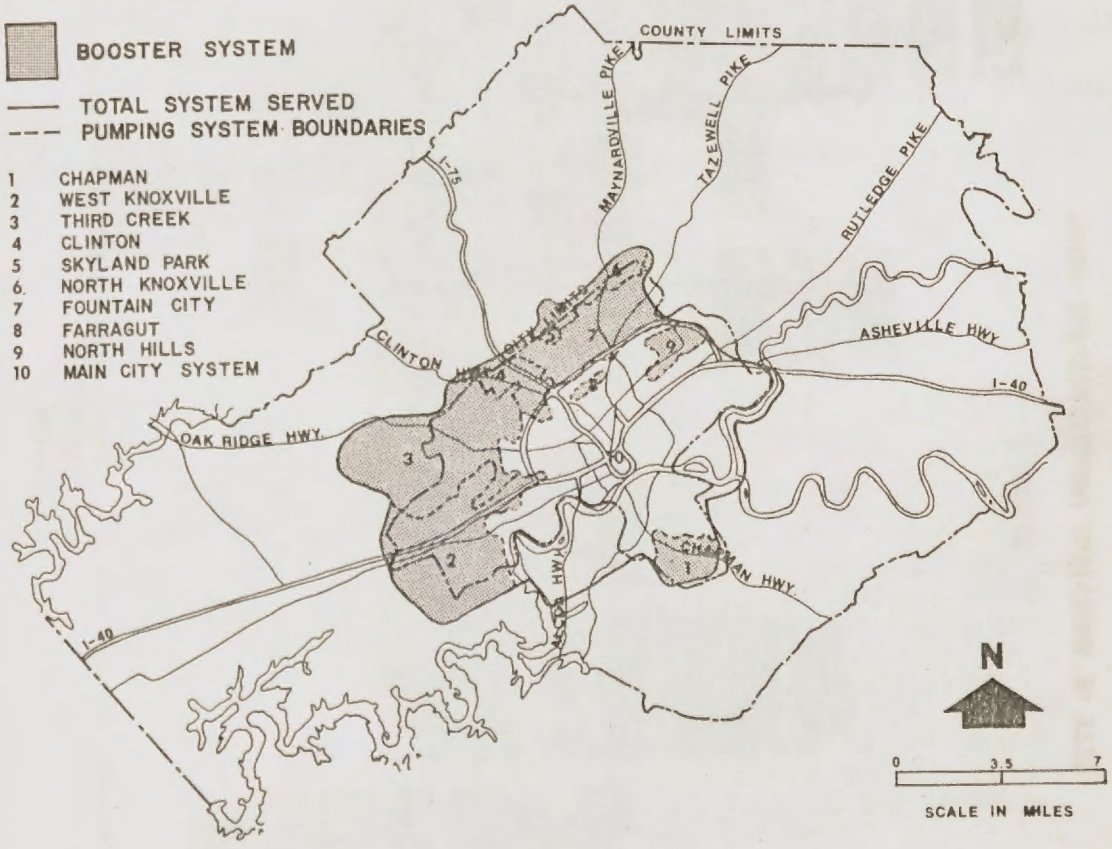


FIGURE 2

KNOXVILLE UTILITIES BOARD: WATER DISTRIBUTION SYSTEM

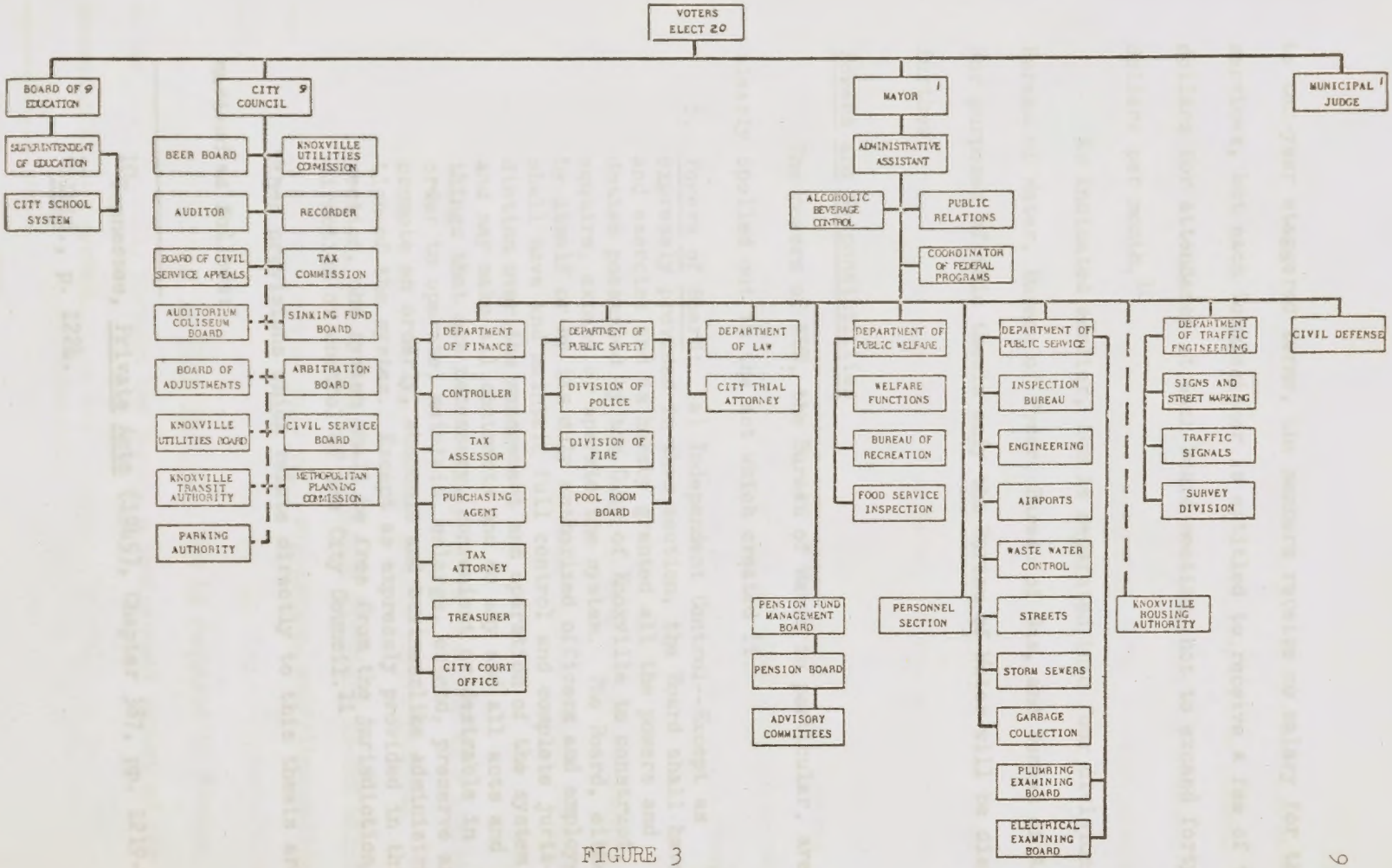


FIGURE 3

CITY OF KNOXVILLE ORGANIZATIONAL CHART

to ten-year staggered terms, the members receive no salary for their services, but each Commissioner is entitled to receive a fee of twenty dollars for attendance at each Board meeting, not to exceed forty dollars per month.[10]

As indicated earlier, KUB is separated into four divisions: Bureau of Water, Bureau of Power, Bureau of Gas, and Bureau of Accounts. For purposes of this thesis only the Bureau of Water will be discussed further.

Powers and Responsibilities

The powers of KUB, the Bureau of Water in particular, are clearly spelled out in the act which created it.

> 6. Powers of Board: (a) Independent Control--Except as expressly provided in this section, the Board shall have and exercise and is hereby granted all the powers and duties possessed by the City of Knoxville to construct, acquire, expand or operate the system. The Board, either by itself or by its duly authorized officers and employees, shall have and maintain full control and complete jurisdiction over the management and operation of the system and may make all contracts and do any and all acts and things that are necessary, convenient or desirable in order to operate, maintain, enlarge, extend, preserve and promote an orderly, economic and businesslike administration of the system. Except as expressly provided in this section, the system shall be free from the jurisdiction, direction or control of the City Council.[11]

Other provisions which relate directly to this thesis are summarized as follows:

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[10] Tennessee, Private Acts (1945), Chapter 387, pp. 1219-1220.

[11] Ibid., p. 1224.

6. (d) Contracts, Leases and Agreements. KUB is not empowered to sell or lease all or a major part of any division of the system, unless such transaction is approved by the City Council by ordinance.[12]

6. (e) Advances to System for Extension. The Board is granted the power to make advances for extensions when such extensions are to become part of the KUB system.

6. (k) Eminent Domain. The Board is granted the same power to exercise the right of eminent domain on behalf of the system as the local legislative body possesses.

6. (m) Co-operation of Other City Departments. KUB has the right to require the co-operation and service of other City departments or to establish similar departments of its own if it so desires (underscoring added).

6. (r) (s) The Board is empowered to have complete control over the sewer service charges while the sewer system itself is maintained by the City of Knoxville.

The responsibilities of the Board can be itemized in a similar fashion. Specific duties as they relate to this thesis include:

7. (a) Separate Accounts for Separate Divisions of the System. Each Bureau is to be operated on a self-sustaining, self-liquidating basis.

7. (c) Reports to City Council. KUB is required to furnish to the City Council, through the Mayor, a semi-annual report of the operation of the system.

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[12] Ibid., p. 1225.

7. (f) Sufficient Water Rates. The Board is required to charge sufficient rates to pay all obligations of the water division, incurred through ownership, operation and payments in lieu of taxes.

7. (g) Payments in Lieu of Taxes on the Water Properties. From the revenues of the water division, the Board is required to pay into the General Fund of the City a sum equal in amount to that which would be real and personal property taxes if such properties were privately owned.

Two areas of concern which are vital to a fuller understanding of the Board's powers and responsibilities are the Bureau of Water's main extension policy and fire insurance rating compliance. KUB's water main extension policy has two basic parts. First, extensions of 500 feet or less will be made when there is a demand for water service by the occupants of existing houses.[13] Before such an extension is made the occupant is required to pay the Board a fee for each connection desired immediately and to pay a minimum monthly bill for each 100 feet, or fraction thereof, of extension. Second, for extensions over 500 feet the customer desiring the water main extension is required to pay all costs for making such extensions.[14] Upon completion of the extension, the main becomes the property of the Board, with the customer being partially reimbursed for the new tap-ons over a five-year period.

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[13] Knoxville Utilities Board, Rules, Regulations, and Rate Schedules, Water Division (Knoxville: Knoxville Utilities Board, October, 1970), p. 3.

[14] Ibid., p. 4.

For fire insurance purposes, the City of Knoxville is rated a Class 3 city by the American Insurance Association, the rating organization having jurisdiction over the City of Knoxville.[15] Municipalities are graded into ten classes on the basis of six considerations including water supply, fire department, structural conditions, fire alarm system, fire prevention, and building department. KUB's responsibility in the rate determination is obviously that of water supply, and for fire insurance purposes it is considered a superior municipal waterworks system.[16]

Financial Capabilities

As a public authority, KUB is essentially operated as a private enterprise and therefore receives no remuneration from the general taxpayer. Only short-term loans, permanent improvement bonds, and revenue bonds issued in the name of the City of Knoxville, are available to the Board as external financial devices to operate the system.[17] All of these are retired through revenues of the system. There is no recourse to the taxpayer if rates are insufficient. Hence, the reason for regulation (7) (f) Sufficient Water Rates, as denoted in the previous section.

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[15] Allen and Hoshall, Water Supply, p. 82.

[16] Ibid.

[17] Humphrey, op. cit., p. 19. External financing here and in other sections of the thesis refers to funds generated from sources other than operating revenue (internal financing). While KUB uses only bonds and loans as external sources, other utilities also receive Federal funding.

According to KUB's annual report for the fiscal year ending December 31, 1971, the total assets of the water system amounted to $27,118,037; with liabilities equalling the same figure.[18] Gross revenues amounted to $5,619,049 and included $4,851,640 from water sales to general customers. Total operating expenses amounted to $4,460,480 which included $704,931 for depreciation expenses, $287,526 for taxes and tax equivalents, debt expenses of $380,192, and other expenses and deductions of $3,087,831. The resultant net income for the fiscal year's operations was $1,158,569. In addition, $372,000 in water revenue bonds were retired while outstanding bonds totalled $10,487,000 in long-term indebtedness.

In order to generate sufficient revenues to meet their growing operation and debt service obligations, KUB increased its water rates approximately 30 per cent on October 4, 1970.[19] Table I presents the current rate schedule.

The setting of such rates is entirely within the province of the Board. The Bureau of Water is not controlled or influenced by any outside agency in establishing rates. This has led to a situation in the past where KUB, because of its ability to raise rates indiscriminantly, has utilized internal financing (that is, financing by charging rates to obtain sufficient revenue to operate the system) considerably

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[18] Knoxville Utilities Board, 1971 Annual Report (Knoxville: Knoxville Utilities Board, 1972), p. 6. The following financial information was also obtained from the 1971 Annual Report.

[19] News item, Knoxville News-Sentinel, September 18, 1970.

TABLE I

KNOXVILLE UTILITIES BOARD, WATER DIVISION:
SCHEDULE OF RATES AND CHARGES

1. INSIDE-CITY RATE

For water furnished to premises entirely within the corporate limits of the City of Knoxville:

Commodity Charge

	0 to 400 Cubic Feet Per Month $2.85
Next	9,600 Cubic Feet Per Month at 51 cents per 100 Cubic Feet
Next	30,000 Cubic Feet Per Month at 31 cents per 100 Cubic Feet
Next	460,000 Cubic Feet Per Month at 21 cents per 100 Cubic Feet
Over	500,000 Cubic Feet Per Month at 13 cents per 100 Cubic Feet

Additional Monthly Charge for Meters larger Than 3/4"

For	1" Meter	$1.00
"	1-1/2" Meter	3.00
"	2" Meter	5.00
"	3" Meter	9.00
"	4" Meter	16.00
"	6" Meter	32.00
"	8" Meter	51.00
"	10" Meter	76.00
"	12" Meter	100.00

Subject to customer's application being made therefor, accompanied by evidence satisfactory to the Board of entitlement thereto, a minimum bill of $2.85 per month with no additional charge for a meter larger than 3/4" shall apply for the regular monthly billing periods ending after June 15th and before September 16th in each year, for schools where water usage is materially reduced during all or a substantial part of such billing periods. This reduced minimum monthly charge shall in no case be available to a service used to supply a swimming pool or used to water an athletic field.

2. OUTSIDE-CITY RATE

For water furnished to premises upon which any water faucet or other outlet is outside the corporate limits of the City of Knoxville:

All rates and charges for such service shall be one and one-half (1½) times the above rates and charges for water furnished to premises wholly within the corporate limits.

Source: Knoxville Utilities Board, Rules, Regulations, and Rate Schedules, Water Division (Knoxville: Knoxville Utilities Board, October, 1970), p. 12.

more than external financing (issuance of bonds, obtainment of short-term loans).[20] External financing methods, then, have been supplementary reserve tools, rather than primary methods of supplying capital for expansion, a fact which has encouraged the maintenance of high rate levels to insure ample internal capital. KUB, then, has not taken maximum advantage of its borrowing capacity in the past, thereby placing the major burden of expansion upon the present rate payer.[21] This situation has changed somewhat in recent years with external financing being used heavily to pay for extensive construction necessitated by the 1962 City annexation which nearly tripled the size of the City from an area of 26.3 square miles to 77.6 square miles, and increased the City population from 111,827 to 179,973 persons.[22]

Although it possesses an excellent credit rating for bonding purposes and it has the authority to set its own water rates to meet operating costs, KUB is unable to assess or tax property. This, to some extent, impairs its ability to distribute costs on the basis of benefit as well as use.

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[20] Humphreys, op. cit., pp. 125-126.

[21] Ibid., p. 127.

[22] Charles Bagwell, Superintendent, Bureau of Water, Knoxville Utilities Board, Knoxville, Tennessee, personal interview, March 13, 1972. The 1962 annexation was extremely important to the provision of water and sewer services in Knoxville and Knox County. The annexation will be discussed in more detail in a later section.

Participation in the Planning Function

KUB views its in-house planning function as providing long-run fire protection to developing areas in Knoxville.[23] This is its major concern with regard to planning.

There is seemingly no conscious relationship between the main extension policy of KUB and attempts of the Knoxville-Knox County Metropolitan Planning Commission (MPC) to guide the growth of its constituent area. KUB is a strictly service-oriented utility and rarely gives lip service to the shaping function which water main extensions can perform in the direction and sequence of urban growth. While MPC is aware of the shaping function of water and sewer extensions there has been no attempt to utilize them in such a fashion by the planning agency. In the words of one MPC official, "extension policies are not used specifically in terms of MPC's growth policies."[24] However, KUB has taken the initiative to utilize population projections which were developed for MPC by the Real Estate Research Corporation[25] and information pertaining to the direction of residential, industrial and commercial growth as spelled out in MPC's General Plan 1990. All of this

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[23]Carey Smith, Bureau of Water, Knoxville Utilities Board, Knoxville, Tennessee, personal interview, March 13, 1972.

[24]W. T. Crossman, Assistant Director, Knoxville-Knox County Metropolitan Planning Commission, Knoxville, Tennessee, personal interview, March 13, 1972.

[25]Real Estate Research Corporation, Trends, Conditions and Forecasts of Knoxville's Economy, and the Potential Demand for Land and Structures, prepared for Knoxville, Tennessee, Community Improvement Program, Knoxville-Knox County Metropolitan Planning Commission, Knoxville, Tennessee, June, 1969.

data is incorporated into KUB's report Water Distribution System, a plan which schedules water improvements for the years 1975, 1980, and 1990. The directions of such a planning effort is clearly delineated in the summary of the report:

> The Bureau of Water must furnish water of adequate quality, quantity and pressure to all areas it serves at all times. This report has been prepared for the Bureau as a master plan for the systematic expansion of the existing water distribution system.[26]

Another area of association between KUB and MPC lies in the review of subdivision plats to determine the availability of water service. One KUB official insists that the Bureau of Water receives the plats after final approval by MPC.[27] Under this procedure KUB has no opportunity to provide an input into the review process. The benefit from receiving the plat after approval, from the point of view of KUB, is that it gives the Bureau of Water an indication of where they will be requested to provide service in the near future. An MPC official perceives the procedure somewhat differently, stating that KUB receives the plat before final approval and is requested to make recommendations on it.[28] This paradoxical situation is indicative of the relationship between the two agencies. KUB feels that it receives no direction from MPC on how to operate its system, particularly with

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[26]Burns and McDonald, Engineering Company, Water Distribution System: Knoxville Utilities Board (Kansas City, Missouri, 1971), no page number.

[27]Bagwell, op. cit.

[28]Crossman, op. cit.

regard to extension of mains, and MPC feels that it has no control over KUB in its extensions. Thus, while the channels of communication are apparently open, the flow within those channels is extremely limited. This is the case despite the following statement by a KUB official:

> Our direction is to cooperate with all the agencies in planning; the better planning we do the better it is in the long-run for the customer because it is more economical.[29]

This last statement reiterates the service aspect of planning by KUB as opposed to the shaping function of its main extensions.

Appraisal

An evaluation of KUB's relationship to the six basic principles will now be conducted.

The first principle, that the responsible institution should possess sufficient geographical jurisdiction to perform the planning and operation of a system without regard to the constraints of political boundaries, would seemingly be maximized by KUB, a public authority. (Chapter II pointed out that public authorities are not generally constricted by political boundaries.) However, the fact that KUB's immediate service area is ringed by seven utility districts and two private companies negates this advantage somewhat. There is a set procedure which can be followed for the purchase of the utility districts' properties by KUB. Such a procedure, however, requires

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[29] Smith, op. cit.

prior annexation of the utility districts' territory by the City of Knoxville.[30]

The second principle, that the institution should develop a close working relationship with other governmental agencies involved either directly or indirectly with water/sewer service appears to be violated. As indicated above, the relationship is minimal with MPC. KUB's association with the City sewer system, which is operated by the Public Service Department of the City, is essentially limited to its (KUB's) role of billing agent for the latter. KUB collects a sewer service charge and an improvement fee, the former being determined as a percentage of consumption of KUB's water. There is also an informal agreement to coordinate certain procedures. An example of this is that the Public Service Department, which also has responsibility over street improvements, will often inform KUB of its current street projects in order to facilitate the laying of water lines.[31] KUB's association with the utility districts and private companies is limited to the agreement on purchasing procedure after annexation and the provision of water when the latters' supplies are deplenished.[32]

The third principle, financial, legal, and administrative capabilities, is reasonably satisfied by KUB. Its organizational framework and powers and responsibilities point up the fact that KUB is capable

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[30] Ibid.

[31] Ibid.

[32] Bagwell, op. cit.

of performing its tasks in a legal and professionally administrative fashion. The Bureau of Water is sound in both internal and external financing. In the long-run, however, the unavailability of other KUB funds, because of the self-supporting principle of each division might tarnish this financial picture when attempting to finance long-term improvements. This, of course, assumes an unsound internal financial status, which is certainly not the case at present.[33] The inability of KUB to tax or assess property, as well as its inability to float General Obligation bonds, can be construed as being limiting factors to its financial base. It should be re-emphasized, however, that the Bureau's internal financing gives it excellent financial capabilities in the operation of a water system.

The fourth principle, the desirability of public control, is virtually non-existent with KUB. While the member selection process presumably involves the final approval of the local legislative body, the City Council, to date such approval has been a formality.

The fifth principle, adherence to State and Federal guidelines for purposes of funding, has been minimal, perhaps because of the lack of necessity to obtain such funding. (This situation may soon be changing, however.) With regard to State and Federal health regulations, KUB has consistently met required standards.

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[33]The completion of work in the 1962 annexed area has necessitated the sale of five times as many revenue bonds since 1967. While KUB's credit rating is still excellent, Mr. Bagwell is somewhat apprehensive of increased bonding activities. He indicates that Federal funding might be sought in the future.

Finally, if reorganization were to be proposed (in the case of KUB, reorganization would presumably mean the assignment of the sewer system to KUB as a separate bureau), the political feasibility of utilizing KUB as the operating institution would presumably be high. There would be no new governmental agency or layer of government created, a fact which breeds less disturbance of existing political alignments.

In short, as an operating water utility KUB appears to be rather efficient. One observer has stated that KUB's rapid growth in water service has been made possible because:

> People were willing to provide for and pay for top level management, engineering and scientific personnel, well-trained and well-paid operating people, up-to-date equipment, better instrumentation, including computers, and an organization which not only keeps in step with modern improvements but also strives to be in the vanguard . . . in developing and using the newest of procedures.[34]

On the other hand, as a utility which is partially responsible for the sequential development of Knoxville and Knox County, KUB appears to be unconcerned. The fact that KUB stresses its service function, particularly with regard to fire protection, as opposed to its shaping function, strengthens this assertion.

III. PUBLIC SERVICE DEPARTMENT

Background

The Public Service Department of the City of Knoxville, the institution which has responsibility over the City's sewer system, was

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[34]News item, Knoxville News-Sentinel, November 15, 1968.

formed in 1923 with the adoption of the City Charter.[35] It maintains jurisdiction over streets, bridges, airports, storm sewers, sanitary sewers, garbage collection, the inspection bureau and plumbing and electrical examinations.

In 1971, the sanitary sewer system consisted of more than 950 miles of sewer lines, 44,515 connections, twenty pumping stations, and three treatment plants serving approximately 70 per cent of the city population.[36] (See Figure 4.)

Organizational Framework

As an arm of City government, the Public Service Department is answerable for its actions to the office of the Mayor (see Figure 3, page 97). The Director of the Department is appointed by the Mayor and serves until removed by the Mayor. While the Director has a seat and voice within City Council, he has no vote.[37]

The division of the Department which is responsible for the day-to-day operation of the sanitary sewer system is the Waste Water Control System. However, broad policy issues such as extension policies are handled at the Department level. The Waste Water Control System was established on June 16, 1953, as a separate operation of the Department.

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[35]City of Knoxville, Knoxville City Code (1962), sec. 22, p. 50. (Hereafter known as Knoxville City Code.)

[36]Allen and Hoshall, Wastewater Comprehensive Plan for Knoxville SMSA (Memphis: Allen and Hoshall Company, 1971), pp. 65-66. (Hereafter known as Allen and Hoshall, Comprehensive Wastewater Plan.)

[37]Knoxville City Code, sec. 22, p. 50.

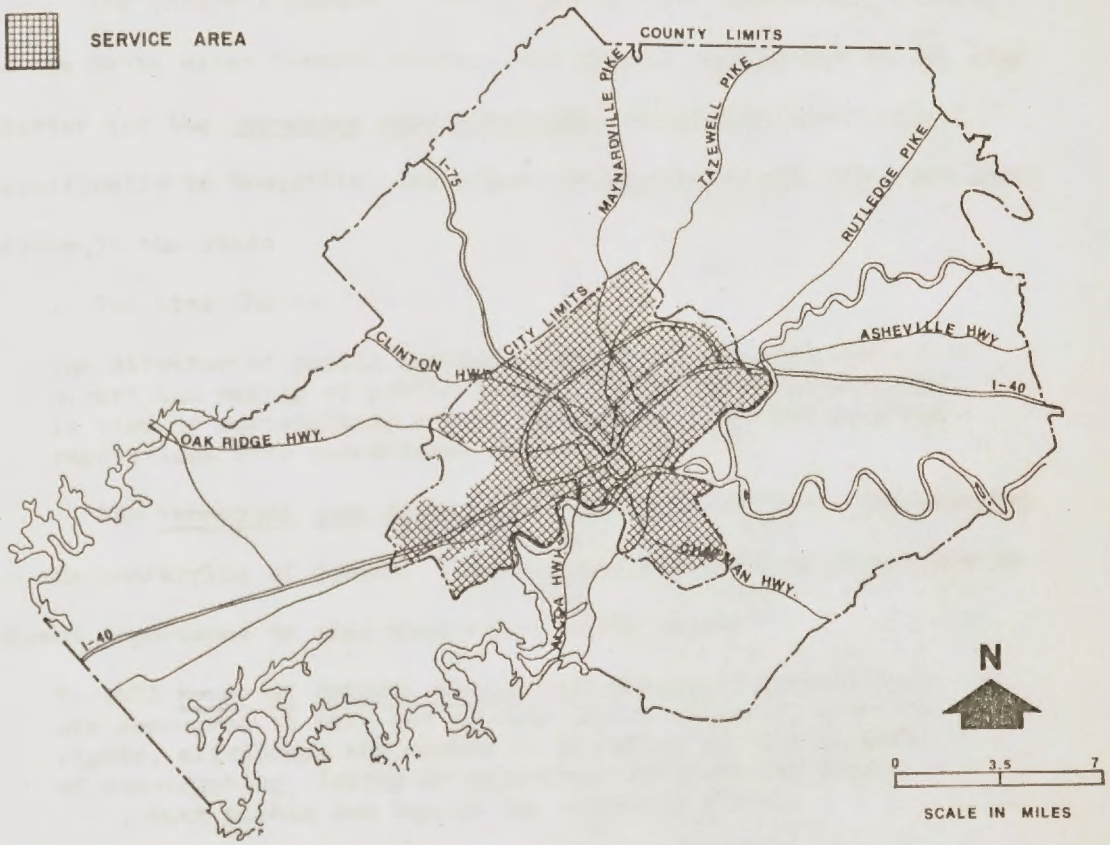


FIGURE 4

PUBLIC SERVICE DEPARTMENT: EXISTING SEWER SERVICE AREAS, KNOXVILLE, TENNESSEE

The head of the Waste Water Control System, the chief engineer, is appointed by the Department Director subject to the approval of the Mayor, and the civil service provisions of the City Charter.[38]

Powers and Responsibilities

The inherent powers of the Public Service Department, as well as the Waste Water Control System, are clearly spelled out in the City Charter and the Tennessee Code Annotated. While the former refers specifically to Knoxville, the latter is applied to all municipal operations in the state.

The City Charter states:

> The director of public services shall have the authority to direct the making of public sewer . . . connections whenever in view of contemplated street improvements, or the sanitary regulations such connections should be made.[39]

The Tennessee Code Annotated is considerably more comprehensive in the conferring of powers. Those powers which are of direct and indirect importance to this thesis are listed below:[40]

> 6--1401 Power of Eminent domain--All municipal corporations are empowered to take and condemn lands, property, property rights, privileges and easements of others for the purpose of constructing, laying or repairing, or extending sewers . . . both within and beyond the corporate limits. . . .
>
> 6--1403 Owners required to connect to municipal sewer--combined water and sewer charges--The municipal corporation

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[38] Ibid., sec. 22, p. 50.

[39] Ibid., sec. 58, pp. 128-129.

[40] Tennessee Code Annotated (1955) (Indianapolis: The Bobbs-Merrill Company, Inc., 1955), pp. 342-355. (Hereafter known as Tennessee Code Annotated.)

has the power to require occupants of each parcel of land containing a sanitary sewer to connect to the sewer and to desist from employing other means of sewage disposal. . . .

Water service may be refused to the occupant if he does not comply within 30 days after notice. . . .

Said municipal corporation has the power to enter into contracts for the collection of sewer charges with any public or private corporation or municipal utilities board. . . .

6--1404 Contracts between municipalities--Municipalities are authorized to contract with each other for the use by the one of sewer and for water systems belonging to the other. . . .

6--1405 Municipalities authorized to contract for joint use. . . .

6--1406 Construction between contracting municipalities--When municipalities do not adjoin but lie in such proximity that it would be initially advantageous to enter into contract, either may extend mains (sewer and water) over the intermediate territory. . . .

6--1409 Purchase and combining of works--One or more water and/or sewer system may be acquired by a municipal corporation at an agreed price to be fixed by regulation passed by the governing body of the city. . . .

6--1421 Determination of rates--The governing body of any municipal corporation shall, by ordinance, establish and maintain just and equitable rates and charges so as to provide funds sufficient to pay all expenses of operation, repair, and maintenance, provide for a sinking fund for payment of principal and interest on bonds when due. . . . Rates and charges may be re-adjusted from time to time. . . .

6--1423 Service contracts--Municipal corporations are empowered to contract with other corporations to furnish service.

6--1428 Additional bonds--If the governing body of the municipal corporation finds that bonds authorized are insufficient to complete the projects, additional bonds may be authorized to provide for the extension, addition, or improvements of the systems. . . .

6--1433 Bonds payable from revenues--Bonds issued in behalf of water and/or sewer systems should be payable solely from charges collected for services rendered by the system.

In terms of this thesis, the most pertinent power and/or responsibility conveyed upon a city utility, such as the Waste Water Control

System of the Public Service Department, is the extension of utility services. As outlined in the Tennessee Code Annotated:

> 6--604 Extension of utility services--Each county, utility district, municipality or other public agency conducting any utility service specifically including waterworks, water plants and water distribution systems and sewage collection and treatment systems is authorized to extend such services beyond the boundaries of such county, utility districts, municipality or public agency to customers desiring such service.
>
> Any such county, utility district, municipality or public utility agency shall establish proper charges for the services so rendered so that any such outside service be self-supporting.
>
> No such county, utility district, municipality or public utility agency shall extend its services into sections of roads or streets already occupied by other public agencies rendering the same service so long as such other public agency continues to render such service.[41]

The Public Service Department, however, does not ascribe to any formalized sewer extension policy. In the words of a former consulting engineer to the Department:

> There is no definite sewer extension policy for the City of Knoxville and for Knox County. Rather, it is a combination of adhering to natural terrain or fulfilling needs for independent decisions concerning specific areas.[42]

Financial Capabilities

While the Public Service Department has the power to issue general obligation bonds, whereas KUB cannot, it "should" retire these bonds through revenues realized in the system's operation. This is stipulated by state law (sec. 6--1433 above). Another financial feature which

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[41] Ibid., p. 239.

[42] Ralph Conlee, former engineer, Mid-South Engineering Company, Knoxville, Tennessee, personal interview, January 13, 1971.

distinguishes the operation of the sewer system from that of KUB's is that whereas KUB determines and sets its rates upon approval of its own Board of Commissioners, the rates for the Waste Water Control System must be passed by City Council on three consecutive readings.

According to the 1971 Annual Financial Report of the City of Knoxville, the total assets of the sewer system amounted to $46,201,839.[43] Revenue generated through the system, which consists of user charges, improvement fees, and industrial surcharges, totalled $3,756,163. Total expenses were $3,696,226, which included $1,281,743 for operating expenses and $2,414,483 for payments to a sinking fund for bond redemption and interest. Thus, almost two-thirds of the system's yearly outlay was expended to reduce the system's indebtedness. Yearly bonded debt maturity is projected to increase gradually until it peaks in 1986 at $3,221,574. Total long-term bonded indebtedness was $45,309,779.[44] Since 1966, all of the bonds issued in behalf of the sewer system have been Sewer Revenue-General Obligation Bonds. A simplified explanation of this type of bonding procedure is that all of the bonds are intended to be retired by revenues received through the operation of the system. When this is impossible, and sewer rates cannot be increased sufficiently to offset the immediate debt, funds can be obtained from the general tax fund of the City. In other words, the City guarantees the sewer bonds.

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[43] City of Knoxville, 1971 Annual Financial Report (Knoxville: The City, 1972), p. 45. This is actually misleading. The City of Knoxville does not include fixed assets within its total assets statement and therefore total assets do not include depreciation costs.

[44] Ibid., p. 50. This figure pertains to all of the bonded indebtedness sustained to serve the area annexed to the city in 1962 and portions of the "old" service area within the city.

The sale of Revenue-General Obligation bonds by the sewer system enhances its financial capabilities for the following reasons:

> Many investors and their advisors prefer general obligation bonds which are additionally backed up by the revenues from the undertaking. Such provisions guarantee that these revenues will be applied to paying off the indebtedness, as well as establishing any surplus funds required by law or stipulated in the bond convenant. This type of double guarantee, of course, eliminates or greatly reduces the possible hazard of default in payment of the obligations when due.[45]

The exact financial procedure is fairly rigorous. All gross revenues of sewer systems are immediately placed into a Sewer Revenue Fund. Expenditures are made from this fund in the following order of priority:

1. Revenue shall first be used for payments to the Sewer System Sinking Fund, on the 15th day of each month, in an amount equal to one-sixth (1/6) of the interest which will become due on the next interest payment date, plus one-twelfth (1/12) of the principal which will become due on the next principal payment date for all bonds payable from gross revenue of the System.

2. After all required payments into the Sinking Fund have been made, revenue shall be used for the payment of operating expenses, and for maintaining a reserve equal to one month's operating expenses based upon the annual operating budget.

3. Revenue remaining after complying with the above requirements is to be transferred to the General Reserve Fund. Money on deposit in the General Reserve Fund shall first be used to make up any deficiency in the Sinking Fund, and thereafter is available for the acquisition and construction of additions, extensions, or improvements to the Sewer System and for the redemption or purchase of

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[45]Morris M. Cohn, Sewers for a Growing America (Ambler, Pennsylvania: Certain-Teed Products Corporation, 1966), p. 118.

outstanding bonds (underscoring added).[46]

The 1966 regulation which instituted the Revenue-General Obligation bond requirement placed a covenant against the City that it (the City) will establish and maintain rates and charges so as to produce gross revenue sufficient to pay principal and interest on all bonds payable from gross revenue of the system, and also to furnish sufficient funds to pay the operating and maintenance costs of the sewer system.[47] When this is impossible, the bond covenant requires a "general obligation pledge" in which the system may obtain funds from the full unlimited ad valorem tax receipts which constitute the general fund of the city. To date, this last avenue has never been followed by the system.

All bonds issued in the name of the City of Knoxville, with the exception of KUB bonds, are rated "A" bonds by both Moody, and Standard and Poor, two well-known national financial advisary services.[48] (KUB bonds are rated "AA" by both.[49]) The City's "A" rating was in jeopardy in late 1970 when it was realized that revenues from the sewer system would not be sufficient to pay the principal and interest on outstanding

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[46]City of Knoxville, 1971 Annual Financial Report, p. 51.

[47]Ibid.

[48]Morgan Ayres, Vice-President, Cumberland Securities, Knoxville, Tennessee, telephone interview, March 16, 1972. Moody's classifies its ratings as AAA; A, BAA; BA; B; CAA; CA; C. An AAA rating indicates the least investors risk, while C ratings are interpreted as speculative or poor. The Standard and Poor's rating system classifies bonds as AAA; AA; A; BBB; BB; B; CCC; CC; C; DDD; DD; O. AAA indicates least risk and O the highest risk.

[49]Ibid.

bonds.[50] In accordance with the bond covenant, the sewer rates were increased on December 8, 1970 to their current level. The charges are based on monthly water usage and are as follows:[51]

TABLE II

SEWER RATES: WASTE WATER CONTROL SYSTEM

First 400 cu. ft. per mo.	$1.95 (minimum monthly bill)
Next 3,000 cu. ft. per mo.	At 40¢ per 100 cu. ft.
Next 6,000 cu. ft. per mo.	At 36¢ per 100 cu. ft.
Next 10,000 cu. ft. per mo.	At 23¢ per 100 cu. ft.
Next 10,000 cu. ft. per mo.	At 20¢ per 100 cu. ft.
Next 10,000 cu. ft. per mo.	At 19¢ per 100 cu. ft.
Next 10,000 cu. ft. per mo.	At 16¢ per 100 cu. ft.
Next 20,000 cu. ft. per mo.	At 13¢ per 100 cu. ft.
Over 70,000 cu. ft. per mo.	At 12¢ per 100 cu. ft.

For service to users outside the city limits, the rate and charge is one and one-half times the above schedule of rates.

An interesting aspect of the system rates is that they apply to occupants of land who are either connected or have access to the system. Thus, when the occupants finally do hook up to the system there will be no substantial increase in revenue while there will undoubtedly be increases in maintenance and treatment costs because of the additional connections. When this is considered along with the projected yearly increases in the system's bonded debt maturity, the system's future

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[50] News item, Knoxville News-Sentinel, November 23, 1970.

[51] City of Knoxville, Explanation of Charges; For Use of Waste Water Control System (Knoxville: The City, undated, adopted December 8, 1970), p. 1.

financial status seems uncertain. This same access principle holds true for the improvement fee, a fee which is applicable to sewers that have been constructed since 1966 from the proceeds of the Sewer Revenue-General Obligation bonds.[52] While computation of the improvement fee is a fairly complicated process, the basic monthly charge is $3.25 per occupied lot payable over a thirty-year period. For lots in excess of 15,000 square feet both the basic charge and an additional charge for each 1,000 square feet over 15,000 are levied. The importance of the improvement fee in this context is that it is only applied to the "new" areas of the city (the territory annexed in 1962). "New" residents pay both fees while "old" city residents pay only the user charges.

An additional source of revenue for the sewer system is the surcharge levied against the wastes of the City's industries which are difficult or costly to treat, as authorized by City ordinance. In the past this charge has been a negotiated fee or not applied at all. There are indications that the current city administration intends to impose higher charges against chronic violators. Southern Extract Company, a perennial violator, is now paying $11,000 to $12,000 per month instead of the former negotiated charge of $4000 per month.[53]

Thus, the Sewer Revenue Fund is maintained and augmented by three charges: a user charge; an improvement fee; and an industrial surcharge.

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[52] Ibid.

[53] News item, Knoxville News-Sentinel, April 4, 1972.

Federal funding has also played a part in the financial history of the system. To date, the system has received approximately $812,000 in matching grants of which 55 per cent is Federal funds and 25 per cent is state funds.[54] The grant program, currently titled 66.400, Construction Grants for Wastewater Treatment Works, is administered by the Water Quality Office of the Environmental Protection Agency. The program was originally begun under the Water Pollution Control Act of 1965, titled PL 84/660.

The fact that funds for extension are allocated on a third-priority basis lessens the system's capabilities for providing a shaping function for urban growth. There are two reasons for this. First of all, the high degree of bonded indebtedness necessitates the distribution of a good deal of the Sewer Revenue Fund to the payment of principal and interest of outstanding bonds. Second, the necessity to raise rates in 1970 in order to cover principal and interest cost reveals the fact that system revenues were inadequate to handle the system's bonded debt, to say nothing of the second priority, operation and maintenance.

In the final analysis, the sewer system is a self-supporting operation or "pay-as-you-go" system as some would prefer. The fact that the system has never had to obtain funds from the general fund of the City is indicative of their independent nature.

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[54] John Flint, engineer, Mid-South Engineering Company, Knoxville, Tennessee, telephone interview, March 17, 1972.

Participation in the Planning Function

In-house developmental planning for the collection system of sewers, both long and short range, has been virtually non-existent within the Public Service Department of the City of Knoxville. The fact that extensions are made on the basis of "independent decisions concerning specific areas" is an indication that this assertion is correct.[55]

The primary concern of all those associated with the system has been to complete the sewering of the area which was annexed after 1962. This task has been looked upon as strictly service-oriented without consideration for the shaping effect it may have had. The Public Service Department, it must be pointed out, has received little or no direction from the Metropolitan Planning Commission as to the manner in which this servicing was to be carried out. While the 1960 Sanitary Sewer Study, Part I and II,[56] a product of the Metropolitan Planning Commission, suggested a schedule of improvements for the system (before annexation), there is no indication that the Public Service Department has heeded these suggestions (after annexation), nor is there any indication that the Commission urged the Department to do so.[57]

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[55]There is no current plan for the development of the sewer system. While extension policy decisions supposedly originate in the Department, actual construction decisions have been determined by the consulting engineer, Mid-South Engineering Company.

[56]Knoxville-Knox County Metropolitan Planning Commission, Sanitary Sewer Study, Part I and II (Knoxville: The Commission, 1960). Barge, Waggoner, and Sumner, consulting engineers, Nashville, Tennessee, prepared the sanitary engineering calculations for the study.

[57]The plan was, however, apparently instrumental in bringing about the annexation.

The failure of the Metropolitan Planning Commission to recognize and utilize the shaping effect of the sewer system for growth guidance[58] is difficult to understand. Much of the development within the city limits in recent years has been consumed by FHA-235 housing which, as a Federal housing program, urges connection to a sanitary sewer system, particularly in areas which are unsuitable for septic tank disposal.[59] Developers were willing to build within the city limits and gamble that homeowners would buy and face a higher property tax rate because the land was sewered. Thus, while evidence of the shaping effect exists, recognition and utilization of its potential for guiding growth, on the part of the Department, has not.

A considerable portion of the Public Service Department's inertia with regard to the sewer system's "growth" is currently being consumed by a project which will provide sewage treatment by the City to a fast growing section of the County, west of the City. In an area known as the Ten Mile Creek basin area of the County, the Department has entered into an agreement with two utility districts (West Knox

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[58] Crossman, op. cit.

[59] In 1967, the local Knoxville FHA office, quoting a 1965 Federal law, announced that it would withhold approval of any further loan applications for houses in subdivisions in the City and County where it is economically feasible to install a sanitary sewer system, and where there was no plan to do so. This fact was reported in the Knoxville Journal, November 27, 1967. Although not documented, recent indications point to the fact that this policy has "stifled" development in areas of the County forcing FHA (HUD) to soften its policy and grant exceptions. Mr. Guy Thompson, Subdivision Analyst, U. S. Department of Housing and Urban Development, denied this assertion, March 20, 1972 in a telephone interview, Knoxville, Tennessee.

and First Utility) to extend municipal sewage service to customers living outside the city limits. The Department is currently constructing a pump station and a major interceptor which will connect the basin to the City's Fourth Creek Treatment plant. The districts, in turn, are constructing the lines which will connect with the interceptor. The agreement requires that the districts reimburse the City by paying yearly amounts to amortize the pump station and interceptor. In a display of farsightedness, the Department is requiring that lines which are laid by the districts meet City specifications thereby insuring that they could be easily integrated into the latter's system should annexation or another form of City takeover reach that far west.[60]

This requirement is apparently the Department's only conscious attempt to participate in the overall planning of the City-County area. The lack of a formalized extension policy precludes the possibility of the Metropolitan Planning Commission utilizing the sewer system to effectively guide the growth of Knoxville-Knox County. By admission of both the Department and the MPC staff, the dialogue between the two is extremely limited.[61] The only coordination involved is the requirement that MPC submit subdivision plats to the Department for review prior to final MPC approval, and this is handled routinely by both.

Thus, while KUB's participation in the planning function can be described as based essentially upon self-interest, the Public Service

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[60] News item, Knoxville News-Sentinel, September 19, 1971.

[61] Roy Gentry, Director, Public Service Department, Knoxville, Tennessee, personal interview, March 13, 1972; Crossman, op. cit.

Department's participation is difficult to detect, if it exists at all.

Appraisal

While legally, geographical jurisdiction and political boundaries do not hamper the Public Service Department from providing sewer service in a fashion which would maximize economies of scale, the Department's service area (roughly the city limits), like KUB's, is ringed by utility districts. While only three of the seven districts are presently involved in providing sewer service, these three are in the fastest growing areas of the County (North, Northwest, West). For this reason, the Department is constricted geographically and politically.

A working relationship with other related governmental entities does not exist. There exists a general lack of communication between the Department, and KUB and the utility districts. The Ten Mile Creek agreement is possibly an omen of change in this regard, although it is extremely doubtful. Coordination with MPC is likewise limited.

Legal, administrative, and financial capabilities are fairly easy to discern. Legally, the Department possesses all those powers assigned to City government and therefore must be considered quite capable of performing its function in this respect. Administrative capabilities are a different matter altogether. The positioning of a City's sewer network under a department which handles such unrelated functions as street lighting and airport operations, diminishes the important role which the system plays in urban development, whether recognized or not. The division of responsibility for the system into

three factions, the Public Service Department, the Waste Water Control System, and an engineering firm further precludes effective administrative guidance. While the financial capabilities were examined in detail earlier, it is necessary to emphasize the fact that, despite noted deficiencies in financing techniques, the sewer system is financially on a "pay-as-you-go" basis and is essentially self-supporting.

Public control of the sewer system of the City of Knoxville is presumably assured because the Public Service Department is operated as an arm of City government. Public control of the system, however, has apparently been translated into a license to meddle by local politicians. In recent years the Waste Water Control System, the Public Service Department and the past City administration have come under attack for insufficient revenues, "excessive" rates, poorly functioning treatment plants, and lack of personnel communication within the system. A recent councilmanic investigation into the sewer system (which was never completed) created a political frenzy that has not yet completely subsided. Such political interference, regardless of how well-intended, seriously lessens the possibility of having an efficient, business-like atmosphere in which a public utility should be operated.

The fact that the system has received matching Federal funds in the past is overshadowed by directives periodically issued to the Waste Water Control System by two state agencies. The Tennessee State Stream Pollution Control Board has placed the Knoxville system on its "critical list" for the malfunctioning of one of its treatment plants, as the

first step in enforcing regulations which were designed to curb the system's contribution to the area's water pollution.[62] For similar reasons, the State Public Health Department has directed the City to obtain professional engineering advice in order to solve the system's treatment problems.[63] Thus, while Federal guidelines might have been met in order to receive funding, state health guidelines are violated regularly.[64]

The political feasibility of assigning additional functions to the Public Service Department if reorganization were to be proposed (in the case of the Public Service Department, reorganization would mean the assignment of the water system to the Department as a separate division, as is the Waste Water Control System), would be extremely limited, assuming that political interference into the operation of the Department does not wane.[65]

An evaluation of the Public Service Department, therefore, reveals that it fails to adhere to a majority of the basic principles in providing sewer service in Knoxville-Knox County. Moreover, its limited

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[62]News item, Knoxville News-Sentinel, April 2, 1971.

[63]News item, Knoxville News-Sentinel, December 21, 1971.

[64]This is an ironic twist. State authorities are continually trying to curb pollution while Federal agencies have a funding priority of awarding grants to areas which are highly polluted. Thus, efficient, low-polluting systems are maximizing state health guidelines while relegating themselves to a low-priority funding status.

[65]One of the primary reasons for originally giving KUB the responsibility for water service was to remove the service from political meddling.

participation in the planning function of its own system and of the City as a whole highlights its totally passive role in the developmental process of the area. Sewer main extensions have evidenced a shaping effect on the growth of Knoxville as is indicated in the development of FHA-235 housing within the City limits. Recognition, and more importantly utilization, of the system's shaping function, however, have not been integral components of the Public Service Department's official policies.

IV. UTILITY DISTRICTS

Background

The Utility District Act of 1937 of the State of Tennessee, as amended, authorizes the creation and operation of districts and autonomous municipal corporations for the purpose of providing one or more of a number of services including natural gas, artificial gas, police protection, fire protection, garbage collection and disposal, street lighting, transit lines, transmission of industrial chemicals by pipeline, parks and recreational facilities, water supply and sewage disposal.[66] These corporations have commonly been known as "utility districts."

Since 1954, Knox County has witnessed the creation of a number of these utility districts, which for comparability purposes, are forms of fringe districts discussed in Chapter II. The City is currently

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[66] Tennessee Code Annotated, sec. 6--2608.

almost completely ringed by seven utility districts which provide water services to the city's suburban residents. Three of the seven provide sewer service but only on a limited scale. The seven include: the East Knoxville Utility District; the First Utility District of Knox County; the Hallsdale-Powell Utility District; the Knox-Chapman Utility District; the Luttrell-Blaine-Corryton Utility District; the Northeast Knox Utility District; and the West Knox Utility District (see Figure 5).

Information pertaining to when the districts became operational, their functions, service area, and number of connections is presented in Table III.

Organizational Framework

The creation process of utility districts is not overly difficult. Movement towards creation is initiated by the submission of a petition, signed by twenty-five residents and real property owners who reside in the area of the proposed district to the County Judge or Chairman of the County Court, as the case may be. The petition must indicate four major elements:

1. A declaration of the necessity for the service to be supplied by the proposed utility district;
2. The corporate name and boundaries of the proposed district;
3. Cost estimates for the acquisition or construction of the district's proposed facilities; and
4. The nomination of three residents within the district for appointment as commissioners.[67]

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[67] Ibid., sec. 6--2602.

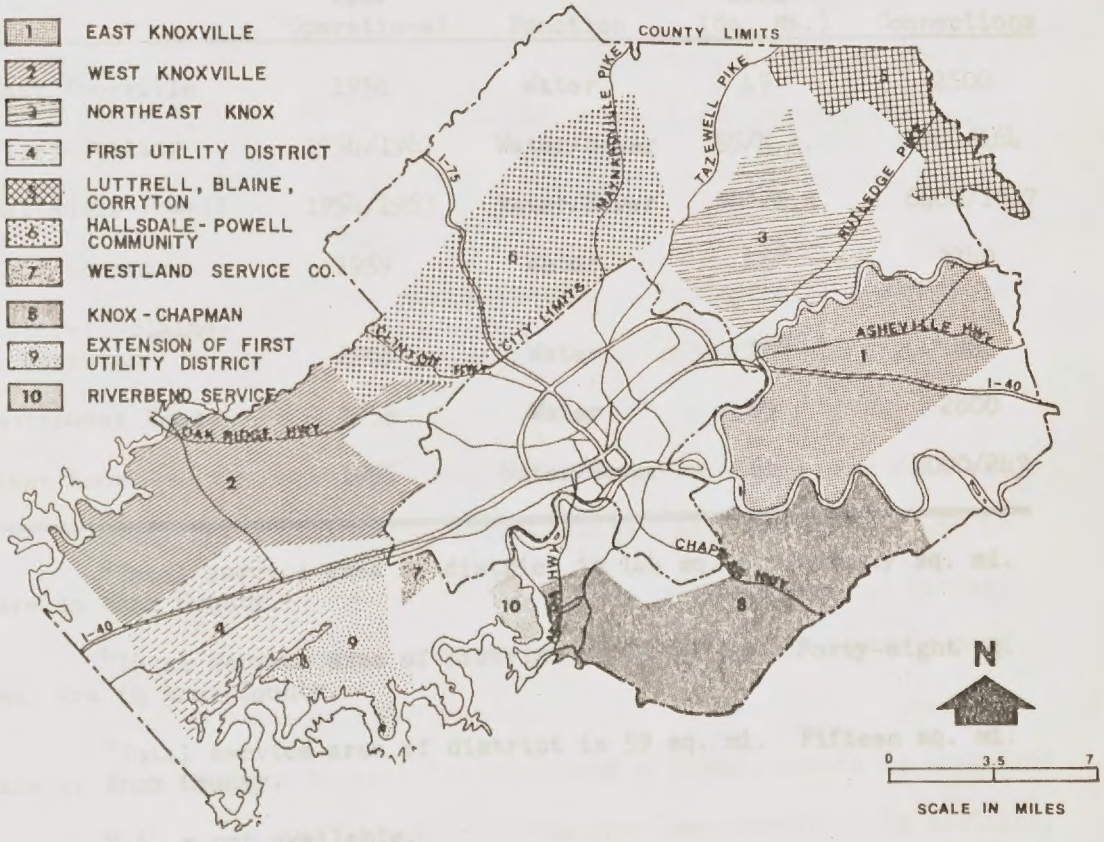


FIGURE 5

UTILITY DISTRICTS AND PRIVATE COMPANIES: EXISTING SERVICE AREAS, KNOX COUNTY, TENNESSEE

TABLE III

CHARACTERISTICS OF UTILITY DISTRICTS IN KNOX COUNTY

	Year Operational	Function	Service Area (Sq. Mi.)	Connections
East Knoxville	1954	Water	45	2500
First Utility	1954/1967	Water/Sewer	55/N.A.	2900/164
Hallsdale-Powell	1954/1963	Water/Sewer	90[a]/N.A.	6400/1837
Knox-Chapman	1959	Water	48[b]	3240
Luttrell-Blaine-Corryton	1965	Water	15[c]	466
Northwest Knox	1955	Water	65	2800
West Knox	1955	Water/Sewer	61	4000/247

[a]Total service area of district is 144 sq. mi. Ninety sq. mi. are in Knox County.

[b]Total service area of district is 63 sq. mi. Forty-eight sq. mi. are in Knox County.

[c]Total service area of district is 59 sq. mi. Fifteen sq. mi. are in Knox County.

N.A. = not available.

Source: Allen and Hoshall, Comprehensive Plan Report: Water Supply and Distribution for Anderson, Blount and Knox Counties (Memphis: Allen and Hoshall, 1971), pp. 53-76. Allen and Hoshall, Waste Water Comprehensive Plan for Knoxville SMSA (Memphis: Allen and Hoshall, 1971), pp. 67-75.

Within thirty days of receipt of the petition, the County Judge or Chairman of County Court must hold a public hearing to determine whether or not the public convenience and necessity requires the creation of the district, and whether or not its creation is economically sound and desirable.[68] If ruling in the affirmative, the Judge or Chairman issues a court order approving the creation, stating the district's title, boundaries, and appointing the three persons nominated in the petition as Commissioners of the district to serve two, three, and four terms respectively.

After creation, succeeding members of the Board of Commissioners are selected for terms of four years. Board vacancies are filled by vote of the Commissioners still in office. Re-election to the board is authorized, but when the remaining Commissioners are unable to agree on a nominee the County Judge or Chairman can make the appointment to fill the vacated seat. Although the Commissioners receive no formal salary for their services, they are compensated for any expenses they may incur in performing their duties.

As authorized by statute, the Board of Commissioners is empowered to exercise all of the powers conferred upon the district. In addition, the Board makes all rules and regulations necessary for the management of the district including the determination of salaries of the district officers.

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[68] Ibid.

Below the level of the Board of Commissioners, there is very little evidence of formal administrative machinery.[69] The internal organization of the Knox County utility districts typically includes a full-time manager and a number of subordinate personnel who handle such functions as clerical work, plant operation and maintenance, and meter reading. All seven of the utility districts have hired consultants to determine major capital improvements and feasible rate structures. Figure 6 depicts the normal pattern of functional organization.

Powers and Responsibilities

As stipulated in the act which led to their creation, utility districts have the power and authority to:

> . . . acquire, construct, reconstruct, improve, better, extend, consolidate, maintain, and operate (the functions assigned to them) . . . without or within the district and to purchase from and furnish, deliver and sell to, any municipality, the state, any public institution and the public generally, any of the services authorized by this Act.[70]

Although specifically denied any power to levy or collect taxes, utility districts are empowered to undertake almost every other function usually performed by general purpose municipal corporations. They may sue and be sued, enter into contracts, hold and dispose of real property, incur debts, borrow money, issue negotiable bonds, and provide

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[69]Nelson M. Robinson and John P. Petty, Public Utility Services in Tennessee (Knoxville: The Bureau of Public Administration, The University of Tennessee, 1966), p. 77a.

[70]Tennessee Code Annotated, sec. 6--2608.

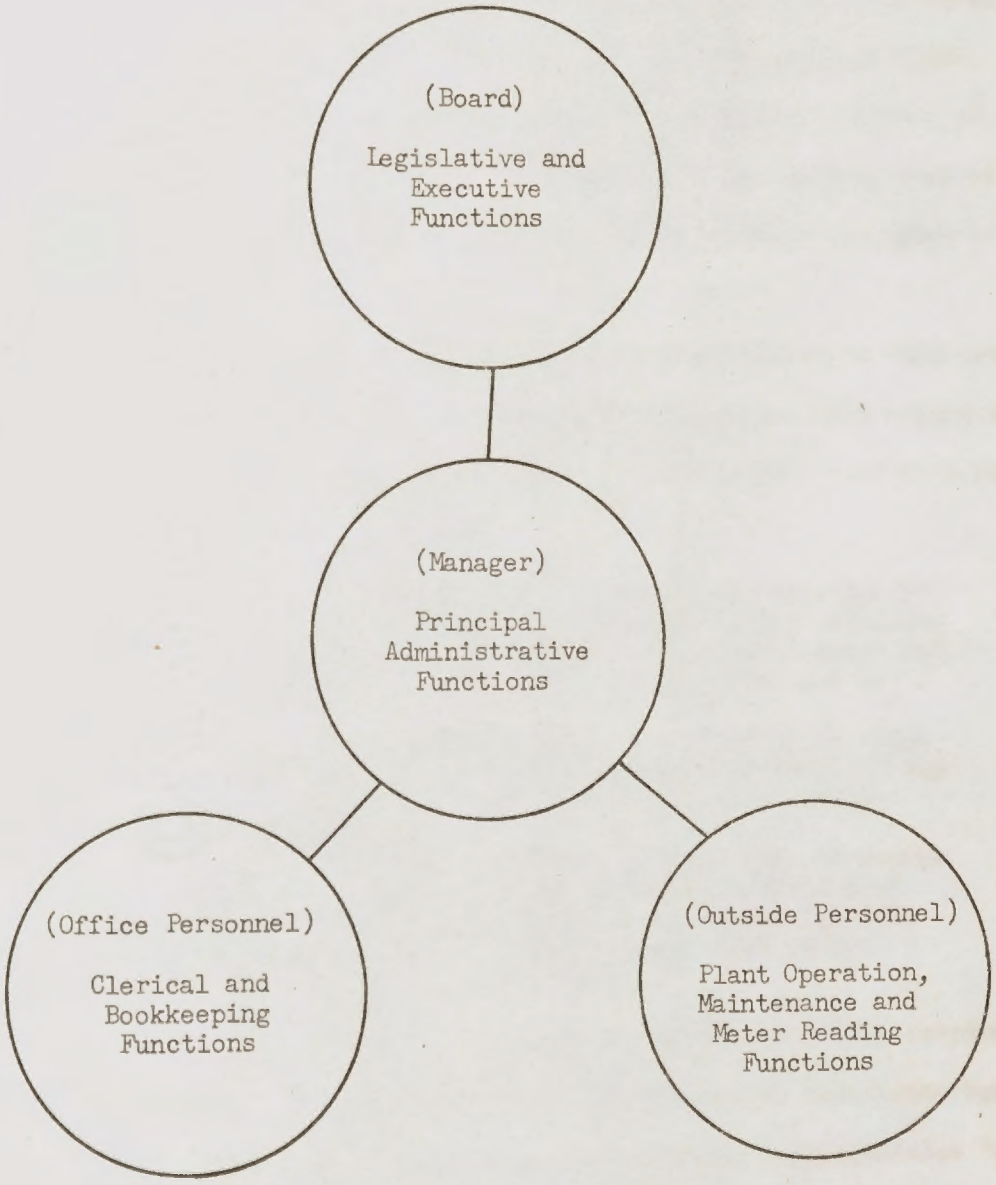


FIGURE 6

ORGANIZATIONAL DISTRIBUTION OF FUNCTIONS IN A TYPICAL TENNESSEE UTILITY DISTRICT

Source: Nelson M. Robinson and John R. Petty, Public Utility Services in Tennessee (Knoxville: The Bureau of Public Administration, The University of Tennessee, 1966), p. 80.

for the rights of bondholders. They may establish and collect rates and charges for services rendered, pledge all or any part of their revenues, and make any covenants in connection with the issuance of bonds that a business corporation can make under the general laws of the state. In addition, utility districts may exercise the power of eminent domain.[71]

With regard to extension powers of utility districts, the original act, as quoted above, simply provided that such units could extend systems without or within district boundaries. To clearly delineate this power a law was passed in 1946, reading:

> Each county, utility district, municipality or other public agency conducting any utility service specifically including water works, water plants and water distribution systems and sewage collection and treatment systems is authorized to extend such service.
>
> Any such county, utility district, municipality or other public utility agency shall establish proper charges for the services to be rendered so that any such outside service shall be self-supporting.
>
> No such county, utility district, municipality, or public utility agency shall extend its services into sections of roads or streets already occupied by other public agencies rendering the same service so long as such other public agency continues to render such service.[72]

However, while utility districts are given the public corporate right to furnish such services within and without the districts' boundaries a more recent statute provides that annexing municipalities "shall have the exclusive right to perform or provide municipal and utility

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[71] Ibid., sec. 6--2610-6--2612.

[72] Ibid., sec. 6--604.

functions and services in any territory which it annexes."[73]

For fire insurance purposes all of the seven utility districts are in a Class 10 rating, the lowest possible rating, as designated by the Tennessee Inspection Bureau, the organization having jurisdiction over the districts for rating purposes. However, none of the districts is specifically assigned the responsibility of providing fire protection to its constituent area. Furthermore, the districts' service areas are ill-equipped in fire fighting capabilities, a factor which is weighed heavily in rating determination.

The remarkably broad scope of powers conferred upon Tennessee utility districts is only overshadowed by the manner in which these units are free from the usual processes and controls by which public agencies in a democratic society are normally held responsible. Neither their conduct nor their rates are subject to regulation by the Public Service Commission. They are not required to inform any State agency as to the fact of their existence. The only agency to which they are answerable in any way is the State Department of Health.[75]

Compounding this situation is the fact that nowhere in the general law is provision made for the termination or dissolution of

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[73] Tennessee, Public Acts (1955), Chapter 113, sec. 9.

[74] Robinson and Petty, op. cit., p. 50.

[75] Arthur B. Winter, The Tennessee Utility District (Knoxville: The University of Tennessee Press, 1958), p. 33.

utility districts which have failed to render assigned services or have outlived their usefulness.[76]

Financial Capabilities

Specifically denied the power to levy taxes, utility districts in Tennessee must resort to revenue bonds, short-term loans and Federal assistance for their external financing. All seven of the districts utilize revenue bonds, two are currently employing Federal funds for capital improvements (Title 66.400 EPA Construction Grants for Waste Water Treatment Works), and two were originally set up through funds granted through the Community Facilities Administration, U. S. Housing and Home Finance Agency.[77] Other Federal funds available for the creation of utility districts, particularly section 304 of the Consolidated Farmers Home Administration Act, have not been utilized in Knox County because of the early date of the creation of the districts.

Table IV presents a financial picture of the seven districts for comparability purposes.

The heavy bonding activity of the districts tends to limit their financial capabilities because first, all the bonds must be retired through internal revenues,[78] and second, while only two of the districts

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[76]Robinson and Petty, op. cit., p. 52.

[77]The two are the Northeast Knox Utility District and the East Knox Utility District.

[78]The importance of this is not only in the districts' inability to levy taxes but also in the ability of the districts to continually add new customers. Three of the districts, Hallsdale-Powell, West Knox, and First Utility, in that order, are witnessing substantial growth and are virtually assured of additional customers which in turn generate

TABLE IV

FINANCIAL ASPECTS OF UTILITY DISTRICTS IN KNOX COUNTY

	Total Assets	Fixed Assets	Major External Financing	Bonded Indebtedness	Operating Revenue	Operating Expenses	Net Income	Minimum Rate	Average Revenue Per Connection
East Knoxville	$1,373,443	$1,263,641	Revenue Bonds	$1,530,000	$165,499	$106,037	$ 35,263	1st 3000 gal. 3.50/mo.	$ 64.00
First Utility	2,223,489[a] 213,205[b]	1,953,795 194,823	Revenue Bonds/ Revenue Bonds & Federal Funds (66,400)	1,345,000/ 86,314	346,040/ 20,543	293,469/ 20,046	52,571/ 497	1st 2500 gal.=3.00/mo. 1st 3000 gal.=5.65/mo.	$ 75.00/N.A.
Hallsdale-Powell	7,850,006[c]	6,284,467	Revenue Bonds & Federal Funds (66,400)	6,035,000	764,634	607,924	156,710	1st 2500 gal.=3.50/mo.[a] 1st 2500 gal.=3.95/mo.[b]	$ 67.50/N.A.
Knox-Chapman	2,314,853	2,005,089	Revenue Bonds	1,660,000	196,948	187,031	9,917	1st 2500 gal.=4.20/mo.	$ 69.00
Luttrell-Blaine-Corryton	614,345	585,781	Revenue Bonds	686,000	50,580	71,843	-21,263 (Loss)	1st 4000 gal.=7.50/mo.	$100.00
Northeast Knox	1,972,832	1,658,018	Revenue Bonds	1,550,000	191,027	148,484	42,543	1st 3000 gal.=4.50/mo.	$ 68.00
West Knox	3,021,985[c]	2,192,079[a] 392,244	Revenue Bonds	2,061,000/ N.A.	321,644/ 8,871	270,910/ 6,241	50,734/ 2,629	1st 3000 gal.=4.28/mo. 1st 400 cu. ft.=1.95[a]	$ 79.00/N.A.

[a]Water system.

[b]Sewer system.

[c]Water and sewer consolidated.

[d]Same as city.

N.A. = not available.

Sources: Allen and Hoshall, Comprehensive Plan Report: Water Supply and Distribution for Anderson, Blount and Knox Counties (Memphis: Allen and Hoshall, 1971), pp. 53-76; Allen and Hoshall, Wastewater Comprehensive Plan for Knoxville SMSA (Memphis: Allen and Hoshall, 1971), pp. 67-75.

have a sound bond rating (BBB by Standard and Poor) these ratings are lower than those of the City and KUB.

Although the figures in Table IV do not automatically generate such a conclusion, four of the districts (West Knox, Hallsdale-Powell, First Utility, and Knox Chapman) are considered financially sound, while three are financially unstable.[79]

In the final analysis, utility districts like KUB have a limited resource base because of the lack of taxing power. The self-supporting principle is sufficient for a financial base in areas within the districts which are witnessing a good deal of growth, and have sizeable service areas but in areas which are not experiencing growth, or are stagnating, the inability to generate additional revenue through new customers, makes self-support difficult to maintain. The Luttrell-Blaine-Corryton Utility District gives witness to this fact in its net loss of income. Unlike KUB, the districts do not have a high credit rating and therefore face higher interest rates. The districts must raise their rates to satisfy interest and principal payments with the result that their charges are quite a bit higher than those of KUB and the Public Service Department. In the end, the customer bears the brunt of the utility districts' financial burden through high rates and lack of economies of scale.

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additional revenue to retire bonds. The four other districts are not realizing as much growth, making their revenue forecast somewhat uncertain.

[79]Morgan Ayres, op. cit.

Participation in the Planning Function

Internally, there is no such thing as a long-range, or short-range plan for six of the utility districts in Knox County. Main extensions and other capital improvements are made, with few exceptions, solely on the basis of demonstrated service needs. Developers, with the exception of those within the Hallsdale-Powell Utility District service area, pay all the costs of system extensions. The districts, therefore, realize short-run financial equity by requiring those immediately benefitting from the service to pay the total cost. Engineering consultant firms determine the feasibility of construction by the districts but this certainly cannot be construed as "planning" for the system's development. In brief, the districts are requested to serve a specific area, the developer (or homeowner) pays all the costs of construction, and service is then initiated.

The operation of the Hallsdale-Powell Utility District is uniquely different. Unlike the other districts, Hallsdale-Powell has scheduled improvements over a considerable length of time, is heavily active in both water and sewer service, and pays for portions of main extensions. Major extensions to a subdivision, for example, are paid for by the district upon agreement by the developer that the latter guarantees a certain minimum amount of yearly revenue to amortize the main construction.[80]

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[80]Allen Gill, Manager, Hallsdale-Powell Utility District, Knoxville, Tennessee, personal interview, March 17, 1972.

Hallsdale-Powell's involvement is admittedly based on self-interest. The result, however, has been growth-conscious planning. As a strictly water utility in 1963, the district recognized the needs for sewer service in its constituent area. With a good deal of foresight, the district began sewering the area recognizing developer attraction to sewered areas for potential development as opposed to unsewered ones.

Realizing that the resultant increase in growth would increase water sales as well as sewer revenue, the district now requires that all potential customers requesting water must be connected to the district's sewer system. In the end, environmental problems are waylaid, the area grows, the systems grow and the district increases its financial base thereby enabling it to venture into additional growth areas.

The sewer requirement has received considerable emphasis in Knox County in recent years. In 1967, the local office of the Federal Housing Administration gave notice that it would begin to enforce a 1965 law which requires the installation of sanitary sewer systems in subdivisions where it is economically feasible to do so (see footnote 59). More recently, the Knox County Commission has instructed the County Building Commissioner to issue no building permits in unsewered sections of the County until the applicant has received approval from the Knox County Health Department that the area is suitable for septic tank disposal.[81] The purpose was to hinder the possibility of

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[81]News item, Knoxville News-Sentinel, January 4, 1972.

development occurring in non-publicly sewered areas which are not conducive to such development.

The utility districts have begun to construct water and sewer lines which are greater in size than their previous standard size of two inches in diameter. The reasons for this are three:[82] the Knox County Health Department, which must approve every extension, has placed formal pressure on the districts to construct lines which would not jeopardize sanitary conditions; local planning agencies, particularly the East Tennessee Development District, have urged the districts to construct lines which meet City specifications in order to facilitate any future City annexation and to insure compliance with guidelines necessary to be met in order to receive Federal grants and loans; finally, the utility districts themselves have realized that it would be beneficial[83] to their future system expansions to construct lines greater than minimum size.

A lack of concern for the growth of Knoxville-Knox County outside of their respective districts if fairly common among the districts' management. There is very little, if any, coordination and/or communication between the districts and the Metropolitan Planning Commission. As was the situation with KUB, all of the districts claim that they do

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[82] Robert Freeman, Assistant Director, East Tennessee Development District, Knoxville, Tennessee, telephone interview, April 7, 1972.

[83] On appearances, this can be considered a form of long-range planning. Further inspection, however, reveals that the districts are tiring of constructing lines, and then relaying larger lines within a few years.

not receive subdivision plats before final MPC approval nor do they receive any information about rezoning requests. Ironically, through its subdivision regulations, MPC has the legal authority to require minimum size lines (presumably this might be considerably larger than the districts' minimum size), yet this authority has never been applied to the utility districts. In addition, MPC does not require a water and/or sewer plan, nor does it require a feasibility study for either service prior to subdivision approval or denial.

The planning and policy coordination between the districts themselves is likewise limited. There are numerous duplications of effort; several districts could have been supplied by one large water plant instead of individual district plants; separate mains transverse the same basin, and so on. Interestingly enough, the district managers, when questioned on the degree of coordination between the districts, referred directly to the Knox County Association of Utility Districts, praising its merit as a device to foster coordinated action. When pressed, however, not one of the managers interviewed could recall the date of the Association's last meeting, nor its purpose.

Two of the districts have worked together in a joint project involving the Public Service Department of Knoxville in the Ten Mile Creek basin area of the County,[84] thereby denying the assertion that the districts are totally unrelated. The fact that two districts are

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[84] A detailed discussion of this joint agreement was offered in the preceding section Public Service Department under "Participation in the Planning Function" (page 122).

operating in the same basin, however, no matter how amenable their operations may be, restricts the possible success of the districts to effectively plan for comprehensive basin development.

Thus, internally the planning function of the utility districts, if existing at all, is based solely upon self-interest. Externally, there has not been, and does not appear to be, any conscious effort on the part of the districts to participate in the area-wide planning and growth guidance in the Knoxville-Knox County area.

Appraisal

The utility districts are often limited both geographically and politically to perform their function(s) so as to maximize economies of scale. The size of some of the districts, notably Hallsdale-Powell, East Knoxville, and Knox-Chapman would seem to temper this assertion to a certain degree. However, the fact that most of the utility districts have major rivers as their boundary lines negates the possibility of basin-wide planning.

The preceding section indicates the void which exists in terms of the districts' relationships with other governmental entities. Beyond the lack of communication between the districts and MPC, between the districts themselves, and beyond the limited association between the districts and the Public Service Department, the utility districts are extremely self-serving. Only on rare occasions will the districts contact KUB, and vice-versa, and then only to receive assistance in crisis water supply situations.

That the districts possess most of statutory powers of municipalities, with the exception of taxation, is an indication of the breadth of their legal capabilities. Financial capabilities are not as certain. Four of the districts are fairly sound while three are not. All possess a bond rating which is mediocre at best. Administratively, the self-perpetuating aspect of the Boards of Commissioners is very hazardous to innovative thinking. The Boards' organizational powers, however, are quite vast.

It is in the area of public control where utility districts are most deficient. They are not controlled or supervised in any democratic manner.

While Federal funding has been received on occasion, the utility districts have frequently violated Federal and State water quality guidelines. A recent statement by a State Public Health Department sanitary engineer that "the quality of water received by some residents of West Knox County scares me to death,"[85] is indicative of this plight.

Finally, although the political feasibility of using special districts as a form of reorganization is normally quite high because they often remove controversial functions from the political arena, the utility districts have plagued Knox County with high rates and inferior quality service for some time. The political feasibility of assigning additional functions to, or increasing the service area of, the existing utility districts, or creating altogether new utility

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[85] News item, Knoxville News-Sentinel, September 23, 1970.

districts, would probably not be as high as one would expect with other forms of special districts.

Thus, Knox County seems to have traded scattered development and extremely low-standard facilities for expensive service and problems of firmly-lodged utility organizations which have not exactly checked scattered development or raised substantially the quality of service. This is not to suggest that a utility district's water and/or sewer system is not of higher quality than individual wells and septic tanks. But, when compared to Knoxville's public sewer system and KUB's water system, the facilities of the utility districts are considered inferior.

V. OTHER INSTITUTIONAL FACTORS

While KUB, the Public Service Department, and the utility districts constitute the majority of the water and sewer institutional matrix in Knoxville and Knox County, there are other contributing factors to the service pattern. These include: operating private companies, the participation by Knox County government, attempts to form metropolitan government for the City-County area, the presence of a local Council of Governments, and annexation. Thus, the Knoxville-Knox County growth area is a microcosm of the broad array of institutional alternatives for providing water and sewer services.

Private Companies

Two private companies provide water services to small residential areas in Knox County. These are the Westland Drive Service

Company and the Riverbend Service Company. The former has as its north and south boundaries Interstate 40-70 and Fort Loudon Lake respectively, while its east and west limits adjoin the First Utility District boundaries and the limits of the City of Knoxville. Riverbend's service area is bounded on two sides by Fort Loudon Lake and is situated within two miles of Knoxville's southern limits (see Figure 5, page 130, for location of both companies).

When compared to the other institutions in the City-County area, the private companies operate on quite a small scale. The service areas of Westland and Riverbend are eight and two square miles respectively with the former serving 750 customers and the latter serving 160 customers.[86] Westland began its operation in 1956, Riverbend in 1962.

Both companies are operated as strictly private enterprise. Type of operation and rate determination, however, are overseen by the Tennessee Public Service Commission. This is the case despite the fact that Westland is supervised and operated by the manager of the First Utility District and receives its water supply from both First Utility and KUB. Riverbend receives its supply from five deep wells.

Not possessing public status, both companies rely upon private financing for support. Their rates are comparable to most of the utility districts and are substantially lower than a few (particularly Luttrell-Blaine-Corryton Utility District).

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[86]Allen and Hoshall, Water Supply, pp. 76-80.

The foregoing information provides a general picture of private water companies in the study area. The inputs of these companies into the service pattern of Knoxville-Knox County have been minimal as witnessed by their small geographical jurisdiction. Their contribution to the development process has been negative, with minimum size lines being laid wherever possible. The companies are totally separated from other governmental entities in the area and completely removed from any form of local public control. Even their quality of service is open to criticism. There have been numerous occasions when KUB has had to provide water to Westland in order to avert crisis conditions within the company's service area. In 1970, the Tennessee Department of Public Health temporarily withdrew its approval of Westland's water supply.[87]

In brief, private companies, because of limited scale of operation, lack of proven ability to function efficiently in the Knoxville-Knox County area, and total removal from local public control, do not appear to be viable alternatives for handling utility functions in the study area.

Knox County

As is the case in most states, the majority of Tennessee counties are not actively involved in the provision of such urban services as water and sewer to their areas of geographical responsibility. Traditionally, counties in Tennessee have not been disposed to undertake

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[87] Ibid., p. 79.

more than a very limited range of service functions; this outlook has been strengthened by the lack of specific statutory authorization as well as legislative and constitutional limitations upon the power and nature of county government.[88] In 1961, however, a public act of the General Assembly specifically gave the counties of Tennessee the right to provide certain "urban services" including water service and public sewer service.[89]

Current involvement of Knox County in these services is limited to the ownership of a small sewer system located in the Forks-of-the-River Industrial Park, a 980-acre complex situated near the southeast corner of the County. The system is managed and operated by the Knox County Engineer and has been in existence since 1967.

While Knox County has been resistant to significant participation in the provision of services, there is quite a bit of momentum to begin an era of greater involvement. For example, in 1968, County and City officials agreed to cooperate in developing a sewer system at the County level following the recommendations of a local civic group, the Clean Environment Council.[90] The latter recommended the establishment of an agency or bureau at the County level which would oversee the operation of the sewer system, and also recommended the engagement of an engineering consultant firm to prepare a feasibility

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[88] Robinson and Petty, op. cit., p. 128.

[89] Tennessee Code Annotated, sec. 5--1612.

[90] News item, Knoxville News-Sentinel, February 2, 1968.

report for the entire County, taking into consideration the existing and planned City system. This latter task has been handled by an engineering firm through contract with the East Tennessee Development District, an area-wide planning agency with central offices located in Knoxville. The preliminary recommendation of the consultant was to develop and operate sewer and water services at the County level.[91]

Additional impetus in this direction was provided in October of 1971 when the Knox County Court created a Knox County Environmental Commission with a goal of bringing County-wide water services, sewage disposal, and solid waste disposal under a single agency.[92] Four months later the Knox County Commission created and appointed fifteen members to a Knox County Utilities Board Advisory and Study Commission, charging it with the responsibility of making a comprehensive study of County-wide needs for water and sewer facilities, with the ultimate goal being a County-wide system for urbanizing Knox County.[93]

The groundwork for greater County participation has, therefore, been laid. In addition, the County has the widest scope of jurisdiction of all governmental agencies in the area and it is empowered to provide water and sewer services in that jurisdiction. Both the County Court and the County Commission are receptive to the idea of having control over both systems lodged at the County level. The fact

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[91]Allen and Hoshall, Water Supply; Comprehensive Wastewater Plan. Final recommendations are expected in mid-1972.

[92]News item, Knoxville News-Sentinel, October 18, 1971.

[93]News item, Knoxville News-Sentinel, March 17, 1972.

that MPC is under the direction of the County Commission when dealing with planning items beyond the City limits describes the County's close association with the area's planning function. Its police powers are bolstered by the fact that the local public health department is also at the County level. Public control is virtually assured since the County Judge and County Commissioners are elected officials. Lack of a past record in water and sewer services precludes a judgment of Knox County's adherence to Federal and state guidelines. Finally, were Knox County (or an agency operating under the auspices of the County) to be selected as the ultimate institution for providing the services, political feasibility of such a move appears to be fairly high.[94]

Knox County is limited in its present administrative capability to handle these functions on such a broad scale. While it has MPC to perform technical planning duties it does not have the technical staff (engineers, soil experts) that KUB possesses. An important ingredient it does have, however, is that the most qualified civic groups, such as the Clean Environment Council, are organized at the County level. These groups are geared to finding solutions to County-wide problems as opposed to focusing their attention to disjointed crises of any segment of the area. They are, by and large, constituted by professionals of varying backgrounds who can provide excellent policy

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[94]This is an opinion of the author. However, the fact that movement towards County-wide control over water and sewer services has met with little opposition lends credence to this assertion.

guidance, if not technical expertise. Such an ingredient would prove valuable in the development of sound extension policies to shape the growth of Knoxville-Knox County.

Metropolitan Government

Chapter 120, Public Acts of 1957 authorizes City-County consolidation in Tennessee.[95] As stipulated in the Act, a ten-member Metropolitan Charter Commission was created in 1958 by resolution of the Knoxville City Council and the Board of County Commissioners for the purpose of drafting a charter proposing City-County consolidation.

Essentially, the charter proposed to replace the governments of Knoxville and Knox County with a single metropolitan government having jurisdiction over the entire County area. The legislative body of the metropolitan government was to include an elected ten-member council, with members from both the City and County. An elected Metropolitan Chairman, responsible for eight newly designated administrative departments, including law, finance, tax assessment, safety, public works and services, recreation, health, and hospitals and charity was to be the center of executive power.[96]

The metropolitan government was to comprise two service districts: the General Services District and the Urban Services District.

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[95] Tennessee Code Annotated, sec. 6--3701.

[96] Metropolitan Government Charter Commission, Proposed Charter for Metropolitan Government for Knoxville and Knox County (Knoxville: The Commission, 1959), sections 1.03-1.05.

The former was to include a service area coterminous with Knox County boundaries in which the following services were to be performed: general administration, police, assessment, health and welfare, schools, parks and recreation, streets and roads, urban redevelopment, libraries, airports, transit, building codes, and refuse disposal. The latter, whose boundaries were to correspond with those of the City of Knoxville (pre-1962 annexation) was to provide: fire protection, water, sanitary sewers, storm sewers, street lighting, street cleaning, and refuse collection.

A majority referendum vote both in the City and in the unincorporated area of the County was required for adoption of the charter. The proposal failed by a large margin when put before the voters in April, 1960.[97]

Had the proposal been successful, changes in the water and sewer institutional arrangement would not have been sweeping. The Knoxville Utilities Board would have maintained authority over the distribution of water within both the General Services and Urban Services districts. The utility districts were to continue in "full force and effect" subject, however, to the right of the Metropolitan Government to take over such functions, rights, duties, property, assets, and liabilities by negotiation or arbitration, as stipulated in the 1957 Act. The Public Service Department, since it is a division of City government would be

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[97] A. C. I. R., Factors Affecting Voter Reactions to Governmental Reorganization in Metropolitan Areas (Washington: U. S. Government Printing Office, 1962), p. 47.

no more. It would be replaced by a Department of Public Works and Service headed by a Director, who, subject to the supervision and control of the Metropolitan Chairman would have responsibility over streets, roads, bridges, sewers, and public buildings within both districts.[98]

The effect of such an institutional arrangement is difficult to surmise. Its proponents claimed, among other things, that it would eliminate duplications, increase efficiency, provide a broader tax aggregate, and solve the "metropolitan" problem.[99] The existence of three major institutions (KUB, utility districts, and a metropolitan sewer agency) in the service pattern, however, would not have altered the arrangement in numbers but would have undoubtedly given considerable geographical scope to the provision of sewer service.

Despite its potential, the resounding defeat of the proposal, although dated, gives strong indication that metropolitan government was not to be a politically feasible institutional solution for Knoxville-Knox County in the immediate future. However, this is not to assume that it is undesirable or impossible.

Annexation

Upon defeat of the 1959 metropolitan government proposal, the City of Knoxville engaged in annexation of outside territories. The

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[98]Metropolitan Government Charter Commission, op. cit., sec. 6.601..

[99]Robert Brock, "A Metropolitan Government for Knoxville-Knox County?" (Knoxville: The University of Tennessee, 1958), p. 1.

process was completed in 1962. The annexed areas increased the City of Knoxville's area from 26.3 square miles to 77.6 square miles and the population from 111,827 to 179,973 persons (see Figure 7).

The annexation was conducted by municipal ordinance as spelled out in state law.[100] The law does not require that the annexed areas be allowed any vote as whether they wish to be annexed or not. The citizens of the areas to be annexed appealed to the courts but the City of Knoxville was upheld.[101]

The large scale annexation undertaken in 1962 created numerous problems for the water and sewer institutions. Both KUB and the Public Service Department were faced with the problem of providing services to an area tripled in size and doubled in population. While there were a number of utility districts providing water services to the unincorporated areas prior to the annexation, their small-size lines necessitated a considerable amount of main reconstruction to meet City specifications after annexation. Before annexation, the majority of the unincorporated areas were served by septic tanks for waste disposal. Both institutions are just now, ten years later, completing the servicing of areas which were annexed. Both had to do a considerable amount of external financing to perform the capital improvements and both lost a considerable amount of revenue since the annexed area residents were no longer paying one and one-half times what city residents were paying, being city residents themselves.

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[100] Tennessee Code Annotated, sec. 6--309.

[101] "Annexation II," Knoxville Journal (scrapbook) inclusive, n.d.

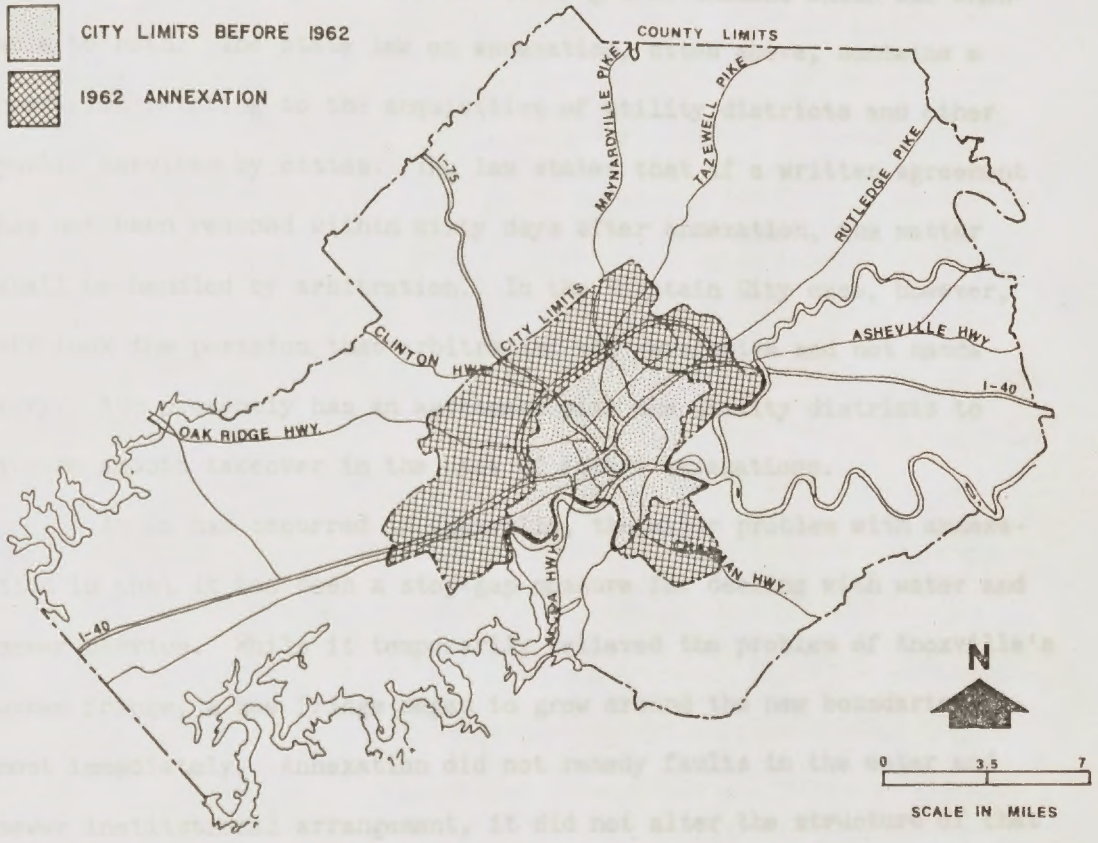


FIGURE 7

1962 ANNEXATION: KNOXVILLE, TENNESSEE

The utility districts suffered as well, with two districts being wholly consumed by the annexation and three others relinquishing partial territory. The takeover of one district was particularly difficult. KUB and the Fountain City Sanitary District (now defunct) negotiated for over three years before reaching a settlement which was amenable to both. The state law on annexation, cited above, contains a provision relating to the acquisition of utility districts and other public services by cities. The law states that if a written agreement has not been reached within sixty days after annexation, the matter shall be handled by arbitration. In the Fountain City case, however, KUB took the position that arbitration was permissive and not mandatory. KUB presently has an agreement with the utility districts to insure smooth takeover in the case of future annexations.

As it has occurred in Knoxville, the major problem with annexation is that it has been a stop-gap measure for dealing with water and sewer service. While it temporarily relieved the problem of Knoxville's urban fringe, a new fringe began to grow around the new boundaries almost immediately. Annexation did not remedy faults in the water and sewer institutional arrangement, it did not alter the structure of that arrangement, nor did it make the arrangement better able to cope with the problems that it faced.

For these reasons, future annexations would appear to be of little benefit to the efficient provision of water and sewer services in Knoxville-Knox County, although they may be beneficial to other aspects of urban government. This is not to be interpreted to mean

that annexation cannot be effective in urban growth areas. Indeed, as Chapter II pointed out, it has been a popular and successful approach in many urban areas.

Knoxville Area Council of Governments

Encompassing a three-county region (Knox, Blount and Anderson) within the Knoxville SMSA, the Knoxville Area Council of Governments (KACOG) was organized primarily to avoid the loss of comprehensive planning funds by MPC.[102] Originally established in 1967 in accordance with U. S. Department of Housing and Urban Development guidelines, as a separate governmental entity. KACOG became a "standing member" of the East Tennessee Development District (ETDD) in 1968 with the passage of the Housing Act of that year.[103]

Chartered as a non-profit corporation, KACOG is a voluntary organization of public officials of the three-county area. Its memberships consist of the mayors and county judges of all the cities and counties of the Knoxville SMSA. The activities of KACOG are financed by contributions from member local governments on a per capita basis and by project contracts between the Council and HUD with costs shared at 2:1 federal-local ratio.

Designated as the area's official "701" planning agency by HUD, KACOG is also the official "204" public improvements project review

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[102] Keith J. Ward, "The Expansion of Federalism to the Metropolitan Region: Councils of Governments in Tennessee" (unpublished Ph. D. dissertation, The University of Tennessee, Knoxville, June, 1971), p. 71.

[103] Ibid., p. 75.

agency in the SMSA so designated by the Federal Bureau of the Budget. As is the case with most COG's, planning and program review occupy the bulk of the Council's efforts.

So as not to duplicate metropolitan planning efforts of ETDD, KACOG shares joint offices and staff with ETDD. Both share purposes of area-wide/regional planning and local government coordination and assistance.

The discussion "Councils of Governments" in Chapter II which describes the problems and potentialities of COG's in general adequately characterizes the attributes of KACOG. Sufficie it to say that COG's have not, as of yet, begun to participate in the actual operation and control of water and sewer systems in urban growth areas. An evaluation at this point, therefore, would be premature, if not impossible. However, KACOG, through its association with ETDD and the latter's three-county (Knox, Blount, and Anderson) water and sewer planning, is making strides toward a position through which it can program regional decisions pertaining to water and sewer services. The recent preliminary water and sewer studies completed by a consulting firm under the auspices of ETDD appears to be a step in this direction.

VI. GROWTH TRENDS AND INPUTS OF THE SERVICE SYSTEMS

Land Use Patterns[104]

Knoxville proper, as the center core of the Knoxville-Knox County area is characterized by high intensity retail, office, and

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[104]Sources include: Knoxville-Knox County Metropolitan Planning Commission, How Should Our Community Grow, pp. 6-8; Knoxville-Knox County Metropolitan Planning Commission, General Plan 1990, "Land Use and Major Street Plan"(Knoxville: The Commission, 1970), pp. 9-17.

service establishments. Immediately contiguous to the center of the City is an inner ring of deteriorating housing mixed with waning commercial and industrial uses. A second band of development occurred in the 1920's and 1930's, consisting of small single family residences, close-in strip commercial uses, and industrial uses along the rail lines. The next two decades witnessed another ring of residential development, although of much lower density than previous residential construction, and additional strip-commercial development spanning out along the area's major highways. The 1960's produced a substantial amount of urban residential "leapfrog" outward from the City into the County. Commercial establishments were close behind. This sprawl, dreaded by planners and utility men alike, has become infectious in the area.

> . . . sprawl in the suburban areas consists of unplanned, uncontrolled and scattered subdivisions. They have expanded all over the County, with the exception of the eastern part of the County which is limited by the lack of sewer service and the soil conditions not being suitable for septic tank uses. The problem of sprawl has become more serious in the past few years with the creation of numerous scattered subdivisions in the western part of the County and the ensuing strip commercial areas on Kingston Pike. (A major east-west artery in the western portion of the County.)[105]

The effect of such sprawl is vividly displayed in Figure 8. What is most striking about the map is the considerable amount of vacant land present in the County both within and without the City limits. Some 40

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[105]Knoxville-Knox County Metropolitan Planning Commission, How Should Our Community Grow, p. 7.

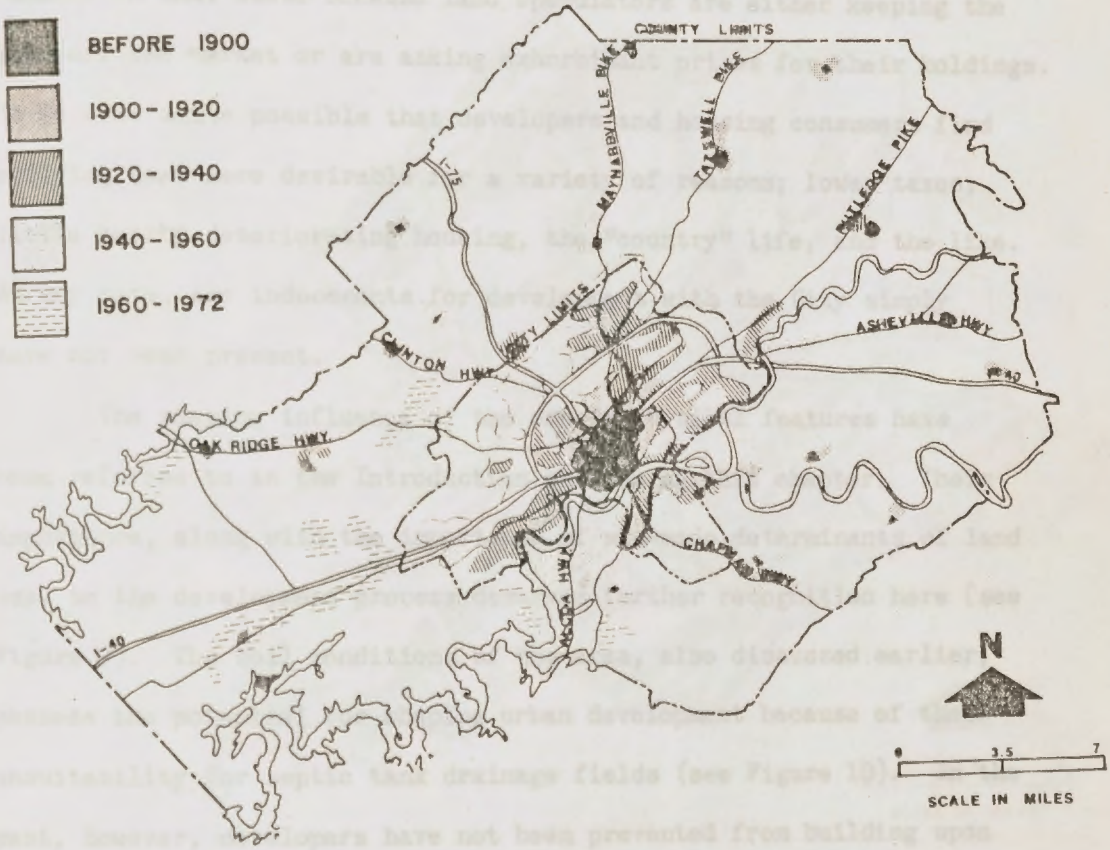


FIGURE 8

HISTORIC GROWTH PATTERNS: KNOXVILLE-KNOX COUNTY, TENNESSEE

per cent of the area within the limits remains undeveloped.[106] Partial cause of this vacancy lies within the constraints placed upon development by the hilly terrain which is prevalent in certain areas within the city. A sizeable portion of the vacant land, however, probably remains in that state because land speculators are either keeping the land off the market or are asking exhorbitant prices for their holdings. It is also quite possible that developers and housing consumers find outlying land more desirable for a variety of reasons; lower taxes, little nearby deteriorating housing, the "country" life, and the like. At any rate, the inducements for development with the City simply have not been present.

The shaping influence of the area's physical features have been referred to in the Introduction section of this chapter. Their importance, along with the importance of man-made determinants of land use, to the development process deserves further recognition here (see Figure 9). The soil conditions of the area, also discussed earlier, possess the potential for shaping urban development because of their unsuitability for septic tank drainage fields (see Figure 10). In the past, however, developers have not been prevented from building upon unsatisfactory soils. Thus, the shaping function of the soil conditions have not been utilized.

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[106] Ibid.

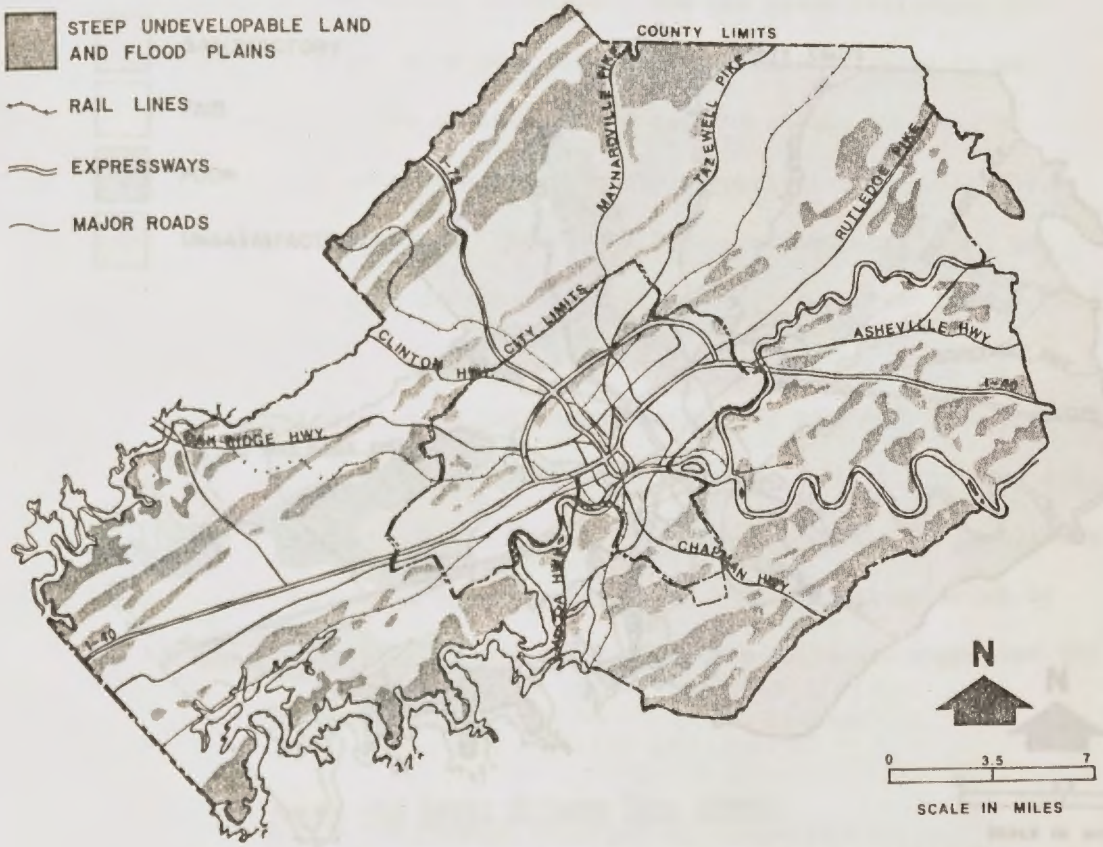


FIGURE 9

NATURAL AND MAN MADE DETERMINANTS OF DEVELOPMENT:
KNOXVILLE-KNOX COUNTY, TENNESSEE

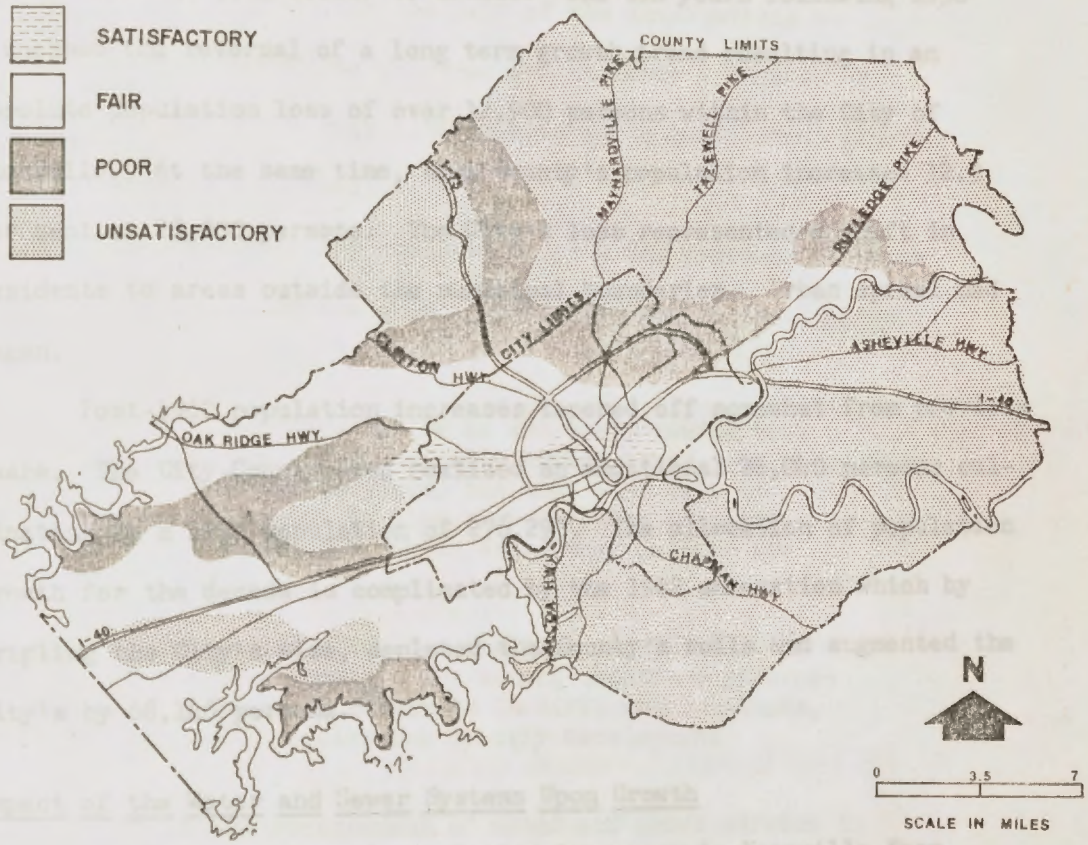


FIGURE 10

SOIL SUITABILITY FOR SEPTIC TANK USE: KNOXVILLE-KNOX COUNTY, TENNESSEE

Population Growth and Trends

The geographical spread of the Knoxville-Knox County area has been consumed by a steady increase in the area's population. Between 1900, when the population totalled 74,000, and 1950, the growth was fairly constant from decade to decade. The ten years following 1950 witnessed the reversal of a long term growth trend resulting in an absolute population loss of over 12,900 persons within the City of Knoxville. At the same time, Knox County's population increased 12.3 per cent or 28,000 persons. The City's loss represented a shift in residents to areas outside the municipal boundaries. Urban sprawl had begun.

Post-1960 population increases tapered off somewhat from previous years. The City-County area realized an additional 26,040 persons culminating in a 1970 population of 276,293. The allocation of population growth for the decade is complicated by the 1962 annexation which by tripling the City's size, depleted the County's rolls and augmented the City's by 68,146 persons.[107]

Impact of the Water and Sewer Systems Upon Growth

The fact that recent population increases in Knoxville-Knox County have been located in a sprawl pattern of development, and that this development has, for the most part, utilized septic tanks, although soil conditions generally dictate against such action, are

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[107]Sources include: Real Estate Research Corporation, op. cit., pp. 26, 79-81; Knoxville-Knox County Metropolitan Planning Commission, How Should Our Community Grow, pp. 9-10; General Plan 1990, "Land and Major Street Plan," p. 15.

indications that the area's growth has not been consciously directed by placement of the water and sewer systems. The extension policies of all the water and sewer institutions, which are based solely on meeting service needs (and fire protection in the case of KUB) confirm this claim. Willingness, on the part of the institutions to construct mains and interceptors wherever and whenever a request is made and can be paid for not only hinders efforts to guide urban growth but in fact fosters urban sprawl.

Such haphazard growth has occurred despite the presence of regulatory controls. Discussing the role of these devices in the General Plan 1990, MPC reports:

> The subdivision regulations can be an extremely useful tool in plan implementation. They not only insure sound development with full community services, but they also help to guide growth according to the plan when definite policies--such as the urban services to urban areas only policy--are adopted and enforced.
>
> . . . . . .
>
> The plan serves as a guideline for the type and location of future growth and development. The zoning ordinance enforces or specifies what shall be permitted in different locations, while the subdivision regulations specify development standards.[108]

With regard to the requirement of water and sewer service in future development, the Knoxville-Knox County subdivision regulations are fairly specific. Wherever possible, all subdivisions "shall" be connected to a sanitary sewer system. Whenever a developer provides

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[108]Knoxville-Knox County Metropolitan Planning Commission, General Plan 1990, "Land Use and Major Street Plan," p. 110.

conclusive evidence that public sewers are unavailable, the subdivision may be served by a community sewer system, upon approval of the County Health Department. Septic tanks are approved by MPC when either public sewers are unavailable or community sewers are not feasible or unacceptable to the County Health Department, providing that the following conditions be met:

1. All lots served by individual subsurface sewage treatment systems shall contain at least fifteen thousand (15,000) square feet.

2. All such lots shall have a minimum width of one hundred (100) feet at the building line.

3. All lots served by individual subsurface sewage treatment systems shall be approved by the County Health Department.[109]

Connection to a public water supply is required by the subdivision regulations. Where this is either not feasible or unavailable, individual water supplies can be used providing that (1) no lots of less than one acre shall be developed on individual systems and (2) individual systems cannot be used in areas served by the City of Knoxville (KUB) or the utility districts in the County.[110]

The presence of such regulatory devices, however, does not insure their stringent application. This has certainly been the case in Knoxville-Knox County. The high incidence of development upon unsuitable soils is indicative of this assertion. Perhaps the regulations

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[109]Knoxville-Knox County Metropolitan Planning Commission, Subdivision Regulations (Knoxville: The Commission, 1971), pp. 6-12.

[110]Ibid.

are not as rigorous as they ought to be. A more important factor has been the developmental policies, or lack thereof, of the Metropolitan Planning Commission (members not MPC staff). As one staff member puts it, the inhibiting factor of employing regulatory devices such as subdivision regulations and other controls (and water and sewer extension policies as well) to create an efficient pattern of urban growth, is the manner in which Commission members "read community attitudes." Despite staff efforts to make recommendations based on sound growth policies when dealing with zoning change requests and subdivision review, Commission members "emphasize the rights of the individual to use his land to his maximum benefit" when passing judgment on individual cases.

Thus, haphazard growth of the Knoxville-Knox County area can partially be attributed to the lack of growth-oriented policies of the water and sewer institutions, but blame can also be placed on the Metropolitan Planning Commission for a number of reasons. First, MPC has given little or no attention and/or direction to the water and sewer institutions as to when and how they should expand their systems to either precede, coincide with, or follow the urban growth of the area. Second, MPC has been lax in enforcing regulatory controls despite their leniency.

The importance of having a strong planning commission which is totally immersed in the area's development process cannot be underestimated. Recent indications, particularly the lack of coordination and communication between the planning agency and the water and sewer

institutions of the area, point to the fact that the growth of Knoxville-Knox County has been denied this important ingredient.

VII. SUMMARY

The water and sewer institutional arrangement existing in Knoxville-Knox County is a fairly comprehensive microcosm of the major institutional alternatives which were evaluated in Chapter II. City government is involved through the operation of the Public Service Department and the Waste Water Control System, and also through the massive 1962 annexation; County government owns and operates a small sewage treatment system in a local industrial park; but, more importantly, is interested in greater County-wide participation; the seven utility districts, as forms of special districts, provide water, and in some instances sewer services to the urban fringe which rings the City; KUB, a public authority, is the major supplier of water within the City; two private companies supply water to very limited service areas in the County; metropolitan government has been proposed but was rejected; and finally, the area has a COG (KACOG) in existence, although active participation of KACOG in the operation and control of the systems will probably not be realized for some time.

The appraisals of each institution reveals that none draws near to the optimum institutional approach which was outlined in Chapter II. There has been no attempt whatsoever to integrate the water and sewer systems of the area. A few conclusions can be derived from the appraisals:

1. The utility districts are restrictive upon the other institutions' geographical and political jurisdiction as well as their own. They also violate the remaining five principles.

2. The Public Service Department is not highly efficient in the operation of the sewer system and has been the consistent target of political accusations. Despite deficiencies in financing techniques, however, the sewer system is financially self-supporting.

3. KUB, unresponsive as it may be to public control, is a highly efficient organization with outstanding legal, financial and administrative capabilities.

4. Knox County, although only minimally involved in the provision of sewer service, has tremendous capabilities for greater participation, and has shown interest in becoming more involved. Its only drawback is its present in-house shortage of administrative skills.

CHAPTER IV

FEASIBILITY AND POTENTIAL EFFECTS OF WATER AND SEWER SERVICE INSTITUTIONAL REORGANIZATION IN KNOXVILLE-KNOX COUNTY, TENNESSEE

I. INTRODUCTION

The current water and sewer service institutional arrangement in Knoxville-Knox County hampers the utilization of extension policies to guide the urban growth of the area. Changes in the institutional pattern are suggested in order to alleviate the existing constraints.

While change in all things is fairly inevitable, abrupt change in existing governmental order is possible only under extremely critical conditions, by direction from a higher level of government (such as the State), or by a direct popular demand for decisive action.[1] Such conditions do not exist in Knoxville-Knox County today. Hence, an abrupt alteration is unlikely. Banovetz enumerates four basic factors in our current society which militate against sweeping governmental reform.

> 1. Change itself is deplored by the American political system . . . (which) seeks to maintain stability and to protect vested interests, both of which are threatened by change. . . . Those who have acquired positions of power and influence are opposed to change, fearing that any change might dilute the positions which they have gained;

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[1] James M. Banovetz, Perspectives on the Future of Government in Metropolitan Areas (Chicago: Loyola University Press, 1968), p. 16.

2. The political system prefers coping with problems by modifying basic governmental structures rather than replacing them;

3. The system avoids basic issues which might provoke change by seeking "satisfying" and minimal solutions to problems; and

4. There is no precedent for changes of the magnitude needed to solve quickly the governing problems of metropolitan areas.[2]

Thus, change in urban governmental systems can be described as "a gradual, evolutionary process, incremental in nature, guided by definable forces and provoked by basic, discernable problems."[3]

Recognizing these obstacles to governmental reform which exist generally in most metropolitan areas, and taking into account the resounding defeat of the 1959 Knoxville metropolitan government proposal, this chapter will, first of all, describe and evaluate the current impetus and attitudes toward water and sewer institutional change in Knoxville-Knox County. Upon arriving at an estimate of the type and degree of attainable change, a reorganization proposal will be offered which takes into account (1) inhibiting factors of change, (2) current momentum toward a particular alternative, and (3) the closest approximation to the optimum approach which was described in Chapter III.

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[2]Ibid., pp. 13-16. Other authors expressing the same general opinions include: Roscoe C. Martin, Metropolis in Transition (Syracuse: Maxwell Graduate School, 1963), pp. 130-134; John C. Bollens and Henry J. Schmandt, The Metropolis (New York: Harper and Row, Publishers, 1965), pp. 373-395; and Committee for Economic Development, Reshaping Government in Metropolitan Areas (Washington: The Committee, 1970), pp. 40-56.

[3]Banovetz, op. cit., p. 21.

Having selected an alternative (or a combination of alternatives), the legal requirement of the new arrangement, its financial complications, political feasibility, and, most importantly, its potential for urban growth guidance will be detailed. Finally, based on information revealed from a study of eighteen major reorganizational proposals by the Advisory Commission on Intergovernmental Relations, some generalizations which relate to the implementation of the proposal will be discussed.

II. ENVIRONMENT FOR CHANGE

A History of Suggestions

Attempts to alter the water and sewer institutional patterns which have existed for the last seventeen years in Knoxville-Knox County are not completely of recent origin. For the past twelve years numerous groups, both within and without government, have advocated either adaptive or structural changes in the present arrangement. These recommended changes have regularly been aimed at the administration of the sewer system.

The already mentioned 1960 Sanitary Sewer Study, Part I and II, was preceded by an unpublished MPC report which compared the advantages and disadvantages of utilizing City government, County government, and KUB as the responsible institution for providing sewer services to areas adjacent to the city limits which were in existence at that time.[4]

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[4]Knoxville-Knox County Metropolitan Planning Commission, untitled report (Knoxville: The Commission, June 25, 1960), p. 14.

KUB was MPC's choice as the best institutional alternative. The Sanitary Sewer Study, Part I and II, attempted to find the most suitable institution but also evaluated suburban and metropolitan utility districts as well as the City, County, and KUB. As a result of this study, MPC's official recommendation was that a massive annexation be undertaken by the City which in turn would increase the service areas of the existing institutions. This recommendation bore fruit with the previously mentioned 1962 annexation.[5]

The suggestion that KUB assume responsibility for operation of the sewer system was brought up frequently as the Public Service Department met with numerous complications in sewering the newly annexed areas of the City. Such informal stirrings culminated in a 1966 meeting between the Mayor, City Council, and KUB officials to "renew the idea of having KUB take over the complete operation of the sewer system."[6] The meeting found KUB unwilling to assume that responsibility despite City Council's threat to initiate action which would assign the system to KUB. Such action would necessitate putting a referendum amending the City Charter before the City voters. No formal action came as a result of the meeting.

In January of 1968, the Clean Environment Council (CEC), a citizens' group organized under the auspices of the local Chamber of

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[5]While admittedly only speculation, the route between MPC's unofficial recommendation of KUB and official recommendation of annexation was probably marked with KUB opposition.

[6]News item, Knoxville Journal, July 30, 1966.

Commerce, announced its opposition to the construction and operation of small sewer systems in the County by the seven utility districts. MPC joined in the opposition and both groups recommended the development of a County-wide sewer system.[7] Current involvement of three utility districts in the provision of sewer service reveals that the advice was not heeded.

Later in the same month, the MPC staff, acting officially upon its earlier recommendation, expressed "grave concern" for the proper planning and provision of additional systems, and issued a suggestion stating:

> Any such sanitary sewer system be planned on a County-wide basis and provided under the authority of government or an agency having County-wide jurisdiction.[8]

In response to the resolution the seven utility districts banded together and founded the Knox County Association of Utility Districts. The first official act of the newly-formed group was to take a stand against any proposal that the County undertake such a sewer project on a County-wide basis.[9]

Polling various local agencies on the best method for providing sewers to the County, a Knoxville newspaper in February, 1968, attempted to determine which of the following would be the most favored:

1. The City extending its sewerage system into the County;

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[7]News item, Knoxville Journal, January 13, 1968.

[8]News item, Knoxville News-Sentinel, January 26, 1968.

[9]Ibid.

2. The County developing a County-wide system;

3. The two cooperating to form a metropolitan district;

4. KUB taking over the City's sewer system and extending it into the County; or

5. The utility districts providing the service.[10]

There were mixed responses although the last three were readily omitted from consideration. The alternative of employing utility districts was vehemently rejected by two planning agencies, MPC and ETDD, while KUB was removed from consideration by the newspaper reporter.[11] The majority of those questioned, including the Executive Secretary of KACOG and a public works consultant of the Municipal Technical Advisory Service, an agency which assists Tennessee towns and cities on a wide array of governmental problems, favored the organization of a County-wide system.

Approximately three years later in January, 1971, in response to the recent inauguration of a City Council inquiry into one of the sewer system's malfunctioning treatment plants and other deficient aspects of the system, the Clean Environment Council again voiced its opinion as to the proper administration of the system. This time, however, CEC recommended placing the system under the control of a board similar to

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[10] News item, Knoxville News-Sentinel, February 4, 1972.

[11] This is another example of extreme pessimism whenever the recommendation has been voiced that KUB should be assigned additional functions. Any such change, as previously mentioned, requires an amendment to City Charter, which, although not a simple accomplishment, is not an impossible one either.

KUB.[12] In the same month, MPC staff officials urged the creation of a County authority to be responsible for all water distribution and waste disposal in the County.[13] January also witnessed the results of an ETDD water facilities inventory for the Knoxville Metropolitan area. In the words of ETDD's Assistant Director the major conclusion to be drawn from the inventory was that:

> Long-range planning is critical . . . because, as the inventory has shown, each utility district has gone off on its own and developed facilities without consulting other utility districts. . . . In several instances there are water plants within a stone's throw of each other, serving different utility districts.[14]

Such a conclusion further confirms the lack of planning on the part of the utility districts.

The councilmanic investigation into the sewer system culminated in mid-1971 with a primary recommendation that the Waste Water Control System be made a separate department of City government headed by a qualified engineer, rather than remaining under the jurisdiction of the Public Service Department. Placing the system under KUB was the secondary suggestion.[15]

In a followup to the investigation conducted by City Council, the Technical Society of Knoxville (TAS), a professional association

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[12] News item, Knoxville News-Sentinel, January 9, 1971.

[13] News Item, Knoxville News-Sentinel, January 10, 1971.

[14] News item, Knoxville News-Sentinel, January 20, 1971.

[15] News item, Knoxville News-Sentinel, June 26, 1971.

of engineers, architects, physicists, chemists, and others engaged in allied arts and sciences, studied the problems of the City's sewer system. In a report issued in August, 1971, the Society noted:

> At present there seems to be a lack of clearly established lines of authority for administration of the wastewater system. In addition, there is a lack of adequate professional staff with administrative authority and there is too much reliance on various outside consultants which often results in conflicting opinions and results in confusion and lack of positive action.[16]

To correct existing deficiencies, the Society recommended the selection of an administrative structure which would "insulate the decision-making process from political pressure and . . . insure that the technically correct decisions are made."[17] Of the possible alternatives available, the Society suggested that KUB assume the administration of the system.

At a later meeting of TAS, in December, 1971, the newly-elected Mayor of Knoxville sought the Society's advice on four matters dealing with the City's sewer system. He was seeking possible suggestions as to how a joint City-County garbage collection and disposal system as well as a joint City-County sewage collection and disposal system could be established.[18] During the same meeting the Chairman of CEC mentioned that the County Welfare Commissioner was "receptive" to the idea of a

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[16]The Technical Society of Knoxville, "Statement of Recommendations for the Knoxville, Tennessee, Wastewater Treatment System" (Knoxville: The Society, August, 1971), p. 5.

[17]Ibid., p. 7.

[18]News item, Knoxville News-Sentinel, December 12, 1971.

County-wide sewer system and that State officials had informed him (CEC Chairman) that Federal monies were available now for such projects.[19]

Prior to the formulation and distribution of ETDD's preliminary water and sewer plans for Knox, Blount, and Anderson Counties, in February, 1972, KACOG developed "water-sewer utilities planning guidelines." Guidelines which dealt directly with administration included the following:

1. There should be as few agencies as possible providing a given utility service.
2. Water and sewer should be provided by the same agency.
3. The service agency should be a government of general responsibility.[20]

As previously mentioned in Chapter III, the ultimate recommendation of the plans was to develop and operate both systems at the County level.

When such a myriad of suggestions is composited with more recent events, including the creation of the Knox County Environmental Commission and the Knox County Utilities Board Advisory and Study Commission (see Chapter III, page 150), some generalizations can be made as to reorganizational attitudes which have been formulated over a considerable period of time. These are:

1. The County appears to be the most advantageous geographical and political level for operation of both the water and sewer systems;

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[19] Ibid.

[20] Knoxville Area Council of Governments, "Water-Sewer Utilities Planning Guidelines" (Knoxville: The Council, n.d.), p. 2.

2. KUB has never been critized for inefficient operation of the water system, and moreover has been recommended numerous times as the proper institution for providing sewer as well as water services;

3. The Public Service Department's operation of the sewer system has received the brunt of the attacks upon the present institutional arrangement;

4. The utility districts, both in present and potential operations, are considered constraints upon the development of an area-wide water/sewer system.

Thus, re-organization suggestions have been geared to utilizing either County government or KUB as the responsible institution for providing water and sewer services in Knoxville-Knox County.

New Directions

Prior to the publication of the General Plan 1990, the Knoxville-Knox County Metropolitan Planning Commission issued a set of goals, policies, principles, and standards for development of the area. Those policies which related directly to water and sewer systems included the following:

> 2. Install central water, sewer, and power lines, or other improvements at the time of housing construction. Permit installation of temporary, package sewage treatment plants only if a central system is programmed for extension to the site within five years.
>
> . . . . . .
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> 4. Designate selected portions of the county as non-urban areas with provisions that utilities will not be installed in those areas for at least 20 years from the date of designation.

To contribute to sound long range planning and programming of utilities and transportation.

5. Require plats and individual lots in the non-urban area to a minimum one acre per lot and to contain on site sewer facilities.[21]

The actual 1990 Plan published in early 1970, included a discussion of "governmental tools, programs, and policies" which were deemed important in plan implementation. These methods were: capital improvements, policies of local governments, the zoning ordinance and map subdivision regulations, and housing and building codes. The first two and subdivision regulations relate directly to the growth guidance potential of water/sewer systems. With regard to capital improvements (water and sewer), the plan states that when properly done, "the provision of these services can stimulate the private sector of the economy toward better growth and development."[22]

As for policies of local government, two policies which relate directly to water and sewer services were specifically delineated. The first is "referrals on community facilities."

The referral on community facilities is an extremely useful tool in implementing the plan, as it is specified in the Tennessee Code Annotated. It requires that plans for all new streets, parks, or other public ways, grounds, places or spaces, public buildings, or structures,

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[21]Knoxville-Knox County Metropolitan Planning Commission, Goals, Policies, Principles, and Standards for Development (Knoxville: The Commission, 1969), pp. 7-9.

[22]Knoxville-Knox County Metropolitan Planning Commission, General Plan 1990, "Land Use and Major Street Plan" (Knoxville: The Commission, 1970), p. 105.

public utilities (author's emphasis) be reviewed and approved by the Planning Commission prior to their authorization or construction. The legislative body has the power to overrule the Planning Commission; but this right of referral provides the means for determining whether such facilities are in accordance with the plan. For implementation purposes the local government should adhere to the policy of referring capital improvements to the Planning Commission.[23]

The second policy is "provision of water and sewerage." Noting that it is essential to healthy urban development that all areas to be developed in accordance with the General Plan have adequate water and sewerage facilities, the Plan reads:

> The lack of adequate water and sewage facilities could severely limit residential, commerical, and industrial growth in Knox County. For this reason sewers should be programmed in developing areas and in vacant areas where development is sought.[24]

The importance of the services portion of MPC's subdivision regulations is also emphasized in the implementation section of the General Plan. Highlighting water and sewer systems, the plan states:

> It is important that a strong policy of providing urban services to newly developing urban areas be adhered to. Enforcement of this policy will serve to avoid premature, or "leap-frog" development, thereby avoiding future problems of having developed areas without the necessary community services. In this way, development can be encouraged in certain areas according to the land use plan. The community should provide the necessary level of services in these areas where development has been encouraged. These will then be the only areas where "urban" development would be permitted, as urban development requires urban services.[25]

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[23] Ibid., p. 106.

[24] Ibid., p. 107.

[25] Ibid., p. 110.

The ultimate land development configuration visualized in the General Plan 1990 is a circular star pattern, with growth radiating out the major arterial corridors of the City-County. Low-density residential development is projected to occur between the corridors.

The importance of the water and sewer systems in the implementation of the Plan is definitely recognized. The entire concept of utilizing these services in such a fashion is a complete turn-around for MPC. For example, the section on referrals on community facilities is somewhat foreign to current MPC practices. Chapter III reported assertions that the plans of KUB and the utility districts are rarely received by MPC, and vice versa.

Thus, while water and sewer extension policies have not been used in the past as growth policies of MPC, the General Plan 1990 relies on them as vital implementation devices. When used in concert with existing regulatory controls such as subdivision regulations, zoning, and building codes, they can have a tremendous organizing effect upon the growth of Knoxville-Knox County. The 1967 FHA and 1972 County Commission requirements (see Chapter III, pages 165-167) which provide a strong incentive for use of public sewer systems, as opposed to septic tanks, strengthen the potential shaping role of the services.

New Participants

The missing ingredient in this formula for growth guidance has been what Perloff and Wingo label "social inventiveness."

> We can conceive that a region richly endowed in other assets might fail to achieve a desirable rate and quality of development largely because of a poverty in the social inventiveness employed in the use of its endowment. Social inventiveness is essentially a matter of institutional arrangements: how creativity gets built into organizations; how freely and reliably information flows necessary to carry out the business of the region takes place; how wisely human and natural resources and investment can be brought into productive combinations--all these are dependent on the state of the organizational assets in a region.[26]

The planner plays a strategic position in the fusing of social inventiveness into the existing institutional arrangement.

> The clear lesson which emerges is that to bring the terms "planning" and "development" together in the same title is not enough. The city planner must relate himself in an effective way to the activities and groups who are instrumentally involved. But above all, he must take his objectives, his inspiration, his motivation from the powerful forces which are shaping our metropolitan regions and which will not be denied.[27]

This certainly has not been the case in Knoxville-Knox County in the past. The lack of communication, between MPC and the utility agencies, by itself is indicative of this.

However, the recent (March, 1972) appointment of a new Executive Director of MPC, Mr. Donald Gilson, may lead to a correction of this deficiency. Mr. Gilson has an overt interest in intergovernmental relations, believing that cooperation and coordination between the Planning Commission and operating utility agencies can be extremely

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[26]Harvey S. Perloff and Lowdon Wingo, Jr., "Planning and Development in Metropolitan Affairs," Journal of the American Institute of Planners, XXVIII (May, 1962), pp. 71-72.

[27]Ibid., p. 90.

beneficial to the use of utility extension policies as a vital part of land development control.[28] Recognizing the importance of such policies, Gilson feels that both water and sewer services should be provided by the same institution, at least in terms of policy formulation. In a very interesting comment, he has remarked that the private sector must be the "builder" of new growth while the Planning Commission must be the "developer," emphasizing the importance of the planner's role in new development. Thus, the passive role of MPC may well be transformed into greater participation in the area's development process, with fuller recognition of the contribution which water and sewer extension policies can provide in that process, and more importantly, greater use of these policies.

The recently-elected Mayor of the City of Knoxville, Kyle C. Testerman, in a call for social inventiveness, has asserted the City should seek "new innovative techniques" which can be employed to create a new type of environment.[29] Noting that regulatory controls are badly in need of change, Testerman has remarked that public officials are sometimes blinded by conformity, "control for the sake of control rather than for functional structuralism."[30]

> We must give new ideas a change. We must give private enterprise the inducement to make esthetically pleasing developments. This is the only way to stop the urban sprawl of ticky-tacky houses scattered for miles along the countryside.[31]

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[28]Donald D. Gilson, Executive Director, Knoxville-Knox County Metropolitan Planning Commission, Knoxville, Tennessee, personal interview, March 23, 1972.

[29]News item, Knoxville News-Sentinel, April 6, 1971.

[30]Ibid.

[31]Ibid.

When asked about the possibility of utilizing water and sewer extension policies as part of the called-for new techniques, Testerman acknowledged their theoretical potential but emphasized their inapplicability in Knoxville's past where extensions have traditionally been made to remedy inadequacies. While he anticipates greater involvement in long-range sewer planning on the part of the Public Service Department, the present operation of the Department as well as the fragmentation of water and sewer institutions in the area tends to preclude any possibility of utilizing such policies. According to Testerman, the ultimate solution to the problem of fragmentation is metropolitan government, with the consolidation of all utilities at the County level. Short of this, KUB, despite its unresponsiveness to the community, theoretically is the "best direction to go."[32]

To bring their "social inventiveness" to the fruition of effective growth guidance, both of these "new participants" need positive commitments by elected officials in the City-County area. The Knox County Court and the Knox County Commission appear willing to cooperate in this regard. The Knoxville City Council, instead of investigating the malfunctioning of one treatment plant, should reinforce the Mayor's and MPC Director's growth "philosophy" by making firm commitments concerning the direction, location and sequence of Knoxville's urban growth, and by acting in conjunction with MPC to implement the latter's growth policies.

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[32]Kyle C. Testerman, Mayor, Knoxville, Tennessee, personal interview, March 28, 1972.

In the final analysis, an environment for change in the water/sewer institutional arrangement in Knoxville-Knox County does definitely appear to exist. The possible use of extension policies to shape the growth of the area is enhanced by (1) the apparent stirring of an evolutionary movement toward reorganization of the existing institutional arrangement, (2) the emphasis on water and sewer systems as implementary devices in the General Plan 1990, and (3) the existence of two new participants in the development process. The major inhibiting factor in the actual use of these policies appears to lie within the current institutional arrangement.

III. PROPOSED REORGANIZATION

Although metropolitan government, specifically City-County consolidation, does not appear to be a viable alternative for the immediate future (see Chapter III), current joint agreements between the City and County give an indication that it is a strong possibility for the future.[33]

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[33]While not normally connected as movements toward consolidation, a number of disjointed agreements are pointing in that direction. For example, the education system is seemingly moving towards consolidation. At present the County does all the bonding for both City and County schools. In addition, there has been a considerable amount of impetus to provide a joint City-County administration building. The County has also assumed the responsibility for indigent care of the area, a task which was formerly performed by the City. Finally, the fact that a metropolitan government was proposed in 1959, despite its defeat, gives an indication that it is at least on the minds of City and County officials who are entering into these contractual agreements.

Taking this into consideration along with the inhibiting factors involved, current momentum, and the desirability of approximating the optimum approach, it is recommended that a number of adaptive and structural changes be brought about in the present institutional pattern. First of all, KUB should assume operation and control of the sewer system within the City limits. Second, Knox County should dissolve the utility districts, purchase the private companies, and assume responsibility for both water and sewer services in the County. Third, upon assuming responsibility of the utility districts' service areas, the County should contract with KUB to provide both services outside the City. As an important part of the agreement, the City and County should require KUB, which would be operating as a county-wide agency, to have all its water and sewer plans reviewed and approved by MPC prior to their authorization or construction. This would be in accordance with the "referral on community facilities" requirement as spelled out in the Tennessee Code Annotated.

Such an arrangement would not create any new layers of government, would eliminate those institutions which are hampering area-wide planning efforts, would maximize the momentum towards utilizing Knox County and KUB, and would combine both services under the operating umbrella of one agency. The accomplishment of reorganization would not be an easy task. A variety of considerations must be examined, and, with this in mind, the legal requirements, financial complications, and political feasibility of the proposal will be discussed herein. It should be emphasized that these are only preliminary

considerations. Should the proposal find favor among officials of Knoxville and Knox County, and possibly reach the implementation stage, additional in-depth studies should be conducted by experts in the field of law, finance, and politics.

Legal Requirements

The first two steps of the reorganization necessitate legislative revision. Since Knoxville is a home rule city, the assignment of additional functions to KUB, a creature of the City Charter, must be brought about through an amendment to the charter. The steps involved are delineated in the Tennessee State Constitution:

> A charter or amendment may be proposed by ordinance of any home rule municipality, by a charter commission provided for by Act of the General Assembly and elected by the qualified voters of a home rule municipality voting thereon or, in the absence of such act of the General Assembly, by a charter commission of seven (7) members, chosen at large not more often than once in two (2) years, in a municipal election pursuant to petition for such election signed by qualified voters of a home rule municipality not less in number than ten (10%) per cent of those voting in the then most recent general municipal election.
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> It shall be the duty of the legislative body of such municipality to publish any proposal so made and to submit the same to its qualified voters at the first general state election which shall be held at least sixty (60) days after such publication and such proposal shall become effective sixty (60) days after approval by a majority of the qualified voters voting thereon.[34] (Underscoring added.)

County takeover of the properties of the utility districts would necessitate the passage of a general law at the state level.

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[34]Tennessee, State Constitution (1953), Article II, Section 9, pp. 762-763.

This would no doubt meet with strong opposition from state utility district lobbyists. Nonetheless, such legislation has been urged on numerous occasions in the past. Although the 1961 legislation authorizes Tennessee counties to provide water and sewer services it makes no provision for the units of general government to absorb or operate the facilities of utility districts functioning within their jurisdiction. Dealing directly with this problem, the Advisory Commission of Intergovernmental Relations, in its publication The Problem of Special Districts in American Government, has recommended that states enact legislation "permitting an appropriate unit of general government to assume responsibility for the function of the special district within the district area."[35] The A. C. I. R. went as far as to outline the type of legislation needed.

> The legislation should establish a procedure whereby the agency specified in Recommendation 1 (a Utilities Review Board) is authorized to require the dissolution or consolidation of special districts pursuant to petition by a special district, a unit of general local government, or the residents within a district upon finding that the services performed by the district are: (1) no longer needed; or (2) can be more effectively performed by a unit of general local government or a consolidated district. Where the agency makes such a finding, it shall issue an order dissolving or consolidating the district which should include: (1) provision for the equitable distribution of the assets and liabilities of the district; and (2) provisions relating to the protection of the legal rights of the employees of the district dissolved or consolidated. Those portions of the agency decisions relating to distribution of assets and liabilities of the district and the re-employment, pension, and other rights of its employees should be subject to court review.[36]

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[35] Advisory Commission on Intergovernmental Relations, The Problem of Special Districts in American Government (Washington: U. S. Government Printing Office, 1964), p. 80.

[36] Ibid.

The same recommendation has been advanced to the Tennessee Legislative Council Committee dealing with the provision of utility services as authorized by SJR 44 of the 84th General Assembly.[37]

The 1961 legislation (see above) did, however, empower counties to enter into contracts and cooperative agreements with other public entities.[38] In a similar fashion, KUB is authorized to enter into leases, contracts, and agreements, for a period of no more than twenty years, upon approval by City Council by an ordinance.[39]

Financial Complications

The degree of financial difficulties incurred in the takeover of the sewer system by KUB is a question of debate for both external and internal financing. According to a financial consultant to the City, the takeover would necessitate having KUB retire all outstanding bonds of the sewer system (General Obligation-Revenue Bonds) and reissue them as strictly revenue bonds, since KUB is denied the use of general obligation bonds.[40] In the words of the consultant such a happening could possibly require sewer rates to be raised dramatically to boost revenues to a sufficient level which would permit outstanding bond

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[37]Nelson M. Robinson and John R. Petty, Public Utility Services in Tennessee (Knoxville: The University of Tennessee Press, 1966), pp. 59-60.

[38]Tennessee, Tennessee Code Annotated (1955), sec. 5--1601-5--1612.

[39]Tennessee, Private Acts (1945), Chapter 387, p. 1225.

[40]Morgan Ayres, Vice-President, Cumberland Securities, Knoxville, Tennessee, telephone interview, March 29, 1972.

retirement. Another consultant felt, however, that a KUB takeover would merely necessitate an agreement between KUB and the City in which the former could pay bond principal and interest through the latter as payments became due.[41]

Internal financing difficulties are also difficult to assess. Economies of scale would presumably be present because of similar engineering equipment and personnel needed to perform both operations. However, since KUB already does the billing for the sewer system it is doubtful that any economies would be realized in the accounting division. In fact, since KUB would be billing for itself instead of the Public Service Department it would be losing the service charge revenue which it now receives from the latter. Additionally, if KUB were to operate the sewer system as a separate bureau, operational efficiencies might be achieved, but economies of scale would not necessarily be realized by the acquisition. If, however, KUB were <u>forced</u> to operate the system in an integrated fashion, as stipulated through charter amendment, it could provide economies of scale which are possible in the operation of such closely related services as water and sewer. To insure this, the charter amendment should be written so as to foster the possibility of obtaining such economies.

Financial complications encountered in the takeover of the seven utility districts by Knox County is extremely difficult to foresee. As

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[41]Kenneth Joines, financial consultant, Municipal Technical Advisory Service, Knoxville, Tennessee, personal interview, March 28, 1972.

outlined above, however, the legislative revisions recommended by A. C. I. R. should make "provisions for the equitable distribution of the assets and liabilities of the district." How this would actually be accomplished is another matter. That Knox County is restricted somewhat in its financial base is of vital concern, but recent indications that the County has an excellent possibility of receiving Federal monies for a County-wide sewer system substantially bolsters the County's financial position.[42]

Any contractual agreement between Knox County and KUB would undoubtedly have to be financially beneficial to the latter. Although such an arrangement would possibly require an increase in rates (KUB's), that increase would probably still amount to less than existing utility district rates. More importantly, based on KUB's reputation, there would probably be a substantial increase in quality of service.

Political Feasibility

The determination of political feasibility of the institutional alternatives evaluated in Chapters II and III was heavily dependent on the author's speculation of reorganizational effects. The formulation of a reorganization proposal in this chapter took into consideration the previous chapters' discussion of the alternatives' political feasibilities but must still rely upon speculation when discussing the proposal's feasibility.

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[42]This opinion has recently been strengthened by statements made by Gary Acuff, Knox County Contracts Coordinator, Knoxville, Tennessee, personal interview, March 27, 1972.

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The Advisory Commission on Intergovernmental Relations has considered political feasibility to be a somewhat nebulous concept, dependent upon a number of interdependent factors. The A. C. I. R. has reported that reorganization approaches are regarded as having political feasibility when:

1. Adequate permissive authority exists for the adoption of the approach;
2. The adoption of the action is simple; and
3. The approach can be accommodated to the existing political power structure.[43]

All three conditions are satisfactorily met by the proposal of assigning the control and operation of both the water and sewer systems of the City-County are to KUB.

One additional factor deserves a considerable amount of attention with regard to the political feasibility of the proposal: the threat of the reorganization to the tenure and powers of people in office. The removal of the sewer system of the City of Knoxville from the Public Service Department would not render the latter defunct. The Department Director has numerous other functional responsibilities and, if anything, the removal of the sewer system from his control could possibly enable him to carry out these other functions more efficiently. County takeover of the utility districts would not appear to be quite as simple. The State legislation which is required

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[43]Advisory Commission on Intergovernmental Relations, Alternative Approaches to Governmental Reorganization in Metropolitan Areas (Washington: U. S. Government Printing Office, 1962), p. 16.

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to be enacted in order to permit County takeover would undoubtedly be met with political opposition in the State legislature. However, should such necessary legislation be enacted, past problems created by the districts would probably enhance the political feasibility of County takeover. The establishment of a contract between Knox County and KUB designating the latter as the responsible institution for water and sewer services in the former should also prove to be politically feasible because it would require a minimum number of official and voter approvals and involve limited modification of governmental structure.

IV. POTENTIAL FOR PLANNING AND URBAN GROWTH CONTROL

The operation and control of the water and sewer systems by KUB throughout the City and County, and upon review by MPC, reasonably satisfies the six basic principles which were outlined in Chapter II and applied in Chapter III. The three principles which KUB violated as a public authority were public control, working relationship with other governmental entities, and lack of a proven record with regard to Federal funding guidelines. Degree of public control, while certainly not maximized, could be instilled through active participation of County government. The development of a working relationship with other institutions is partially realized through the necessity of MPC review, and since KUB would be controlling both service systems, the coordination between the two would presumably be maximized. The reorganization would undeniably benefit from the economies of scale,

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he area-wide geographical and political scope, and the coordination f both services under one administration which would result from the nstitutional alteration.[44] Finally, the strong possibility that Knox ounty is eligible for, and will receive, Federal funding (HUD, EPA, nd/or ARC funds) would tend to assure Federal guidelines compliance.

Although satisfaction of the six principles is a necessary condition for the successful use of extension policies, it is not always sufficient condition. The atmosphere for urban growth control through ater and sewer extension policies certainly seems to be present, but t must be electrified with what was earlier termed as "social inventiveess." How should creativity be built into the suggested institutional rrangement? The position of MPC in this endeavor is a strategic one.

Since the philosophy of its new director is based on cooperation, ommunication and intergovernmental relations, MPC is a likely catalyst o get KUB to participate more actively in the planning and urban growth ontrol of Knoxville-Knox County. This is not to say that MPC should irect all of its efforts toward the effective utilization of water and ewer extension policies. What it does say is that MPC needs a more ctive voice in the location, sequence, and quality of development, and

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[44]While only in the formative stage, there is a distinct possiility that the reorganization would smooth the way for the implementaion of a "materials balance" approach which was discussed in conjunction with the optimum institutional arrangement of Chapter II. Air ollution control is currently administered at the County level by the nox County Air Pollution Control Board, and the Mayor of Knoxville and he Knox County Commission are working together to find a County-wide olution to the area's solid waste problems (Knoxville News-Sentinel, pril 4, 1972).

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that an awareness of and coordination with KUB's programming is essential to greater developmental participation. If used improperly, the referrals on community facilities requirement will be merely an administrative procedure. If used properly, it could be used as a vital component of a package of policies, including subdivision regulations, zoning, and building codes, aimed at growth guidance.

In the past, indications are that the majority of these regulatory devices have been abused. Subdivision review has traditionally produced weak statements based on minimum standards of development while zoning change requests have been granted on a case by case basis which normally has emphasized the rights of the individual over those of the community. To provide effective guidance for land development the reverse should be true, with maximum standards and strong zoning control being the rule rather than the exception. MPC must be the "developer," that is, provide a strong development framework, and the private sector the "builder."

The proposed institutional arrangement, assuming increased MPC involvement, would have considerable potential for planning and urban growth control. If, however, channels of communication cannot be opened, and if there is no immediate contribution to urban growth control by the reorganization, all is not last. Operation and control of both systems by KUB assures, as a minimum, a number of economic, engineering, and managerial efficiencies. By developing high caliber systems both in the County and the City, KUB is smoothing the way for metropolitan government. When, and if, metropolitan government becomes a reality,

the planning and programming of the water/sewer system will be made easier with the efficient system KUB will have developed rather than having to consolidate a variety of institutions, systems, boundaries, outstanding indebtedness, and so on. Utilization of the systems as growth guidance tools will be immediately available because the time-consuming job of relaying lines to correct inefficient systems will have been completed in the past. To repeat, the reorganization has excellent potential for planning and urban growth control but should it fail in this endeavor it is still an excellent short-run mechanism in preparation for metropolitan government or even future annexation.[45]

V. STEPS TOWARD IMPLEMENTATION

Upon studying eighteen major metropolitan reorganization proposals in the United States, the Advisory Commission on Intergovernmental Relations made the following statemen:

> In nearly every instance, the proponents of reorganization are reported to have focused strongly on two topics--the faultiness of existing local government structure or operations, and the need for urban-type services in outlying areas. The latter issue often specially involved particular functions, most commonly sewers and water supply.[46] (Underscoring added.)

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[45]Although extensive annexation is not considered a serious alternative by this writer, it is still a possibility. Annexation would not alter the consequences of reorganiztion but, in fact, would enhance them.

[46]Advisory Commission on Intergovernmental Relations, Factors Affecting Voter Reactions to Governmental Reorganization in Metropolitan Areas (Washington: U. S. Government Printing Office, 1962), p. 9.

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Water and sewer institutional reorganization, therefore, is not a novel concern or undertaking. While each reorganization requires a separate study, there are a number of generalizations which can be advanced as to the implementation of such a proposal. The legal requirements, financial capabilities, and political feasibility discussed earlier are certainly included in implementation considerations. Noting that there are additional implementation generalizations which should be taken into consideration, the A. C. I. R. has catalogued these generalizations into five general classes:

1. Proposals for governmental reorganization in metropolitan areas have faced a largely apathetic public;

2. Reorganization efforts should not be undertaken lightly, but with full recognition of obstacles to their success;

3. Any consequential local governmental reorganization in a metropolitan area will inevitably involve "political issues";

4. One condition for success in metropolitan reorganization is an intensive and deliberate effort to develop a broad consensus on the best attainable alternative to the status quo; and

5. Enlistment for popular support for governmental change in a metropolitan area calls for the use of a variety of promotional methods, suited to the diverse composition of the electorate.[47]

The second, third, and fourth considerations have been taken into account directly by the reorganizational proposal; obstacles to the success of the proposal were delineated in the discussion of legal requirements and financial complications; recognition of "political issues" was

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[47] Ibid., pp. 24-33.

advanced through the political feasibility discussion, and, a step towards consensus on the "best" alternative was achieved through a chronological review of past reorganizational suggestions. The first and fifth are more difficult to assess. Whose role is it to deal with a possibly apathetic public in order to enlist public support for an institutional change which has the potential to foster a more efficient pattern of urban growth? Once again the importance of MPC reveals itself. Stressing close communication with the public in all phases of a project, newly-appointed Director Gilson has commented:

> The most important ingredient is establishing a common sense direction shared by a substantial number of people in the community in planning Knoxville's future development.[48]

Thus, impediments to effectuation of the reorganization, if not completely removable, are capable of being treated by an active MPC.

VI. SUMMARY

In this chapter a water and sewer institutional reorganization proposal which reasonably satisfies the six basic principles has been offered. The suggested alternative will not be realized without overcoming numerous obstacles. Recognizing this fact, a number of factors to be considered in the implementation of the proposal has been advanced.

Organizational change, it has been observed, does not come about abruptly. The reorganizational proposal which has been offered acknowledges this fact by employing KUB and Knox County government as the

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[48]News item, Knoxville Journal, March 29, 1972.

active participants in the provision of water and sewer services in Knoxville-Knox County. The Public Service Department and the utility districts, institutions which have contributed to haphazard growth in the past because of lack of planning, and which have been criticized for inefficient operation, would cease to provide their respective services.

Not only does the proposal take into consideration the inhibiting factors of change, it utilizes the predominant suggestions of employing KUB and Knox County. This begins to satisfy the A. C. I. R.'s condition that a broad consensus on the best attainable alternative be developed.

While the proposal meets the six basic principles in varying degrees, the reorganization would only represent a necessary but not a sufficient condition for the use of extension policies to guide urban growth. For the proposal's potential for planning and urban growth control to be fully realized, greater participation of MPC in the development process of the area is an absolute necessity. Recent indications point to the fact that MPC, through the innovative philosophy of its new director, will assume the role of "social inventor" and, through the establishment of fluid intergovernmental relations, will be a catalyst in the formula for effective growth guidance. Postive commitments, on the part of the area's elected officials, to act in conjunction with MPC in the direction, location and sequence of urban growth in the area are also a necessity to effective growth guidance. Mayor Testerman is apparently very interested in shaping Knoxville's urban growth through

"new innovative techniques." Knox County Court and Knox County Commission also appear willing to cooperate, while the Knoxville City Council should become more actively involved.

CHAPTER V

SUMMARY AND CONCLUSION

Public utilities in urban areas have performed a traditional role of providing facilities and services in response to demonstrated needs. Such a "utility" oriented outlook has inhibited the possibility of employing these systems to determine where housing, and other land uses as well, should be located through the availability or non-availability of facilities. Despite the limited success of traditional regulatory controls such as zoning and subdivision regulations, water and sewer systems and their ability to determine the location, direction, and sequence of urban growth, have only received cursory attention. Occupying a unique position within the community fabric, water and sewer systems can have a substantial input into urban growth control.

Recognition of the potential which water and sewer systems possess for shaping urban growth is insufficient without the existence of an institutional arrangement which encourages the implementation of sound policies of urban growth control. An evaluation of the basic institutional alternatives in Chapter II revealed that none of the popular institutions currently being utilized to provide water and sewer service in urban growth areas maximizes the optimum approach which was constructed at the chapter's end. It was concluded, however, that there is no "best" institutional arrangement for all urban growth

areas, that some institutions can be used in conjunction with others, and that some institutional arrangements can be used as stepping stones for more area-wide, comprehensive solutions.

An evaluation of the institutional factors for the provision of both services in Knoxville-Knox County, Tennessee, in Chapter III led to a number of important conclusions. First, the present institutional arrangement represents an approximate microcosm of the broad array of institutional arrangements which were evaluated in Chapter II. Second, none of the institutions approximates the optimum approach. Third, the growth trends of the area and the "utility"-oriented policies of the water and sewer institutions have resulted in a "leapfrog" type of developmental pattern. The shaping function which water and sewer systems possess has not been utilized whatsoever.

Recognizing these deficiencies and noting the obstacles to change in existing governmental order, a number of adaptive and structural alterations in the present water and sewer institutional arrangement in Knoxville-Knox County were suggested in Chapter IV. Such a change takes into account the predominant suggestions of employing the Knoxville Utilities Board and Knox County as the proper institution and geographical service area, respectively, and reasonably satisfies the principles which were developed in Chapter II for the evaluation of water and sewer institutions. Moreover, Chapter IV emphasized the strategic role which the Knoxville-Knox County Metropolitan Planning Commission must play in the utilization of the service systems to guide the urban growth of the area and in the development process in general.

The importance of having a strong planning agency totally immersed in the area's development process cannot be underestimated.

Finally, the quality of "social inventiveness," or how creativity gets built into institutional arrangements, was emphasized in this thesis. Comments by the new Mayor of Knoxville give an indication that he is prepared to partake of this social inventiveness. Moreover, the new Director of the Knoxville-Knox County Metropolitan Planning Commission appears to be aware of the importance of attaining a proper institutional framework which can effectively utilize the shaping function of the water and sewer systems in the area's developmental process. Indeed, while the planner's specific role in the urban developmental process is often ambiguous, that process, and the shaping function which water and sewer systems play in that process, are certainly proper foci of the planner's attention.

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VITA

Gary G. Hayes was born in the small town of Demarest, New Jersey in 1946. He graduated from Bergen Catholic High School, Oradell, New Jersey, in 1964 and entered Boston College the following September. Upon receiving a Bachelor of Arts in Economics in June, 1968, he accepted a three-month position with the Bergen County Planning Board, Hackensack, New Jersey, during which time he became interested in the field of professional planning.

Leaving New Jersey in September, 1968, he entered the Graduate School of Planning of The University of Tennessee to begin a two-year program in planning. This tenure was interrupted in January, 1969, by a two-year tour of duty with the United States Army. Fourteen months of the tour were spent in the Republic of South Vietnam. After returning to the Graduate School of Planning in the fall of 1970, he accepted a graduate research assistantship and resumed study toward a Master of Science degree. He received the degree in June, 1972.

He is married to the former Janeen Adele Hill of Haworth, New Jersey, and is the father of one child, Kristine Elaine.