A STUDY OF [illegible]
PROCESS IN SELECTED MICHIGAN
PUBLIC SCHOOL DISTRICTS

Thesis for the Degree of Ph. D.
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Herbert Havens Sheathelm

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This is to certify that the

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A STUDY OF THE SCHOOL-PLANT PLANNING
PROCESS IN SELECTED MICHIGAN
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presented by

Herbert Havens Sheathelm

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Floyd G. Parker
Major professor

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ABSTRACT

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by Herbert Havens Sheathelm

Purpose of the Study

The broad goal of this study was to assist those responsible for school-plant planning to more effectively discharge their responsibilities and to provide local school districts with the best possible school-plants in which to carry out their educational programs.

The specific purposes were to:

1. Identify the major steps involved in the school-plant planning process as described in the literature.
2. Determine the school-plant planning process used in selected Michigan school districts and compare it with that found in the literature.
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Procedures

The writer conducted a review of the literature to identify the school-plant planning process. It was concluded that most authors agree on the principles and major steps of this process, and a series of generalized observations were developed which constitute a summation of the school-plant planning process as found in the literature.

A structured interview form was designed as a data collection instrument which closely paralleled the format of the generalized observations. A population was selected which included the twelve largest school districts in Michigan, excluding Detroit. The 1965 membership of these districts ranged from 16,414 to 46,563 pupils.

Each of the twelve districts was visited to identify the school-plant planning process being carried out in that particular district, through use of the structured interview.

Findings

Information is presented on school district practices for each major step of the school-plant planning process. Similarities and differences in the practices of the districts are pointed out and discussed.

Conclusions were drawn by comparing the practices of the school districts with the school-plant planning process described in the literature. Conclusions are grouped under seven major headings: (1) description of the districts, (2) administrative organization, (3) district-wide planning, (4) planning the individual school-plant, (5) architectural planning, (6) equipping, and (7) occupying.

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Herbert Havens Sheathelm

Thirty-four recommendations are made for improving the school-plant planning process, some of which have implications for the Michigan Legislature, Department of Education, and major state universities. Specific recommendations are made for the districts included in the study.

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By

Herbert Havens Sheathelm

A THESIS

Submitted to
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in partial fulfillment of the requirements
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College of Education

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ACKNOWLEDGMENTS

The concern and support of many people has contributed to the completion of this report. The writer would like to express his sincere appreciation to all who have speeded its progress.

Special appreciation is expressed for the continued encouragement provided by Dr. Floyd Parker, Chairman of the writer's Doctoral Committee; and Drs. Richard Featherstone, Troy Stearns, and James McKee, members of the Committee.

Respondents in the selected districts gave unselfishly of their time, and provided the necessary raw material for the study. The Michigan Department of Education also assisted in gathering the needed data.

The writer would be remiss if he did not recognize the unswerving support of his wife, Shirlee.

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INTRODUCTION

During the past three years, the author has been fortunate in having a series of experiences which have helped broaden his view of the school-plant planning process. A working relationship with the Secretary-Treasurer of the National Council on Schoolhouse Construction permitted close contacts with some of the leaders of that organization.

Another valuable experience was limited participation on the School Survey Team of the College of Education at Michigan State University. This team of advanced graduate students worked under the direction of staff members in helping local school districts to identify problems and formulate solutions.

The third, and perhaps unifying experience, was the opportunity of working with a local school district, of approximately 30,000 pupils, as an administrative intern. The major task of this position was to aid the administrative staff in developing a long-range facilities plan. Later the author served as a consultant in school-plant planning for the same district, and assumed responsibility for coordinating the entire school-plant planning process.

In addition, these positions have allowed attendance at conventions and meetings on the national, regional, state, and local level which have been concerned with the school-plant planning process.

Emerging from these experiences has been a growing concern for the apparent gap between the school-plant planning process described in the literature, and the actual planning practices of local school districts. It was this concern which triggered the conception of the study.

CHAPTER I

NATURE AND DESIGN OF THE STUDY

In the present system of public education, each school district establishes goals and objectives for itself based on the needs of the community and pupils which that school district serves. The school district then develops an educational program, or curriculum, which it believes will be most effective in accomplishing the goals and objectives which have been established.

For the school program to function, certain tools are required. A well-trained, capable, professional staff is perhaps the most vital; but that staff must have adequate materials, such as books, supplies, and equipment, if they are to accomplish their objectives; and, of course, they must have a building in which to operate.

They need more than a building. They need a well-planned educational facility which functions as an effective tool for the professional staff and contributes to the accomplishment of the objectives which have been established.

When a school building is constructed, little thought is given to the fact that it will probably be in use for a half century. This means that it not only must meet the needs of the existing school program, it must be planned in such a way that it can adapt to program changes during the life of the building. Buildings being constructed

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in this decade will be expected to serve into the twenty-first century.

It is estimated that for the 1965-66 school year there are 24,381 operating public school districts in the United States. These districts serve an average daily membership of 41,727,623 pupils and have an instructional staff of 1,866,273. Their total expenditures are estimated at $25,824,635,000. Of this, $20,906,498,000 is current expenditure for elementary and secondary schools, an average of $501 per membership pupil. Capital outlay totals $3,488,467,000, an increase of 7.6 per cent over 1964-65.[1]

Writing in 1963, Cocking noted that for fifteen years 6,000 to 8,000 schools have been constructed at an annual cost exceeding three billion dollars.[2]

Schools are a large investment when viewed at the school district level, as well as at the national level. School facilities constitute a large proportion of the public's capital investment in most communities; and when funds are needed for construction of new facilities, it is sometimes difficult to convince the local citizenry of the need for their continued support.

It is essential that public funds spent for educational facilities be used wisely to construct facilities which can be used effectively throughout their life span and which are a helpful tool in carrying out

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[1]National Education Association, NEA Research Bulletin, Vol. 44, No. 1 (February, 1966), p. 22.

[2]Walter Cocking, "Planning School Plants," Overview, Vol. 4, No. 5 (May, 1963), p. 75.

the objectives of the school program. It is the planning process by which such facilities can be produced that this report is concerned.

Purpose of the Study

The broad goal of this study is to assist those responsible for school-plant planning to more effectively discharge their responsibilities and to provide local school districts with the best possible school-plants in which to carry out their educational programs.

The specific purposes are to:

1. Identify the major steps involved in the school-plant planning process as described in the literature.
2. Determine the school-plant planning process used in selected Michigan school districts and compare it with that found in the literature.
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4. Make recommendations for the possible improvement of current practices in school-plant planning in the selected districts.

Value of the Study

In order for changes or improvements to take place in a process, it is first necessary to have a thorough knowledge of the present method of operation. Changes should be made only after a careful analysis of all the facts available. It is the purpose of this study to help identify and make clear the planning process being used in the schools studied.

The importance of descriptive research in creating change is described by Van Dalen:

> Before much progress can be made in solving problems, men must possess accurate descriptions of the phenomena with which they work . . . . To solve problems about children, school administration, curriculum, or the teaching of arithmetic, descriptive researchers ask these initial questions: What exists--what is the present status of these phenomena? Determining the nature of prevailing conditions, practices, and attitudes--seeking accurate description of activities, objects, processes, and persons--is their objective. They depict current status and sometimes identify relationships that exist among phenomena or trends that attempt to make predictions about future events.[1]

In addition to describing the present status of school-plant planning, it is hoped the study will serve as a guide for future action in improving the process of school-plant planning. By providing an overview of the literature in the field regarding this process, the study will allow a measure of comparison between existing practice and the existing state of the art described in the literature. The value of such descriptive studies is explained by Van Dalen when he states:

> Descriptive studies that obtain accurate facts about existing conditions or detect significant relationships between current phenomena and interpret the meaning of the data provide educators with practical and immediately useful information. Factual information about existing status enables members of the profession to make more intelligent plans about future courses of action and helps them interpret educational problems more effectively to the public. Pertinent data regarding the present scene may focus attention upon needs that would otherwise remain unnoticed. They may also reveal developments, conditions, or trends that will convince citizens to keep pace with others or to prepare for probable future events. Since existing educational conditions, processes, practices, and programs are constantly changing, there is always a need for up-to-date descriptions of what is taking place.[2]

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[1]Deobold B. Van Dalen, Understanding Educational Research (New York: McGraw-Hill Book Company, Inc., 1962), p. 184.

[2]Ibid., p. 212.

It is hoped this study will prove to be a valuable addition to the literature of the school-plant planning process, and will be helpful to all those involved in school-plant planning, particularly those included in the study population.

Design of the Study

This study is designed to utilize the descriptive method of research and generally follows the patterns of descriptive research found in Van Dalen.[1] As such, it is not based on hypotheses, but rather a description of current status of the school-plant planning process and the more current literature in the field. One of the hoped for outcomes of such a study is the generation of hypotheses which will lead to further studies in the field. This generating ability of descriptive research is described by Good, Barr, and Scates:

> The normative-survey (descriptive) method is not notably forward-looking, but it may be of service in this direction. It may reveal practices or conditions which are well above the average, representing advanced thinking and administration; . . . . Again, the normative method may call attention to current trends and permit people to evaluate and direct these new tendencies which are taking shape. The normative attack is not essentially forward-looking in itself, but it may well perform an important function in giving pertinent data to persons who <u>are</u> forward-looking.[2]

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[1] <u>Ibid</u>., pp. 184-212.

[2] Carter V. Good, A. S. Barr, and Douglas E. Scates, <u>The Methodology of Educational Research</u> (New York: Appleton-Century-Crofts, Inc., 1941), p. 293.

Population

There were two major factors involved in the selection of the population for the study. First, and most important, the population had to allow the writer to accomplish the objectives of the study, and second, the number of districts had to be small enough to allow the writer to visit each district and interview the person responsible for school-plant planning.

The study was designed to take an in-depth look at the total school-plant planning process of the selected districts, and to make recommendations for improving that process. Since the process is complex, it seemed desirable to visit each district and utilize a structured interview procedure rather than use questionnaires via mail. It was also necessary to select a relatively small group of school districts facing somewhat the same problems, rather than include a larger number of districts which had very little in common.

The writer chose to include the twelve largest Michigan public school districts in terms of enrollment, excluding Detroit. It was felt that the scope and magnitude of problems facing the Detroit School District more closely parallels those of other very large districts, e.g., New York, Philadelphia, Pittsburgh, and Chicago, than those of the twelve districts in the study. Conversely, the smaller districts in the State, while perhaps facing the same problems, face them at a different level of operation.

The twelve districts included in the study were:

SCHOOL DISTRICT	MEMBERSHIP, 1965-66*
Flint	46,563
Grand Rapids	33,011
Lansing	30,849
Livonia	30,181
Pontiac	22,905
Dearborn	22,332
Saginaw	22,166
Royal Oak	20,069
Wayne	18,704
Kalamazoo	18,365
Taylor	17,618
Waterford	16,414

*Michigan Department of Education, unaudited fourth Friday membership.

Selection of this population afforded the writer a number of important advantages. It was possible to personally visit each of the school districts and collect the data by interview. Collection was made easier and more reliable by the cooperation of the informants. Individuals interviewed were concerned with similar problems and operated under somewhat similar conditions. The population was considered appropriate for the purposes of the study.

Procedures Employed

Preliminary investigations were carried out to determine the feasibility of the study. This included a review of selected readings in the literature of school-plant planning, a search of Dissertation Abstracts, and a series of discussions with persons experienced in the area of school-plant planning. Conferences were held with Michigan State University faculty members, officials of the Michigan Department of Public Instruction, a school-plant planning consultant for an architectural firm, and several administrators of local school districts included in the sample. Preliminary readings suggested that a generalized

approach to school-plant planning could be identified, and all discussions indicated not only the feasibility but the need for the study. The study was then designed to be carried out in the following five steps:

1. A systematic review of the available literature in the school-plant planning field was conducted. It was necessary to rely on a relatively small number of texts concerned with the total planning process. Authors of these texts are quoted frequently as their views on most of the major steps in the planning process are examined. As a result of this study, it was possible not only to identify the major steps of school-plant planning, but to develop a series of generalized observations as to how the steps should be conducted.

2. A structured interview form was developed using the generalized observations as a guide. The form was tested in one pilot school district, and necessary revisions were made.

3. Structured interviews were held with the person responsible for school-plant planning in each of the school districts included in the population.

4. Data gathered from the local school districts was organized and reported in summary form. This was compared with the generalized observations developed from the literature. Observations of local school administrators as to the nature of the problems involved in planning were reported as were some of their suggestions for improvement of school-plant planning.

5. Data gathered from the local school districts was analyzed, conclusions drawn, and recommendations formulated for possible improvement of the school-plant planning process.

Data Collection Instrument

It was decided early that the study would be concerned with the total school-plant planning process rather than just one step or phase of the total process. Some method was needed to allow the local school administrator to give a complete description of school-plant planning

being conducted in that school district. This called for an instrument which covered all phases of school-plant planning and which was to some extent open-ended. A search of the literature failed to disclose such an instrument.

A data collection instrument was developed by the writer, based upon the generalized observations resulting from a review of the literature. The instrument was designed to be used in a structured interview, and allowed for a brief description of the district, as well as a description of each major step in the school-plant planning process.

Definition of Terms

The literature of the school-plant planning process contains many terms which apply to specific items and are generally recognized by educators throughout the United States. These terms are used throughout the study without special definition. Other terms are defined at appropriate places, especially when a thorough discussion of the term is necessary. Those terms which require clarification as to their use in this study, are included to facilitate understanding.

Educational facilities. All of the physical facilities utilized in the conduct of the educational program: the school building, its furniture and equipment, and the site.

School-plant. Used interchangeably with educational facility.

Primary unit. An educational facility which normally houses one classroom of primary (K-3) children in a structure similar to a single family home.

Primary school. An educational facility designed to house the primary grades (K-3), usually smaller than a regular elementary school, but which includes two or more classrooms.

Portable unit. An educational facility which can be readily moved, usually consisting of an individual classroom, sometimes mounted on wheels.

School-plant planning process. The total process involved in planning educational facilities for a school district. This includes district-wide planning, or the planning for facilities, as well as the planning of specific buildings.

Long-range plan. A plan which states the long-range facilities need for the school district. Outlines the need for new sites and facilities, as well as the modernization, abandonment, or change in use of existing facilities.

Master plan. That part of the long-range plan which gives the location of all facilities needed to meet the needs of the district when its ultimate holding capacity is reached.

Educational planning. The planning necessary to produce a statement of the educational program a proposed building is to house, and the facilities and qualities the building should include, based upon the philosophy, goals, and objectives of the school district.

Educational specifications. A written statement emanating from the educational planning which sets the task for the architect.

Comprehensive survey. A wide ranging study of many aspects of a school district without special emphasis on any particular problem.

Partial survey. A study of a school district which emphasizes depth study of one or more aspects of the educational endeavor, frequently the school-plant needs.

Percentage of survival projection. A method of projecting enrollment for a relatively short period (usually five years) based upon a history of the numbers of pupils "surviving" from one grade to the next.

Respondent. Refers to the person from each school district who was interviewed by the writer and supplied the information for the study.

Data collection instrument. The structured interview form which was constructed to gather information specifically for this study. (Appendix A)

Summary

School-plant planning is primarily a function of the local school district. It is essential that the best possible school-plants be planned and constructed. The planning of school-plants is a complex process involving a series of inter-related steps. The general purpose of this study is to aid in improving this process. The study was designed as a descriptive research project to help identify existing school-plant planning practices as a first step in their improvement. A population was selected which would meet the objectives of the study and allow the writer to visit each of the districts. The study was designed as a series of five steps, each of which was carefully conducted in accordance with the design of the study.

CHAPTER II

THE SCHOOL-PLANT PLANNING PROCESS

Educators have long been concerned with the educational facilities available to them. William Alcott's prize essay of 1831 was entitled "Construction of Schoolhouses" and paid particular attention to school location and playground area.[1]

A few years later Horace Mann also emphasized the importance of location and sufficient playground space.[2]

Giddis traces the school survey movement from the Prussian Schools in 1831 to the current school survey practices of the Big Ten Universities. Such educational leaders as Henry Barnard, Horace Mann, and William T. Harris are found as directors of some of the early surveys.[3]

These men were engaged in an effort to improve the quality of education and, in many cases, the quality of educational facilities. But what constitutes a "good" facility?

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[1]Russell A. Holy, The Relationship of City Planning to School-Plant Planning (New York: Teachers College, Columbia University, 1935), pp. 17-18.

[2]Horace Mann, Report of the Secretary of the Board of Education on the Supply of School Houses (Boston: Dutton & Wentworth, 1838).

[3]William James Giddis, "A Study of the Methods and Procedures Used in the School Survey Services at Michigan State University and Other Publicly Supported Big Ten Universities" (unpublished Doctor's dissertation, Michigan State University, 1964).

Gilliland states, "A good school building must implement the program and a good school building must provide the proper environment for learning."[1] These seem to be the two recurring vital criteria for an educational facility.

Herrick writes:

> A school building should be designed to fit the activities that are to take place within it . . . . Careful and thorough educational planning, as well as good architectural planning, is essential if the completed structure is to be a helpful tool, rather than a hindrance, to the many generations of teachers and pupils who will use it.[2]

The importance of planning facilities for activities was also emphasized by McGrath and Buehring when they compared an elementary school constructed in 1857 with one constructed on the same site in 1957. They comment:

> No longer are schools simply enclosed space, into which the children are fitted as best the series of cubicles will permit. Today, since basic educational planning revolves around the child, the physical form of the shelter is determined by the activities scheduled to meet the needs of that child.[3]

The environmental aspect is emphasized in Planning America's School Buildings in a chapter entitled "Environment Educates."

> The school is for learning--not just for teaching. And the physical environment is a powerful force in this learning process. The school environment may be

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[1]John W. Gilliland, "What Makes a Good Schoolhouse?" American School and University, Vol. 36, No. 8 (April, 1964), p. 26.

[2]John H. Herrick, et. al., From School Program to School Plant (New York: Henry Holt and Company, 1956), p. 104.

[3]John McGrath and L. E. Buehring, "100 Years of School Plant Design," The Nation's Schools, Vol. 59, No. 1 (January, 1957), p. 50.

> likened to conditions conducive to growth of a flowering plant in a garden . . . . It envelops the child from the time he enters school in the morning until he leaves it at the end of the day. It is an encompassing atmosphere. Its quality is determined by each individual's sensitivity to the mellowness or harshness, the pleasantness or unpleasantness of his physical surroundings and by his relationships with classmates, teachers and principal. The child is a part of his environment and cannot easily separate himself from it.[1]

Unfortunately, it is not possible to describe a "good" building which can be constructed by any well-meaning school district. The most obvious reason for this is that we have identified an essential criteria of a good building as one which assists in implementing the program and is designed to fit the activities which will take place within it. It was also pointed out that each local school district is expected to develop a program which will meet the needs of that district. Thus the "good" building for one district, in that it implements the program of that district, may be totally inadequate for a district with different needs and a different program.

Fox reminds us that "an ideal building can be found for one community but that no one building can be considered as ideal for all. Each school district needs to seriously examine its own situation."[2]

It should also be made clear that the planning _of_ a building is merely one phase of the total planning process involved in planning _for_ buildings. While the extreme importance of thorough planning for

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[1]American Association of School Administrators, _Planning America's School Buildings_ (Washington D.C.: The Association, 1960), p. 23.

[2]Willard Fox, "You Need a School-Building Consultant!" _American School Board Journal_, Vol. 148, No. 1 (January, 1964), p. 52.

a specific building project is acknowledged, the failure to complete earlier steps, as well as subsequent steps, may cause the building to be severely reduced in effectiveness.

It is the total planning process with which this study is concerned. The balance of this chapter will attempt to identify the major steps in this process and then analyze each one as to the areas which should be included, organization and involvement of people, and the length of time which should be allowed for that particular step.

Major Steps in the Process

One would not expect to find complete agreement between authorities writing in this field, and certainly the writer did not. What was hoped for was that a common thread could be found in the form of basic agreements as to what the major steps in the planning process should be. A review of the literature showed this to be very much the case.

A recent publication of the National Council on Schoolhouse Construction described this as a generalized approach.

> Specific techniques and methods of plant planning vary with both the particular personalities and backgrounds of the school officials and with the nature of the situation involved in each specific planning problem. However, a generalized approach has evolved which gives good guidance to future physical plant planning activity at all levels of education in the schools everywhere.[1]

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[1]National Council on Schoolhouse Construction, NCSC Guide for Planning School Plants (East Lansing, Michigan: N.C.S.C., 1964), p. 1.

The NCSC Guide described this generalized approach in four major steps.

> The steps involved in school plant programming can be summarized under four major headings:
>
> 1. district-wide plant survey;
> 2. educational specifications for specific buildings;
> 3. architectural planning, design, and construction; and
> 4. equipping and occupying the new building.[1]

Engelhardt describes the process in two broad areas. The first is the development of a comprehensive plan based upon a comprehensive school building survey. The second is the individual school building project which is based upon the long-range plan. This consists of three major phases, or steps. First, the preparation of a comprehensive program of educational and community requirements, or educational specifications; second, the architectural planning process, resulting in final working drawings and specifications; and third, the construction of the building in conformity with the first and second phases.[2]

MacConnell visualizes the process as three major steps. First, the school system must decide upon the nature of the educational program its community wants. This involves the development of enrollment data as well as the description of the nature of the program of learning activities for each school. Second, is the appraisal of the existing school plant, to adapt it and utilize where possible. Third, is the establishment of a schedule which provides for the step-by-step

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[1] Ibid., p. 6.

[2] Nickolaus L. Engelhardt, et. al., School Planning and Building Handbook (New York: F.W. Dodge Corporation, 1956), pp. 5-6.

construction of a school plant.[1] To give some idea of the broad scope of this third step, MacConnell[2] refers to the twenty-eight steps found in the 27th Yearbook of the American Association of School Administrators.[3]

Herrick summarizes the entire process under four headings.

> First is the survey of the over-all needs of the school system followed by the educational planning, the architectural planning, and the construction phases for each building. These steps are not wholly separate and sequential, but overlap.[4]

Sumption and Landes do not specifically list three or four major steps but place major emphasis on the development of a long-range plan based upon a comprehensive survey of community needs. Attention is then turned to the planning of a specific building and the extreme importance of educational specifications. Particular attention is given to the selection and development of the site, and individual chapters are concerned with planning for modifiability, safety, healthfulness, efficiency, and economy.[5]

Planning America's School Buildings divides the total process into two major areas--the development of a comprehensive plan, including

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[1]James D. MacConnell, Planning for School Buildings (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1957), pp. 13-14.

[2]Ibid., pp. 14-15.

[3]American Association of School Administrators, American School Buildings, 27th Yearbook (Washington, D.C.: The Association, 1949).

[4]Herrick, p. 5.

[5]Merle R. Sumption and Jack L. Landes, Planning Functional School Buildings (New York: Harper and Brothers, 1957), pp. 148-50.

long-range site selection, and planning within the school, or the planning for a specific building.[1]

The major steps of the planning process which will be used in this study evolved from a review of the literature. It closely parallels the steps listed by the N.C.S.C. Guide[2] with only a slight modification.

The division into the two broad areas identified by most authors seems to be a natural one--district-wide planning for school-plant and the planning required for each individual building project. Each of these major areas is then broken down into three steps.

A. District-wide planning
   1. The school survey
   2. The long-range plan
   3. Site selection and acquisition

B. Planning for an individual building project
   1. Educational planning
   2. Architectural planning, design, and construction
   3. Equipping and occupying

These should not be considered as distinct, clear-cut steps, which must automatically follow one another, but rather as a general guide which will be helpful in most instances for those involved in the school-plant planning process.

District-Wide Planning

Basically, district-wide planning involves the development of a long-range plan, or master plan, based upon a survey of the needs of

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[1]American Association of School Administrators, Planning America's . . . .

[2]National Council on Schoolhouse Construction, pp. 6-19.

the school district. The importance of this long-range plan is emphasized by most school-plant authorities. Caudill gives this definition:

> What is a long-range plan? It is simply an inclusive general program which anticipates and provides for both immediate and future school building needs. Many communities, building today for tomorrow, are saving taxpayers thousands of dollars by fitting immediate construction into well mapped ultimate building programs. They realize that to try to anticipate tomorrow's needs is somewhat of a gamble, but they also know that to disregard those needs is a dead certain loss.[1]

The School Survey

This phase of the planning process is the broad foundation on which all future decisions regarding school-plant must rest. While it may vary a great deal from district to district, it is a step which cannot be left out. It may range from the perception of the needs by a single person to broad community involvement and the use of outside consultants. Engelhardt stresses the importance of the survey by stating:

> A school system without such a survey report for its guidance is like a bank without its comprehensive audit, or a manufacturing company without its inventory. Many school systems boast two, three, or even more such surveys, following a time schedule of at least one a decade.[2]

Surveys are generally classified as to type, according to who is involved in conducting them. Early surveys tended to be conducted by educational authorities from outside the system. Many were carried

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[1]William W. Caudill, Toward Better School Design (New York: F. W. Dodge, 1954), p. 190.

[2]Engelhardt, p. 46.

out by a single individual, while some were conducted by small groups, and occasionally included local administration.[1]

Later efforts involved the establishment of research departments within local districts to carry out a continuous self-survey.[2] This has been followed by the emergence of the cooperative survey, in which the experts serve largely in an advisory capacity.[3]

While the trend is toward the cooperative survey, all three remain in use. Writing in 1962, Van Dalen observed:

> . . . All three patterns--(1) the outside expert survey, (2) the self-survey, and (3) the cooperative survey are still employed. But there is a definite trend away from the pioneer type of outside expert survey that is conducted exclusively by the research staff of a university or state department of education. The self-survey which is undertaken by members of the local school organization appeared more frequently in the 1920's when schools began to add research specialists to their staffs who could offer competent leadership. The self-survey remains popular today, but since 1935 the cooperative survey has been gaining ground.[4]

There seems to be nearly complete agreement that the school-plant survey should be a cooperative venture involving both professional educators and lay citizens in various stages of the survey. Reference to this approach is made by Caudill,[5] The N.C.S.C.,[6] Engelhardt,[7]

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[1]Giddis, p. 15.

[2]Elwood P. Cubberly, editor's introduction in The School Survey by Jesse B. Sears (New York: Houghton Mifflin Co., 1925), p. viii.

[3]Merle R. Sumption, "A Survey of Surveys," The Nation's Schools, Vol. 57, No. 3 (March, 1956), p. 92.

[4]Van Dalen, p. 188.

[5]Caudill, p. 190.

[6]National Council on Schoolhouse Construction, p. 4.

[7]Engelhardt, p. 45.

MacConnell,[1] the A.A.S.A.,[2] and perhaps its strongest proponents, Sumption and Landes.[3] McQuade testifies that: "School planning . . . requires a complicated blend of local professionals and amateurs. The sharpest characteristic of today's school planning, in fact, is wide democratic involvement."[4]

The real value of the cooperative approach is well stated by Herrick.

> The current school housing problem cannot be solved by boards of education, or superintendents of schools, or architects, or school plant specialists alone. There are no magic fountains from which will flow the needed foresight and ingenuity, let alone the money, to do the job that is necessary. Effective solution of the problems requires clear understanding and intelligent participation by laymen, architects, and professional educators alike.[5]

As the cooperative survey evolved from the expert and self-surveys, another trend was taking place. The expert surveys tended to be comprehensive in that they attempted to examine all phases of the school program and to make evaluative judgments concerning it. The self-survey, and more recently the cooperative survey, are more apt to concentrate on specific problems. This trend is reported in the study

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[1]MacConnell, p. 19.

[2]American Association of School Administrators, Planning America's . . . , p. 89.

[3]Sumption and Landes, pp. 20-31.

[4]Walter McQuade (ed.), Schoolhouse (New York: Simon and Schuster, 1958), p. 49.

[5]Herrick, p. viii.

by Giddis;[1] and Cooper explains, "Although the earliest school surveys were what is now called 'comprehensive,' dealing with any and all aspects of a school system, there has been a growing tolerance within the survey movement for partial surveys."[2]

In this regard, the school-plant survey would have to be considered a partial survey although it must at the same time be broad enough to base decisions on those factors which are truly significant. The N.C.S.C. suggests:

> The major aspects of the system-wide school plant study are:
>
> (1) determination of present and an estimate of future educational needs;
> (2) determination of the adequacy of existing facilities to meet both the qualitative and quantitative requirements of the educational program; and
> (3) developing the recommended plan of action.[3]

Herrick[4] suggests the same three phases. Marshall,[5] while stating that there is no single pattern, feels there are three obvious, though deceivingly simple, questions which must be answered: (1) How many pupils should we plan for, (2) What do we have to start with, and (3) What, and how, do we want to teach?

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[1]Giddis, p. 18.

[2]Dan H. Cooper, "School Surveys," Encyclopedia of Educational Research, ed. Chester W. Harris, March, 1959 (New York: The MacMillan Company, 1960), p. 1211.

[3]National Council on Schoolhouse Construction, p. 6.

[4]Herrick, p. 21.

[5]John E. Marshall, "Where Consultants Can Help," American School and University, Vol. 35, No. 9 (May, 1963), pp. 35-36.

Determination of Needs

This is a two-phase problem which should be concerned with qualitative factors as well as quantitative. It would be very much in error to be concerned only with the number of students to be housed, without a determination of the educational program desired for the pupils of the school district. These will be discussed separately, but their close relationship should be kept well in mind.

Program needs. A detailed description of the program to be housed in a specific building will be discussed later when educational specifications are examined. What is needed here is the broad outline of the hopes and aspirations of the citizens of the community for their children--a clear statement of what the residents of the school district expect of their schools and the quality of education which is desired. McQuade writes,

> To get a school that fits, the neighborhood has to stand way back, and look hard, and decide some things about itself that are basic and often very controversial. Perhaps nothing is more controversial today than the question: What kind of education do you want to give your children?[1]

The planning of the school program of a community is a difficult, as well as an ongoing process. It is certainly desirable to have such educational program planning precede, or parallel the school-plant survey. In this case the school-plant survey team has such a study to analyze and may go on from there.

Unfortunately, such educational planning is often lacking, and the necessity for such planning may only be recognized when it is

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[1]McQuade, p. 15.

necessary to evaluate buildings or construct new ones. In such cases, Herrick recommends that the study should have the following characteristics:

> First, the study should be comprehensive enough to cover all aspects of the school's program . . . .
>
> Secondly, the study should be oriented toward the future, with a reasonable degree of imagination and idealism . . . .
>
> The third characteristic suggested is that the study include adequate attention both to the underlying purposes and philosophy of the schools and to the specifics of the program.[1]

The need for rather specific program policies on which to base the survey is pointed out by Herrick. Areas which might be included are: courses of study, size of class, size of school, non-instructional services to be provided, and others.[2] Where such policies are lacking, the work of the survey team will be more difficult, and policies may need to be developed before the survey can proceed.

Pupils to be housed. No attempt will be made to list all of the methods for projecting enrollment or specific instructions for using a particular method. Such help is available in most texts on school-plant planning, from state departments of instruction, survey bureaus of state universities, and consultants. Good examples are available in Herrick[3] and MacConnell.[4]

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[1]Herrick, pp. 36-37.

[2]Ibid., p. 40.

[3]Ibid., p. 50-57.

[4]MacConnell, pp. 30-35.

The difficulty, and accuracy, of different techniques varies with the nature of the community and especially in those communities which are experiencing a very rapid rate of growth. Such communities may need to do an ultimate holding capacity study, which attempts to predict the number of dwelling units certain geographic areas will ultimately hold. An estimate of the number of pupils is then obtained by applying a pupil per dwelling unit factor. Such studies may be difficult and time consuming but are necessary if projections are to be meaningful. This method is also described by Herrick[1] and MacConnell.[2]

Any study of future enrollment must also consider possible changes in the school district boundaries. Some districts may see very little prospect of enlargement and may even expect to lose a portion to an adjacent district. Other districts may envision the annexation of large geographical areas as the central city expands into surrounding rural areas. This is especially likely when the surrounding districts are primary school districts without secondary facilities, which is the case in many areas of Michigan.

Analysis of Existing Resources

After the needs of the district have been identified, it is necessary to determine what resources are available for meeting that need. The material resources which are available consist of the existing school-plants in the school district and the ability of the

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[1]Herrick, p. 59.

[2]MacConnell, pp. 39-40.

district to finance new school plants and/or the modernization of older facilities.

Evaluation of existing school-plant. Several factors appear repeatedly in the literature regarding the evaluation of existing school buildings. These relate to: (1) educational program, (2) physical structure, (3) location, and (4) capacity.

The N.C.S.C. suggests the most important question to be answered in the evaluation of a building is, "To what extent do the facilities meet the needs of the educational program?"[1] Educational adequacy of the school-plant is concerned with how well the spaces are designed or can be economically adapted to serve their intended educational functions. The N.C.S.C. states that, "As a general rule, buildings tend to be obsolete from an educational point of view long before being structurally inadequate."[2]

Physical concerns are for structural soundness, fire safety, sanitation, mechanical systems, and the electrical system. While the most important concern should be educational program, it is probable that the decision to abandon a school building will rest more heavily on considerations of the physical structure itself.

A third consideration is for the location of a particular building. It should be located in an area where it can continue to serve the community. Many larger districts may find themselves with older buildings in the central city which are no longer located in residential

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[1]National Council on Schoolhouse Construction, p. 11.

[2]Ibid.

areas due to the encroachment of business or industry. The convenience and safety of pupil travel to and from the school should also be considered.[1]

The calculation of capacity for most elementary buildings is rather simple, consisting primarily of multiplying the number of satisfactory classrooms by the desired average class size. The problems involved in determining capacity for large secondary schools are much more complex, and often only generalized figures are available for capacity of secondary schools.

Early efforts in this area were made by Anderson,[2] Packer,[3] and Morphet.[4] More recent efforts have been made by Castaldi,[5] and Conrad.[6] The manual developed by Conrad gives complete instructions and provides

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[1]Ibid., p. 12.

[2]Homer W. Anderson, "A Method for Determining the Housing Requirements of Junior High School Programs," Studies in Education, Vol. 3, No. 3 (Iowa City: University of Iowa, 1926),

[3]Paul C. Packer, "Housing of High School Programs," Contributions to Education, No. 159 (New York: Teachers College, Columbia University, 1924).

[4]Edgar L. Morphet, The Measurement and Interpretation of School Building Utilization (New York: Teachers College, Columbia University, 1927).

[5]New England School Development Council, The Castaldi Nomogram (Cambridge, Massachusetts: The Council, 1953).

[6]Marion J. Conrad, A Manual for Determining Operating Capacity of Secondary School Buildings (Columbus, Ohio: Bureau of Educational Research and Service, The Ohio State University, 1954).

the necessary forms for a rather complicated process for determining secondary school capacity.

With the emergence of the cooperative school survey there has been an increasing use of lay citizens in the evaluation of existing school-plant. Sumption and Landes remark that the use of local competencies results in better diffusion of information locally and also that the use of the expert appraiser in combination with local citizens promotes greater confidence in the evaluation than does the use of an expert alone.[1]

The importance of determining the educational adequacy of a building was stressed earlier. This means that survey personnel must be thoroughly familiar with not only the existing school program but emerging trends and must relate this to the analysis of existing school-plant. The use of an outside consultant and the professional staff of the system is necessary for this consideration of the program to be housed.

Frost suggests that an architectural firm can answer a number of questions regarding the physical nature of the building in an architectural survey-report. He states that such a study can identify what can or cannot be done structurally and provide the necessary cost factors. This would help avoid fruitless arguments by digging out the solid facts.[2] While it might not be feasible to use an architect or

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[1]Sumption and Landes, p. 80.

[2]Frederick G. Frost, Jr., "Architectural Survey Tells What's Best: Remodel, Expand, or Build," The Nation's Schools, Vol. 74, No. 6 (December, 1964), pp. 30-31.

engineer to survey all buildings in a large system, it would appear to be extremely helpful in making an appraisal of a particular building about which there might be excessive controversy or particular problems.

Many score cards and evaluative devices have been developed for use in evaluating school-plant. The value of such devices is questionable as they involve subjective judgments and often include dissimilar elements. They can be of great help, however, to lay persons who are involved in evaluating school-plant. Landes and Sumption have developed such a device specifically for use by lay citizens.[1] Other evaluative devices often cited are those developed by McCleary;[2] Odell;[3] Engelhardt;[4] Leu, Parker, and Glass;[5] and The Ohio State University.[6]

Analysis of financial resources. An extended discussion could be included here regarding the present method of financial support to public education. Many would argue that the reliance of school districts on the local property tax is inadequate. That changes in financial

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[1]Jack L. Landes and Merle R. Sumption, Citizens Workbook for Evaluating School Buildings (New York: Harper and Brothers, 1957).

[2]R. D. McCleary, Guide for Evaluating School Buildings (Cambridge, Mass.: New England School Development Council, 1949).

[3]C. W. Odell, Standards for the Evaluation of Elementary (Secondary) School Buildings (Ann Arbor, Michigan: Edwards Brothers, 1950).

[4]Engelhardt, p. 50.

[5]Donald Leu, Floyd Parker, and Kenneth Glass, School Facility Obsolescense Survey (East Lansing, Michigan: Michigan State University, 1960).

[6]"School Building Evaluator-Profile" (Columbus, Ohio: The Ohio State University, Bureau of Educational Research and Service, 1960). (Mimeographed.)

support are developing seems obvious. The purpose of this study, however, is to suggest the place of financial planning in the total process and not to analyze its adequacy.

It would be foolhardy for a planning group to develop a long-range plan which far exceeded the financial ability of the community. It would be just as wrong to start planning within a fixed financial ceiling, based on what had traditionally been considered the maximum financial support from the community. Herrick explains:

> The proper procedure in planning a program of school-plant improvements is to determine first of all what improvements are needed. This is done by analyzing the school program and projecting the school enrollment to determine needs, and by evaluating the existing facilities to determine how well they satisfy the needs. The recommendations are then formulated to close the gap, and the cost of the recommended improvements is estimated. This determines the amount of money that is to be raised.[1]

The basic approach, then, is to base the long-range building program upon the educational needs of the community. It must then be tempered to fit the financial ability and support of the community. Since this ability varies greatly between communities, it is not possible to suggest any specific approach. Sumption and Landes summarize the general steps for sound financial planning in this way:

1. Study the general financial situation of education at the federal, state, and local levels.
2. Analyze the total financial needs and resources of the district.
3. Determine the proportion of financial resources for building, after provision is made for the operation of the educational program.

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[1]Herrick, p. 75.

4. Ascertain that the building program costs fall within the limits of allocated financial resources.
5. Formulate an adequate, feasible, and properly timed financing plan for the achievement of the building program.[1]

There might be a tendency to relax and depend on a survey once it has been made. The importance of continuity and annual review of the educational program, enrollment projection, building evaluations, and the financial situation is stressed by those writing in the field. In many instances this may be accomplished by a member of the local administrative staff responsible for school planning.

McQuade cautions that adequate time must be allowed for such a survey, and that a year is not too much to allow for committee work. If such a survey is updated regularly, it may shape a number of future schools.[2]

The Long-Range Plan

In a study of California school districts, Hummel identified the major problem of superintendents as lack of time for educational planning.[3] It would be expected that a study in any area of the country would reveal a similar belief. Commenting on the urge to deal with the immediate problems at the cost of long-range planning, Marshall states:

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[1]Sumption and Landes, p. 130.

[2]McQuade, pp. 52-53.

[3]Robert E. Hummel, "Who Does the Educational Planning for Your Schools?" American School Board Journal, Vol. 144, No. 3 (March, 1962), p. 33.

> You might be tempted to concern yourself more with immediate steps than with the soundness of the long-range plan. Don't. It's never more important to act now than to act wisely on school needs. You'll worry about what might happen if growth is faster, or slower, than that projected. Don't. If the long-range plan is sound, faster growth simply means that Step 3 has to be advanced in 1968 instead of 1970 as planned. You'll feel pressures to wait to acquire sites. Don't. Acre rates are cheaper than house lot rates.[1]

The school-plant survey does not automatically become the long-range plan. The survey itself is merely a collection of data which is helpful in formulating the long-range plan. It is then necessary to develop criteria to be used when considering the data and developing recommendations. The N.C.S.C.[2] lists a set of seven principles useful in the formulation of recommendations. These are very similar to the six criteria found in Herrick,[3] who suggests four steps in the development of the long-range plan:

1. Preparation of a summary of the essential facts and conditions ascertained in the earlier portion of the study.
2. Preparation of a list of criteria to be used in testing tentative recommendations.
3. Development of a long-range plan which is consistent with the local facts and conditions and which meets the established criteria.
4. Development of recommendations for more immediate execution, which are consistent with the local facts and conditions, which meet the established criteria, and which are in harmony with the long-range plan.[4]

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[1]Marshall, p. 36.

[2]National Council on Schoolhouse Construction, p. 13.

[3]Herrick, p. 82.

[4]Ibid., p. 81.

Both Terjeson[1] and Hummel[2] recommend the development of board policies to give direction and continuity to long-range planning. Such policy statements could very well include general principles or criteria to be followed in the development and review of the long-range plan.

Those involved in conducting the survey will probably be expected to assist in developing the long-range plan. In many cases the development of the long-range plan is considered a phase of the school-plant survey.

If the survey was conducted by consultants from outside the district, they would probably be expected to develop the long-range plan. Similarly, if the professional staff had conducted a self-survey, they would be expected to develop the long-range plan.

Sumption and Landes cite the growing popularity of a joint effort of lay and professional people in developing the long-range plan.[3] This would be expected to follow up the cooperative survey which was discussed earlier.

Regardless of who develops the long-range plan, it is the responsibility of the superintendent to see that such a plan is developed and presented to the board of education. Sumption and Landes state:

> It then becomes the duty of the board to adopt the program in whole or in part, with or without modifications, or to reject it and call for another. Once a

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[1]Thomas Terjeson, "Analysis of School-Plant Planning," American School Board Journal, Vol. 148, No. 1 (January, 1964), p. 9.

[2]Hummel, p. 35.

[3]Sumption and Landes, p. 133.

> program is adopted, the superintendent assumes primary responsibility for its implementation, and reports progress and problems to his board of education. The board in turn makes decisions and enacts policy ordinarily based, at least in part, on information and advice from the superintendent of schools.[1]

The long-range plan envisaged is the ultimate plan for the school-plant when the school community has reached full foreseeable development. The importance of determining ultimate holding capacity figures for undeveloped areas is obvious if such a plan is to be successful.

The need for coordination with other governmental agencies in the development of such a plan should be stressed. Not only can most city planning agencies assist in determining ultimate holding capacities, their cooperation can be invaluable in developing the long-range plan. A 1961 study of 110 cities with a population over 100,000 was conducted by Braun to determine the relationship between city planning agencies and the local school district. Some cooperative planning was reported by 54 per cent, routine procedural relationships by 34 per cent, and no relationships whatsoever by 11 per cent. Legal conditions requiring joint efforts were reported by 28 per cent.[2]

Where a city planning agency exists, it is the logical coordinator of plans for schools, parks, recreation facilities, highways, existing and future land uses, and other important factors in community

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[1] Ibid.

[2] Frank R. Braun, "A Study of Relationships in Planning for School Buildings Between the City Planning Agencies and School Authorities in American Cities Over 100,000 Population" (unpublished Doctor's dissertation, University of Minnesota, 1961).

development. The importance of such cooperative planning is emphasized by Engelhardt,[1] and writing in 1935, Holy stated:

> Intelligent city planning and school-plant planning are necessarily intimately related. Neither city planning nor school building planning can be considered adequate unless each considers the other. City planning that does not consider the community's need for school buildings omits what should be among its major concerns. A school building plan that is not conceived in terms of the anticipated development of the city as a whole is likely to be without a sound foundation.[2]

The desired objective of long-range planning is stated succinctly by Terjeson:

> The result of this long-range planning, then, should produce for the school district a master plan which will serve as a guide for intelligent planning of individual buildings until the community has reached the fullest development foreseen. In this manner it becomes feasible for a district to make the fullest use possible of its buildings and to serve the community at all times.[3]

Site Selection and Acquisition

The development of a long-range plan based on the findings of the survey has been discussed in the first two phases of district-wide planning. Hopefully this will have resulted in the development of a master plan for future school sites in cooperation with other community agencies. This master plan should be in harmony with, if not an integral part of, the master plan for the entire community.

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[1]Engelhardt, p. 47.

[2]Holy, p. 4.

[5]Thomas Terjeson, "The Four Major Problems in School Construction," American School Board Journal, Vol. 150, No. 1 (January, 1965), p. 23.

This master plan for future sites is usually considered a part of the long-range, district-wide planning. The selection and acquisition of specific sites is often treated as a separate area or included with the planning for an individual building project. It is included here because of the need for most school districts, particularly those that are experiencing rapid growth, to purchase sites well in advance of the need for the school-plant itself.

A study of California districts experiencing such rapid growth was made by Wilsey. In the geographic area studied, the average site purchased two years in advance of construction resulted in a 20 per cent savings in cost, while a purchase ten years in advance of need resulted in an average savings of 60 per cent.[1] Wilsey states:

> This study demonstrated the advance purchase of school sites in areas of rapid growth may effect substantial economies since population growth, and the corresponding development of land, cause land to appreciate in value at a more rapid rate than the combined influences of tax revenue loss and interest charges incurred by early site acquisition. School planners would be well advised to acquire sites while land is relatively undeveloped even though financing the purchase may require sale of bonds.[2]

This is not to suggest that all districts should purchase their sites ten years in advance of their needs--only that each district needs to develop a plan which establishes within the long-range plan the priorities for various sites and sets up the steps or stages for

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[1]Carl E. Wilsey, "The School Site: 1. Early Site Purchases Can Mean Savings," American School Board Journal, Vol. 142, No. 4 (April, 1961), p. 28.

[2]Ibid., p. 29

acquiring those sites. An example of such a long-range plan can be found in Sumption and Landes.[1]

A great deal could be included about the importance of the site as a part of the total school plant and its role in helping to implement the program. The N.C.S.C. explains, "A school site is more than a building location. It is an integral part of the education plant and one of the basic tools in the educational process."[2] Herrick states:

> While the site must, of course, provide space for the building, this is only part of its purpose. The outdoor facilities and the rooms and equipment within the building are part of the same school plant, and together they either facilitate or restrict and impede the development and operation of a good educational program. To select a site which is educationally inadequate is essentially the same kind of error as omitting some important room or space within the building. A school building otherwise well planned and well constructed, but erected on a site which is poorly located or otherwise unsuitable, may actually represent a considerable waste of public funds.[3]

A number of factors have been identified which need to be considered in the selection of sites. Sumption and Landes list four main characteristics: (1) suitable location, (2) adequate size, (3) desirable topography, and (4) reasonable cost.[4] Schneider listed twenty-five factors that affected school sites.[5] Others writing in the field

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[1]Sumption and Landes, pp. 140-147.

[2]National Council on Schoolhouse Construction, p. 23.

[3]Herrick, p. 235.

[4]Sumption and Landes, p. 169.

[5]Raymond C. Schneider, "Factors Affecting School Sites" (unpublished Doctor's dissertation, Stanford University, 1955).

tend to list some number between these two extremes, but differences are in organization of the factors rather than content.

Each school district will need to develop criteria for its own site selection as site needs will depend upon the educational program of the local school district, and policies concerning school size, attendance areas, organization, and other local district considerations. Perkins suggests that standards or criteria be set up in the areas of accessibility; environment; size; form and orientation; and topography and soil.[1] The establishment of policies for site criteria has two major advantages according to Perkins: (1) if all know the standards and guidelines, there is less chance of a last minute upset, and (2) it is easier to dispose of a proposal of little merit if there are officially adopted standards.[2]

The question arises as to what individuals or groups are utilized in considering the various factors to be considered in site selection. Those factors involving suitability for the educational program should certainly be decided upon by the professional educator or a consultant, but many of the technical aspects of determining the suitability for construction will require the technical competency of an architect and/or engineer. This fact is emphasized by MacConnell,[3] and Herrick.[4]

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[1]Lawrence B. Perkins and Walter D. Cocking, Schools (New York: Reinhold Publishing Corp., 1949), pp. 29-35.

[2]Ibid., p. 35.

[3]MacConnell, p. 119.

[4]Herrick, p. 244.

A number of scorecards are available for use in evaluating sites; but, as in the case of evaluative devices for school-plant, care should be exercised in their use. Their greatest value might lie in forcing the person evaluating to consider some factors he might otherwise neglect. Examples of such scorecards are those developed by Engelhardt,[1] Schneider,[2] and Teachers College.[3]

The actual acquisition of property is apt to be handled by the business department of the local school district after the school board has acted upon a recommendation to purchase from the superintendent. The point to be stressed here is the importance of board policy regarding site acquisition. Each school board must develop its own policy to fit the local requirements. However, the following principles suggested by Engelhardt should receive thorough consideration.

1. The board of education should avoid delaying site purchase until the seller has the advantage of time as a result of strong public pressure for a new school.
2. Sites should be purchased years in advance of actual need.
3. Priority on site selection should be established by means of a fixed timetable of school building needs.
4. Site acquisition should be so administered that neither school board members nor their families will profit or appear to profit from the transactions.
5. Appraisals by recognized and competent real estate boards should be used as guides for price determination.

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[1]Engelhardt, pp. 186-88.

[2]"Schneider Site Evaluation Rating Sheet" (School Planning Laboratory, Stanford University, n.d.).

[3]"Rating Form for the Selection of School Sites" (Institute of Field Studies, Teachers College, Columbia University, n.d.).

6. The board of education should, before public announcement, use the services of a competent, established, and reliable land buyer in securing options and prices.
7. The board of education should avail itself of its right of condemnation if prices greatly exceed appraisals, or if the owner refuses to submit a price.[1]

It should be pointed out again that the long-range plan must be reviewed periodically. To indiscriminately purchase property on the basis of a master plan completed much earlier would be foolhardy. The conditions which indicated the need for a school site at the time the plan was formulated should be reviewed to determine if the need still exists or possibly has changed. It is obvious that some risk is involved in the purchase of sites before the need has developed. The financial risk is small if good procedures have been followdd, and it is doubtful if a loss would be incurred if the site was not needed for school use and was sold for some other use. It is probable that any financial loss would be more than offset by the savings accruing from other sites purchased as part of the master plan.

Planning the Individual School-Plant

District-wide planning provides the foundation upon which effective planning of the individual school-plant project must rest. The school-plant survey provides the necessary information for the development of a long-range plan. This long-range plan should include a master plan for future school-plant sites, and through a process of careful selection and acquisition procedures, the needed sites can be

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[1]Engelhardt, p. 192.

purchased which meet the criteria established by the local district. Without this foundation, the individual school-plant may be handicapped before its planning begins.

The planning of the individual school-plant will be considered in three phases: (1) educational planning; (2) architectural planning, design, and construction; and (3) equipping and occupying.

Educational Planning

The term educational planning should not be confused with the total school-plant planning process. As used here, educational planning refers to the planning necessary to produce a statement of the facilities and qualities that a particular proposed building should include. This statement is usually referred to as the "educational specifications" for the building. It also involves close cooperation with the architect to insure the necessary facilities are provided for in the drawings and specifications prepared by the architect. Herrick[1] visualizes this as an eight-step process, while the N. C.S.C. lists five:

1. Review of educational planning,
2. Calculation of teaching-station and other space requirements,
3. Determination of quantitative and qualitative aspects of each room or space,
4. Preparation of written educational specifications, and
5. Review of architectural plans and reinterpretation of the educational specifications to the architect when necessary.[2]

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[1]Herrick, p. 111.

[2]National Council on Schoolhouse Construction, p. 14.

Educational planning, and educational specifications in particular, are receiving increased attention by school planners. A review of the literature reveals that most articles appearing in periodicals are concerned with this phase of the planning process rather than with district-wide planning or the total planning process. Major concerns are: (1) what is the purpose of educational specifications, (2) what should be included in them, (3) who should be involved in their development, and (4) what is the relationship of the educator and the architect?

Decisions growing out of educational planning must be communicated to others, particularly the architect. In describing educational specifications, the N. C.S.C. Guide states:

> They clearly state all decisions growing out of the educational planning process. The educational specifications pull together the many policy decisions to be furnished the architect by the school district as a primary guide in the development of building plans and specifications. The educational specifications can be considered the owner's general statement of the problem which the architect is to solve. It is imperative, therefore, that the document be organized and written for the architect in language he can understand.[1]

There is unanimous agreement on the importance of written educational specifications for any major school building project. A 1963 study by Roaden stated that written educational specifications are vital, and revealed that while there use is increasing, it is still not widespread.[2] Hummel reports, "It would appear that although the

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[1] Ibid., p. 15.

[2] Ova Paul Roaden, "The Essential Elements of Educational Specifications for School Plant Facilities" (unpublished Doctor's dissertation, University of Tennessee, 1963).

literature for several decades has advocated the preparation of written educational specifications as a prerequisite to school building planning, we have not achieved a desirable level of acceptance of this idea among educators."[1]

Content of Educational Specifications

While there is general agreement on the content of educational specifications, there is a wide range in the detail included and organization used by various authors. Detailed outlines appear in books by the A.A.S.A.,[2] Engelhardt,[3] and MacConnell.[4] A more general outline appears in the N.C.S.C. Guide,[5] and in articles by Wilson,[6] Lyman,[7] and Gardner.[8] Roaden identified what he termed the seventeen essential

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[1]Hummel, p. 34.

[2]American Association of School Administrators, Planning America's . . . , pp. 172-174.

[3]Engelhardt, pp. 73-79.

[4]MacConnell, pp. 156-157.

[5]National Council on School House Construction, p. 15.

[6]Russell E. Wilson, "Educational Specifications," The Nation's Schools, Vol. 56, No. 5 (November, 1955), p. 76.

[7]W. Lyman, "Taking the Mystery Out of Educational Specification Writing," American School Board Journal, Vol. 145, No. 3 (September, 1962), pp. 25-26.

[8]Dwayne E. Gardner, "The 'Do's' and 'Don'ts' of Educational Specifications," American School Board Journal, Vol. 148, No. 6 (June, 1964), pp. 18-19.

elements of educational specifications and included six others that, although not essential, should be included.[1]

Herrick groups the areas to be included under four headings: (1) list of desired facilities, (2) qualitative requirements, (3) limitations, and (4) background information.[2] Wilson suggests three major areas: (1) philosophy and curriculum, (2) administrative organization, and (3) non-instructional service requirements.[3] In emphasizing the importance of program, Wilson states, "The real guts of educational specifications will be contained in the sections devoted to the description of the educational program and how it is intended to operate."[4]

Parker and Featherstone explain that the amount and type of information will vary with each set of specifications but list fifteen general items which they feel should be included in all educational specifications and an additional seven items which should be included for each school program or subject area.[5]

MacConnell, in a recent article, lists sixty-seven questions for use as a check list in educational planning. They are divided into

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[1]Roaden.

[2]Herrick.

[3]Wilson, p. 76.

[4]Ibid., p. 79.

[5]Floyd Parker and Richard Featherstone, "How to Specify Educational Needs for a New School," The Nation's Schools, Vol. 73, No. 1 (January, 1964), pp. 49-50.

decisions regarding educational planning, the architect, the site, and the educational environment.[1]

As was the case in the district-wide planning, there is indication of an increasing circle of involvement in the planning of an individual school plant. There are some obvious differences in organization patterns suggested, and some dissent on the use of lay citizens in this phase of planning. The continuum stretches from the development of educational specifications by the superintendent and the architect to complete involvement by all those who will use the building.

In general, the preparation of educational specifications is considered the task of the professional educator and those who will use the building. This view is well stated by Rice: "There can be no efficient planning of educational specifications unless those who use the plant, those who live in it, have a part in setting up the specifications. This means, of course, the custodian, the teacher, and to some extent the pupil."[2]

The use of lay citizens is recommended by Sumption and Landes,[3] and is also mentioned in an article by Lyman,[4] an architect. Gardner takes issue with the use of lay citizens and states:

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[1]James D. MacConnell, "Sixty-seven Questions to Keep Out Planning Errors," The Nation's Schools, Vol. 73, No. 1 (January, 1964), pp. 55-57.

[2]Arthur H. Rice, "Designing the School Plant as a Learning Environment," The Nation's Schools, Vol. 59, No. 1 (January, 1957), p. 63.

[3]Sumption and Landes, p. 156.

[4]Lyman, p. 25.

> Since the development of educational specifications is an educational problem, it should be the responsibility of the professional educators. This basic principle should not be violated, for a multitude of reasons. Even though some communities have involved lay citizens and students, justification for doing so is rather remote from strictly educational and architectural viewpoints. It is suggested that lay citizens not be involved at this stage of the educational planning for the mere purpose of promoting good public relations.[1]

Castaldi visualizes a three-member team composed of the superintendent, the educational consultant, and the architect, which has the assistance of a large advisory committee. The advisory committee would be composed of faculty, non-professional staff, and students, and would serve as a channel for staff suggestions to the team. The use of lay citizens on the advisory team would be optional, but Castaldi points out that the board already represents citizens.[2]

Pipher, an architect concerned with educational specifications, describes the team as the superintendent, staff, and the architect. "The superintendent, the staff, and the architect all form a team; none can be left out. Matters of judgment, general guidance and basic principle, after deliberation with the staff, are the job of the superintendent."[3]

Briggs describes the process followed in planning a high school for Parma, Ohio. Of special interest is the pre-planning stage and the

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[1]Gardner, p. 18.

[2]Basil Castaldi, "Profile of Your Next Building," Overview, Vol. 4, No. 6 (June, 1963), p. 31-32.

[3]Wesley Pipher, "Is School Planning for Superintendents Only? Emphatically No!" Audio-visual Instruction, Vol. 7, No. 6 (June, 1962), p. 379.

later use of departmental chairmen. Lay citizens are involved through the use of a hearing after educational specifications have been prepared by the professional staff, and before adoption of the educational specifications by the board of education.[1]

There is general agreement that a person knowledgeable in the planning process is an essential member of the planning team. This person may be a member of the local professional staff or may come from outside the professional staff. There is an increasing use of the educational consultant, who may be employed to assist the local district in both district-wide planning and in educational planning. This is especially true of smaller districts, where budgets and staff size do not allow the degree of specialization necessary for the employment of a school-plant specialist on the local staff.

The educational consultant is an educator and usually can be found in state departments of education and education departments of colleges or universities. There are also individuals and firms operating independently, and some architectural firms have educational consultants on their staffs.

The educational consultant can be valuable to the planning team in many ways. He should serve as the resource member of the team and can be especially helpful in organization and procedure. He may also provide assistance in analyzing emerging trends and concepts in educational program and school-plant. Care should be taken to specify what

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[1]Paul W. Briggs, "New High School's Staff Planning and Teamwork," American School and University, Vol. 35, No. 9 (May, 1963), pp. 37-40.

the duties of the consultant will be. A detailed checklist of what these duties might be is found in the School Building and Planning Handbook.[1]

In a 1953 study, Edwards pointed out the need of the local district for assistance in the preparation of educational specifications and observed that the work of the architect is facilitated by the use of an educational consultant. He suggested that local districts should train their own personnel in the planning process and employ additional personnel if necessary.[2]

Welling, in a 1960 study, found that a major responsibility of school planning specialists was the development of educational specifications.[3] In 1961, Hummel found school planning directors in many of the large districts with over 15,000 pupils and also found that these were the districts where written educational specifications were most frequently prepared.[4]

The point to be emphasized is the importance of having a person knowledgeable in school planning as a member of the planning team. In

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[1]Engelhardt, pp. 17-24.

[2]John D. Edwards, "The Evolving Role of the Educational Consultant in School Planning" (unpublished Doctor's dissertation, Stanford University, 1953).

[3]Robert Edman Welling, "The Role of the District Employee in Charge of School Planning and Construction" (unpublished Doctor's dissertation, University of Southern California, 1960).

[4]Robert E. Hummel, "Educational Planning Procedures for School Building Construction" (unpublished Doctor's dissertation, University of Southern California, 1961).

those instances where the local staff is unable to provide such a person, the use of an educational consultant from outside the staff is advocated.

Relationship of the Educator and Architect

There seems to be consensus that the architect should be a member of the team which does the educational planning and prepares the written educational specifications. Some concern is expressed in defining the roles of the educator and the architect. In describing the content of educational specifications, McQuade states:

> Educational specifications, it is generally agreed, should describe as carefully as possible the amount of space that is needed, and the uses it will be put to, including the equipment it has to house--but they should not attempt to shape that space. That would be like telling a doctor not only what ails you but what color pill you want. Few architects are educational experts; most will appreciate the opportunity to ask "dumb" questions about education, but they will cherish a superintendent and a board who answer these questions not with exact descriptions of rooms but with ideas for rooms.[1]

But just as some are concerned that the educator will say too much, there are those who are concerned that he will not say enough. Rice quotes the noted architect Perkins as saying:

> The educator can default the educational program by making no statement. If he does, he has, in fact, said that the conventional norm is the program. The architect in embodying the conventional norm becomes the educational planner which he should not be but sometimes must.[2]

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[1]McQuade, p. 53.

[2]Arthur H. Rice, "Not Enough Time for Planning," The Nation's Schools, Vol. 70, No. 6 (December, 1962), p. 35.

Wilson cautions the educator to remain within his field by saying, "While playing architect, educators overlook their real role in building schools--that is to give the architect the best description possible of how the building will be used and the characteristics of the users."[1] He states further, "educational specifications are a written description of how a building is to operate; architectural specifications are a written description of how a building is to look."[2]

An important item in educational planning is the allowance of adequate time to carry out through planning. The reliance of educational planning on the district-wide survey is certainly evidenced here. If the need has not been identified and planned for, the local school district may find itself with an immediate problem and lack time to do the necessary educational planning.

While the length of time required will vary widely, estimates range from a minimum of two or three months to a year. Engelhardt states, "It is the experience of the author that ample time should be left for preparing the program of educational requirements to make it as definitive as possible, thus leaving no educational matters to the architect's guess of what is required."[3]

Architectural Planning, Design, and Construction

Just as district-wide planning is the foundation for planning the individual school building, educational planning is the base for

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[1]Wilson, p. 73.

[2]Ibid., p. 74.

[3]Engelhardt, p. 46.

the architectural planning which follows. The educator has had the primary role up to this point; but with the transmittal of board approved specifications to the architect, the architect assumes the primary role which he maintains until completion of the building.

Since this study is primarily concerned with the planning process, little time will be spent on the technical aspects of architectural planning and construction. Major areas to be considered will be (1) the selection of an architect, and (2) the phases into which architectural services may be classified, with a brief description of each.

Selection of the Architect

There are two general methods for selecting an architect: (1) design competition, and (2) open selection on the basis of general qualifications. The design competition is rarely used because it is time consuming and cumbersome. In addition, the unique problems of school planning call for close cooperation between educator and architect through a relatively long planning period, which the design competition method cannot provide.

If open selection is used, it may be necessary to do preliminary screening with a questionnaire. A standard questionnaire has been developed jointly by the N.C.S.C. and the American Institute of Architects.[1]

Following preliminary screening, it will probably be desirable to hold a series of interviews, examine other work of the architects,

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[1]"Questionnaire for Use in Selecting School Building Architects," Document No. B-431 (Washington, D.C.: American Institute of Architects, n.d.).

and talk with their former clients. Both the N.C.S.C.[1] and Herrick[2] stress the importance of fairness and courtesy in conducting the interview.

Herrick feels that final selection should be determined on the basis of these important factors:

1. Design ability--the talent and skill necessary to answer the functional needs defined in the educational and to create an aesthetically pleasing building.
2. Technical competence--the knowledge, experience, and ability required for the translation of the design into the completed building. From this competence results the durability and practical efficiency of the structure and its low maintenance cost.
3. Executive reliability--the competence of the architect to administer the project efficiently and fairly.[3]

It is not possible to over-emphasize the importance of selecting the best architect available. Upon the architect rests the final responsibility of capping months of effort with the best possible building. Selection of an incompetent or unimaginative architect can nullify much that has gone before and prevent the planning process from reaching fruition. McQuade comments, "Choosing an architect is not nearly so difficult as choosing a wife--but it sometimes seems so. This may be because while people need architects, they want wives."[4]

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[1]National Council on Schoolhouse Construction, p. 17.

[2]Herrick, p. 162.

[3]Ibid.

[4]McQuade, p. 55.

There is some difference of opinion as to whether an architectural specialist should be used. Rice states,

> More and more, the school architect is a specialist. He must know not only architecture but also some of the problems, characteristics, and purposes of education--particularly the processes of learning and the effect of environment upon the child--before he is ready to plan the learning environment for educational procedures.[1]

Caudill, a well-known architect who has designed many schools, takes exception with the specialist approach. He points out that many very famous schools were first attempts at school design by that particular firm. He believes, "The important qualifications of the architect are superior skill, the desire to do the best he can, and the willingness to cooperate with other planners."[2]

Phases of Architectural Services

The services of the architect can be divided into several phases. Although not absolutely identical, they usually resemble closely the six suggested by Herrick: (1) the programming phase, (2) the design phase, (3) the working drawing and specifications phase, (4) the bidding and contract award phase, (5) the construction phase, and (6) the furnishing phase.[3] The balance of this section will give a brief description of the activities of each phase.

The programming phase actually includes the planning process to this point. It is the major responsibility of the educator and

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[1]Rice, "Designing the School . . . ," p. 63.

[2]Caudill, p. 190.

[3]Herrick, pp. 166-67.

results in a determination of the extent and nature of the school-plant facilities needed. As has been suggested, the involvement of the architect in the survey and educational planning will vary greatly.

The importance of sound educational planning to the architect is described by Cerny.

> The function of an educational building is the armature upon which the building is molded. Function dictates not only the size, number, and relation of interior spaces, but also the shape and nature of enclosing surfaces. Function defines the quality and quantity of artificial light, the density (sound absorption) of enclosing surfaces, the texture, and surface characteristics of all wearing surfaces.[1]

In the design phase the architect translates the educational specifications into a design for the school. From diagrams showing possible organization of the space requirements, the architect prepares the preliminary studies. This will usually include the layout of the building and the site, its general appearance, method of construction, and approximate cost. The architect may ask the board of education to approve a diagrammatic plan if several approaches are being considered. Completion of the preliminary studies will then follow this approval.

The importance of board approval of preliminary studies is emphasized by Herrick.[2] This fixes the basic design and method of construction and authorizes the architect to proceed with the development of working drawings and specifications. Changes made after the approval of the preliminary studies are difficult and costly.

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[1]Robert G. Cerny, "Educational Use Shapes the Structure," American School and University, Vol. 37, No. 3 (November, 1964), p. 29.

[2]Herrick, pp. 184-185.

In answer to the question, what is design, Walter Cocking states:

> To me, school design means interpreting a school program and the characteristics of the pupils in terms of building spaces--using suitable materials in appropriate ways, and providing for visual, hearing, and bodily comfort and efficiency--so that the resulting structure is functionally useful, artistically pleasing, and combines all elements into a beautiful, comfortable, efficient, and economical building. Good design, then, gives to every structure both a healthy body and an immortal soul.[1]

In the working drawings and specifications phase, the preliminary studies are translated into the detailed drawings and specifications from which the building can be constructed. This often involves the work of a number of specialists working under the architect. Engineers work on structural framing, heating, ventilating, plumbing, and electrical installations. A landscape architect may be employed to develop plans for the development of the school grounds. Approval of the working drawings and specifications by the board indicates the board's acceptance of the architect's work preparatory to building construction.

Most states have passed laws requiring public agencies to obtain competitive bids on all construction over a set amount. Since this procedure is regulated and has become standardized, it will not be discussed in detail here.

Much the same can be said about the awarding of contracts and the legal requirements placed upon both the contractor and the school board. No effort will be made to discuss these documents, but it is helpful to recognize their place in the overall process.

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[1]Walter D. Cocking, "As I See It," The School Executive, April, 1952.

During the construction phase the actual physical construction of the building takes place. The results of months of planning now become visible. Two areas of concern during this phase need to be discussed briefly--supervision of construction and the completion and acceptance of the building.

Supervision of construction is the responsibility of the architect. He must assure that materials and workmanship are in accordance with those required in the drawings and specifications. This necessitates frequent inspections, and in most major building projects a full time "clerk-of-the-works" is employed to be alert for defective materials and workmanship.

As construction nears completion, the architect will normally prepare a careful list of deficiencies which need correcting. This may sometimes be referred to as a "punch list." After these corrections have been made, the building is ready for final inspection by the authorized representatives of the owner, the architect, and the contractor. When everything is satisfactorily completed, the owner formally accepts the building, and the construction phase is complete.

Normally, that equipment which is attached to the building, or is permanently connected to utility lines, is selected by the architect and installed as a part of the building contract. Movable items are usually selected by the school staff. Because of its importance, the selection of furniture and equipment will be considered as the third major step of planning for an individual building project.

Equipping and Occupying the Plant

During the design and construction of the building, the leadership role has rested with the architect. Now that the physical structure has been completed, the educator again assumes the leadership role for the purpose of equipping and occupying the plant. In many cases the completion of the building may be considered the termination of the planning process. This section will attempt to show the importance of this major step in the total planning process.

This step may best be considered as a series of smaller steps. The N.C.S.C. includes these five: (1) selection of furniture and equipment, (2) selection and training of staff and pupils in the use of the building, (3) presenting the building to the community, (4) assembling and keeping building documents, and (5) evaluation following use.[1]

Just as poor architectural planning can nullify months of careful educational planning, so can the selection of poorly designed furniture and equipment reduce the effectiveness of the completed building. Fowler points out that furniture and equipment usually average 10 per cent of the school-plant outlay, but that in addition to the importance of the funds involved, is the critical effect that furniture and equipment have upon the quality and effectiveness of the educational program. He feels that selection and acquisition are far more than routine business procedures.[2]

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[1]National Council on Schoolhouse Construction, pp. 18-19.

[2]Fred M. Fowler, "Selection and Acquisition of School Furniture," American School and University, Vol. 35, No. 9 (May, 1963), p. 51.

Who should select furniture and equipment? Fowler argues that the users of the items specified should have a voice in their selection, and in the case of a new building this might be done by the same group that develops the educational specifications.[1] A cooperative approach is suggested by Engelhardt[2] and Herrick[3] with emphasis on the involvement of teachers.

The advantages of centralized purchasing and standardization of furniture and equipment are discussed in an article by McGrath and Buehring.[4] They suggest a procedure for determining the standard, which involves department heads, the assistant superintendent for instruction, and the purchasing department. No mention is made of the teacher, but it is hoped they are involved by the department heads. The major advantage of such standardization of type and color is the ability to transfer furniture between rooms and buildings and the ease of replacement.

Gilliland points out that "Too frequently a well established, moderately priced and reasonably attractive furniture is bought and rebought by the school system, regardless of the use to which it is to be put or the merits of other lines."[5] Although new types are being

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[1] Ibid., pp. 52-53.

[2] Engelhardt, p. 144.

[3] Herrick, p. 212.

[4] McGrath and Buehring, p. 50.

[5] Gilliland, p. 28.

developed which may be more flexible, more comfortable, more attractive, and more efficient, if they are more expensive; they are often hurriedly rejected. Gilliland feels there is little excuse for spoiling the effects of environmental control, for which the educator has spent so much money, by selecting the wrong furniture and equipment.[1]

The importance of establishing criteria for the selection of furniture and equipment should be stressed. This could involve considerable technical detail for the local district, but the principles advocated by Herrick may seem so obvious that they are often overlooked: (1) should fit the program, (2) should be safe and healthful, (3) should be durable and economical, and (4) should be complete for the entire building.[2]

Few products can be purchased today without accompanying literature showing diagrams and complete step-by-step instructions to assure understanding and the best possible effectiveness or functioning of the product. Yet many new school buildings are simply opened with the staff arriving barely in front of the students. Increased emphasis is being placed on the importance of preparing not only the instructional staff, but the service staff and pupils for the most effective use of the building.

The length and extent of such preparation will vary widely according to the complexity of the building, the size of the staff, and their involvement in the planning of the building. Each local school

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[1] Ibid.

[2] Herrick, pp. 212-213.

district should assure that the preparation and in-service programs are adequate for their particular situation.

Presenting the Building to the Public

This involves more than a formal dedication of the building. It affords the administration an opportunity to inform the community about the educational program and the new building's role in helping to carry out that program. This can be done through the use of news stories, brochures, and open houses. It is also an opportunity to express appreciation to those who have contributed to the planning of the building and may have devoted many hours of voluntary time.

Assembling and Keeping Building Documents

It is important that operating manuals, parts lists, guarantees, bonds, and other documents relating to the new building be properly and safely filed for future use. Some of these documents are short term while others will become increasingly important in the future.

Evaluation Following Use

It is reasonable to expect some difficulties with the building and its complicated equipment. The school administrators should be alert for these defects so that they may be corrected during the guarantee period.

Much more important is how well the building accomplishes what it was designed to do. Since in most larger school districts, the planning and construction of school-plants is an on-going process, lessons learned in a particular building should be helpful in avoiding similar pitfalls in future buildings.

Summary

In this chapter the total school-plant planning process has been traced from the determination of need to the occupying of the completed building. Several cautions should be expressed to alert the reader that this process is not considered to be the panacea which will solve all educational problems.

First, is the dominance of the professional staff in determining the success or failure of the educational program. A good staff may accomplish the educational objectives in what seem to be hopeless facilities. Conversely, a poor staff may fail in accomplishing their objectives in what seem to be outstanding facilities. What is suggested is that the school-plant is a tool for the professional staff and that an efficient, functional tool is more helpful than an inefficient one.

The tremendous importance of staff attitudes was reported in parallel studies by Monacel[1] and Neubacher.[2] They studied teachers and pupils who were moved from older buildings into new buildings which replaced them. Almost no change was found on the part of teachers in regard to curriculum attitudes and values, facility preferences, and

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[1]Louis David Monacel, "The Effects of Planned Educational Facilities Upon Curriculum Experiences and Related Attitudes and Aspirations of Teachers, Pupils, and Parents in Selected Urban Elementary Schools" (unpublished Doctor's dissertation, Wayne State University, 1963).

[2]James Howard Neubacher, "A Study of the Effects of Existing and New Educational Facilities Upon the Teachers, Pupils, and Community in Terms of Curriculum Experiences and Related Attitudes and Aspirations in an Urban Elementary School Area" (unpublished Doctor's dissertation, Wayne State University, 1963).

teaching patterns. The pupils enthusiasm for the new facility was short lived as they recognized an unchanged pattern of instruction. A major recommendation of the studies was a thorough orientation program for a staff which is about to use new school-plants.

A second caution is that merely completing a large number of steps in the process of planning for school-plants does not automatically insure better buildings. This was revealed in a study by Campbell. His study found that wide participation and prudent selection of survey procedures was more helpful than a large number of steps. The importance of teacher participation in school-plant planning was reported, and the greatest weakness was found to be the failure to prepare written educational specifications.[1]

In spite of these important qualifications, it is the belief of the writer that a review of the literature has indeed revealed a generalized approach to the school-plant planning process. The generalized observations are presented in an outline form and served as the basis for construction of the questionnaire.

Generalized Observations of the School-Plant Planning Process

A. General

Each local school district is responsible for developing an educational program which meets the needs of the community which it serves.

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[1]Stanley Clinton Campbell, "Relationships Between the Comprehensiveness of School Plant Planning Procedures and the Quality of Resultant School Plants" (unpublished Doctor's dissertation, University of Wisconsin, 1961).

A good school building is one which implements the program and provides the proper learning environment.

Each school district must plan the school-plant which meets the needs of that particular district--there is no standard plan for a good school.

The total school-plant planning process is more than the planning of one building. It is a series of inter-related steps ranging from a determination of need to the actual occupying of the completed, furnished building.

The school-plant planning process can be divided into two major areas: (1) district-wide planning, and (2) planning the individual school plant.

1. District-wide planning: District-wide planning involves the development of a long-range plan, based upon a survey of the needs of the school district.

   A. The school survey: The major purpose of the survey is to identify the present and future needs of the school district.

      Each school district should conduct a survey periodically.

      It is essential that surveys be updated and kept current. This should be done annually.

      School surveys are generally classified as to type according to who is involved in conducting them: (1) outside expert, (2) self-survey, and (3) cooperative survey.

The cooperative survey is considered to be of most value to the school district and should be used unless the particular situation will not allow it.

Surveys are classified according to content: (1) comprehensive, and (2) partial.

Most school-plant surveys are partial surveys and cannot be considered comprehensive in the true sense of the word.

School-plant surveys are generally concerned with: (1) a determination of needs, (2) an analysis of existing resources, and (3) the development of a long-range plan.

1. Determination of needs: Qualitative needs are concerned with the educational program desired by the community and must precede a study of the school-plant.

   Written policies should spell out courses of study, size of class, size of school, and internal organization.

   Quantitative needs are the number of students to be housed.

   Annual enrollment projections should be made. The percentage of survival technique is commonly used but must be adjusted in rapidly changing communities.

2. Analysis of existing resources: Existing resources of a district are usually considered to

be the existing school-plant and the financial resources of the district.

Existing school-plant should be evaluated in terms of (a) educational program, (b) physical structure, (c) location, and (d) capacity.

The most important question is the adequacy of the school-plant to carry out the desired program.

Physical structure concerns are for soundness, fire safety, sanitation, and the mechanical and electrical systems.

Many older buildings are no longer located properly for attendance areas.

Capacity figures are needed for all buildings. Several techniques are used in computing the capacity of secondary buildings.

Many cooperative surveys utilize lay citizens along with consultants in building evaluation.

Evaluative devices are available, but their value is doubtful except for use by lay citizens or inexperienced school-plant workers.

It may be desirable to have an engineer and/or architect evaluate buildings for structural soundness and mechanical systems.

Financial planning should start with an analysis of the needs, rather than the finances which have been traditionally available.

3. The long-range plan: The long-range plan is based upon the findings of the survey.

It is necessary to develop criteria for use in developing the long-range plan.

Board policies are needed to give direction.

The long-range plan is usually developed by those who conducted the survey.

The superintendent should present the plan to the board for approval, modification, or rejection.

The long-range plan should be coordinated with other public agencies: parks and recreation, traffic, public service, etc. The natural coordinating agency for this in most cities is the local planning department or agency.

It may be desirable to have the long-range school plan become a part of the city master plan.

B. Site selection and acquisition: Board policies should spell out the criteria for site selection.

All sites should be purchased in accordance with the long-range plan if possible.

In rapidly growing districts, sites should be purchased well in advance of need while land is relatively undeveloped.

Priorities should be developed, and a schedule of purchases established.

Educational adequacy should be determined by the professional educator.

Technical help may be required from an architect, engineer, or landscape architect.

Assistance should be requested from planning agencies.

Board policy should spell out acquisition procedures, and the use of appraisals, real estate agents, and legal counsel.

2. Planning the individual school-plant: Each individual school-plant should fit the long-range plan and the site master plan, if possible.

Planning the individual school-plant can be considered in three steps: educational planning; architectural planning, design, and construction; and equipping and occupying.

A. Educational planning: Educational planning refers to the planning necessary to produce a statement of the facilities and qualities that a particular proposed building should include. This statement is usually called the educational specifications.

The educational specifications are the educator's general statement of the problem which the architect is to solve.

Educational specifications should be written.

Educational specifications should include as a minimum: (1) list of desired facilities, (2) qualitative requirements, (3) limitations, and (4) background information.

Those who will use the building should be involved in planning it. This is especially true of the teaching staff.

Lay citizens are sometimes used, often for purposes of keeping the community informed. There is no general agreement as to the use of lay citizens in educational planning.

The use of an outside consultant is desirable unless a person knowledgeable in the planning process is a member of the local staff.

The architect should be a member of the team developing educational specifications.

The educational specifications should serve as a challenge to the architect. They should not limit him by specifying exact dimensions or descriptions of rooms but rather ideas for rooms.

When adequate educational specifications are not prepared by the educator, educational planning is being defaulted to the architect.

Educators should not play architect, nor should architects play the role of the educator.

The length of time required to develop educational specifications will vary, but adequate time should be allowed to prepare the best possible educational specifications. Time required may range from two or three months to a year or more, depending on the complexity of the project.

B. Architectural planning, design, and construction: Major areas of concern which were considered: (1) selection of the architect, and (2) phases of architectural service.

1. Selection of the architect: There are two general methods of selecting an architect: design competition, and open selection on the basis of general qualifications.

Most architects for school buildings are selected by the open selection method.

Preliminary screening should be done with a standard questionnaire.

Architects interviewed should be treated equally and fairly.

Selection should be based upon design ability, technical competence, and executive reliability.

There is a difference of opinion as to the use of a specialized or "school architect" or an architect who has not had extensive experience in school design.

2. Phases of architectural services: Architectural planning must be based on sound educational planning.

The architect should be involved in educational planning.

The design phase is the translation of educational specifications into a design for the school.

Preliminary studies fix the basic design and method of construction and should be approved by the board.

Working drawings and specifications are developed by the architect and technical experts, and provide the plans from which the building can be constructed.

Approval of working drawings and specifications by the board indicates approval of the architect's work prior to construction.

Bidding and contract awarding are well standardized in most states by legal requirements.

Supervision of construction is the responsibility of the architect.

A "clerk-of-the-works" is usually employed on a major building project.

A list of deficiencies should be prepared by the architect as work nears completion.

Final inspection is usually carried out by authorized representatives of the owner, the architect, and the contractor.

Formal acceptance by the board completes the construction phase.

C. Equipping and occupying: Normally, furniture and equipment that is attached to the building or permanently connected by utility lines is selected by the architect.

Selection of other furniture and equipment is usually the responsibility of the local school board.

Selection of the poorly designed furniture and equipment can reduce the effectiveness of the new school-plant.

Those who will use the furniture should have a voice in its selection.

Centralized purchasing results in substantial savings. Standardization of items purchased may be used in such a system.

The use of standardized items may result in the continued purchase of moderately priced items although they are not the best items available.

Criteria should be developed for furniture selection and a procedure developed which assures cooperative selection.

Before a new building is put into operation, it is necessary to orient the staff and students to its best use.

The length of time required to orient the staff will depend on the extent of their involvement in its planning.

Opening a new building should be more than a formal dedication. An effort should be made to acquaint the community with the educational program and how the building can help in implementing that program.

All documents such as operating manuals, parts lists, guarantees, and bonds should be properly and safely filed for future use.

The staff should be alert for structural and mechanical defects so that they may be repaired or replaced during the guarantee period.

An evaluation by those using the building will be helpful in the planning of new buildings.

CHAPTER III

THE SCHOOL-PLANT PLANNING PROCESS IN THE SELECTED DISTRICTS

A Description of the Districts

In order to understand the school-plant planning process being carried out in the selected school districts, it is first necessary to understand something of the districts themselves. Information is included on five aspects of each of the districts: (1) relationship to a metropolitan area, (2) geographic size, (3) enrollment, (4) financial ability and effort, and (5) existing school plant.

It is beyond the scope of this report to develop a thorough, comprehensive description of each of these districts. Each district would require a volume by itself. The attempt is merely to sketch enough background to place the school-plant planning process in perspective for the districts included in the study.

Relationship to Metropolitan Areas

Of the twelve districts studied, seven (Livonia, Dearborn, Pontiac, Royal Oak, Wayne, Taylor, and Waterford) are located in the Detroit Standard Metropolitan Statistical Area. The other five districts (Flint, Grand Rapids, Lansing, Kalamazoo, and Saginaw), each serve the largest city in a separate standard metropolitan statistical area.

This becomes important in understanding the character of the school districts. A standard metropolitan statistical area is defined as:

> . . . a county or group of contiguous counties which contains at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000. In addition to the county, or counties, containing such a city or cities, contiguous counties are included in a standard metropolitan statistical area if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city.[1]

Thus, the seven districts in the Detroit Standard Metropolitan Statistical Area are fractional parts of the larger Detroit Metropolitan Area. The other five districts, however, are relatively independent communities whose residents, for the most part, live and work within the school district.

Geographic Size

The districts range in size from twelve to fifty-one square miles. As seen in Table 1, only three of the twelve districts have made substantial increases in geographic size within the past ten years. Lansing, which was eleventh in size in 1956 with sixteen square miles, has tripled to its present fifty-one square miles. Grand Rapids has added fifteen square miles, and Kalamazoo eight. As a group, the districts covered 334 square miles in 1956 compared to the present 394 square miles.

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[1]U.S., Bureau of the Census, U.S. Census of Population and Housing: 1960. Census Tracts, Final Report PHC (1)-73 (Washington, D.C.: U.S. Government Printing Office, 1962).

Table 1. Geographic Size in Square Miles, 1956-1965

District	1956	1965	Increase in Square Miles	% Increase
Lansing	16	51	35	218.8
Flint	45	45	0	0
Livonia	42	42	0	0
Waterford	42	42	0	0
Grand Rapids	26	41	15	57.7
Pontiac	39	39	0	0
Kalamazoo	25	33	8	32.0
Taylor	26	26	0	0
Wayne	23	24	1	4.3
Dearborn	21	22	1	4.8
Saginaw	17	17	0	0
Royal Oak	12	12	0	0
TOTALS	334	394	60	18.0

Four of the districts state that there is some possibility of additional expansion through the annexation of adjacent primary districts, but in each case the area which might be annexed is relatively small.

Enrollment

While geographic size is important to the school planner in terms of future growth and the larger area to be served, his major concern is existing and projected enrollment. Table 2 illustrates that the twelve districts have grown from 208,345 pupils in 1956 to 299,177 pupils in 1965; an increase of 90,832 pupils, or 43.6%. This closely parallels the growth for Michigan. During this same period, the total public school enrollment for Michigan increased from 1,369,848 in 1956 to 1,968,299 in 1965, an increase of 43.7%.[1]

[1]Michigan Department of Education. Figures for 1965-66 are not audited.

Table 2. Ten-Year History of Membership*

District	56-57	57-58	58-59	59-60	60-61	61-62	62-63	63-64	64-65	65-66
Flint	34,681	35,874	36,875	37,935	39,397	40,650	42,264	44,133	45,841	46,563
Grand Rapids	35,483	26,034	26,765	26,906	27,843	31,157	31,852	32,307	32,606	33,011
Lansing	20,709	21,118	22,080	24,784	24,950	26,453	27,554	28,452	29,258	30,849
Livonia	8,077	10,635	12,598	14,925	17,423	19,753	22,334	24,909	27,795	30,181
Pontiac	18,499	19,009	19,427	19,918	20,364	20,914	21,469	22,006	22,341	22,905
Dearborn	22,689	22,584	22,678	22,178	21,912	21,522	21,712	22,229	22,392	22,332
Saginaw	19,722	20,242	20,703	21,200	21,355	21,163	21,283	21,569	21,897	22,166
Royal Oak	15,891	16,900	17,438	17,823	18,395	18,710	19,130	19,624	19,981	20,069
Wayne	9,558	10,464	11,139	12,074	12,919	14,269	15,452	16,575	17,711	18,704
Kalamazoo	14,435	16,428	17,064	17,337	17,376	17,318	17,660	17,985	18,120	18,365
Taylor	8,813	10,055	10,811	11,862	12,948	14,052	15,060	16,086	16,767	17,618
Waterford	9,788	10,423	11,336	12,171	12,801	13,410	14,191	14,991	15,755	16,414
TOTALS	208,345	219,766	228,914	239,113	247,683	259,371	269,961	280,866	290,464	299,177

* Michigan Department of Education. Fourth Friday membership count. Figures for 1965-66 are not audited.

Only one of the districts has shown a decline in enrollment during the ten year period. Dearborn has experienced a slight decrease from 22,689 pupils in 1956 to 22,332 in 1965, a decline of 1.6%. In effect, the enrollment at Dearborn has remained relatively constant for the past ten years. Table 3 reveals that the other eleven districts have shown enrollment increases ranging from 2,444 pupils in Saginaw (12.4%) to 22,104 pupils in Livonia (273.7%).

The rapid growth experienced by Livonia can be termed nothing short of phenomenal. Ranking last in enrollment among the twelve districts with 8,077 pupils in 1956, Livonia has grown to 30,181 in 1965, now ranking fourth. While a complete explanation of Livonia's rapid

Table 3. Total Membership Growth, 1956-1965 (Rank Order by Total Membership Increase)

District	1956	1965	Pupil Increase Or Decrease	% of Increase Or Decrease
Livonia	8,077	30,181	22,104	273.7
Flint	34,681	46,563	11,882	34.3
Lansing	20,709	30,849	10,140	49.0
Wayne	9,558	18,704	9,146	95.7
Taylor	8,813	17,618	8,805	99.9
Grand Rapids	25,483	33,011	7,528	29.5
Waterford	9,788	16,414	6,626	67.7
Pontiac	18,499	22,905	4,406	23.8
Royal Oak	15,891	20,069	4,178	26.3
Kalamazoo	14,435	18,365	3,930	27.2
Saginaw	19,722	22,166	2,444	12.4
Dearborn	22,689	22,332	-357	-1.6
TOTALS	208,345	299,177	90,832	43.6

growth is not possible, it is necessary to consider several of the more important reasons for that growth.

First, as previously mentioned, Livonia is located in the Detroit Metropolitan Area, and is strategically located to absorb what has been termed the "flight to the suburbs." As explained in the definition of the standard metropolitan statistical area, Livonia is a fractional part of a larger community, and as such has developed into a "bedroom community." Many of the people living in Livonia work in industries located in other cities and/or school districts.

Second, Livonia, with an approximate size of forty-two square miles, has had the open space to accommodate the large subdivision developments which have been sprouting up on the outskirts of the large cities.

Three other Detroit area districts have experienced very rapid growth for similar reasons: Taylor, 99.9%; Wayne, 95.7%; and Waterford, 67.7%. (Table 3)

Financial Ability and Effort

One method of determining the financial ability of a school district is to compute the State Equalized Valuation per resident member. This is done by taking the total State Equalized Valuation for the school district and dividing by the total number of pupils who are residents of that district.

Table 4 indicates the wide range of financial ability found among the twelve selected districts. The average Michigan school district in 1965-66 has a S.E.V./resident member of $13,760. This compares with a high of $29,356 for Dearborn ranging down to $6,393 for Taylor Township.

Table 4. Financial Ability (State Equalized Valuation per Resident Member)

District	1965-66 S.E.V./Resident Member*
Dearborn	$29,356
Grand Rapids	18,824
Pontiac	18,448
Kalamazoo	17,878
Flint	17,303
Saginaw	16,387
Lansing	14,810
Livonia	12,066
Royal Oak	11,127
Wayne	8,205
Waterford	7,441
Taylor	6,393
State Average	$13,760

*Michigan Department of Education. Estimates from unaudited figures.

This disparity in this factor is explained primarily by the presence or absence of large industrial or commercial establishments within school district boundaries which are included in the local property assessments. Residents of one district, which may have a low S.E.V./resident member, often work in a neighboring district within which a large industrial complex is located.

It is not surprising to find those districts with the lower financial ability, in terms of S.E.V./resident member, levying higher millage upon themselves in an effort to balance the amount of money available per pupil for carrying on the educational program and constructing the necessary new facilities. (Table 5) The problems this creates in districts with lower financial ability is clear. Voters must be asked continually to approve what seem to be ever increasing

tax rates, and it often becomes difficult to establish and maintain the desired program as well as to construct the needed facilities.

Table 5. Financial Effort* (Analysis of Local Property Tax, 1964-65 in Mills)

District	Extra Voted				County Allocated	Total Levied
	Operations	Building & Sites	Debt Retirement	Total Extra Voted		
Wayne	18.0	---	6.9797	24.9797	7.8993	32.8790
Waterford	15.0	---	8.0	23.0	8.7	31.7
Livonia	15.0	---	7.07	22.07	8.9	30.97
Royal Oak	13.25	---	3.2	16.45	9.7	26.15
Lansing	11.3	2.891	0.33	14.521	9.112	23.633
Taylor	11.0	---	5.2	16.2	6.9	23.1
Dearborn	9.5	---	3.25	12.75	8.9	21.65
Kalamazoo	9.5	1.5	1.7	12.7	8.7	21.4
Pontiac	8.75	---	1.91	10.66	9.7	20.36
Flint	7.27	2.73	---	10.0	9.3	19.3
Saginaw	5.75	2.0	---	7.75	10.03	17.78
Grand Rapids	3.0	2.0	0.5	5.55	10.1	15.6

*Michigan Department of Education

Existing Facilities

Each of the school districts were asked to supply information on the existing school-plant and also to indicate the buildings which had been constructed during the past ten years. Table 6 presents this information. Of 375 elementary buildings existing today, 130 have been constructed in the past ten years. More dramatic is the fact that 23 of 61 junior high schools, and 12 of 34 senior high schools have been constructed in the past decade.

Observations Concerning the Districts

The twelve selected districts may be considered in two major classifications: (1) those located within the Detroit Standard

Table 6. Educational Facilities and Construction Since 1956

District	ELEMENTARY				JUNIOR HIGH				SENIOR HIGH			
			Since 1956				Since 1956				Since 1956	
	Grade Level	Existing Bldgs.	New Bldgs.	Major[1] Additions	Grade Level	Existing Bldgs.	New Bldgs.	Major[1] Additions	Grade Level	Existing Bldgs.	New Bldgs.	Major[1] Additions
Flint	K-3[2] K-6	128 41	114 14	25	7-9	8	2	5	10-12	4	2	6
Grand Rapids	K-2 K-6	52	3 16	7	7-8 7-9	1 4	3	1	7-12 10-12	4 1	0	0
Lansing	K-3[2] K-6	9 50	9 13	5	7-9	5	1	2	10-12	3	1	2
Livonia	K-6	30	18	31	7-9	6	4	2	10-12	3	2	2
Pontiac	K-6	28	11	16	7-9	6	1	1	10-12	2	1	1
Dearborn	K-6	26	0	4	7-9 K-9	4 4	1	1	K-12 10-12	1 3	1	3
Saginaw	K-6	27	10	1	7-9	5	1	0	10-12	3	0	0
Royal Oak	K-6	18	4	4	7-8	4	1	1	9-12	2	1	3
Wayne	K-3[3] K-6	4 21	3 11	8	7-9	3	3	0	7-11[4] 10-12	2	1	1
Kalamazoo	K-3[3] K-6	4 24	3 5	7	7-9	5	2	2	10-12	2	1	0
Taylor	K-6	22	13	12	7-9	3	3	0	10-12	2	1	1
Waterford	K-6	26	15	2	7-9	3	1	1	10-12	2	1	1
TOTALS		375[5]	130	122		61	23	16		34	12	20

[1]Six or more classrooms
[2]Primary units
[3]Primary schools
[4]Will become 10-12
[5]Does not include primary units, primary schools or portable units

Metropolitan Statistical Area and essentially a part of the Detroit Metropolitan Area, and (2) those which serve the largest city in separate standard metropolitan statistical areas. These two categories might be termed the Suburban Detroit districts and the "out-state" or independent districts. It should be recognized that no city or school district is truly independent, but the term is used to differentiate between these districts and those which are a fractional part of a much larger metropolitan area.

Here are some of the more obvious observations about the districts in each of these two categories.

Suburban Detroit:

1. Enrollment: Dearborn is remaining relatively constant, while Royal Oak is leveling off as residential saturation occurs. Pontiac has shown a steady and relatively low rate of growth. Four of the districts (Livonia, Taylor, Wayne, and Waterford), have made very large gains in enrollment, with the increase at Livonia far in excess of the other districts.

2. Financial Ability: The three districts showing the least growth in enrollment are well above the state average for financial ability, with one (Dearborn) more than twice the state average. The four districts showing the greatest growth in enrollment all rank below the state average, with three districts qualifying as "distressed" districts because of their low S.E.V./resident member and the high level of taxation.

3. School-Plant: The districts with the poorest financial situation have been forced to build more facilities than those with a more favorable financial status.

4. Geographic Size: None of the metropolitan area districts have increased substantially in geographic size.

5. Future Growth: The "suburban" or "bedroom communities" can expect continued enrollment increases as the population of the Detroit Standard Metropolitan Statistical Area continues to increase until residential saturation occurs. (Dearborn and Royal Oak have reached this stage.)

Outstate Districts:

1. Enrollment: Growth has been steady but much less spectacular in the outstate school districts. It is interesting to note that the combined increase in pupil enrollment for Lansing and Flint for the ten year period is less than that for Livonia.

2. Financial Ability: The outstate districts are more closely grouped, ranging from $14,810/resident member in Lansing to $18,824/resident member in Grand Rapids.

3. School-Plant: New construction, while substantial, does not compare with the amount required by the suburban Detroit areas.

4. Geographic Size: Most of the growth in geographic area is accounted for by these districts, with Lansing experiencing greater growth than the other eleven districts combined.

General

It is obvious that the outstate districts have more in common and are much more similar in terms of growth patterns and financial ability than are the suburban Detroit districts. The suburban districts show much greater disparity, and it appears that those with the greatest need have the least financial ability to meet the need. It is also interesting to note from Table 5 that the outstate districts are all levying building and sites millage with little or no emphasis on bond programs, while the Suburban Detroit areas have relied primarily on bond issues. They may be partially explained by the more steady and regular growth pattern occurring in the outstate districts compared to the sudden surge of growth experienced by the Suburban Detroit area.

Administrative Organization

General

Originally it was hoped that a rather detailed discussion of the administrative organization of the selected districts could be presented. It was soon discovered that about the only thing the districts had in common was the position of superintendent.

Each of the respondents but one stated that an administrative organization chart was available, but they proved exceedingly hard to locate and when found, in most cases, had been so revised that they were of little help. Line and staff responsibilities, titles of positions, and general staff organization are so diverse that this area could justify a study in itself. It appears that many of the administrative staffs have proliferated with very little consideration of what might be the most effective administrative organization.

Responsibility for School-Plant Planning

The purpose of making a cursory analysis of the administrative structure was to determine how the person responsible for school-plant planning fits into that structure. The first hint of difficulties along this line occurred when an attempt was made to establish contact with the individual primarily responsible for the area of school-plant planning. With few exceptions, there was considerable doubt as to whom the writer should contact. In many cases it was necessary for the writer to explain in detail the nature of his interest and then talk with several staff members before determining which staff member was most appropriate.

The titles of those interviewed in Table 7 indicate to some extent the variation in their responsibilities.

Table 7. Persons Interviewed Most Directly Responsible for School-Plant Planning

District	Title	One Person Responsible for School-Plant Planning
Flint	Construction Engineer	No
Grand Rapids	Assistant Superintendent in Charge of Business Affairs	No
Lansing	Consultant in School-Plant Planning	Yes
Livonia	Assistant Superintendent for School-Plant Planning & Research	Yes
Pontiac	Assistant Superintendent in Charge of Business & Staff Personnel	Yes
Dearborn	Assistant for Building Services	No
Saginaw	Director of Buildings & Grounds	Yes
Royal Oak	Director of Purchasing & Property Services	No
Wayne	Assistant Superintendent for Administrative Services	Yes
Kalamazoo	Assistant Superintendent also Director of Buildings & Grounds	No
Taylor	Deputy Superintendent	Yes
Waterford	Superintendent	No

Six of the twelve districts indicated that one individual is responsible for coordinating all efforts in the area of school-plant planning. In only two of these six districts, Lansing and Livonia, are there positions where the individual does not have extensive additional duties. Two other districts (Grand Rapids and Waterford) are planning to establish positions where one person will be responsible for the total process.

It can be seen from Table 7 that the responsibilities of those most directly responsible for school-plant planning usually include many other important areas. Seven of those interviewed held positions of superintendent, deputy superintendent, or assistant superintendent. It was noted that in those cases where the school-plant planning process is a responsibility of a position which has a number of other important responsibilities, these are most often in the business management, maintenance and operation, buildings and grounds, or engineering areas. Rarely is responsibility for school-plant planning assigned to a person with a curriculum background or to someone who has been especially trained to work in school-plant planning.

Several of the respondents expressed real concern over their inadequacies in the area of school program, while considering themselves very capable in the more technical areas concerned with the construction, maintenance, or operation of the physical facilities themselves.

Procedures for District-Wide Planning

The Comprehensive Survey

Of the eleven districts replying, six reported that a comprehensive survey of the district had been conducted. Five have been within the past ten years with one completed in 1948-1949. Two districts reported that the survey continues to have a great deal of impact on current decisions while three districts report some impact. The 1948-1949 study is reported to have but little impact. (Table 8)

Local staff members participated in each of the six comprehensive surveys reported. Outside experts were used in four cases, and

Table 8. Comprehensive Survey

District	Comprehensive Survey	Date	Participants: Outside Experts: Private or Consulting Firm	Participants: Outside Experts: College or University	Participants: Outside Experts: Architectural Firm	Participants: Local Professional Staff	Participants: Lay Citizens	Local Planning Agency Assistance	Updated Annually	Date of Last Review	Impact on Current Decisions: Great Deal	Impact on Current Decisions: Some	Impact on Current Decisions: Little	Impact on Current Decisions: None	Plans for Future Surveys: Comprehensive	Plans for Future Surveys: Partial	Plans for Future Surveys: Area of Emphasis for Partial
Flint	Yes	1959	X			X		Yes	No	--	X				No	--	
Grand Rapids	Yes	4849		X		X		Yes	No	--			X		No	Yes	Secondary facilities
Lansing	Yes	1961		X		X	X	Yes	No	--		X			No	Yes	Long-range site plan
Livonia	No														No	Yes	Long-range site plan
Pontiac	Yes	1962				X	X	No	No	1965		X			Yes		
Dearborn																	
Saginaw	Yes	1957				X	X	Yes	Yes	1965		X			Yes		
Royal Oak	Yes	1962			X	X		Yes	No	--	X				No		
Wayne	No														Yes		
Kalamazoo	No														No	Yes	Facilities
Taylor	No														No		
Waterford	No														Yes		

lay citizens were involved in three of the surveys. Five of the districts reported that the local planning agency assisted in the survey.

Two of the remaining five districts reported partial surveys, with one primarily concerned with enrollment projections and the other a study of facilities. Three districts report no district-wide surveys.

Four districts reported plans for a comprehensive survey in the near future, and three of the remaining seven districts have partial surveys concerning facilities either underway or planned.

Determination of Educational Program Needs

Every district reported that there was an ongoing study of the educational program by the professional staff. Without exception, they reported that the persons involved in the curriculum study are also involved in planning for new facilities, thus providing the necessary communication of emerging educational concepts which might have implications for the facilities being planned.

Determination of School Housing Needs

Enrollment Projections

Each of the districts reported that an enrollment projection was made annually. Methods used varied, but eight of ten districts stated that the percentage of survival technique was included in their considerations. (Table 9)

The length of time for which the projections are made ranges from one to fifteen years. Seven of ten districts attempt to project for a five year period, with one district projecting for ten years, and

Table 9. Method Used for Annual Enrollment Projections

District	Method	Years Projected
Flint	% of survival plus other considerations	10
Grand Rapids	Enrollment as ratio of total number of families	15
Lansing	% of survival, saturation analysis	5
Livonia		
Pontiac	Comparison with fourth friday recommendations	1
Dearborn		
Saginaw	% of survival	5
Royal Oak	Projection of current census	5
Wayne	Census, % of survival, saturation analysis	5
Kalamazoo	% of survival	5
Taylor	% of survival	5
Waterford	% of survival, saturation analysis	5

another for fifteen. One of the districts projects for only one year in the future, while two districts failed to reply.

In seven of the districts the enrollment projection is made by a person other than the one primarily responsible for school-pland planning. This reflects the specialized nature of this area, and the reliance upon such offices as child accounting and research for assistance.

Ultimate Holding Capacity

It is not surprising to find those districts which are experiencing the most rapid growth conducting ultimate holding capacity studies. Six districts report such studies and, in all but one case, had the

assistance of the local planning agency. (Table 10) Those districts which have reached residential saturation have little need for such a study, or do those districts where growth has been relatively slow and regular.

The six districts which have experienced the greatest percentage of growth in the past ten years are the districts which receive preliminary plats from the local planning agency for review.

Table 10. Ultimate Holding Capacity Study

District	Conducted Ultimate Holding Capacity Study	Local Planning Agency Assistance	Plats for New Developments Submitted for Review by School District
Flint	No		No
Grand Rapids	Yes	Yes	Yes
Lansing	Yes	Yes	Yes
Livonia	Yes	Yes	Yes
Pontiac	No		No
Dearborn			
Saginaw	No		No
Royal Oak	Yes	No	No
Wayne	Yes	Yes	Yes
Kalamazoo	No		No
Taylor	No		Yes
Waterford	Yes	Yes	Yes

Evaluation of Existing School-Plant

Only two of the twelve districts reported that their buildings were evaluated on a regular periodic basis for educational adequacy. One of the two districts stated this was done every five years or when needed, while the other district indicated this was left up to the building principal who made an annual report.

There appeared to be no standard methods of building evaluation being used, and there was no mention of the use of any score cards or

evaluative devices. It should be pointed out that the question concerned educational adequacy, not structural items. Several districts reported regular inspections for fire safety, structural, mechanical, and similar items pertaining to the physical structure itself.

Capacity Figures

The discussion of this area created a certain amount of consternation among the administrators interviewed. This seemed to be a rather delicate subject and one which should not be treated lightly. An attempt was made to determine whether or not definite capacity figures were available for all of the buildings of the school district. Table 11 indicates that nine of the eleven districts replied affirmatively to this question. No effort was made to see such figures, or obtain written material on these capacity figures. The writer must, however, express some doubt as to the ease with which these figures could be produced, or to their accurateness. Only two districts reported that such figures were not available for all schools.

Methods of computing figures varied widely. For elementary schools, capacity was generally determined by multiplying the number of rooms by the desired capacity. Of course, it is much more difficult to compute capacity for large secondary buildings. The writer found none of the methods being used which were recommended by authorities in Chapter II. Each district had developed their own system which usually consisted of multiplying the total number of pupils for all teaching stations by a percentage of utilization factor. This factor ranged from eighty per cent to ninety per cent.

The problem of semantics should not be overlooked. Terms used for describing capacities were: optimum, desirable, reasonable, average, maximum, and emergency.

Table 11. Capacity Figures (Availability and Categories Used)

District	Capacity Figures Available for All Schools	Categories Used	Utilization Factor Used for Computing Secondary School Capacity
Flint	Yes	Maximum	80%
Grand Rapids	Yes	Optimum Maximum	80%
Lansing	Yes	Desirable Reasonable Emergency	85% (R)
Livonia	No		
Pontiac	Yes	Reasonable Emergency	90% Jr., 85% Sr.
Dearborn			
Saginaw	No		
Royal Oak	Yes	Maximum	90%
Wayne	Yes	Reasonable	85%
Kalamazoo	Yes	Average	83%
Taylor	Yes	815 Law	Close to 100%
Waterford	Yes	Maximum	90% Jr., 85 Sr.

The Master Plan for Sites

Table 12 reveals that a master plan for future school sites has been developed by five of the eleven districts responding. Three of these reported that the master plan has been adopted officially by the board of education, and in the other two cases they have been presented for board of education study. All five reported that the master plan has been submitted to other governmental agencies for review, and

four of the plans are a part of the city master plan. The other district reported that the city master plan is in need of revision and it is expected that the school site plan will be incorporated into this revision.

Table 12. Master Plan for Future School Sites

District	Master Plan Developed	Adopted by the Bd. of Ed.	Submitted to Other Agencies for Review	Part of City Or Gov't. Unit Master Plan
Flint	No*	---	---	---
Grand Rapids	Yes	Yes	Yes	Yes
Lansing	Yes	No (Presented)	Yes	No (City Master Plan needs Revision)
Livonia	---	---	---	---
Pontiac	Yes	Yes	Yes	Yes
Dearborn	No*	---	---	---
Saginaw	No*,**	---	---	Yes
Royal Oak	No*	---	---	---
Wayne	Yes	No (Presented)	Yes	Yes
Kalamazoo	No	---	---	---
Taylor	No**	---	---	Yes
Waterford	Yes	Yes	Yes	Yes

*Districts report residential saturation
**Districts have adopted planning agency master plan

Four districts have no master plan for future sites because residential saturation has occurred and the need for additional sites is not indicated at this time. Two other districts reported no master plan, however one of these districts utilizes the city master plan. Officials of the other district stated that such a plan was developed about ten years ago, but changes occurred so rapidly they were unable to maintain it.

None of the school districts have board of education policy on the need for such a master plan or on procedure for its development, review and updating, or implementation.

Site Selection

Those districts reporting a master plan indicated that sites are usually selected in accordance with the master plan, while this matter was not applicable to four of the districts. Site criteria have been developed by seven of the eight districts responding, but in only one case is this criteria board of education policy.

Table 13 reveals a rather wide range in the site size which is considered desirable. Most of those interviewed believed ten acres desirable for elementary schools, twenty to thirty acres for junior high schools, and forty to sixty acres for senior high schools.

It was difficult to determine from those interviewed how far in advance they believe school sites should be purchased, although most spoke in general terms of from five to fifteen years. It can be seen from Table 13 that eight of the districts now own vacant sites, some of considerable size.

It is interesting to note from Table 13 that of nine districts responding, three always have the local planning agency assist them in site selection, while three reported they never have such assistance.

Site Acquisition

Only one of ten districts stated that they have board of education policy on site acquisition. Six of these same ten districts reported that appraisals are always made of property to be purchased, and four indicated that appraisals were usually made. Three of the districts

Table 13. Site Selection

Districts	In Accordance With Master Plan	Criteria Developed	Criteria Board of Education Policy	Local Planning Agency Assistance	Size in Acres Considered Desirable			Vacant Sites Owned					
								Elem.		Junior		Senior	
					Elem.	Junior	Senior	No. of Sites	Total Acreage	No. of Sites	Total Acreage	No. of Sites	Total Acreage
Flint*		Yes	No	Usually	6	12	50	0		0		0	
Grand Rapids	Usually	Yes	No	Always	10	30	60	4	40	2	60	1	60
Lansing	Usually	Yes	No	Always	10	30	50	1	10	1	27	1	52
Livonia													
Pontiac	Usually	Yes	No	Never	10	25	50-100	2	23	0		0	
Dearborn*													
Saginaw*				Always	2	12	15	2	6	1	17	0	
Royal Oak*								0		0		0	
Wayne	Usually	Yes	No	Occ.	10	25	50	5	150	1	25	0	
Kalamazoo	Never	No	No	Never	8-9	20	40	2 1	6** 18	0		1	55
Taylor	Usually	Yes	No	Never	10	15-17	35-40	3	25	0		0	
Waterford	Always	Yes	Yes	Review Only	10	30	40	6		1	30	2	138

*No Master Plan - Residential Saturation
**Two Sites for Primary Schools, Six Acres

require two appraisals, five stated one or two, and two of the districts reported that one appraisal is made. (Table 14)

A much wider discrepancy was apparent in the use of a realtor to act as an agent for the Board of Education in the purchasing of property. Two districts reported that realtors are always used, with four districts usually engaging a realtor, and one district occasionally using a realtor. On the other hand, three districts stated that a realtor was never used. (Table 14)

No pattern was observable in the use of specialists for the evaluation of sites prior to purchase. Several districts mentioned that soil borings were taken, and three districts indicated that architects were asked to participate if possible. There seemed to be a general feeling that there is a need to do a great deal more in this area.

Table 14. Site Acquisition

District	Bd. of Ed. Policy On Acquisition Procedures	Appraisals Made	Number of Appraisals Required	Realtors Utilized to Make Purchase
Flint	No	Always	2	Usually
Grand Rapids	No	Always	1 or 2	Never
Lansing	No	Usually	1 or 2	Usually
Livonia	--	--	--	--
Pontiac	No	Always	2	Usually
Dearborn	--	--	--	--
Saginaw	No	Usually	1	Always
Royal Oak	No	Always	1 or 2	Never
Wayne	No	Always	1 or more	Always
Kalamazoo	No	Usually	2	Occasionally
Taylor	No	Always	1 or 2	Never
Waterford	Yes	Usually	1	Usually

Procedures for Planning the Individual School Plant

Educational Planning

The educational planning for a specific building is considered by many to be school-plant planning. As used here, it is but one step in the total school-plant planning process, albeit a very important and essential step.

The writer concerned himself with four major aspects of educational planning: (1) who are the people involved, (2) how much time is allowed, (3) when are planning meetings held, and (4) are written educational specifications prepared. Districts were asked to supply this information for both elementary school planning and planning for secondary schools, to determine to what extent the planning varied.

Participants

Table 15 reveals that the size of the group doing educational planning for elementary schools is rather small, usually less than ten people. Table 16 helps identify these people as the architect, the assistant superintendent for business and/or the assistant superintendent for instruction, the person responsible for school-plant planning, one or more elementary principals, and less often, one or more teachers. It is a little surprising to note that four of the ten districts never involve teachers in the educational planning for elementary schools. It should also be noted that eight out of the ten districts never involve lay citizens.

The size of the planning group for secondary schools is considerably larger than that for the elementary schools. Table 15

Table 15. Size of Group Involved in Educational Planning for Specific Buildings by Number of School Districts

Building	Number of People						
	5-9	10-19	20-29	30-39	40-49	50-59	60+
Elementary	5	2	2	1	0	0	0
Secondary	0	2	2	2	0	1	3

Table 16. Participants in Educational Planning for Specific Buildings by Number of School Districts

Participants	ALWAYS		USUALLY		OCCASIONALLY		NEVER	
	Elem.	Sec.	Elem.	Sec.	Elem.	Sec.	Elem.	Sec.
Outside Educational Consultant	1	1	1	2	2	2	6	5
Architect	6	6	1	1	1	2	2	1
Supt., Asst. Supt. for Business and/or Instr.	7	7	2	2	1	1	0	0
School-Plant Planner*	7	7	0	0	0	0	0	0
Principal	6	6	2	2	0	0	2	2
Teacher	4	6	2	2	0	0	4	2
Lay Citizens	1	1	1	1	0	0	8	8
Directors or Consultants in Subject Areas**	2	3	1	0	0	0	0	0

*Person most directly responsible for school-plant planning
**Positions which some districts do not have or did not report

indicates that six districts have between ten and thirty-nine people involved and four districts have in excess of fifty people. None of the districts reported less than ten people.

While the numbers are greater, the increase appears to be made up almost entirely of teachers. It is noted from Table 16 that six of the districts always involve teachers in planning for secondary buildings, and two stated that they usually do. As in the case of elementary schools, lay citizens are never involved by eight districts, and outside educational consultants seldom assist in educational planning.

Time Allowed

Table 17 reveals that from two to six months is considered adequate time to allow for the educational planning of an elementary school by all ten respondents. Four of these districts considered two months to be adequate. Seven of the twelve districts reported that they allow twelve months for secondary school planning, while one district allowed six months, one two months, and one twenty-four months.

Table 17. Time Allowed for Educational Planning for Specific Buildings by Number of School Districts

Building	Number of Months							
	2	3	4	5	6	12	18	24
Elementary	4	1	2	-	3	--	--	--
Secondary	1	-	-	-	1	7	--	1

When Planning Meetings Are Held

Respondents had difficulty identifying a regular time when planning meetings were held. There was a wide variation in the responses with no definite pattern established. Most of the districts reported that planning meetings were held immediately after regular school hours. Exceptions to this were the districts who do not involve teachers, and these districts reported holding their meetings during the school day. Districts involving teachers stated that they try not to hold meetings during the school day, but when this is necessary the teachers involved are given released time so they may attend.

Several of the districts reported that they occasionally meet evenings or Saturdays, but very seldom. Three districts indicated they have occasionally used vacation periods for educational planning.

Of eight districts responding, seven stated that they never give extra pay for work other than what would be considered normal hours. The exception was a case where a summer workshop had been held to develop educational specifications for a secondary building.

Educational Specifications

The most important item, of course, is the quality of the educational specifications and how well they communicate the educational program to be housed to the architect. Unfortunately, it was not possible to scrutinize the educational specifications which had been prepared by the selected districts.

The only item attempted was to determine whether or not written educational specifications were actually produced. Table 18 reveals

that only four of the ten districts always prepare written educational specifications for elementary schools, while one district stated they usually do. On the other hand, seven districts stated that they always prepare written educational specifications for secondary schools and two additional districts reported that they usually do. Surprisingly, one district reported that they never produce a "formally written" document but certainly make specifications known to the architect.

Table 18. Development of Written Educational Specifications by Number of School Districts

# of School Districts Using Written Educational Specifications:	ALWAYS		USUALLY		OCCASIONALLY		NEVER	
	Elem.	Sec.	Elem.	Sec.	Elem.	Sec.	Elem.	Sec.
	4	7	1	2	3	0	2	1

Architectural Planning

Seven of ten districts reported that the architect is usually or always involved in educational planning and the development of educational specifications. The purpose of this section is not to analyze the work of the architect during the design phase of the building, i.e., the development of schematics, preliminary drawing, and working drawings; or his responsibilities during bidding, awarding of contracts, and the construction of the building.

This section is concerned with (1) how the architect is selected, (2) the use of local architects, (3) restrictions placed upon the

architect, and (4) professionals on the school district staff who work closely with the architect.

Selection of Architects

Nearly all of the school districts indicated that architects were selected on the basis of qualifications rather than through design competition. However, Table 19 indicates that the use of a standard questionnaire is not general practice in most districts. Most districts report that architects are always or usually interviewed, but only one reports always visiting other work completed by the architect.

Table 19. Architect Selection by Number of School Districts

	ALWAYS	USUALLY	OCCASIONALLY	NEVER
Selection on Basis of:				
Design Competition	0	0	1	10
Open Selection	7	3	1	0
Use of Standard Questionnaire	3	1	4	3
Interview of Architects	3	4	4	0
Other Work Visited	1	3	7	0

Use of Local Architects

Several of the respondents explained that they were familiar with the work of the architects and it was not necessary to interview them or visit their work. This led into a discussion of the use of local architects as opposed to the use of some of the larger, nationally recognized architectural firms.

As Table 20 indicates, the school districts rely heavily on local architects, with six of eleven districts stating that local architects are usually given repeat business on a rotation basis. Only one

of the eleven districts which reported has recently constructed a building designed by an architectural firm with offices outside of Michigan.

Table 20. Use of Local Architectural Firms by Number of School Districts

	ALWAYS	USUALLY	OCCASIONALLY	NEVER
Use of Firms Considered to be Local	4	4	3	0
Repeat Business Given to Local Architects on Rotation Basis	0	6	2	3

Restrictions Placed on Architects

When asked if architects were given a cost figure which they are expected to meet, all eleven districts replied that they give the architect a total cost, or budget which he is expected to meet. Only three stated the architect is given a square foot cost, and one district added cost per pupil, and cost per cubic foot to the first two cost restrictions. (Table 21)

Three of eleven districts require the architect to have a master site plan developed by a landscape architect, and several others felt it to be desirable and something which they hoped to be able to require in the near future.

Table 21. Restrictions Placed on Architects by Number of School Districts

COST RESTRICTIONS:	YES	NO
Total Cost	11	0
Cost per square foot	3	8
OTHERS MENTIONED:		
Cost per pupil	1	-
Cost per cubic foot	1	-
MASTER SITE PLAN REQUIRED	3	8

Staff Engineer or Architect

Larger districts sometimes employ a registered architect and/or engineer to assist them on new construction projects, modernization, and maintenance. Six of eleven districts reported they employed engineers, and in each case that they worked closely with the architectural firms during the planning and construction of new buildings. Only one district reported a registered architect and there is some question as to whether or not he is actually a staff member of the school district.

Equipping

All eleven school districts responding reported that they utilize a central purchasing office, and that this office is responsible for purchasing the furniture and equipment for new buildings. Three districts reported that this furniture and equipment is usually recommended by the group doing the educational planning, and the other eight districts reported that it usually is.

All but one of the districts reported that standardized lines of furniture and equipment are usually purchased. When questioned as to who determines the standardized items, the writer was given a wide variety of answers, but most indicated the purchasing agent or assistant superintendent for business, with recommendations from the instructional directors.

None of the districts had any established procedure for reviewing standardized items, but several stated there was enough staff interaction to indicate preference to the central purchasing office. None of the districts have any written criteria for the selection of

furniture and equipment, and so, of course, no written board of education policy.

Occupying

Very little is being done by any of the districts to prepare the professional teaching staff to most effectively use the new buildings. One district reported that summer workshops were held prior to occupying a new junior high school, but this was an exception to the rule.

Most of the replies indicated this was considered a responsibility of the building principal, and was something accomplished during the few days prior to the opening of the new school in the fall. A number of those interviewed were almost apologetic, explaining they would like to see more done in this area but had been unable to institute the needed action.

Most of the districts appoint new principals for both elementary and secondary schools approximately three months prior to the opening of the new school. Four of the five smallest districts responding reported that they attempt to appoint secondary principals a full year prior to the opening of the new school.

Major Problems Faced by the School-Plant Planner

Each of the individuals interviewed was asked to list what he considered to be the three most difficult problems facing his school district in the area of school-plant planning.

Perhaps the most obvious problem is that of enough time to accomplish all the necessary tasks. This is evidenced somewhat by the

fact that some of the individuals responding were unable to complete portions of the structured interview, including a listing of the major problems. In many cases this may be the result of one individual with too many areas of responsibility due to the inability of the school district to employ sufficient qualified help.

Some of the major problems listed were:

1. Difficulty of defining what you want for the architect.
2. Developing facilities which are too far ahead of the professional teaching staff.
3. Impact of urban renewal, public housing, and large interstate highway projects.
4. Transiency of student population.
5. Rapidly increasing cost of construction, inability to stay within previously approved expenditures.
6. Need to have voters approve construction funds, difficulty in planning when funds are in doubt.
7. Need to stretch dollars to satisfy needs rather than having adequate financing.
8. Acquiring school sites of adequate size in built-up areas.
9. Planning facilities for constantly changing educational philosophies, methods and procedures.
10. Difficulty of accurate population projections because of erratic residential building development.
11. Changing educational methods, e.g., team teaching, ungraded, and increased emphasis on summer school.
12. Difficulty of dealing with pressure groups with special interests.
13. Difficulty of following through on new concepts incorporated into buildings.
14. Too much planning of rooms without enough consideration of the sizes of groups to be housed.
15. Lack of long-range planning for facilities.

16. De-facto segregation--its effect of attendance areas and new construction.

17. Coordinating school financing with building needs.

18. Maintaining continuous facilities construction plan with a year to year updating of needed facilities.

It can be seen that these problems fall into several major categories: (1) the need for and improvement of the long-range plan, (2) difficulties involved in enrollment projections, (3) educational planning, and (4) financing.

Suggestions for Improving the School-Plant Planning Process

Respondents were asked to give suggestions as to how the school-plant planning process might be improved. It is not surprising to find that some of the suggestions are conflicting, both with other suggestions and with the major problems listed. Some of those interviewed were not at all convinced of the value of cooperative planning, particularly the involvement of teachers who they feel are more concerned with educational fads than the construction of "good, sound buildings."

Some of the suggestions included:

1. Allow more time for educational planning.

2. Appoint principals as far in advance as possible.

3. Develop clearinghouse for school plans on a statewide basis.

4. Encourage uniformity in building requirements, e.g., Department of Education, state fire marshal, local building authorities.

5. Provide state aid for school construction, perhaps on a matching basis.

6. Be less concerned about theoretical needs and educational fads, and build high quality buildings.

7. Spend less time listening to teachers and more time listening to contractors and architects to assure that the taxpayer gets his money's worth.

8. Have more staff involvement during the summer months.

9. Allow for more visitations by the board of education, professional staff, and lay citizens to other school districts to discuss what they are doing and observe new facilities.

10. Encourage more publications of a technical nature in the area of school-plant.

11. Maintain a balance between program areas within the financial limitations.

12. Develop a long-range comprehensive plan. (Better to over plan than under plan as this is the least expensive part of the total operation.)

13. Update building facilities plan through standardization of data compilation.

14. Development of school-plant planning on a broader scale to handle emerging as well as traditional problems.

15. Prepare staff and organization to meet the new forces affecting school facilities in urban communities.

Summary

This chapter has included a brief description of the selected school districts, their administrative organization, and an analysis of responsibility for school-plant planning within the districts. The similarities and differences found in the planning procedures followed by these districts, in both district-wide planning and the planning for specific building, were presented. Major problems facing the school-plant planner and suggestions for improving the school-plant planning process were listed, as perceived by the respondents.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

The broad goal of this study, as stated in Chapter I, was to assist those responsible for school-plant planning to more effectively discharge their responsibilities and to provide local school districts with the best possible school-plants in which to carry out their educational program.

The specific purpose, however, was to develop recommendations for the possible improvement of current practices in school-plant planning and particularly in those districts included in the study. In order to formulate such recommendations it was necessary to review the literature on school-plant planning, and to analyze data gathered on the procedures being utilized by the selected districts. This allowed the author to draw some conclusions, and subsequently make recommendations. These conclusions and recommendations are presented in this chapter.

The Basis for Analysis

The analysis of data gathered is based on three points:

1. The generalized observations of the school-plant planning process as gleaned from the literature.

2. The organization and use of the structured interview form to collect data on each of the selected districts and their current practices in the area of school-plant planning.
3. The research and experience of the author.

Each of these major points will be explained in more detail.

Generalized Observations

It became clear, as the writer conducted a thorough review of the literature, that there were very few major items on which the authors disagreed. There were differences of emphasis, content, and style; but, in general, the authors were stating the same principles and concepts.

This led to the development of what the author chose to call the Generalized Observations of the School-Plant Planning Process; a summation of the school-plant planning process as described in the literature.

Organization of the Structured Interview

A search of the literature failed to reveal a structured interview form which would allow the author to meet the objectives of the study. In organizing the structured interview it seemed logical to follow the structure of the generalized observations which had emerged from a review of the literature.

It had been determined early in the study, that to get a comprehensive picture of school-plant planning in the selected districts it would be necessary to actually visit the school districts and discuss the school-plant planning process with the individual most

directly responsible for that process. Every effort was made to construct an interview form which was as objective as possible, but yet provided an open-ended flexibility which allowed the respondent to go beyond a yes or no answer.

The resulting interview form (Appendix A) was tested on a pilot district to insure that it would yield the desired results and also to give the author some experience in the techniques which would be most effective in using the interview form. In addition, several faculty members at Michigan State University were asked to review the interview form, and their recommendations were incorporated into the final form.

Research and Experience

It was then necessary to analyze the data collected on the selected districts in light of the Generalized Observations which had been made from the literature. If this analysis was to have meaning, it was necessary that the person developing the analysis have an understanding of the school-plant planning process. To obtain this understanding became a major goal of the author while conducting this study.

Much of the author's advanced graduate work has been oriented in this area. Participation as a member of the field service team at Michigan State University helped broaden the author's experience. Appointment as an administrative intern and later as a consultant in school-plant planning for one of the larger districts included in the study, gave the author direct, first-hand experience with the planning process and the many and varied problems which may be encountered.

Also helpful was the earlier opportunity to serve as an assistant to the Executive Secretary of the National Council on Schoolhouse Construction and later to participate as a member in both regional and national meetings of that organization.

Perhaps most valuable has been the opportunity to visit with nationally recognized authorities on school-plant planning at Michigan State University. Their willingness to discuss the concepts involved in school-plant planning as well as the problems of a specific situation have helped to unify the experiences of the author and develop the necessary understanding.

Conclusions

The conclusions were reached by analyzing the data collected on the selected districts and reported in Chapter III. This data was compared with the generalized observations emanating from a review of the literature and reported in Chapter II. Conclusions are grouped into seven major areas, closely following those used in the structured interview.

These conclusions apply to the selected districts included in the study. It is not intended that inferences or interpretations be drawn which apply to other districts.

Description of the Districts

1. There is great variation among the school districts in terms of location, rate of growth, financial ability, and financial effort.

2. Seven of the districts are located in the Detroit Standard Metropolitan Statistical Area and are considered to be "Suburban Detroit" districts.
3. Five of the districts are located in separate Standard Metropolitan Statistical Areas and are considered to be "outstate" districts.
4. There is much greater disparity among the Suburban Detroit districts than the outstate districts in rate of pupil growth, and financial ability. Those with the least ability are being faced with the greatest demand for new facilities.
5. The present method of financial support of local school districts is inequitable and in most cases inadequate.
6. Outstate districts tend to rely on buildings and site millage for a "pay as you go" construction program, while Suburban Detroit districts tend to rely on bond issues.
7. Several outstate districts have made substantial increases in geographic size, but further annexation of large areas is not anticipated.

Administrative Organization

1. Administrative organization, titles, and positions vary tremendously among the districts.
2. Most districts do not have a current organizational chart.
3. School district administrative staffs appear to have grown without adequate consideration for the most effective administrative organization.

4. Personnel responsible for school-plant planning usually have a number of other major responsibilities.
5. The background of school-plant planners is most often in the business, maintenance and operation, or construction areas.
6. Many of those responsible for school-plant planning are more concerned with the quality of the physical structure than the educational program it is designed to house.

District-Wide Planning

1. Comprehensive surveys are needed by six of the districts. Such surveys have been conducted by six of the twelve districts. Outside experts were used in four of the six, and lay citizens involved in three.
2. Those responsible for an ongoing study of the educational program are usually involved in the planning for new buildings.
3. Each of the districts make an annual enrollment projection. Most use the percentage of survival technique and project for five years into the future.
4. Most districts experiencing rapid residential development have conducted some type of ultimate holding capacity study.
5. Very little is being done in the evaluation of school-plant for educational adequacy.
6. Capacity figures for schools were available in most districts, but methods of determining capacity and the type of capacity designated vary greatly.

7. A master plan, or long-range site plan, has been developed by five of eleven districts, and in each case has been submitted to other local agencies for review.
8. Sites are usually selected in accordance with the master plan where available. Only three of nine districts have the assistance of the local planning agency in site selection.
9. All of the districts usually require appraisals prior to purchase of property.
10. There is a wide variation in the use of realtors to assist in the purchase of property.
11. Only one district reported Board of Education policy on site acquisition.

Planning the Individual School-Plant

1. The planning group for elementary schools is usually less than ten, and most often includes the architect, an assistant superintendent, the school-plant planner, an elementary principal, and one or more teachers. Four of ten districts never involve teachers in the planning of elementary schools.
2. The planning group for secondary schools is usually larger, and is more apt to involve teachers.
3. Lay citizens are seldom used in the development of educational specifications.
4. A much shorter time (two to six months) is considered adequate for educational planning on an elementary school than for a secondary school (twelve months).

5. Most planning meetings are held immediately after school hours, and teachers are not paid for time beyond their normal school day.
6. Most of the districts prepare written educational specifications for secondary schools, but less often for elementary schools.
7. Less emphasis is placed upon educational planning for elementary schools, than for secondary schools. There is room for much improvement in educational planning for both elementary and secondary schools.

Architectural Planning

1. The architect is usually involved in the educational planning for a building.
2. Architects are selected on the basis of qualifications, but the use of a standard questionnaire, interviews, and visits to the architects' previous work vary greatly.
3. Most of the districts use local architects, six districts reported that local architects are usually given repeat business on a rotation basis.
4. Less care is taken in the selection of architects for elementary schools than secondary schools.
5. All districts expect the architect to stay within the total cost budget but only seldom make a cost/square foot, cost/cubic foot, or cost/per pupil restriction.
6. Six of the eleven districts employ engineers who work closely with the architect. In four cases this person is also responsible for the school-plant planning process.

Equipping

1. All of the districts utilize a central purchasing office which is responsible for purchasing furniture and equipment for new buildings.
2. The central purchasing office usually considers the recommendation of the educational planning committee.
3. Standardized lines of furniture and equipment are used in all but one district.
4. None of the districts have an established procedure for review of standardized items or written criteria for the selection of furniture and equipment.

Occupying

1. Very little is done to prepare the teaching staff for the most effective use of new buildings.
2. Principals are usually responsible for preparing the teaching staff for use of the new building, and in most cases the principal is appointed only three months prior to the opening of the new building.

Recommendations

These recommendations were developed by a critical analysis and comparison of the data collected on the selected districts and reported in Chapter III, with the generalized observations of the school-plant planning process reported at the end of Chapter II. They are intended primarily for improving the school-plant planning process in these or similar districts. The author cautions the reader that it is not

intended or inferred that they be applied to all school districts in Michigan or elsewhere. However, since the generalized observations describe a school-plant planning process whose principles may be applied to most districts, these recommendations should be of value to the careful and discreet reader, regardless of his school district.

Some of the recommendations have application at the state-wide level in terms of changes of support for all local school districts. For the most part, however, the recommendations apply to the selected districts themselves.

It is hoped that these recommendations will be looked upon as constructive criticism which has as its sole purpose the improvement of the school-plant planning process at the local school-district level. Certainly many of those interviewed are well aware of the need to implement these recommendations. Identification, publication, and open discussion may help speed up the process of change.

1. The present method of financial support should be completely revised to provide each child a more equal opportunity for quality education.
2. School district boundaries should be studied and new boundaries established on the basis of what is best for the children involved.
3. State universities and the Michigan Department of Education should provide more services to the local districts in the school-plant planning process, particularly in the area of long-range planning.
4. State universities should establish undergraduate courses which acquaint future teachers with the basic fundamentals of the school-plant planning process.

5. State universities should expand their graduate programs in school-plant planning to:
   a. Give increased understanding to all school administrators.
   b. Prepare more individuals to serve as specialists in school-plant planning.
6. State universities should make an effort to get those responsible for school-plant planning together in some form or workshop or seminar, which would encourage the sharing of ideas and provide a fertile planting ground for new ideas.
7. Local school districts should carefully examine their present administrative structure and evaluate its effectiveness, as it relates to the school-plant planning process.
8. One person should be responsible for all phases of the school-plant planning process for the school district. If possible, the person responsible for school-plant planning should not have other major responsibilities. If it is necessary for this person to have additional duties, they should not impinge upon his ability to carry out his responsibilities for school-plant planning.
9. The individual responsible for school-plant planning should have a broad background in the educational program. If the district feels there is need for an engineer to assist on working drawings, bidding, inspection of construction, etc.; they should employ such a person in addition to the individual responsible for the total school-plant planning process.

10. The individual responsible for school-plant planning should make every effort to continually improve himself and stay abreast of changes in the field. He should:
    a. Be an active member of such organizations as the American Association of School Administrators, The Association of School Business Officials, the National Council on Schoolhouse Construction, and associated state organizations.
    b. Attend national, regional, and state meetings of these organizations whenever possible.
    c. Participate in whatever course work, seminars, or other in-service activities that are available.
    d. Become acquainted with other school-plant planners from other school districts in Michigan, regionally, and nationally.
    e. Visit new facilities constructed in other districts, being sure to relate their educational program to the new building.
11. Some type of organization should be developed which allows those responsible for school-plant planning from these and other districts to get together regularly to discuss common problems and their possible solutions.
12. An increased effort should be made by local school districts to involve lay citizens in the development of a comprehensive long-range plan for the district. Outside experts and consultants should be utilized if necessary. The plan should be revised regularly and a new study be initiated if the

earlier one no longer applies or has lost its impact for the school district.

13. Other governmental agencies, particularly the local planning agency, should be kept informed of school district plans. Cooperative efforts should be initiated by the school district so that those agencies may participate and assist in the development of a long-range site plan and the selection of specific sites.
14. Boards of Education policies should be developed on:
    a. The long-range site plan
    b. Site selection and acquisition
    c. Educational specifications
    d. Selection of an architect
    e. Equipping and occupying a building
15. Annual enrollment projections should be made which project for a minimum of five years. Where rapid residential growth is occurring, ultimate holding capacity studies should be made with the assistance of the local planning agency.
16. More effort should be made to determine the educational adequacy of older buildings prior to major modernization projects. Outside experts in educational program, engineering, and architecture should be utilized in this evaluation if necessary.
17. Each district should develop capacity figures for every school building in the district. Information should be available which clearly explains not only the mathematical

process used, but the rationale for using that process. It might be desirable to encourage a standard method with terms which mean the same for all school districts.

18. A master plan, or long-range site plan, should be developed by all districts, regardless of their rate of growth.
19. Sites should be selected in accordance with the long-range site plan.
20. Sites should be purchased which meet an established criteria as specified by Board of Education policy. Sites should meet the minimum size requirements established by the National Council on Schoolhouse Construction.
21. All site acquisition should be done in accordance with established Board of Education policy. This policy should spell out the need for appraisals and the use of realtors.
22. Written educational specifications should be developed for all new construction, major additions, or major modernization projects. They should be complete, and clearly describe the educational program to be housed to the architect.
23. More emphasis should be placed on the educational planning for elementary schools. Because they are smaller projects and are constructed more regularly, they tend to receive less proportionate attention than the less frequently constructed, larger, and more complex secondary buildings.
24. The group developing educational specifications should include those who are familiar with the educational program and will be using the building. Major emphasis needs to be placed on the educational program and what is best for the pupils.

25. Adequate time should be provided for educational planning. This will vary according to the size and complexity of the project, but in general the minimum length of time should be six months for an elementary school, and twelve months for a secondary school.
26. Planning meetings should be held at a time and in a place where all can contribute to their maximum ability. Most classroom teachers are not at their best at the end of a school day. Arrangements should be made to meet evenings, Saturdays, or weekends when longer periods of time are available. Teachers should be paid additional compensation, and it should be made clear what they are expected to produce. An alternate solution would be to give released time during the school day to classroom teachers participating in educational planning.
27. Architects should be selected in accordance with established board of education policy. This policy should call for selection on the basis of qualifications. Standard application forms should be used, interviews held, and other work of the architects visited. The best architect for the project should be selected, regardless of geographic location or when he most recently did a project for the school district.
28. The architect selected should participate in educational planning. If the site has not already be selected, he should assist in its selection.

29. Formal board of education approval should be received on:
    a. Educational specifications
    b. Schematic drawings
    c. Preliminary drawings and specifications
    d. Working drawings
30. Furniture and equipment for new buildings should be recommended to the central purchasing office by the educational planning committee.
31. Some provision should be established to review standard lines of furniture and equipment by those who actually use it. Rapid improvements are being made in this area, and the lack of complaints by teachers unfamiliar with the new products does not justify continued purchase of the "standard" line.
32. Principals of new buildings should be appointed prior to educational planning so they may actively participate and more clearly understand the reasoning behind the necessary decisions made during educational planning.
33. Adequate time should be allowed to move in furniture and equipment, and to hold some meetings with the staff of the new building prior to its occupancy by students. Teachers should understand the mechanics of the building and its equipment and, if not involved in the educational planning, should understand the philosophy and educational concepts around which the building was designed.

34. An open house should be held which allows the citizens of the school district to thoroughly examine all facets of the new structure. This opportunity should be taken to carefully explain the educational program which the building was designed to house.

Summary

This study was conceived in an effort to help those responsible for the school-plant planning process to be more effective. Information was presented on the process as described in the literature, and a series of generalized observations were developed. The study was designed to give a comprehensive description of the total school-plant planning process currently being carried out in the selected districts. The task was broad and complex, just as the process which it attempts to describe. Only by a careful study of the total process can those specific areas which need further attention be identified. No dramatic surprises have been uncovered, but many strengths and weaknesses have been revealed. It is the writer's hope that this study will receive thoughtful consideration and prove of some value to those persons responsible for housing thousands of young people and an ever changing educational program.

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APPENDICES

APPENDIX A

INTERVIEW FORM FOR

A STUDY OF THE METHODS AND PROCEDURES
USED BY SELECTED MICHIGAN SCHOOL DISTRICTS
IN SCHOOL-PLANT PLANNING

I. GENERAL INFORMATION

1. Name of the school district_____

2. Name of the respondent_____

   Address_____

   Title_____

   Area of responsibility in school-plant planning_____

   _____

3. How long have you participated in school-plant planning with this school district?

   _____

4. Is there any written information explaining the school-plant planning process for this district?

   YES_____ NO_____

II. DESCRIPTION OF THE DISTRICT

A. ENROLLMENT FIGURES (FOURTH FRIDAY RESIDENT MEMBERSHIP, K-12)

1955_____	1960_____
1956_____	1961_____
1957_____	1962_____
1958_____	1963_____
1959_____	1964_____

INCREASE IN ENROLLMENT DURING PAST TEN YEARS:

TOTAL_____ RATE OF GROWTH(%)_____

B. GEOGRAPHIC AREA

1. Approximately how many square miles does the school district cover?

   _____

2. Approximately how many square miles did the district cover in 1955?

_____

3. Do you anticipate the annexation of surrounding districts?

YES_____ NO_____

4. If the answer to item 3 in YES, are these primary districts and/or K-12 districts?

K-6_____ K-8_____ K-12_____

C. EXISTING SCHOOL-PLANT

1. How many buildings do you have in each of your grade classifications? (EXAMPLE: K-6, 7-9, 10-12)

	GRADE LEVEL	NUMBER OF BUILDINGS	1964 ENROLLMENT
Primary Units	_____	_____	_____
Elementary	_____	_____	_____
Junior High School	_____	_____	_____
Intermediate School	_____	_____	_____
Senior High School	_____	_____	_____

2. How many buildings have been constructed in each of the categories since 1955? (Please include buildings which opened in September, 1955. Major additions consist of six or more classrooms.)

	NEW CONSTRUCTION		MAJOR ADDITIONS	
	NUMBER	CAPACITY	NUMBER	CAPACITY
Primary Units	_____	_____	_____	_____
Elementary Schools	_____	_____	_____	_____
Junior High Schools	_____	_____	_____	_____
Senior High Schools	_____	_____	_____	_____

D. FINANCIAL STATUS

1. What was the SEV/resident member for 1964-65?

_____

2. What school millage was levied during the 1964-65 school year?

   a. Allocated _____

   b. Extra voted:

      Operations _____

      Building & Site _____

      Debt Retirement _____

      Total Extra Voted _____

   c. Total Millage Levied _____

III. ADMINISTRATIVE ORGANIZATION

1. Is a chart available showing the line and staff relationships of the school administration?

   YES_____ NO_____

2. If the answer to item 1 is YES, please attach a copy or a brief sketch.

IV. RESPONSIBILITY FOR SCHOOL-PLANT PLANNING

1. Is one individual responsible for coordinating all efforts in the area of school-plant planning?

   YES_____ NO_____

   (If the answer is NO, please skip to item 6)

2. If the answer to item 1 is YES, what title does this person have?

   _____

3. If the answer to item 1 is YES, does this individual have other major responsibilities?

   _____

   _____

   _____

   _____

5. Which responsibility do you consider to be the most important?

   _____

6. If the answer to item 1 is NO, please indicate, by title, the individual members of the staff who are responsible for carrying out each of the major steps in the planning process:

a. Determination of needs _____
   (1) Enrollment projection _____
   (2) Saturation analysis _____
   (3) Program needs _____

b. Analysis of existing resources _____
   (1) Evaluation of buildings _____
   (2) Analysis of finances available _____

c. Site selection _____

d. Site acquisition _____

e. Educational planning for a specific building _____

f. Coordinating work of the architect _____

g. Equipping the completed building _____

h. Orienting the staff in the use of the building _____

V. PROCEDURES FOR DISTRICT-WIDE PLANNING

A. "COMPREHENSIVE" SURVEY

1. When was the last school survey completed which could be considered comprehensive?

_____

2. What major areas were included?

Areas of study:

Packground of the community _____
Educational program _____
Personnel _____
Finance _____
Enrollment projections _____
Evaluation of facilities _____
Other:_____ _____
_____ _____
_____ _____

Recommendations:

Program improvement	_____
Site selection and acquisition	_____
Modernization of existing facilities	_____
Abandonment of existing facilities	_____
Construction of new facilities	_____
Methods of financing	_____
Other:_____	_____
_____	_____
_____	_____

3. Was the study conducted by:

a. Outside experts	_____
b. Members of the local staff only	_____
c. Members of the local staff with assistance of outside experts	_____
d. Lay citizens along with outside experts and the local staff	_____
e. Other (Please specify)	
_____	_____

4. If an outside expert or educational consultant was used, was he from:

a. Private consulting firm	_____
b. College or university	_____
c. State Department of Public Instruction	_____
d. Architectural firm	_____
e. Other (Please specify)	
_____	_____

5. Did the local planning agency assist in the survey:

YES_____ NO_____

6. Has the survey been updated annually?

YES_____ NO_____

7. What impact does the survey have on current decisions?

A GREAT DEAL_____SOME_____LITTLE_____NONE_____

8. Are there any plans for conducting a comprehensive school survey in the near future?

YES_____ NO_____

B. DETERMINATION OF EDUCATIONAL PROGRAM NEEDS

1. Is there an ongoing study of the school program by the professional staff?

YES_____ NO_____

[illegible]

[illegible]

[illegible]

2. If the answer to item 1 is YES, how is this study organized?

   a. By subject areas (K-12) _____

   b. By grade levels _____

   c. By subject areas within grade levels _____

   d. Other (Please specify) _____

   _____

   _____

   _____

3. What provision is made for the communication of recommendations of such study groups to those responsible for planning school-plants?

   _____

   _____

   _____

   _____

4. Has the school district developed a written statement of philosophy?

   YES_____ NO_____

5. Has each subject area and/or grade level developed a statement of goals and objectives?

   YES_____ NO_____

6. If the answers to items 4 or 5 are YES, are these statements considered in the educational planning of a building?

   ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

C. DETERMINATION OF SCHOOL HOUSING NEEDS(ENROLLMENT)

1. Is an annual enrollment projection made?

   YES_____ NO_____

   (If the answer is NO, please skip to item 5)

2. If the answer to item 1 is YES, what method of projection is used?

   _____

3. If the answer to item 1 is YES, for how many years in advance is the projection made?

_____

4. If the answer to item 1 is YES, who actually makes the projection?

TITLE_____

5. Has an ultimate holding capacity study (saturation analysis) been made for the district?

YES_____ NO_____

(If the answer is NO, please skip to item 8)

6. If the answer to item 5 is YES, who actually made the study?

TITLE_____

7. If the answer to item 5 is YES, did the local planning agency assist in conducting the study?

YES_____ NO_____

8. Are plats for residential development submitted to the school staff by the local planning agency, prior to approval?

YES_____ NO_____

9. Have written board policies been developed on:

	YES	NO
Ratio of professional staff/students	_____	_____
Size of class	_____	_____
Internal organization	_____	_____
(EXAMPLE: K-6, 7-9, 10-12)		
Travel distances	_____	_____

D. EVALUATION OF SCHOOL-PLANT

1. Are the buildings of the district evaluated for educational adequacy on a regular periodical basis?

YES_____ NO_____

2. If the answer to item 1 is YES, how often are buildings evaluated?

_____

3. Who is responsible for building evaluation?

TITLE_____

4. Who actually participates in the evaluation?

	A	U	O	N
a. Outside consultant	___	___	___	___
b. Building principal	___	___	___	___
c. Members of the teaching staff	___	___	___	___
d. Administrative staff:				
TITLE_____	___	___	___	___
_____	___	___	___	___
e. Engineer	___	___	___	___
f. Architect	___	___	___	___
g. Lay citizens	___	___	___	___
h. Others: (Please specify)				
_____	___	___	___	___
_____	___	___	___	___

5. Are capacity figures available for all schools?

YES_____ NO_____

6. If the answer to item 5 is YES, are the figures for maximum or optimum capacity?

_____

OTHER_____

7. What method is used for determining the capacity of elementary schools?

_____

_____

_____

8. What method is used for determining the capacity of secondary schools?

_____

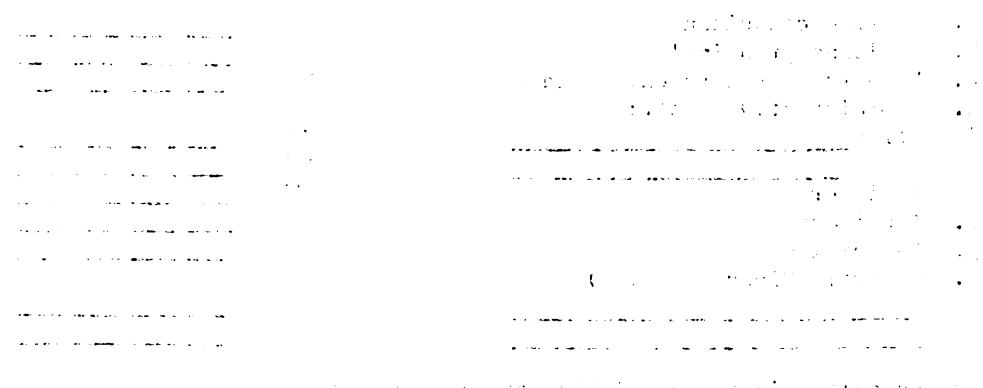
_____

_____

_____

9. What percent of utilization of spaces in secondary facilities is considered acceptable?

_____



E. THE LONG RANGE PLAN, OR MASTER PLAN

1. Has a master plan for future school sites been developed?

YES_____ NO_____

(If the answer is NO, please skip to SECTION F)

2. If the answer to item 1 is YES, has this master plan been adopted by the board?

YES_____ NO_____

3. If the answer to item 2 is YES, has this master plan been submitted to other agencies for review?

YES_____ NO_____

4. If the answer to item 2 is YES, is the school master plan a part of the city master plan?

YES_____ NO_____

5. Are there board policies regarding the master plan?

	YES	NO
a. Need for master plan	_____	_____
b. Procedure for development	_____	_____
c. Procedure for review and updating	_____	_____
d. Procedure for implementing	_____	_____

F. SITE SELECTION

1. Are sites selected in accordance with a master plan?

ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

2. Have criteria for site selection been developed?

YES_____ NO_____

3. If the answer to item 2 is YES, is this criteria board policy?

YES_____ NO_____

4. What site size is considered desirable?

	SITE SIZE IN ACRES
Elementary	_____
Junior High	_____
Senior High	_____

5. How far in advance of need are sites usually purchased?

	NUMBER OF YEARS
Elementary	_____
Junior High	_____
Senior High	_____

6. How many vacant sites are now owned?

	NUMBER OF SITES	TOTAL ACREAGE
Elementary	_____	_____
Junior High	_____	_____
Senior High	_____	_____

7. Are sites purchased outside the school district when annexation is considered probable?

YES_____ NO_____

8. If the answer to item 7 is YES, are sites now owned outside the district?

	NUMBER OF SITES	TOTAL ACREAGE
Elementary	_____	_____
Junior High	_____	_____
Senior High	_____	_____

9. Do representatives of the local planning agency assist in site selection?

ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

G. SITE ACQUISITION

1. Is there written board policy on acquisition procedures?

YES_____ NO_____

2. Who is responsible for actual site acquisition?

TITLE_____

3. Are appraisals made on land purchased?

ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

4. If the answer to item 3 is ALWAYS OR USUALLY, how many appraisals are required?

_____

5. Are realtors engaged to make land purchases?

ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

6. Are specialists used in evaluating the site prior to purchase?

	A	U	O	N
Engineers	___	___	___	___
Landscape architect	___	___	___	___
Others (Please specify)				
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___

VI. PROCEDURES FOR PLANNING THE INDIVIDUAL SCHOOL-PLANT

A. EDUCATIONAL PLANNING

1. What persons are involved in the development of educational specifications?

	Elementary School				Secondary School			
	A	U	O	N	A	U	O	N
Outside educational consultant	___	___	___	___	___	___	___	___
Architect	___	___	___	___	___	___	___	___
Superintendent	___	___	___	___	___	___	___	___
Asst. Supt. for Instruction	___	___	___	___	___	___	___	___
Asst. Supt. for Business	___	___	___	___	___	___	___	___
Director of School-plant	___	___	___	___	___	___	___	___
Principals	___	___	___	___	___	___	___	___
Teachers	___	___	___	___	___	___	___	___
Custodians	___	___	___	___	___	___	___	___
School engineer	___	___	___	___	___	___	___	___
Lay citizens	___	___	___	___	___	___	___	___
Other: (Specify)								
_____	___	___	___	___	___	___	___	___
_____	___	___	___	___	___	___	___	___
_____	___	___	___	___	___	___	___	___
_____	___	___	___	___	___	___	___	___
_____	___	___	___	___	___	___	___	___

2. How large is the total group usually involved in developing educational specifications?

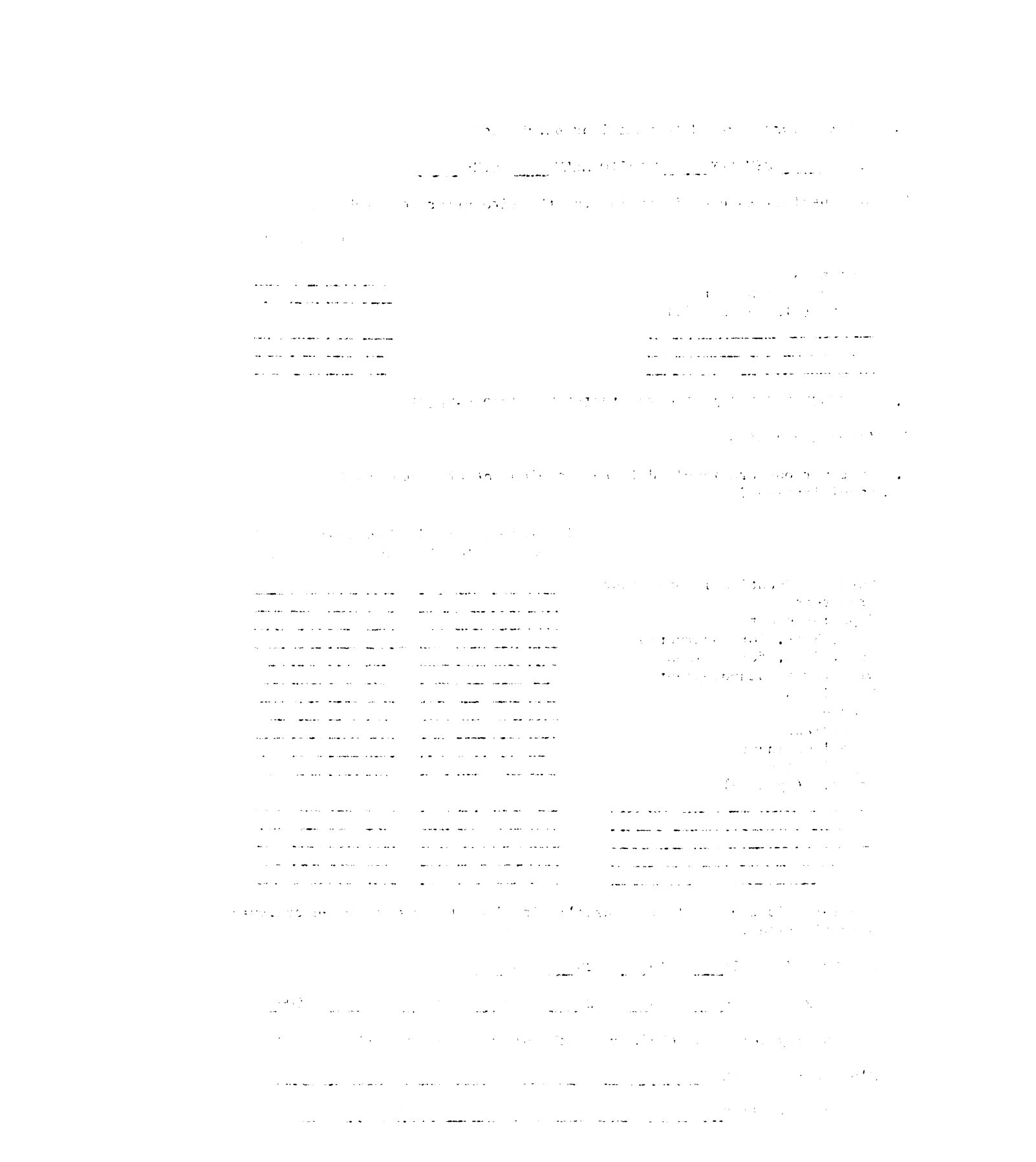
ELEMENTARY 5+___ 10___ 20___ 30___

SECONDARY 5+___ 10___ 20___ 30___ 40___ 50___ 50+___

3. Who usually serves as chairman of the planning committee?

Elementary - TITLE_____

Secondary - TITLE_____



4. Are <u>written</u> educational specifications developed for new elementary buildings?

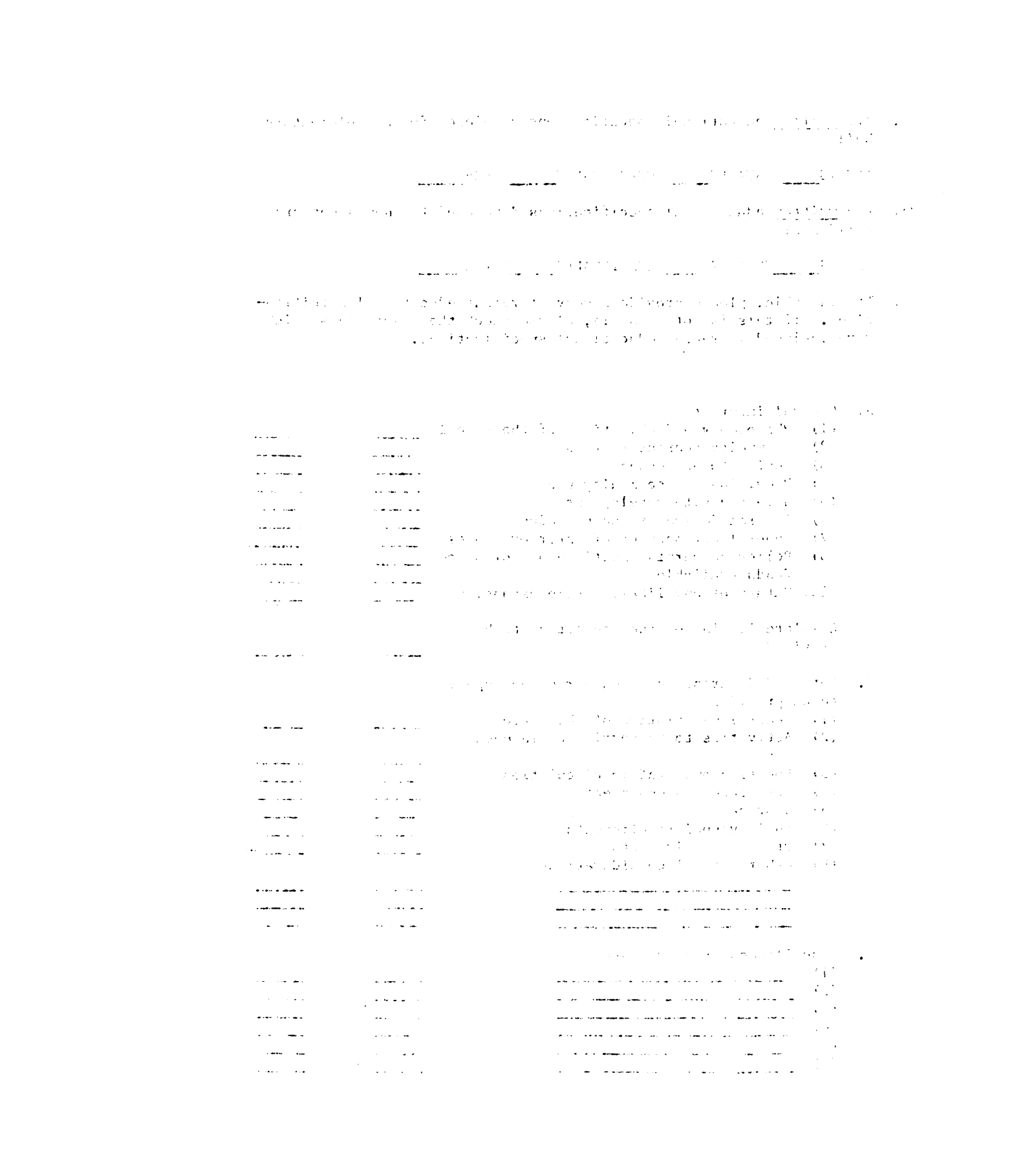
ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

5. Are <u>written</u> educational specifications developed for new secondary buildings?

ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

6. If available, please provide a copy of recent educational specifications. If this is not possible, please check the major items which were included in recent educational specifications.

	ELEMENTARY	SECONDARY
A. General information		
(1) Philosophy and objectives of the school	_____	_____
(2) Community characteristics	_____	_____
(3) Pupils to be housed	_____	_____
(4) Provision for community use	_____	_____
(5) Site and site development	_____	_____
(6) General design of the building	_____	_____
(7) General arrangement of interior spaces	_____	_____
(8) Policy concerning multiple use of space	_____	_____
(9) Funds available	_____	_____
(10) Nature of any likely future expansion	_____	_____
B. Complete listing of the facilities to be provided	_____	_____
C. Detailed description of each room and space to be provided		
(1) General description of the space	_____	_____
(2) Activities to be carried on in each space	_____	_____
(3) Location and traffic circulation	_____	_____
(4) Furniture and equipment	_____	_____
(5) Storage	_____	_____
(6) Audio-visual requirements	_____	_____
(7) Utility requirements	_____	_____
(8) Other special considerations:		
_____	_____	_____
_____	_____	_____
_____	_____	_____
D. Miscellaneous requirements		
(1) _____	_____	_____
(2) _____	_____	_____
(3) _____	_____	_____
(4) _____	_____	_____
(5) _____	_____	_____
(6) _____	_____	_____



7. What length of time is usually allowed for educational planning?

ELEMENTARY_____months

SECONDARY_____months

8. What length of time do you feel should be allowed for educational planning?

ELEMENTARY_____months

SECONDARY_____months

9. How often are planning meetings usually held? (EXAMPLE: weekly, bi-weekly, monthly, etc.)

	ELEMENTARY	SECONDARY
Entire committee	_____	_____
Sub-committees	_____	_____
Other:		
_____	_____	_____
_____	_____	_____
_____	_____	_____

10. When are planning meetings usually held?

	ELEMENTARY SCHOOL				SECONDARY SCHOOL			
	A	U	O	N	A	U	O	N
Immediately after school hours	___	___	___	___	___	___	___	___
During school hours	___	___	___	___	___	___	___	___
Evenings	___	___	___	___	___	___	___	___
Saturdays	___	___	___	___	___	___	___	___
During vacation periods	___	___	___	___	___	___	___	___
Other:								
_____	___	___	___	___	___	___	___	___
_____	___	___	___	___	___	___	___	___
_____	___	___	___	___	___	___	___	___

11. If meetings are held during school hours, are teachers released from school duties so they may attend?

ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

12. If meetings are held during other than normal hours, is extra pay given those who participate?

ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

B. ARCHITECTURAL PLANNING

1. Is there written board policy on the selection of architects?

YES_____ NO_____

2. How are architects selected?
   a. Design competition

      ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

   b. Open selection on the basis of qualifications

      ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

3. Are standard questionnaries used for screening applicants?

   ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

4. If the answer to item 2 is YES, what questionnaire is used?

   _____

5. Are architects interviewed before selection?

   ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

6. Is other work of the architects visited?

   ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

7. Are architects considered to be local architects used?

   ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

   COMMENTS_____

   _____

   _____

8. Are local architects given repeat business on a rotation basis?

   ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

   COMMENTS_____

   _____

   _____

9. Have any recent buildings been designed by architects with home offices outside Michigan?

YES_____ NO_____

COMMENTS_____

_____

_____

10. Are architects required to have a master site plan developed by a landscape architect?

	YES	NO
ELEMENTARY	_____	_____
SECONDARY	_____	_____

11. Are architects usually given a cost figure which they are expected to meet?

	ELEMENTARY		SECONDARY	
	YES	NO	YES	NO
Total cost	____	____	____	____
Cost per square foot	____	____	____	____
Other_____	____	____	____	____

12. Does the school district employ a registered engineer?

YES_____ NO_____

13. If the answer to item 11 is YES, does this engineer work closely with the architect?

YES_____ NO_____

14. Does the school district employ a registered architect?

YES_____ NO_____

C. EQUIPPING

1. Does your school district utilize a central purchasing office?

YES_____ NO_____

2. If your answer to item 1 is YES, does this office purchase that furniture for new buildings which is the responsibility of the school district?

YES_____ NO_____

3. Is furniture and equipment for a new building recommended by the group doing the educational planning?

   ALWAYS_____USUALLY_____OCCASIONALLY_____NEVER_____

4. Are "standardized" lines of items of furniture and equipment usually purchased?

   YES_____ NO_____

5. If the answer to item 4 is YES, what persons determine the standardized items?

   _____

   _____

   _____

   _____

6. What provision is made for review of standardized items?

   _____

   _____

   _____

   _____

7. Is there a written criteria for the selection of furniture and equipment?

   YES_____ NO_____

8. If the answer to item 7 is YES, is this criteria written board policy?

   YES_____ NO_____

D. OCCUPYING

1. Please describe how the staff of a new building is oriented for use of the building. (Pre-school workshops, in-service training, etc.)

   ELEMENTARY_____

   _____

   _____

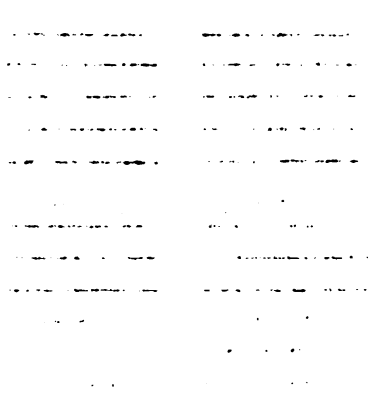
   SECONDARY_____

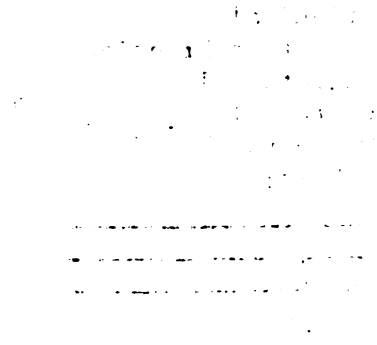
   _____

   _____

2. How many months before the school actually opens, are staff members usually appointed?

	ELEMENTARY	SECONDARY
Principal	_____	_____
Assistant Principal	_____	_____
Secretarial	_____	_____
Custodial	_____	_____
Teachers	_____	_____
Others:		
_____	_____	_____
_____	_____	_____
_____	_____	_____





VII. MAJOR PROBLEMS

1. What do you consider to be the three most difficult problems facing your school district in the area of school-plant planning?

a. _____

_____

_____

b. _____

_____

_____

c. _____

_____

_____

VIII. SUGGESTIONS FOR IMPROVEMENT

1. What suggestions do you have for improving the school-plant planning process?

a. _____

_____

_____

b. _____

_____

_____

c. _____

_____

_____