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SCHOOL SITES. SELECTION AND DEVELOPMENT.

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CERTAIN CRITICAL CRITERIA SHOULD BE CONSIDERED IN SELECTING THE SCHOOL SITE. IMPORTANT IS THE STUDY OF SUCH FACTORS AS PRESENT AND PROJECTED PUPIL POPULATION, THE SCHOOL MASTER PLAN, MAIN THOROUGHFARES, DWELLINGS, LAND USE, SOILS, (SHOWN BY SERVICE MAPS), EXISTING SCHOOL FACILITIES AND ATTENDANCE, BOUNDARIES, UTILITY SERVICES AND FLOOD CONTROLS. PREPARING THE SITE FOR BUILDING CONSTRUCTION IS DEPENDENT ON DISTRICT ADMINISTRATIVE ORGANIZATION, I.E., ELEMENTARY, SENIOR HIGH SCHOOL OR OTHER, ULTIMATE SCHOOL ENROLLMENT, THE SCHOOL'S EDUCATIONAL PROGRAM, EXPENDITURES FOR EXCAVATION AND FOR OPERATION AND MAINTENANCE OF THE PLANT, CONVENIENCE AND SAFETY FACTORS, AND GENERAL AREAS TO IMPLEMENT THE SCHOOL PROGRAM. THE SITE SHOULD BE LOCATED IN A PROPER RELATIONSHIP TO COMMUNITY FACILITIES AND BE EASILY ACCESSIBLE TO BOTH PUPILS AND PATRONS. TO DETER ADDITIONAL COSTS LAND CONTOURS, SUBSOIL COMPOSITION, AVAILABILITY OF LAND, DISPOSITION OF STRUCTURES ON THE LAND, LEGAL MEASURERS TO ACQUIRE THE LAND, PHYSICAL HAZARDS AND POSSIBLE ANNOYANCES SHOULD BE CAREFULLY EXAMINED. THE SIZE OF THE SITE MAY BE DETERMINED BY THE PRESENT AND FUTURE NEEDS OF THE WHOLE SCHOOL PROGRAM. AREAS WITHIN THE SITE SHOULD BE ALLOCATED FOR THE SCHOOL BUILDING, BUILDING EXPANSION, PARKING LOTS AND DRIVEWAYS, PAVED GAME AREAS, PHYSICAL EDUCATION, OUTDOOR INSTRUCTION, A STADIUM WITH PARKING FACILITIES, LANDSCAPING AND BUFFER AREAS, AND UNASSIGNED AREAS TO BE HELD FOR FUTURE USE. (GM)

School Sites

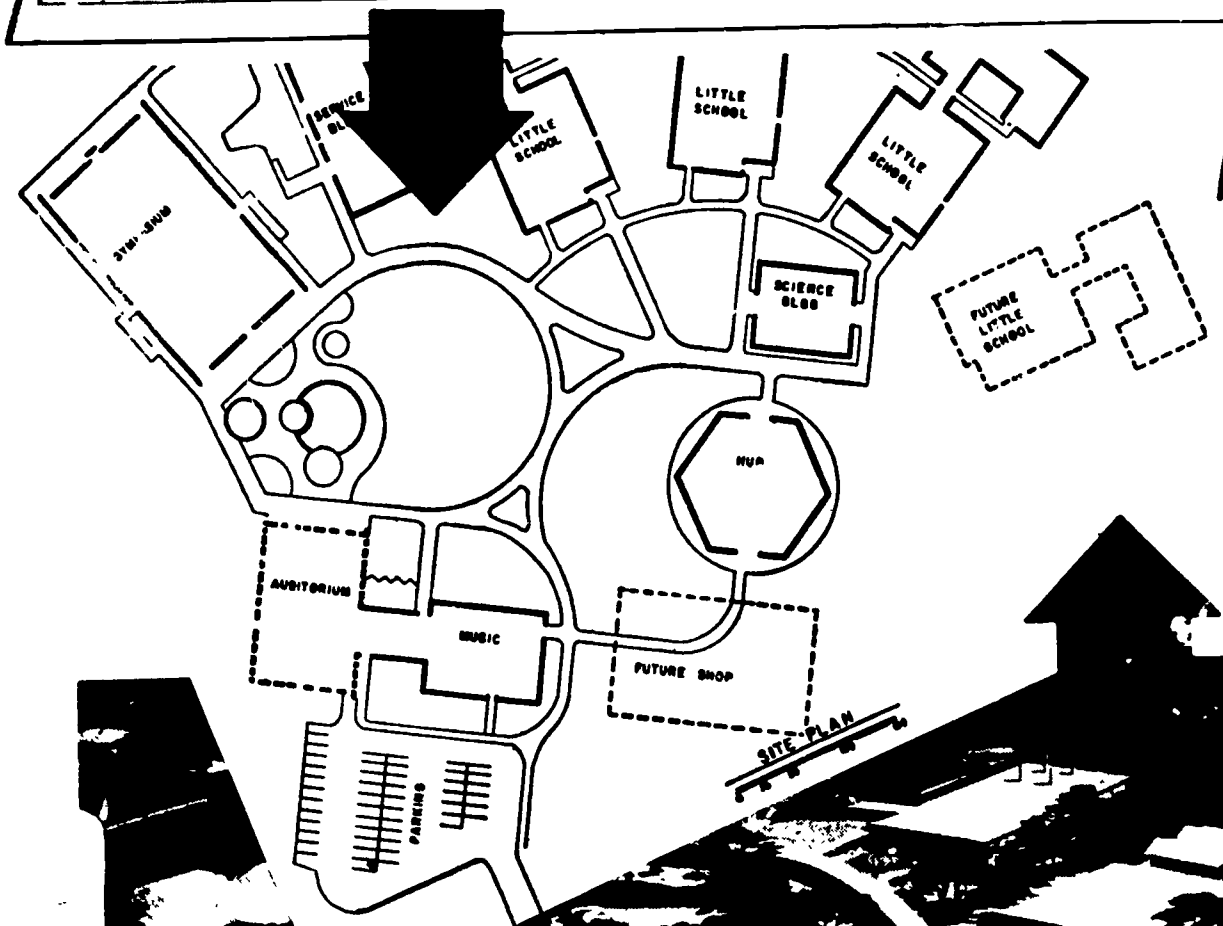
Selection and Development

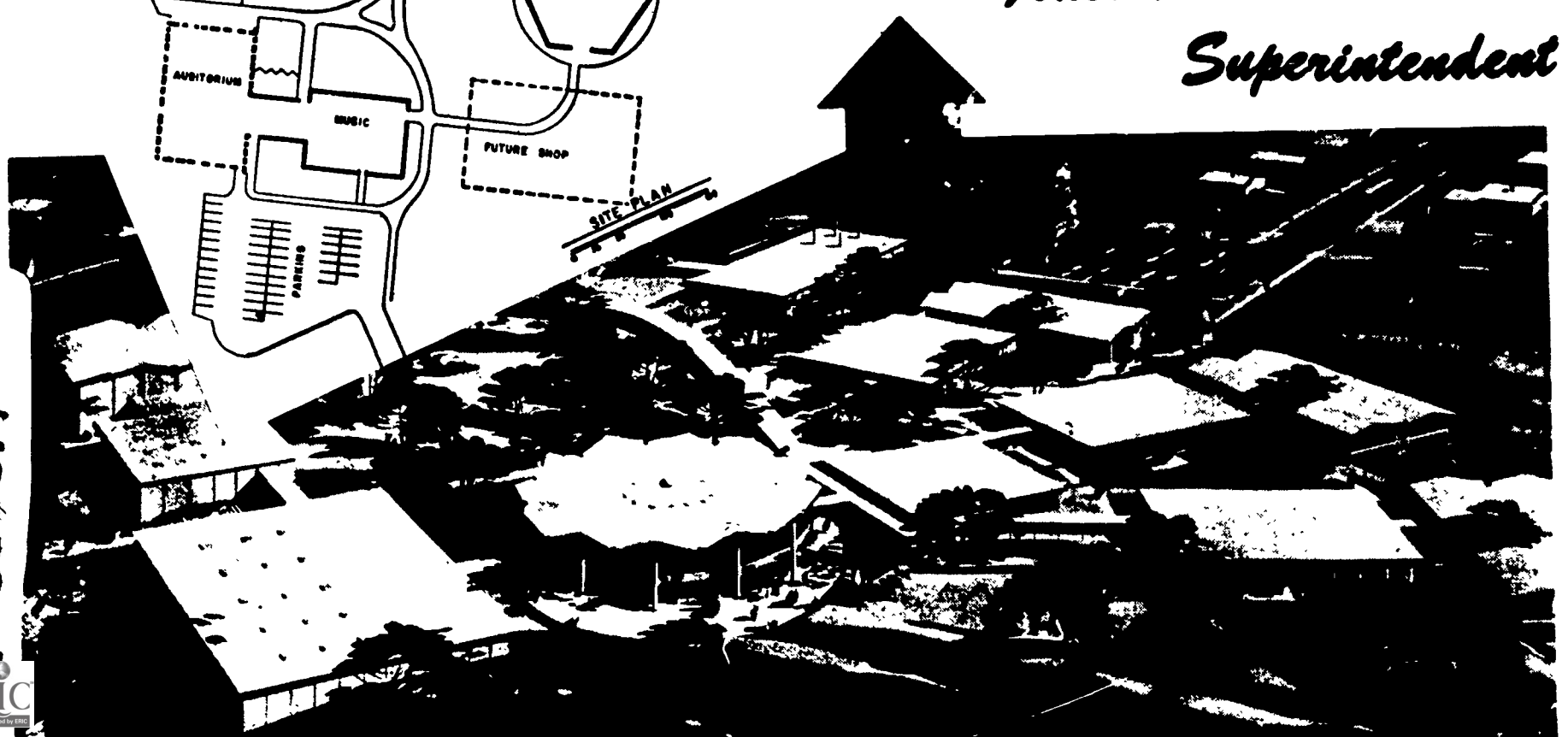
1966

issued by

Kansas State Department of Public Instruction

Adel F. Throckmorton
Superintendent





SCHOOL SITES

Selection and Development

prepared by

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School Facilities Services

1966

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ADEL F. THROCKMORTON, Superintendent

Kansas State Department of Public Instruction

PREFACE

School facilities have undergone drastic changes in the last 50 years. There was a time in Kansas when many schools were but a single room building in which usually the first eight classes were seated together. These schools had very simple and limited facilities in terms of space, light, heat, sanitation and play areas. Following the turn of the Century and the post World War I period, school buildings became larger and generally multi-story in design. More attention was given to space, light, heat and special needs but generally the school authorities continued to locate the buildings on very limited sites. Many of the sites selected were in the heart of the city and consisted of only a corner of a city block.

As time went on more consideration was given to the site and more facilities were added to the building. The school plant began to assume a greater significance in the administration of the school program and in the social life of the community.

Years ago schools were usually open and used only between 9 a.m. and 4 p.m. five days a week. Today our school buildings are used much more efficiently. Between the normal school functions, curricular activities, night school, adult education, summer programs and community functions many schools are open from early in the morning until late at night; both winter and summer.

Learning today is more efficient than ever before. New teaching methods and new teaching aids developed through extensive research allow a student to realize more from his study-learning hours than believed possible just a few years ago. Modern curricula planning realizes that the whole child is involved in each learning activity. The student's learning is a product of planned activity and the physical forces existing in the environment of his school and classroom. One such physical force in determining how much success a child will achieve is the size of the school site.

The former three and four-story structures are gradually being replaced by one or two-story buildings and these schools naturally occupy considerably more ground area. In addition to providing space for the school plant, a good site must be adequate for at least physical education, athletic fields, parking areas, loading and unloading school buses, outdoor laboratories, drives, walks and recreation. As a result all educational authorities are suggesting larger sites, carefully selected, for our modern school plants.

"The world hates change, yet it is the only thing that has brought progress."

Charles F. Kettering

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Ideally, site acquisition is planned for several years in advance of need as a responsibility of the local board of education. Careful studies should be made of population trends, industrial, commercial and residential developments, and other factors indicative of when and where new school sites will be required. In the past, many districts have unwisely selected unsuitable parcels of land at inflated prices because of a lack of planning. Such a "wait and see" attitude can result in early obsolescence of school plants, increased costs to the taxpayers and the loss of educational opportunity for children.

A school site for a modern educational plant is much more than a parcel of land upon which to erect school buildings. It is an integral part of the education plant and one of the basic tools in the educational process. A school district's planned educational program will often succeed or be curtailed depending upon the adequacy of the school site. A well planned program usually calls for activities both inside and outside the school buildings. The site should be adequate to provide areas for physical education, outdoor laboratories, loading and unloading pupils, drives, walks, recreation and supplementary space such as might be anticipated. Therefore, the educational and community purposes to be achieved through the school site should influence to a great extent the size, shape, location, and development of land areas for school plants. The process of selecting and developing a school site must be approached with caution, if it is to provide good design opportunity.

SITE SELECTION AND DEVELOPMENT

The selection and development of a school site has many technical aspects. In the earliest planning stages the selection of a site requires a team approach involving the school board, administrators, teaching staff, architect, engineers, recreation experts, urban planners, special consultants and a legal advisor. Although it is wise to choose school sites far in advance of construction, the selecting body before actual selection starts should develop standards to be used in the appraisal of land areas as possible school sites.

Some of the basic data required for actual site selection can be obtained from:

1. Preschool or pupil spot map to show location of pupils of various ages.

2. Community and regional master-plans if available should be reviewed for their probable influence on the future of the local school system.

3. Land-use maps are available in communities maintaining a permanent planning force and will show areas zoned for various purposes and actual use.

4. Aerial photographs to help identify likely areas for school sites.

5. Soil map to guard against the purchase of land with subsoil characteristics which would increase foundation costs or compound drainage problems.

6. Topography map to help identify the terrain and likely areas of population concentration.

7. Highway and major road maps and plans to chart vehicular and pedestrian traffic flows.

8. Flood control maps to aid in determining areas flooded during various disasters.

9. Dwelling maps to determine the types and numbers of various houses.

10. School service maps to ascertain existing school locations and attendance unit boundary lines.

11. Utility service plans to show locations of present and proposed water, gas, sewer, and electric services.

12. Realtors and developers regarding growth trends and intentions of any residential developers, both as to quantity and timing.

The basis employed for selecting and developing a school site should be sufficiently broad and flexible to allow for variations in the character of the school district, the size and type of plant to be built, and the nature of the educational program and activities to be accommodated. In general, a desirable site which will satisfy most, if not all, educational program demands will be within the financial ability of the district to purchase and develop; be appropriately located within the pattern of existing and future school facilities; have sufficient aesthetic qualities; have a suitable topography; and have soil characteristics applicable to economical construction methods. Undesirable elements such as heavy traffic patterns and unusual dust, odor, or noise annoyances close to school sites should be avoided.

SITE SELECTION CRITERIA

Conditions vary widely from community to community with respect to educational programs, public recreation programs, financial resources, and other significant factors to be considered in selecting school sites. There are, however, certain commonly accepted criteria which are usually applicable. Some of these are as follows:

1. The type of site required will depend upon:

   a. School's administrative organization, i.e., elementary, junior high, senior high, or others,
   b. The ultimate school enrollment,
   c. School's educational program,
   d. Proposed utilization of site.

2. The site should be located and developed in proper relationship with existing and proposed physical facilities of communities, including parks, recreation centers, libraries, health centers, streets, highways, and residential housing.

3. Schools usually should be located near the center of the present and probable future population to be served, if adequate sites are available.

4. The school site should be located within walking distance of the greatest number of pupils. The following distances are considered reasonable maximum for pupils walking to school:

   a. Primary K-3 . . . . . one-half mile
   b. Elementary . . . . . three-fourths mile
   c. Junior High . . . . . one and one-half mile
   d. Senior High . . . . . two miles

5. The school site should be conveniently accessible to those who are transported.

6. The site should be selected in relation to anticipated future schools. In attempting to determine the boundaries of attendance areas, such factors as the following should be considered:

   a. The grade range for each school.
   b. The permissible type of residential development, as it may affect the probable number of children per attendance unit.
   c. The policy of the school district concerning transportation of children.
   d. The hazards and natural barriers which affect the accessibility of a given school.
   e. The policy as to maximum school enrollment.

7. The site should be large enough not only to accommodate adequately the necessary building or buildings, but also provide ample space for outdoor instruction and recreation, for parking, and for future expansion of building and play area.

8. The site should be located so as to safeguard the children from hazards and undesirable environments, such as:

   a. Arterial highways, heavily traveled streets, traffic and congestion.
   b. Noise, smoke, odors--from railroads, airports, and odiferous plants or industries.
   c. Natural barriers limiting accessibility and expansibility, such as rivers, lakes, swamps, and protruding ridges.
   d. High voltage transmission lines, booster or reduction stations, high pressure gas lines, and transformer stations.
   e. Taverns, fire stations, bulk storage plants for inflammable liquids, and property zones as industrial.

9. The site should be selected with consideration for the feasibility of constructing a building on the site from an architectural and engineering standpoint. The site should have an elevation and contour which will insure a good drainage and type of subsoil which provides a good base for building footings and foundations.

10. The site should be located so that water, sewer, electricity, and other utilities can be provided at a reasonable cost.

11. The site should be selected with due consideration to:

    a. Cost of site including present structures to be moved or razed and site improvements.
    b. Legal implications in acquiring the site. It is usually better to negotiate with owner in preference to exercising right of eminent domain.

12. The site should lend itself readily to landscaping and provide a pleasant natural environment. It should permit the location of the building an adequate distance back from the street line, both for aesthetic setting and safety of children.

13. The site should be purchased before the need becomes critical and when acreage is still available.

SIZE OF SITE

In general, the most important single question that can be raised about a proposed site is whether it provides sufficient and appropriate space for all of the in-school, evening, and vacation activities of pupils and adults of the area to be served, as well as for the building itself and the related service facilities, both for the present and the forseeable future.

Trial Analysis

Before the size of a site for any given school can be accurately determined, there must be a local decision with respect to each type of space to be considered. Really, the only satisfactory method of determining the acreage needed is to make trial layouts for each proposed site. The services of an architect can be most helpful in making this analysis. For example, in a trial analysis of the area required for a site, Table I and Table II, pages 18 and 19, will assist in checking the following items:

Areas to be considered	Estimated acreage
(1) For the school building	_____
(2) Reserve for expansion of building.....	_____
(3) Setback from streets, sidewalks, approaches, and driveways	_____
(4) Parking areas, access and buffer.....	_____
(5) Bicycle entrances and storage racks, with proper buffer areas.....	_____
(6) Landscaping and buffer areas at the side and back of the site.....	_____
(7) Paved game areas, including space for outdoor basketball and tennis courts.....	_____
(8) Field game areas for physical education and recreation.....	_____
(9) Areas for interscholastic athletics (which may overlap with field game areas).....	_____
(10) Possible athletic stadium with parking areas, access and buffer.....	_____
(11) Outdoor educational areas for nature study, biology, art, etc.....	_____
(12) Possible driver instruction areas (auto).....	_____
(13) Outdoor area adjacent to shops.....	_____
(14) Unassigned areas held in reserve for future use.	_____
(15) Other areas required for local program not listed above.....	_____
(16)	_____
(17)	_____
(18)	_____
(19)	_____
(20)	_____
Total acreage	_____

It is not the intent that the above list should be considered all inclusive. On the contrary, it is a suggested general list and each individual situation will determine other areas to be considered.

Desirable Acreage

[1]Experience has shown that ultimate site requirements should be met with the initial site acquisition, because land adjacent to a new school soon becomes occupied with housing developments or commercial establishments. The size of any school site should be determined largely by the nature and scope of the contemplated educational program. Actual layouts of the spaces needed

[1]NCSC Guide for Planning School Plants, published by the National Council on Schoolhouse Construction, 1964 edition

by the various phases of the program should be made. While it is recognized that for many schools much larger areas are preferred, the acceptance of the following suggestions will be an improvement for many of the schools throughout the country:

1. For elementary schools, it is suggested that there be provided a minimum site of 10 acres plus an additional acre for each 100 pupils of projected ultimate maximum enrollment. Thus, the site of minimum size for an elementary school of 200 pupils would be 12 acres.

2. For junior high schools, it is suggested that there be provided a minimum site of 20 acres plus an additional acre for each 100 pupils of projected ultimate maximum enrollment. Thus a site of minimum size for a junior high school of 500 pupils would be 25 acres.

3. For senior high schools, it is suggested that there be provided a minimum site of 30 acres plus an additional acre for each 100 pupils of projected ultimate maximum enrollment. Thus, the site of minimum size for a senior high school of 1,000 pupils would be 40 acres.

The site size problem varies with the needs of the type of school organization and in terms of the age and development status of the particular community or school district. The foregoing site size guidelines, therefore, must be interpreted as minimums to which all should strive but most should exceed. It must be recognized that each type of situation has its own specific variations and conditions which must be studied before sites are chosen.

Suitability of Construction

1. In general, a school site should not enhance the cost of constructing and should permit the architect to place the building in an appropriate place in relation to other facilities to be developed on the site. The services of an architect, other related specialists, and a consultant from the School Facilities Section, State Department of Public Instruction, are necessary to judge a site on this criterion.

2. A site lacking municipal water and sewage services should not be purchased without the approval of the State Board of Health. No water supply can be considered acceptable unless

it provides an ample quantity of safe and potable water for the school. The Health Officer should devote particular attention to this aspect of the school environment, taking nothing for granted and making every effort to analyze the situation correctly. Likewise, the Health Officer should approve the site as to its suitability for proper sewage disposal purposes.

3. Topography. A good site complements a fine building. A natural elevation with satisfactory approaches avoiding long or difficult climbs make a desirable setting. The site should be free from drainage from contiguous land and should permit proper drainage throughout at a reasonable cost. Rapid drainage and quick drying should characterize the parts of the site which are expected to serve as recreational and physical education areas. The soil, preferably a sandy loam, should be fertile enough to produce good lawns and vigorous landscaping growth.

4. Cost of Improvements. There are many site factors which affect costs quite apart from the purchase price of the land. Among the conditions to be determined in advance and considered along with the purchase price are the following:

   a. The need for extensive hauling of dirt due to a surplus or shortage on the site.
   b. The presence of quicksand, unsatisfactory fill, or other undesirable subsoil conditions requiring special footings or pilings to support the building.
   c. The presence of rock or other conditions affecting the cost of necessary excavation or ditches.
   d. The need for the removal of obstructions, such as large boulders or trees; the need for filling or capping of old wells, clay holes, or pits.
   e. An unduly expensive drainage need.
   f. The need for constructing and maintaining long access drives and special installations due to distance from service utilities.

5. Test Borings. Such adverse conditions can usually be overcome by modern construction methods, but they should be accepted only when the costs of such improvements are reasonable. Many of these conditions are not readily seen at the surface. Before the land is purchased, test borings should be made to accurately determine subsoil conditions and the results should be analyzed and interpreted for the board by a competent engineer or architect.

SITE DEVELOPMENT

1. The site plan presented by the architect should encompass the total site and show future developments. The same general planning procedures as for planning the building are appropriate for outdoor facilities. The processes of educational planning, writing educational specifications, and architectural designing are as applicable to sites as to buildings.

2. Architectural and engineering planning steps include:

   a. Developing preliminary ground plans coordinating in proper scale the location and orientation of the building; location of walks, drives, parking, and service areas; design and layout of recreation and community facilities.
   b. Development of the preliminary plans into workable construction drawings with consideration given to grading, drainage, water supply, road and walk construction, parking area construction, creation of outdoor instructional and recreational facilities, lawns, gardens, and other desired facilities.
   c. Development of site planning plan with materials chosen to provide a proper scale of surroundings in relation to the building, beautification of lawn and boundaries, screening of park areas and service features, shade, and integration of recreation activity areas.
   d. Drafting of specifications and estimates by the landscape architect for each construction item.

Site Development for Economy of Construction, Operation and Maintenance

1. Costs for excavations and foundation walls can be reduced by fitting the building to the contours of the land. Extra expense for special footings and special drainage can be eliminated by placing the building on high ground and where subsoil conditions are known to be favorable. Proper placement of the building will reduce the length of utility and drainage lines, drives, and walks, and thus reduce costs.

2. On the operation and maintenance side, good planning can reduce the steepness of banks that might be subject to erosion; divert water that might affect the foundations of the building or damage drives and parking lots; and reduce the amount of paving and sidewalk that must be kept in good repair and free of snow.

Site Development for Convenience and Safety

1. Walks and Drives

   a. The school site should be easily accessible from roads, streets, sidewalks, both for pupils walking to school and for those transported to school. There should be a limited number of points of entry to the school site in order to facilitate traffic control.
   b. For convenience and safety, access for pedestrians from the street curbs to the building should have first consideration; then access for those arriving by school bus, public conveyance, and by private cars; and finally, access for delivery of materials and supplies to service areas and for garbage and possibly ash removal.
   c. Walks of sufficient width should be direct, convenient and natural. Walks should be located far enough from the buildings to allow for foundation planting and extended growth of shrubbery without projecting over walks.

d. Changes in direction should be by as long radius curves as practicable. T-angles and crosses should be filled out to a curve whose radius is not less than the width of the wider of the intersecting walks.
e. The main street bordering a school usually has the heaviest traffic; therefore parking, loading and unloading, and roadways to the building should not lead directly from or into the main street or roadway if there is a convenient side street.
f. Drives should follow the most direct routes consistent with good alignments, grades, and harmonious relationships with adjacent surroundings. Driveway design should provide drainage, force traffic to keep within specified limits, be economical in maintenance, and provide for clear vision.
g. A two-lane one-way drive, directed away from the site entrance for pupils who walk to school, leading to the main points of discharge, and connecting with or ending in a parking area is usually a good solution for general passenger drives. In schools providing pupil transportation, careful consideration should be given to a safe and convenient busloading area on the site.
h. Drives should not serve the dual purpose of drives and walks. They should be distinctly and effectively separated. No driveway should encircle the school building and all intersections of drives and walks should be avoided, if possible.
i. It is desirable to group those portions of the building requiring service as near as practicable to a side street in order to minimize the loss of site space for service driveways.

2. Parking Space

a. Three groups need parking space near the school:
   (1) Teachers, pupils, and other school employees who regularly drive.
   (2) Parents, school visitors, a salesmen.
   (3) Large spectator groups attending school or public activities.
b. The first group will appreciate a well-drained, shady area with a blacktop surface. A space of 10 by 30 feet should be allowed for each car. The second group will appreciate convenience first of all. Signs indicating visitor or transient parking will help as will signs at the parking lot indicating the direction of the office. For the third group, a large parking space is required to use for afterschool and evening activities. This area should be blacktopped and used as a hard surfaced play area during the school day. Tennis and volleyball courts may be constructed as part of this area provided removable net posts are installed.

3. Utilities

a. An adequate budget must be planned and provided to adequately take care of utilities, not only for the building but for the total site development.

a. Water and sewer systems
   (1) No water supply system or sewage disposal should be installed, altered or extended until complete plans and specifications for same have been submitted to the Kansas State Board of Health.
   (2) As pointed out on page 7, the school board should consult with the State Board of Health regarding both water supply and sewage disposal before purchasing any school site.

b. Electric power, light, gas and telephone
   (1) Before a contract is closed to purchase a school site, utility companies should be consulted and assurance obtained that gas, light, power, and telephone service can be installed without excessive cost for construction of transmission lines and mains.

4. Site development through landscaping

   a. No school site plan should be considered adequate without an accompanying planting plan. The site design should consider the harmonious visual integration of the varied plantings with the mass of buildings from all points of view. The service of a competent landscape architect may be desirable to insure proper adjustment of all elements to the principles of design.

   b. The classes of plants usually used on school grounds are: shade trees, evergreens, evergreen shrubs, deciduous flowering shrubs, and ground covers such as grasses. In general, a school ground planting scheme will consist of foundation planting, intersection planting of shrubs at angles and curves of drives and walks, tall trees to frame the building, and trees planted in groves for shade. Some suggestions are:
   (1) Limit the choice of trees and shrubs to those varieties that require minimum maintenance, are known to be sturdy, thrive in recreation areas, and tolerate normal amounts of dry weather. Plantings should generally be informal in character.
   (2) If all the planting cannot be done at once, plant shade or larger trees first. Locate trees in relation to the building so as to shield classrooms from brightness of the sky, reflected snow glare, glare from adjacent buildings, and to provide shade. Trees should not be planted along the roads, borders of the site, and in other areas where shade is needed. Retain and protect as many natural existing trees as it is possible to absorb in the total plan.
   (3) If the plans involve foundation plantings, locate shrubs with due regard to their growing habits. Do not plant shrubs requiring constant pruning under windows.
   (4) A well-kept lawn is fundamental, but too expensive areas of front lawn are not only expensive to maintain but often take space better devoted to parking or recreation. Grass suited to the local soil should be grown on all areas not used for gardens or for part of the outdoor instructional and recreational areas in which it would be undesirable.

(5) Provide fences of sufficient height and substantial construction along heavily travelled streets for safety and ease of supervision. Adequate and sturdy fences on the perimeter of athletic fields will often prevent numerous complaints from property owners.

(6) Save all usable existing topsoil on the site. It can be replaced only at great expense. An analysis of the topsoil should be made to determine plant food requirements for the plantings provided.

5. Site development to implement school program

a. The reason for having an adequate school site is to provide suitable facilities for conducting the school program. The present program, the proposed program and the program of the future must be considered in locating the various areas.

(1) The area provided kindergarten and primary children should be a pleasant, shady area, isolated if necessary by planted hedges or fences, and including such play facilities as slides, sand boxes, climbing structures, and jungle gyms. It is desirable to have a section of the playground in which these children can play informal games. A paved area should be provided for various games, for the use of wheel toys, and for use after rains.

(2) Older elementary children should be provided with play areas suited to the planned physical education and recreation program. The area usually includes units of apparatus, but there should be ample space for informal games. There should also be sufficient and unobstructed space for organized games and sports. A paved area is very desirable.

(3) Secondary school pupils should be provided space for all the varied activities in the school's outdoor health, physical education and recreation program.

(4) A list of recommended activities, official dimensions of spaces required for activities, and total space recommendations are listed in Tables I and II, pages 18 and 19.

6. Multiple use of areas

a. When any site is intended to provide for various combinations of grade levels, the separate requirements must be added together. Certain play fields or areas, however, may have multiple use or may overlap. The areas laid out for football, soccer, and field hockey in the fall may be the baseball fields, or softball fields, or archery ranges in the spring. The diamond portion of the baseball field or portions of the running track should not overlap any other field. In small schools, one field may be used for a variety of field games and scheduled so as to serve different groups at different times. For seasonal games and sports, it is necessary to provide removable goals and bases and to guard against other undesirable obstructions in the field area. Overuse of duplicate facilities will make grass maintenance difficult.

b. Frequently one blacktopped area can serve as an outdoor playground in muddy weather, as a space for outdoor basketball, tennis, and volleyball, as an area to be flooded for ice skating during the winter, and as an overflow parking space for special occasions.

7. Interscholastic athletics

a. Programs of interscholastic athletics in the major sports introduce special problems of site development, largely due to the crowds that must be handled. Extra parking space must be provided and the arrangements must permit the rapid movement of people between the parking lot and their seats without damage to play areas, shrubbery, and other site features. Facilities must be provided for rapid sale and collection of tickets and after sale of refreshments and other items. Flood lighting, public address systems, first aid rooms, special offices for coaches and officials, special team rooms, and toilets for participants and spectators are among the other items to be considered. These special facilities may be in the main school building, if total site plan permits, or may have to be in a separate stadium or other structure.

The extent to which the site development plan provides such special facilities for interscholastic athletics must depend upon the emphasis placed upon the program in the particular school in question. Most Kansas secondary schools have interscholastic athletics and the use of makeshift and often filthy locker, shower, and toilet facilities in stadiums and the perpetuation of other similar unsatisfactory conditions cannot be condoned.

b. Table I on page 18 specifies the necessary areas for most common games. Table II on page 19 suggests space allotments for Physical Education - Community Recreation. These spaces do not provide for a parking area.

8. Other outdoor activities

In addition to informal play, games and sports, there are other potential uses of school sites which deserve more attention by educators and architects than they have received. A small wooded tract, a ravine, or a hillside may offer many opportunities for instruction in science or conservation, and a garden plot or experimental planting beds would seem to deserve a place on many school sites. Places for outdoor classes in sketching or for music or dramatic performances in the open would seem to be appropriate. These areas to be provided only at the district's request.

9. Community use of building

Since schools are public property, it is usually well to make proper arrangements for the public to use the outdoor facilities. There are also indoor facilities which are often used by the public and which affect the overall site plan. Chief among these are the auditorium, gymnasium and cafeteria. The plan of site development should be such that large groups of people can move easily from parking areas to these parts of the building. Sidewalks and suitable outside lighting should be provided and steep banks, long flights of stairs, and other obstacles should be avoided.

SUMMARY

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.

What every community needs in its schoolhouse is a structure, and a setting for it, which will enable the community to have the best educational program today's wisdom can devise, and at the same time keep the way open for the improved programs which will be developed in the future.

DIRECTIONS FOR SCORING RATING SHEET

The use of a score sheet is a convenient and effective device for rating school sites against objective criteria. The ratings necessarily reflect the subjective judgments of the scorer, but they should fall within a fairly narrow range if the basic criteria for selection of the site are accepted in equal degree by all individuals using the score sheet.

The next page, which is a score sheet for rating school sites, has been developed with nine basic criteria and a possible score of 100 points. The first criteria is the Size of Site and since this is probably the most significant item in the selection of an adequate site, a value of twenty (20) points has been designated for this criteria. The remaining eight basic criteria each have a value of ten (10) points. This accounts for a possible total score of 100.

The four-point scale shown below should be used in evaluating, rating and scoring each of the nine items on the score sheet. The score for the first item, Size of Site, will be doubled for a possible maximum score of twenty (20) points in keeping with the above explanation. It is particularly important to adhere to the scale ratings of each basic criteria and evaluate and rate each item according to accompanying explanations.

Four-Point Scale

9 and 10	-	Excellent:	Exceptionally desirable - adequate - better than average
6, 7 and 8	-	Good:	Suitable for the purpose, average, acceptable but not outstanding
3, 4 and 5	-	Fair:	Lacking in several criteria and should not be considered - not adequate
1 and 2	-	Poor:	Undesirable and should be eliminated

SCORE SHEET FOR RATING PROPOSED SCHOOL SITES

Factors and Criteria Used to Evaluate Each Site	possible points	Insert Names of Sites				
1. Size: Minimum for elementary schools 10 acres; junior high schools 25 acres; senior high schools 40 acres of usable land. The location of the site should be such that expansion is possible. (See page 7 for further details)	20					
2. Accessibility: Easily accessible by existing or proposed streets, roads and public transportation.	10					
3. Environment: Favorable prospects for pleasant surroundings. Absence of existing or potential nuisances in the form of noise, undesirable odors and unsightly surroundings. Freedom from hazards on or approaching the site.	10					
4. Topography: The site should be reasonably level and not require extensive grading for location of buildings, parking areas, drives, walks, etc. Favorable soil for footings - natural drainage.	10					
5. Site characteristics: Shape should approach a square or rectangle not to exceed 5:3 ratio. It should be properly located, sufficient in size and have good physical features. Good utilization of land.	10					
6. Availability of utility services: Water, gas, electricity and sewage should be available. Feasibility of making serviceable utility connections.	10					
7. Protection services: Readily available fire and police protection services.	10					
8. Integration with community: Site should be favorably located and acceptable to the community. It should not interfere with current or projected community projects.	10					
9. Acquisition and cost: Cost of site should correspond favorably with other nearby land costs per acre. Site should be available by negotiation with owner, in preference to exercising right of eminent domain.	10					
TOTAL SCORE FOR EACH SITE	100					

SUMMARY AND RANKING OF SITES EVALUATED

Site	Name or Description	Score	Rank
			1st
			2nd
			3rd
			4th
			5th
			6th
			7th
			8th
			9th
			10th

TABLE I --- AREAS FOR COMMON GAMES [2]

Name	Dimensions of Game Areas (in feet)	Use Dimensions (in feet)	Space Required (sq.ft.)
Archery	90-300 in length	50 x 175 (min.)	8,750
	Targets 15' apart	50 x 400 (max.)	20,000
Badminton	17 x 44 (singles)	25 x 60	1,500
	20 x 44 (doubles)	30 x 60	1,800
Baseball	90' diamond	350 x 350 (average with hooded backstop)	122,500
		400 x 400 (without)	160,000
Basketball (men)	50 x 94 (max.)	60 x 100 (average)	6,000
	42 x 74 (min.)		
Basketball (women)	45 x 90	55 x 100	5,500
Bowling (alley)	3½ x 62	10 x 100	1,000
Croquet (modern)	41 x 85	50 x 95	4,750
Deck Tennis	12 x 40 (singles)	20 x 50	1,000
	18 x 40 (doubles)	26 x 50	1,300
Field Hockey	150 x 270 (min.)	210 x 330 (average)	69,300
	180 x 300 (max.)		
Football	160 x 360	190 x 420	79,800
Handball	20 x 34	30 x 45	1,350
Hand Tennis	16 x 40	25 x 60	1,500
Horseshoes (men)	Stakes 40' apart	12 x 52 (or more)	624
Horseshoes (women)	Stakes 30' apart	12 x 42 (or more)	504
Ice Hockey	60 x 165 (min.)	100 x 220 (average)	22,000
	110 x 250 (max.)		
	85 x 200 (recommended)		
Lacrosse (men)	180 x 330 (min.)	225 x 360 (average)	81,000
	210 x 330 (max.)		
Lacrosse (women)	Goals 270 x 350' apart	240 x 360 (average)	86,400
	No definite boundaries		
Paddle Tennis	16 x 44 (singles)	30 x 70	2,100
	20 x 44 (doubles)	35 x 70	2,450
Quoits	Stakes 30' apart	12 x 44	528
	Stakes 54' apart	25 x 80	2,000
Shuffleboard	6 x 52	10 x 60	600
Six-Man Football	120 x 300	180 x 360	64,800
Soccer (men)	165 x 300 (min.)	225 x 360 (average)	81,000
	225 x 360 (max.)		
Soccer (woman)	120 x 240 (min.)	200 x 320 (average)	64,000
	180 x 300 (max.)		
Softball (men)	60' diamond	275 x 275 (min.)	75,625
Softball (women)	60' diamond	250 x 250 (min.)	62,500
Speedball (men)	160 x 360	200 x 420	84,000
Speedball (women)	180 x 300	220 x 350	77,000
Table Tennis	5 x 9	12 x 20	240
Tennis	27 x 78 (singles)	50 x 120	6,000
	36 x 78 (doubles)	60 x 120	7,200
Touch Football	160 x 360	190 x 420	79,800
Volley Ball	30 x 60	45 x 80	3,600

[2]National Recreation Association, Butler, George D. Ed. Recreation Areas: Their Design and Equipment. A. S. Barnes and Company, New York, 1947, pp 96, 97.

TABLE II -- SUGGESTED SPACE ALLOTMENTS FOR
PHYSICAL EDUCATION -- COMMUNITY RECREATION

Approximate Space Requirements				Contemplated Use of Facilities
	Elementary	Jr. High	Sr. High	
Pre-school or Playlot	1/4 to 1/2 acre	1/4 to 1/2 acre	1/4 to 1/2 acre	Provides (1) a section with such equipment as a small climbing structure, sand box, see-saws, slides, swings, tables and benches, drinking fountain, and (2) an open play space. A wading pool for young children and an area that may be flooded in winter for skating may be considered in addition.
Apparatus	1/4 acre	1/4 acre	1/4 acre	Provides horizontal ladders, climbing poles, rings, bars, etc., and other types of equipment suitable for body development and natural activities of youth.
Multiple-use paved	1 acre	1 acre	1 acre	A paved, all-weather surface for a variety of court games, including tennis and basketball, low organized games and activities such as dancing, roller skating, etc.
Field Games	3 acres	6 to 8 acres	8 to 10 acres	Provides facilities and space for baseball, soccer, softball, horseshoes, and other field and lawn games. Provision may be made for intramural (or modified) football, archery, ice hockey, and some forms of track and field activity for junior and senior high schools.
Quiet Activities	1/4 to 1/2 acre	1/4 to 1/2 acre	1/4 to 1/2 acre	Provides space for dramatics, music, handcraft, informal gatherings, quiet games, storytelling, and many other similar type activities. A council ring and fireplace may be included as a part of day-camp experience, and picnics. A small plot for gardening could be readily provided.
Interscholastic and Community Sports			10 to 12 acres	Athletic fields (possibly a stadium) with baseball diamond, football field--surrounded by running track--softball diamond, practice field, seating stands.
Older Adult	1/4 to 1/2 acre	1/4 to 1/2 acre	1/4 to 1/2 acre	Provides for lounging, quiet games and general sociability with tables, benches, and shade.
Total area-acres	5 to 5 3/4	8 to 10 3/4	20 to 24 1/4	

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