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**URBAN ANALYSIS  
FOR BRANCH LIBRARY  
SYSTEM PLANNING**

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*Contributions in Librarianship and  
Information Science*

SERIES EDITOR: PAUL WASSERMAN

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ROBERT E. COUGHLIN, FRANÇOISE TAÏEB, AND BENJAMIN H.  
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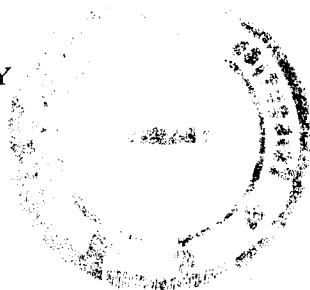
# URBAN ANALYSIS FOR BRANCH LIBRARY SYSTEM PLANNING

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AND BENJAMIN H. STEVENS

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*Foreword by*  
EMERSON GREENAWAY



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**SERIES PREFACE NOTE**  
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The essential purpose and anticipated contribution of this series is to influence for the better the intellectual currents of the field. On the assumption that the level of substantive contribution available to thoughtful practitioners and to students of the field stands in need of improvement, the mission of these publications will be to elevate this standard. The expectation is that the present publication program may achieve these ends under the aegis of an energetic and ambitious publishing organization firmly committed to libraries and to the intellectual concerns of their supportive professional discipline. Every effort will be made to influence those who, individually or in combination, have the capacity to add to the ideological, theoretical, pragmatic, and problem-solving perspectives of the field, to share their insights through this open-ended series, "Contributions in Librarianship and Information Science."

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*College Park, Maryland*

PAUL WASSERMAN

*March 25, 1970*

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## FOREWORD

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The Coughlin-Taïeb-Stevens study on planning for branch library service is a significant addition to the recently growing research literature relating to public library service. The detailed information presented and the framework for analyzing use patterns and formulating system plans should be of considerable value in reviewing older branches and in planning new ones.

The conclusions reached have in many cases long been suspected by library planners, and it is of great importance to have many of these conclusions substantiated. Some notions, such as location of a branch in a shopping center is a less important factor than the bookstock or economic level served, seem to be arguable. Rather I would say that there are four or five factors that are of paramount importance and that they must be considered together and not separately.

There is still much to do in the research of public libraries: the problem of the motivation, or non-motivation, of people to use library services; to find out why adults do not avail themselves of the use of libraries to a greater degree; the problems of changing communities; and the interrelationship of various types of libraries, for example, are areas needing further research.

This contribution will certainly add to the base of knowledge concerning libraries.

EMERSON GREENAWAY

*5 December 1970*

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URBAN ANALYSIS  
FOR BRANCH LIBRARY  
SYSTEM PLANNING

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# 1

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## INTRODUCTION

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A small city may be served adequately by a single library, but a large city or metropolitan region will require a system of branch libraries—perhaps numbering fifty or even a hundred. In addition to the size and quality of each branch, the locational pattern of the system is believed to have a significant effect on library use. In fact, since no direct charge is normally made, the major cost of using a library is the cost of getting there. The locational pattern of libraries, and its accessibility characteristics, therefore, play a unique role in determining total use.

Despite the evident importance of system pattern, few studies have been made for the planning of library systems as opposed to the designing of single libraries.<sup>1</sup> The work that has been done tends to concentrate on problems of administration rather than on problems of system structure. Very little data exist on the people or market areas served by libraries or on the way in which library system goals are affected by alternative hierarchical organizations and locational patterns.<sup>2</sup>

These latter considerations are relevant to the type of decisions that must be made by library system administrators, city planners, public facility programmers, and other professionals and government officials who are concerned with the overall

functioning of urban areas. Such people must decide, for example, how many libraries of each type to build, where to locate them, and when to program their construction. It is hoped that the methodology and some of the conclusions reached in this study will also be of use to those concerned with other systems of service facilities in which the demand resulting from the areal growth of the metropolis is met by the addition of one or more relatively self-sufficient, physically isolated units. Examples of such services are health centers, hospitals, schools, playgrounds, fire stations, and police stations.

The location of public facilities is important, not only because it affects the quantity of public services available and the efficiency of those services, but also because the location and timing of public facility construction affects private development decisions. The possibility of programming public facilities to influence the form of urban growth and raise the quality of urban life could elevate public facility programming beyond the level of mere coordination or engineering efficiency. Little is known, however, of the relationships involved.<sup>3</sup> This research on library systems provides a beginning for estimating increases in service effectiveness, which would result from better patterns of facilities. But the question of how public-facility location decisions affect private location decisions must be left for future research.

This analysis of a library system is set in a conceptual framework.<sup>4</sup> The construction and operation of a public facility is envisaged as contributing first to an immediate functional goal. The magnitude of this contribution varies depending on where and in what sequence this and other facilities are constructed. Two effects are distinguished—marginal contributions by successive projects of a given type and additional benefits when projects of complementary types are combined or “agglomerated.” Levels of attainment of immediate and specific functional

goals also affect levels of the more general community goals. Finally, attainment of a given level in one goal may well affect the levels achieved in other goals.

In chapter 2, an attempt is made to express systematically and conceptually the relationships between community goals, library system objectives, and the policies that might be used to meet those objectives. Although this conceptual scheme does not provide a formal framework for the empirical analysis, it does provide a setting or context.

In following chapters, data are analyzed in an effort to determine relationships that would be useful in evaluating alternative library systems or additions to a given system. The emphasis is on how immediate functional goals are affected. A major objective of the research is to develop quantitative measures of relationships which can be tested statistically. These measures are designed so that they may ultimately be used in formulating the library construction portion of municipal capital programs.

In chapter 3, the library system is viewed as a whole. Data on 107 library systems are analyzed in an attempt to determine how circulation is affected by the resources devoted to the system.

The individual branches which make up a system are the focal point of this study. In chapter 4, readily available data on branch libraries of the Free Library system of Philadelphia are analyzed to determine statistical relationships between output, the quality of the library itself, and a branch's location relative to populations of varying social characteristics, to commercial areas, and to schools.

In chapter 5, extensive data gathered from seven Philadelphia libraries are analyzed to identify types of users, kinds of use, and the areal distribution of residences of users. In chapter 6, use rates by the residential population and radii of effective service areas are identified and related to measures of the quality

of the library and of the social and economic characteristics of the service area. Overlap of market areas of adjoining libraries is examined and compared with degree of overlap found in other service systems, particularly in hospital systems.

In the final chapter, the major findings of the study are reviewed and their implications for planning library systems are examined.

## NOTES

1. Ralph Conant, ed., *The Public Library and the City* (Cambridge: MIT Press, 1965).

2. Leonard Grundt, "An Investigation to Determine the Most Efficient Pattern in Providing Adequate Public Library Service to All Residents of a Typical Large City" (Ph.D. diss., Rutgers University, 1964).

3. See Stuart Chapin and Shirley F. Weiss, *Factors Influencing Land Development* (Chapel Hill: Urban Studies Research Institute for Research in Social Service, University of North Carolina, 1962), and R. E. Coughlin, "Programming Public Facilities to Shape Community Growth," in U.S., Department of Agriculture, *A Place to Live, The Yearbook of Agriculture, 1963* (Washington, D.C.: Government Printing Office, 1963), pp. 460-468.

4. See Benjamin H. Stevens and Robert E. Coughlin, *Comprehensive Programming of Public Facilities: Research Plan* (Philadelphia: Regional Science Research Institute [RSRI], 1964), and Robert E. Coughlin and Benjamin H. Stevens, *Public Facility Programming and the Achievement of Development Goals* (Philadelphia: RSRI, 1964).

# 2

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## POLICIES AND OBJECTIVES OF LIBRARY SYSTEMS AND COMMUNITY GOALS<sup>1</sup>

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The rationale for investing in a particular public facility can be judged only in relation to the public goals or public purposes for which the facility is created. Therefore, in this chapter, the particular goals or objectives that a library system serves, the particular types of policies that affect the degree of achievement of each of those objectives, and the general societal goals or ideals that are served in fulfilling the particular objectives are identified. This policy-objective-goal structure is explored at the conceptual level only. The purpose is to provide a logical setting for the empirical studies of succeeding chapters.

A set of policies results in various levels of achievement of one or more objectives, which in turn result in various levels of attainment of one or more general goals. General goals are desired in and of themselves; objectives and policies are important primarily in their contributions to such goals. The ability to achieve goals, of course, is limited by such constraints on the system as the amount of money available and the actions which

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## THE LIBRARY SYSTEM AS A WHOLE: DETERMINANTS OF SYSTEM OUTPUT

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The conceptualization outlined in chapter 2 provides a guide for tracing the effects of a specific set of policies in particular libraries on system objectives and community goals. In this chapter, however, the focus is on the system as a whole, without regard to variations in the individual libraries which comprise it. Data from a large number of library systems are analyzed in order to determine simple relationships between resources committed to the library system and the product, or output, of the system.

### OUTPUT OF A LIBRARY

Of the objectives listed in Figure 1, the most generally accepted are to increase the number of books read, to increase the number of individuals who use the library, and to increase the amount of professional service provided by the library.

Circulation, a generally available and relatively reliable statistic, provides a good measure of the services actually rendered

# 4

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## OUTPUT OF INDIVIDUAL BRANCHES AND ECONOMIES OF JUXTAPOSITION: A PRELIMINARY ANALYSIS

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The analysis in chapter 3 relates solely to overall system measures, which are of obvious interest. But the library system planner is concerned with goals of particular communities served by the systems and with the effects that variations in the number, locational pattern, and facilities of a set of branch libraries may have on the achievements of these community goals. Differences in neighborhoods and types of individuals served, the relative needs of these individuals for education and improvement of employment skills, and the lack of cultural integration from which some population groups may suffer, lead to a natural concentration on system objectives which may be influenced by the individual units of the system.

The emphasis in the remainder of the analysis, therefore, is on measures of the output of the individual branch and how they may be affected by various policy decisions. In this chapter, regularly collected data from the Philadelphia Free Library sys-

# 5

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## THE INDIVIDUAL BRANCH: A DETAILED SURVEY

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The results of the analysis of available data are disappointing in that they do not provide us with a substantially improved basis for planning a library system. We can certainly say that if the goal is simply higher circulation, libraries should be placed in neighborhoods inhabited by a high percentage of professionals, managers, or officials, or, alternatively, by people with a high median income or a high level of educational attainment. However, the analysis has not invalidated the argument that it is advantageous to locate libraries close to schools or in commercial areas.

It is possible that there actually is little correlation between the proximity of a library to schools or commercial concentrations and the service rendered by the library. However, the failure of the analysis to uncover such correlations may be attributable to the coarseness of the data analyzed.

In a number of respects, the available data might be judged inadequate for providing answers to the questions posed:

1. Per capita measurements were based upon service areas as defined by branch librarians from their general knowledge.

# 6

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## ANALYSIS OF THE EFFECTS OF LOCATION ON LIBRARY USE

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Knowledge of the distance people are willing to travel for library service is vital to the planning of an efficient library system. If libraries are too far apart, many people will not be served. If they are too close together, services may be provided which will not be used fully. If they are spaced evenly, they may not provide equal service to persons with varying incomes and abilities to travel. These and other issues must be considered in creating an optimal library plan.

In the preceding section, certain preliminary measures have been developed, which relate library use to distance. Further measures will be developed in this chapter to provide the basis for more thorough analysis.

### MARKET RADIUS

#### *Definition and Measurement*

If we define the market area of a library as that area within which 80 percent of the users of the library reside, we observe

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## CONCLUSIONS AND IMPLICATIONS FOR LIBRARY SYSTEM PLANNING

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### SUMMARY OF FINDINGS

This study has aimed at providing an improved basis for planning a system of branch libraries and for programming additional branches or other improvements to an existing system. A number of conclusions have been reached from the analysis of the system of the Free Library of Philadelphia, and these conclusions may turn out to be valid for other library systems.

1. The most important factor determining the amount of use made of a library is the socioeconomic level of the residents in its service area.

2. The bookstock appears to be the next most important factor. Location near a school or in a shopping center is a less important factor.

3. The use rate (per 1,000 residents in a given age group) by juveniles and young adults is much higher than by adults (in the order of five to ten times as high in middle- and upper-

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