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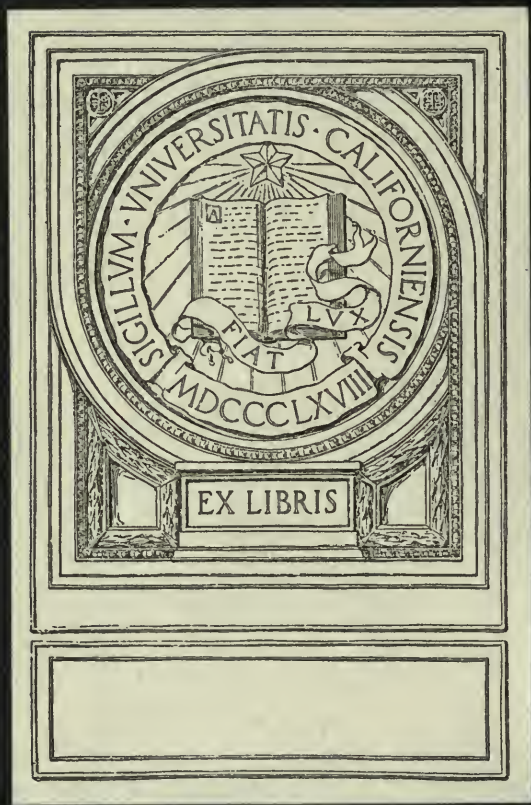
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# A Survey of Public School Building Requirements

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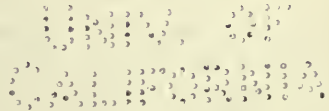
Cleveland Heights

Ohio





A Survey  
*of*  
Public School Building Requirements  
*in*  
Cleveland Heights, Ohio



*by*

P. C. PACKER

*Assistant Superintendent, Detroit Public Schools*

H. W. ANDERSON

*Assistant Director Educational Research, Detroit Public Schools*

DR. L. J. BRUECKNER

*Research Department, Detroit Normal School*

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TO VNU  
ABSORBIAO

# Forword

In the year 1916 the Board of Education made a survey of certain parts of Cleveland Heights to determine the growth and distribution in school population and the ratio of children of school age to the number of families. This report was the basis on which a bond issue was asked for in that year, but owing to the size of the issue and the fact that the items were budgeted, it suffered defeat. Since that time the Board of Education has frequently discussed the advisability of a survey but has felt that no funds were available for this purpose owing to the rapid increase in the school population and the need to care for the children applying to the schools for admission.

At a joint meeting of the educational committees of the two Civic Clubs, which the President of the Board of Education attended, the suggestion was made that a comprehensive survey be undertaken which would determine the school needs of Cleveland Heights for the next 20 years. The committee thought that the clubs might be able to raise the money outside for this purpose, but the President of the Board of Education felt that such cost should be met out of the common fund as it contributed to the common need. This suggestion was presented to the Board of Education and favorably acted upon.

Mr. P. C. Packer of Detroit, recommended for this work by Dr. Leonard Ayres, who directed the Cleveland school survey, was retained for the purpose. The report of Mr. Packer is transmitted herewith and it is the desire of the Board of Education that it may be carefully read and understood by every resident of Cleveland Heights since it points a way to a more logical development of the schools than has heretofore been planned. This report is transmitted without modification and is not in any way influenced by the individual feeling of any resident of Cleveland Heights. The report was presented to the Board of Education on the morning of April 15th, 1920, to the Citizens Committee, the President of which is Mr. W. C. Dunlap, on the afternoon of the same day and to a joint meeting of the Men's and Women's Civic Clubs on the evening of the same day by Mr. Packer in person. The recommendations of this report have since been adopted by the Board of Education without modification.

The Board of Education trusts that this report will make clear to the residents of Cleveland Heights the probable growth and needs of the school system for a considerable period of time.

For the Board of Education of Cleveland Heights.

JAMES H. HERRON, President.

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## Introduction

The following report on the sites and the building needs for school purposes in Cleveland Heights, Ohio, is submitted in response to a request made by the Board of Education. It represents a careful study of the needs of the community in terms of the present requirements and the anticipated development during the next twenty years. The ultimate plant, that is, the number and location of each type of school that will probably be required up to 1940, together with the immediate requirements, have been determined. Only the first year's program of the ultimate plant, representing the immediate needs, has been recommended. The determination of the portion of the ultimate plant to be built in any succeeding year will be conditioned by factors operating that year. The discussion which follows presents the ultimate school plant and the immediate minimum requirements which must be provided for Cleveland Heights.



Members of  
**Cleveland Heights Board of Education**  
Cleveland Heights, Ohio

**JAMES H. HERRON, President**  
**LENA B. COMBES, Vice President**  
**DAVID B. CARPENTER**  
**R. J. GILLETT**  
**E. W. KNEEN**  
**EZRA K. BRYAN, Clerk**

## Character of City

The first consideration in any comprehensive building program is the character of the city. In other words, for what type of city are the schools to be provided? Is the community growing? What are its limitations of growth? Is its development affected by commerce and industry, or is it strictly residential?

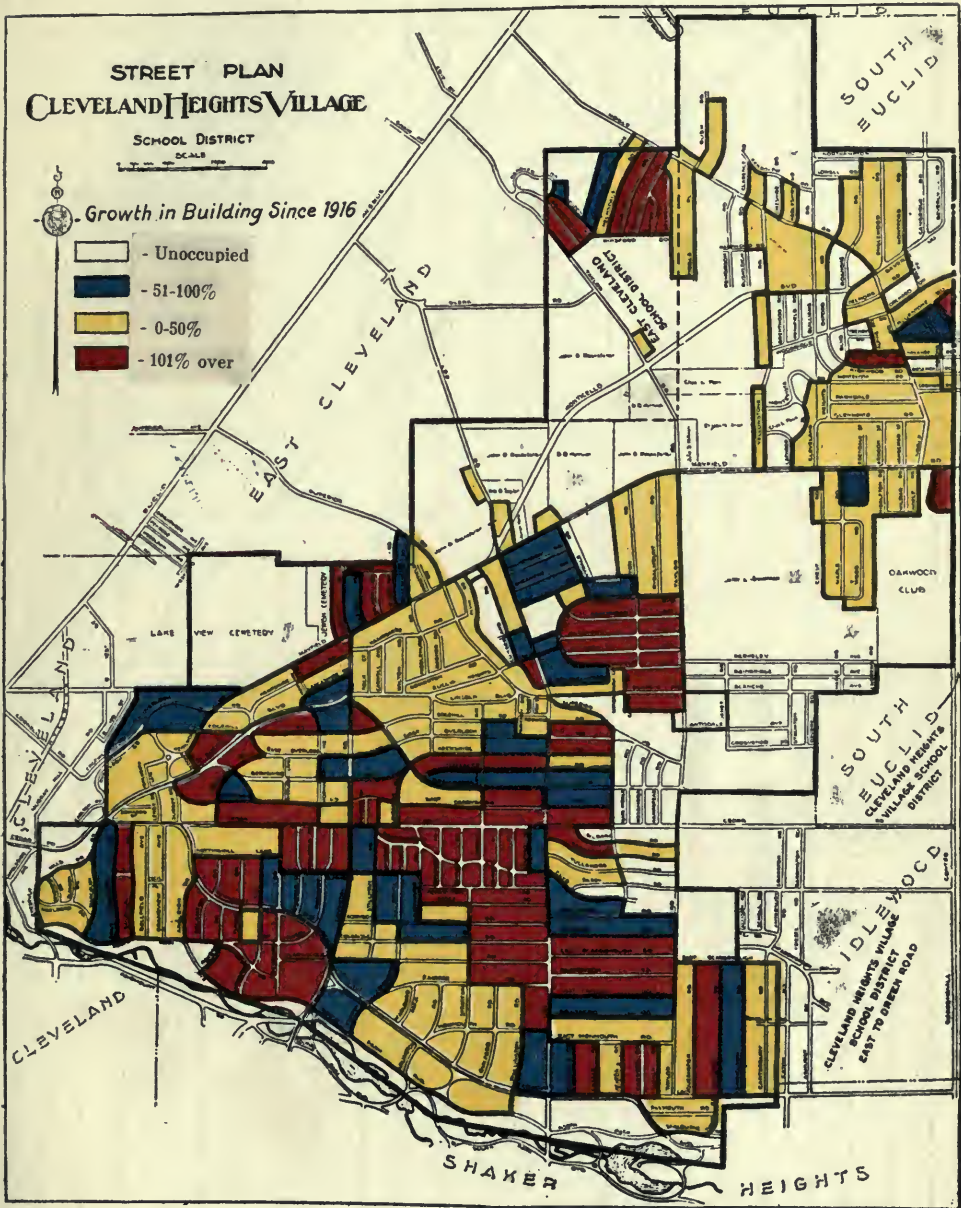
A study of Cleveland Heights reveals the fact that the city has had a phenomenal growth. Since 1910 the population has increased from 2,955 to 14,811 or approximately 400 per cent. (See Appendix, Table I, Page 29.)

Further evidence of the rapid growth is to be found in the number of buildings erected yearly. In the year 1919 alone there were constructed in Cleveland Heights 1,077 buildings, or a gain of more than 43 per cent. Plate I shows the building growth of the city by blocks since 1916. (See also Appendix, Table II, Page 30.) That the growth of the city is likely to continue is revealed by the findings of extensive investigations made by Barclay, Parsons and Klapp for the proposed subway, and studies by the Water Department and Telephone Systems, who estimated that the population would be 110,000 by 1940. The results of their studies are shown in Plate II. (See also Appendix, Table III, Page 31.)

To check the possibility of Cleveland Heights maintaining the estimated population within its present limits, a study was made to determine the present lot occupancy. The per cent of lots which are occupied is shown in Plate III.

# Per Cent of Growth in Building since 1916

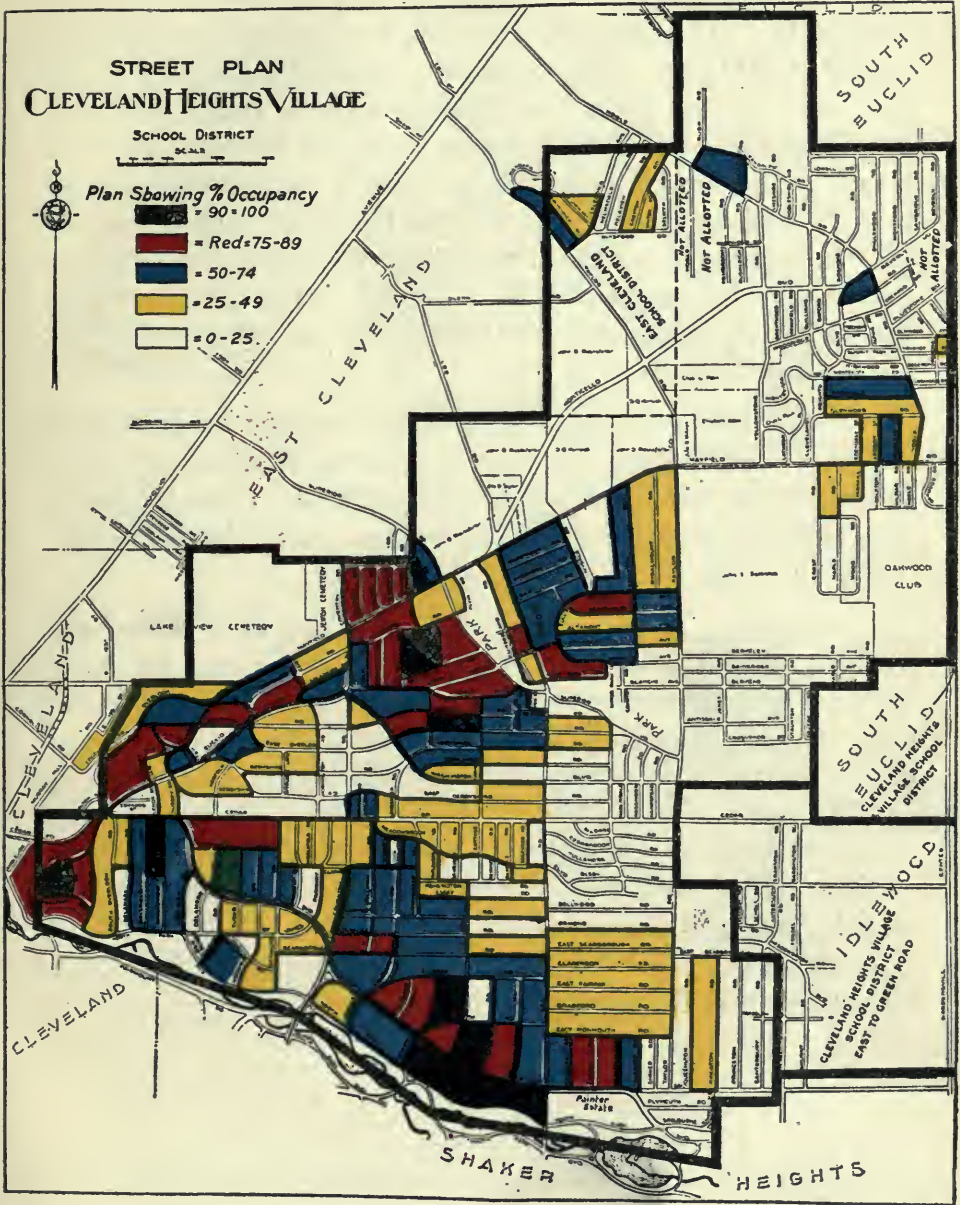
Plate I





# Lot Occupancy Shown by Blocks

Plate III



It was found that in the area subdivided up to March 1, 1920, there were approximately 12,828 lots of which 3,577 or 27.8 per cent were occupied. Reckoning area not subdivided at five lots per acre, it was found that approximately 7,150 additional lots will be available, making a grand total of approximately 20,000 lots. (See Appendix, Table VI, Page 33.) On the basis of the present population figures and number of dwellings, there are about five individuals per lot occupied. This means that Cleveland Heights can easily accommodate more than 100,000 people with its present liberal allowance for size of lots, and there is reason to believe that with the tendency toward greater congestion in all rapidly developing suburbs, the estimated population of 110,000 will be amply cared for within the city limits.

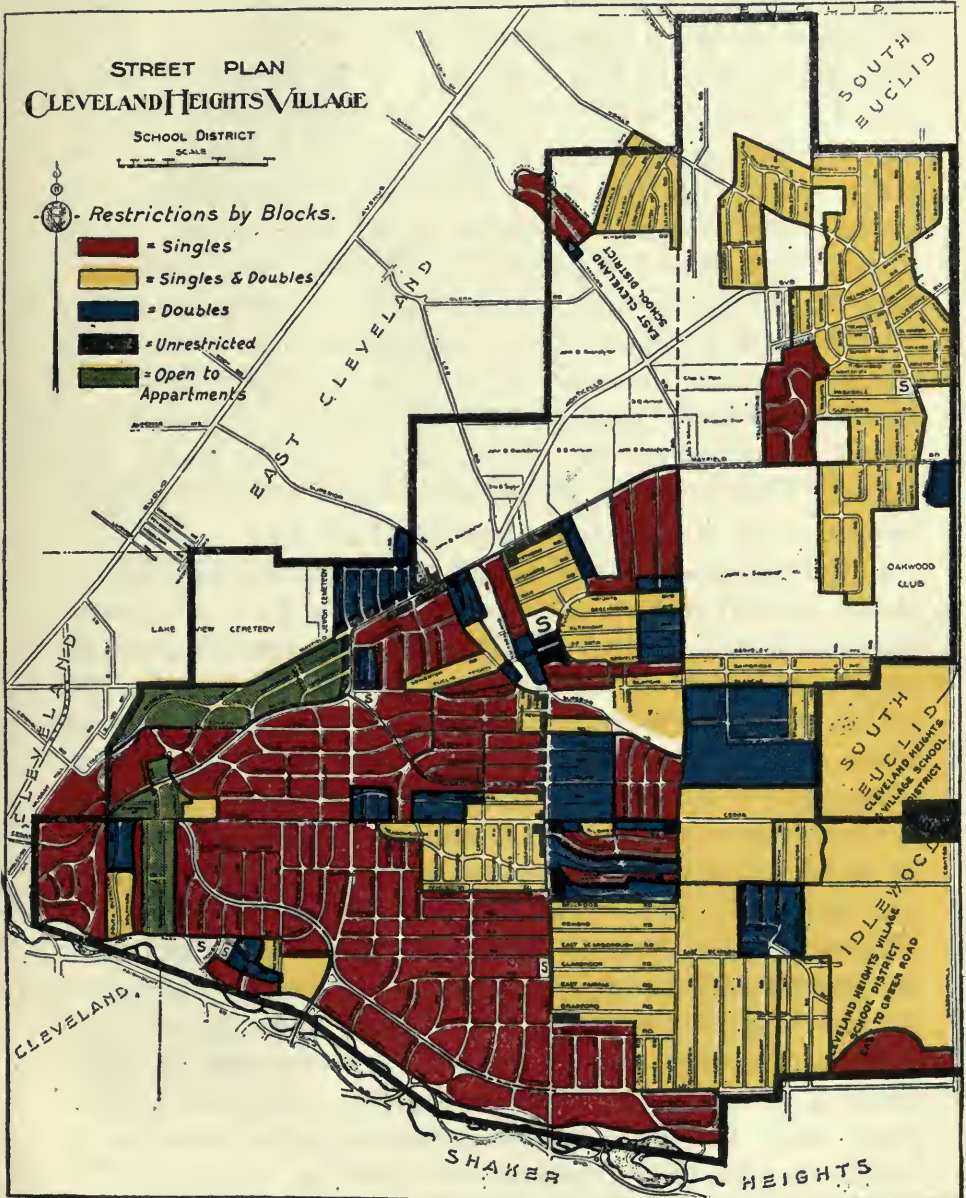
The common assumption that the community is strictly residential is supported by the fact that less than three per cent of the present subdivided area is unrestricted. Plate IV shows clearly the restricted character of the city. (See also Appendix, Table IV, Page 31.)

More than 97 per cent of the subdivided area is confined almost exclusively to one and two family residences. The only factor which might affect any material change in the residential character of the city is the development of commerce and industry. Growth of industry, as shown by studies in other cities, is dependent upon freight carrying transportation lines, whether water or rail. Since Cleveland Heights has neither of these, nor a likelihood of their development any serious encroachment upon the residential character of the city is not to be expected. Therefore, the building program has been planned to meet the needs of a city of homes.



# Restrictions in Building Shown by Blocks

Plate IV



## Policy of Organization

The second consideration and a basic factor in a comprehensive building program is the official adoption by the Board of Education of an organization policy recommended by the Superintendent. In Cleveland Heights the present organization is in general the 7-5. This has been brought about by sending all eighth grade pupils to the high school, leaving grades one to seven, inclusive, in the elementary schools, and placing grades eight to twelve, inclusive, in the high school. In the present high school organization, the first two grades are known as the junior high, and the last three as the senior high school. Superintendent McLane contemplates an organization which will place kindergarten to grade six, inclusive, in the elementary schools; grades seven, eight and nine in junior high schools; and grades ten, eleven and twelve in senior high schools. This is technically known as the 6-3-3 type of organization. (See discussion in Appendix, Page 33.)

The adoption of any policy of organization implies no abrupt transition from the present state. It should mean, however, that the Board of Education will, upon advice of the Superintendent, work as rapidly as possible toward the final achievement of the policy adopted. In an old community where an extensive plant has been built up without careful planning, it is difficult to make extensive changes. However, in a new community, such as Cleveland Heights, changes may be readily made without seriously disturbing what has already been done. In view of the facts, first, that Superintendent McLane proposes the 6-3-3 organization, second, that we believe the Superintendent's proposition will best serve the educational interests of the city and third, that as this is a new city where an organization other than the one in operation may be easily effected, we recommend that the Board of Education immediately adopt the 6-3-3 type of organization as the policy on which to plan its comprehensive building program. The following building program is based on the 6-3-3 plan.

## Ultimate School Plant

The third consideration in a comprehensive building program is the planning of the ultimate school plant. That is, how many of each type of school will ultimately be needed and where should they be located. In general, the number of buildings for each type of school should be as few as possible. The realization of such a principle does away with schools which enroll a very small number of children except in the early development of outlying districts which are sparsely settled. As a matter of fact, the only absolutely known and recognized factor which prevents concentrating all the educational activities of a public school system at one center is the distance children would be compelled to travel. With distances children are to be asked to travel as a fundamental guide, the ultimate school plant for Cleveland Heights has been planned, showing the number and location of the proposed elementary, junior and senior high schools.

It is obvious that the younger children should not be asked to travel as great distances as the older children. Furthermore, the area of a district which is limited to reasonable distances of travel for elementary children does not contribute a sufficient number of students for an effective educational unit in junior and senior high schools. In like manner, a junior high school district has too few pupils for an effective senior high school. These conclusions are true because of two factors: first, the junior and senior high schools provide for only three grades each, while the elementary school cares for six grades and kindergarten; and second, the number of children remaining in school becomes less and less in each successive grade especially after the attainment of the compulsory school age. Since distances required to be traveled to school are different in each type of the 6-3-3 organization, the ultimate plant of each has been treated separately in this report.

## Ultimate Elementary Plant

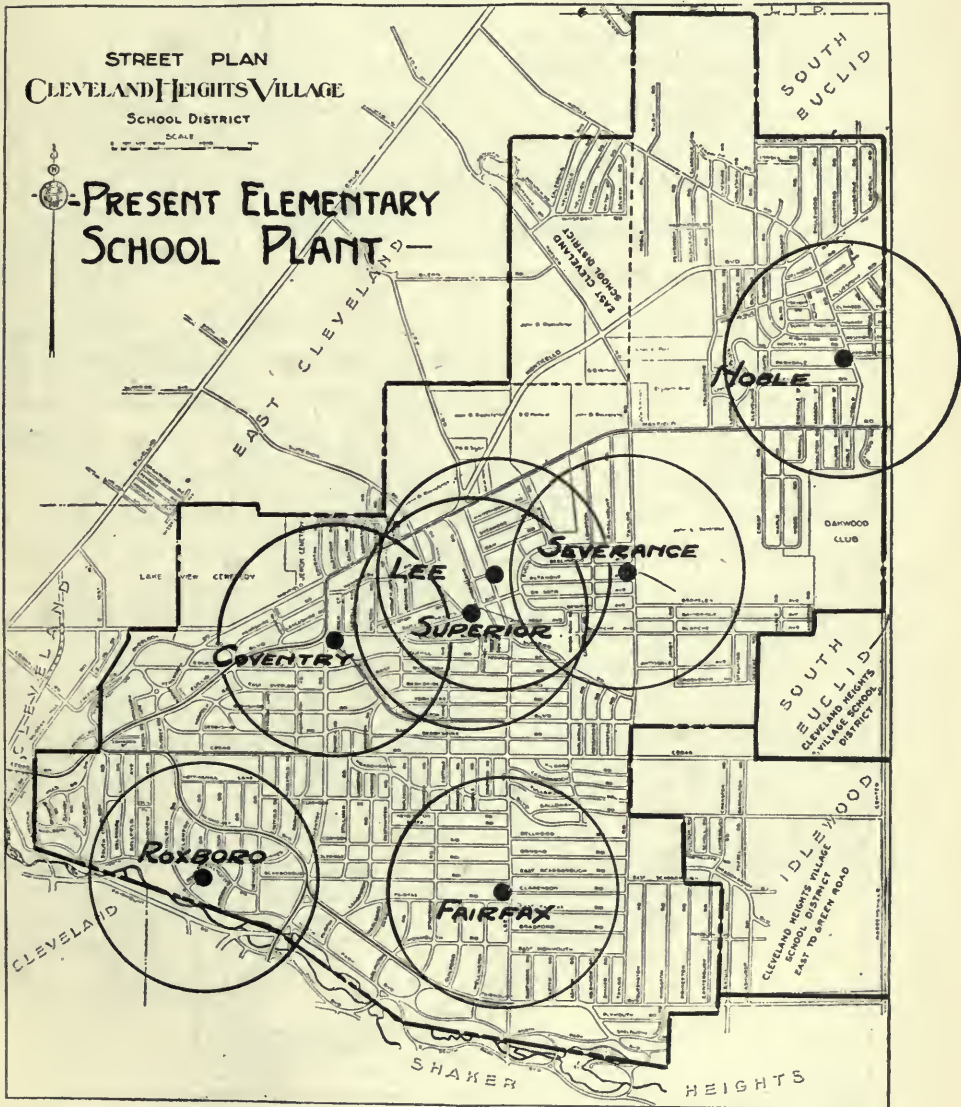
Factors which affected the number and location of the elementary schools were present plant, distance which children may be expected to travel, density of population, existing schools in surrounding territory and availability of sites. Plate V shows the present elementary schools of Cleveland Heights and the relationship which they now bear to each other. The circles are one-half mile in radius.

The first factor to be considered is the character of the present buildings. Of the seven schools indicated on the map, three—Coventry, Roxboro and Fairfax—are of modern fire-proof construction. Lee and Noble, while not especially old, having been erected in 1902-05 and 1910, are not fireproof and may be expected to serve for a limited time only, probably ten or fifteen years. Superior and Severance are houses now used for school children. Knowing these facts it is possible then to plan the ultimate plant without regard to any of the present schools except Coventry, Roxboro and Fairfax.

The next factor to be treated is the determination of the maximum distance elementary children will be asked to travel to school. If schools in the ultimate plant are so placed that no child will actually travel more than one-half mile to school it would require a total of twenty-two buildings to care for the needs of the city in 1940. The distance between schools will be approximately three-quarters of a mile. This would mean about 515 children on the average in each school in 1940, as based on the estimated enrollment of 11,300\* in the kindergarten to sixth grade, inclusive. Plate VI shows clearly how the schools so located would be distributed.

# Present Elementary School Circles One-half Mile Radius

Plate V



# Elementary School Sites. Radius of Circles $\frac{3}{8}$ Mile

Plate VI



There are two more schools in Idlewood district that are not shown on this map

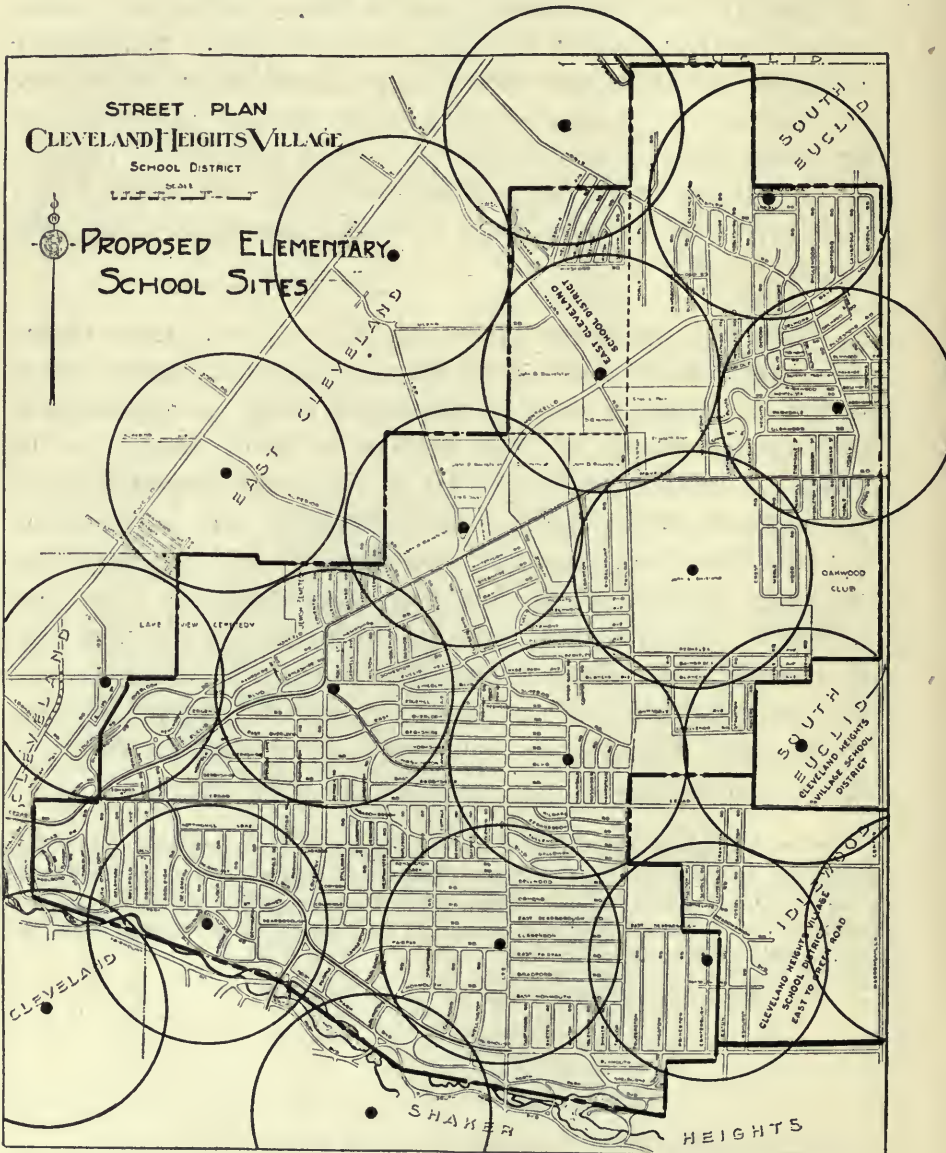
As schools with an enrollment as low as 515 are not economical because of the overhead costs of unnecessary administration, duplication of equipment, heating, maintenance, etc., a plan involving so many schools would be ill advised. For this reason and the more or less general tendency throughout the country to a policy which requires that an elementary school serve a territory within a radius of one-half mile, the ultimate locations of elementary schools as proposed in this report are one mile apart. Such a proposal means that not more than ten or fifteen per cent of the children will be required to travel a greater distance than one-half mile to school. Plate VII shows the distribution of the schools located approximately one mile apart.

In this distribution twelve schools will serve the ultimate elementary needs of the school district instead of twenty-two as shown on previous map. This would mean an approximate average enrollment of 940 children in 1940, based on the estimated enrollment of 11,300\* in the kindergarten to sixth grade, inclusive. The present schools in the surrounding suburbs have been taken into consideration as is evident from the map. Wherever possible, main thoroughfares have been avoided. Availability of sites has been checked and they may be secured at the places indicated or in the near vicinity. It is recommended that sites of five acres each be secured to meet the needs of the ultimate elementary school plant as shown on the map with schools approximately one mile apart.

\*This estimated enrollment does not include any contribution which the unplotted Severance estate and the districts in Idlewood and South Euclid may be expected to furnish in the future. In all probability the average enrollments of 515 and 940 would change to 625 and 1,100 respectively with the additional territory noted.

# Proposed Elementary School Sites. One-half Mile Circles

Plate VII



The schools in East Cleveland, Cleveland and Shaker Heights, bordering on Cleveland Heights, show the relationship the present and future elementary schools of Cleveland Heights bear to surrounding communities.



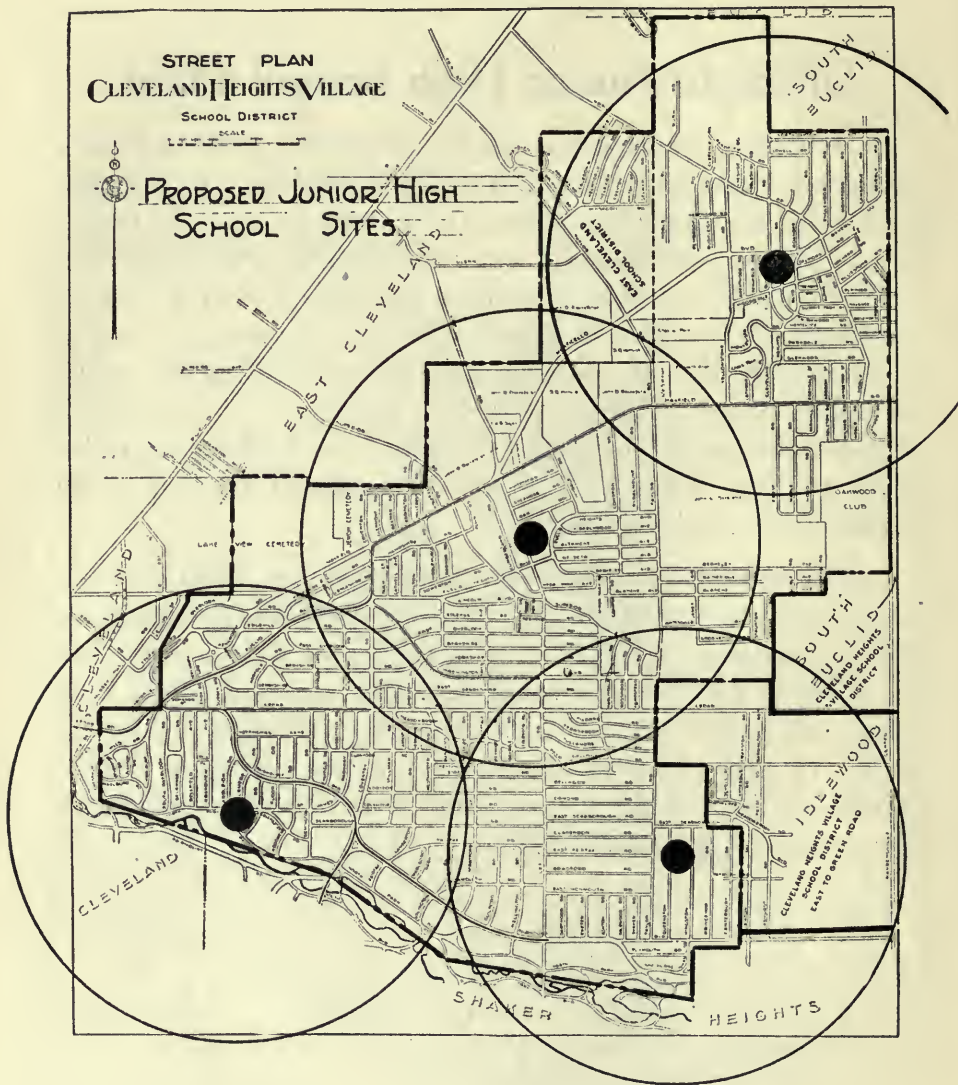
## Ultimate Junior High School Plant

According to the estimated enrollment for 1940 in grades seven, eight and nine, there will be 3,380 children. As a junior high school of much less than 1,000 cannot be run effectively, it is desirable, providing distances will permit, to so locate sites that not more than four schools of this type will take care of the needs of Cleveland Heights. The area of the city is so distributed that this can be easily done by establishing the maximum distance traveled by children as one mile. To travel this distance is regarded as quite reasonable for children in grades seven to nine. Plate VIII shows the proposed location of the future junior high schools.

The present Heights High School, on Lee Road between Oak Road and Euclid Heights Boulevard, would ultimately become a junior high school. The other three would be located at Roxboro and North Park Boulevard, where a site is now owned, in the vicinity of East Scarborough and Queenston and in the vicinity of Monticello Boulevard and Quilliams Street. These locations of the future junior high schools would serve the needs of Cleveland Heights.

# Proposed Junior High School Sites

Plate VIII



## Ultimate Senior High School Plant

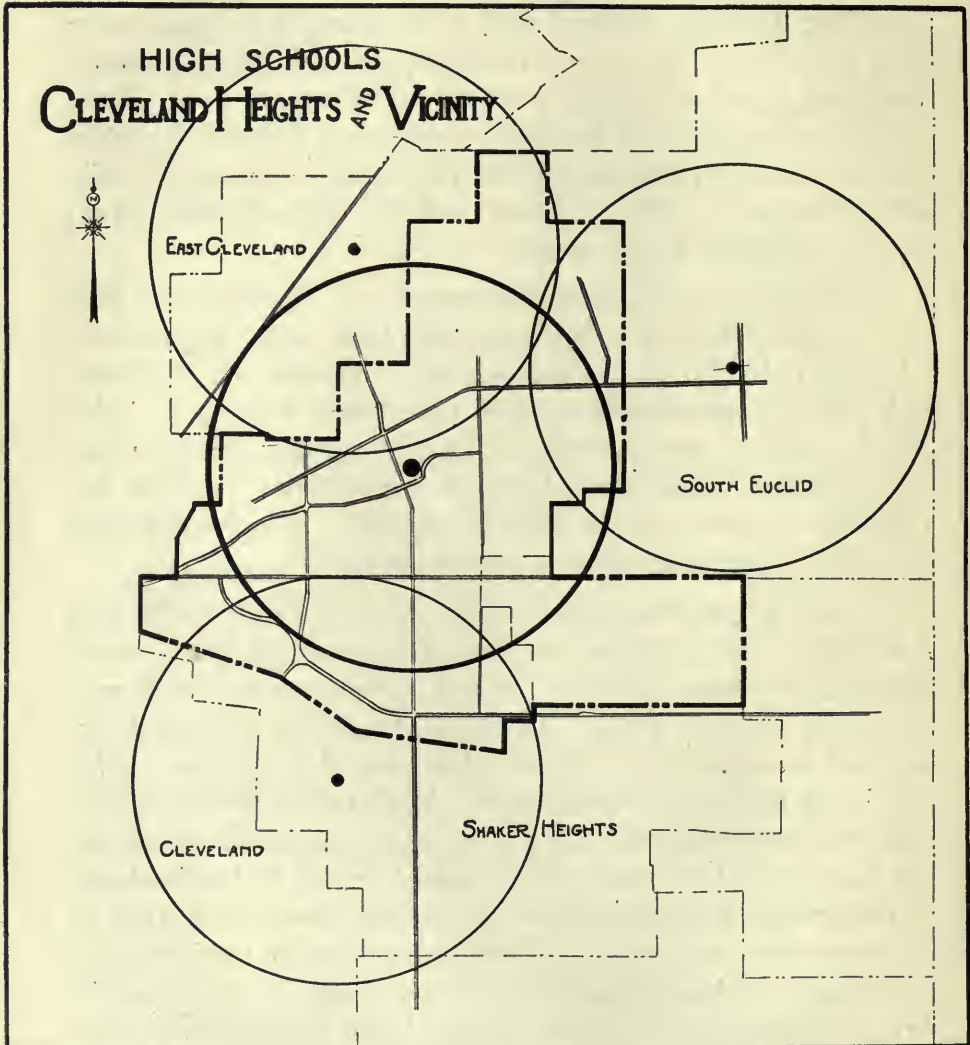
The estimated enrollment in grades ten to twelve inclusive, shows 2,200 children for 1940. If the high school needs of Cleveland Heights were considered independently of the surrounding territory, it might seem to be desirable to locate more than one center. However, careful present day school building planning, especially for high schools in villages such as Cleveland Heights, requires that the surrounding suburbs be taken into account, recognizing primarily, of course, the needs of the local community. Plate IX shows clearly the off-center situation of the present high school.

In order to meet these requirements, it is imperative that the location which is to best serve the high school interests of Cleveland Heights be to the south of the present school. Probably the first question to arise in connection with such a proposal is that of transportation. This means that such a move as suggested should provide equal if not better facilities for children to reach school than at present. The fundamental question is then, can such a site be secured?

The site proposed is at or near the junction of Cedar and Lee Roads. It is certain that the car line on Cedar will be extended east across the city. While at present no car line is projected on Lee Road, Cleveland Heights will furnish an unusual exception to the rule of other cities if such a cross-town line is not built in the near future. With two such transportation lines as those which must almost of necessity be developed for Cedar and Lee Roads, the proposed future high school site is very nearly ideal as regards car service, center of district to be served and relationship to high schools in the territory surrounding Cleveland Heights as shown in Plate X. It should be kept in mind that the present Heights High School would serve splendidly as a junior high school in the ultimate school plant. The relationship of the proposed site to the proposed junior high school sites is shown in Plate XI.

# Present Heights High School and its relationship to Cleveland Heights and bordering High Schools

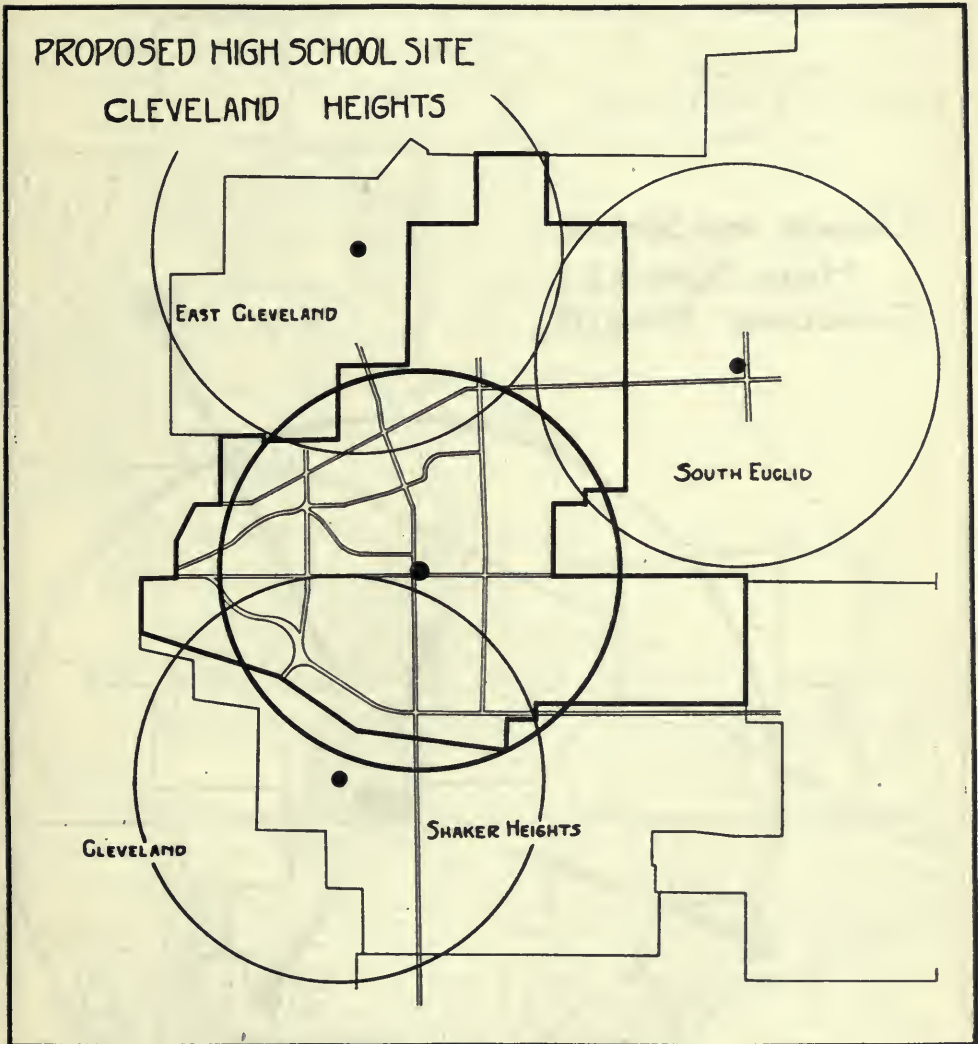
Plate IX



The Cleveland Heights High School is shown by the largest dot and the heavy circle. The other three indicated High Schools, are those in surrounding communities.

# Proposed Senior High School Site, and its Relationship to Cleveland Heights and Bordering High Schools.

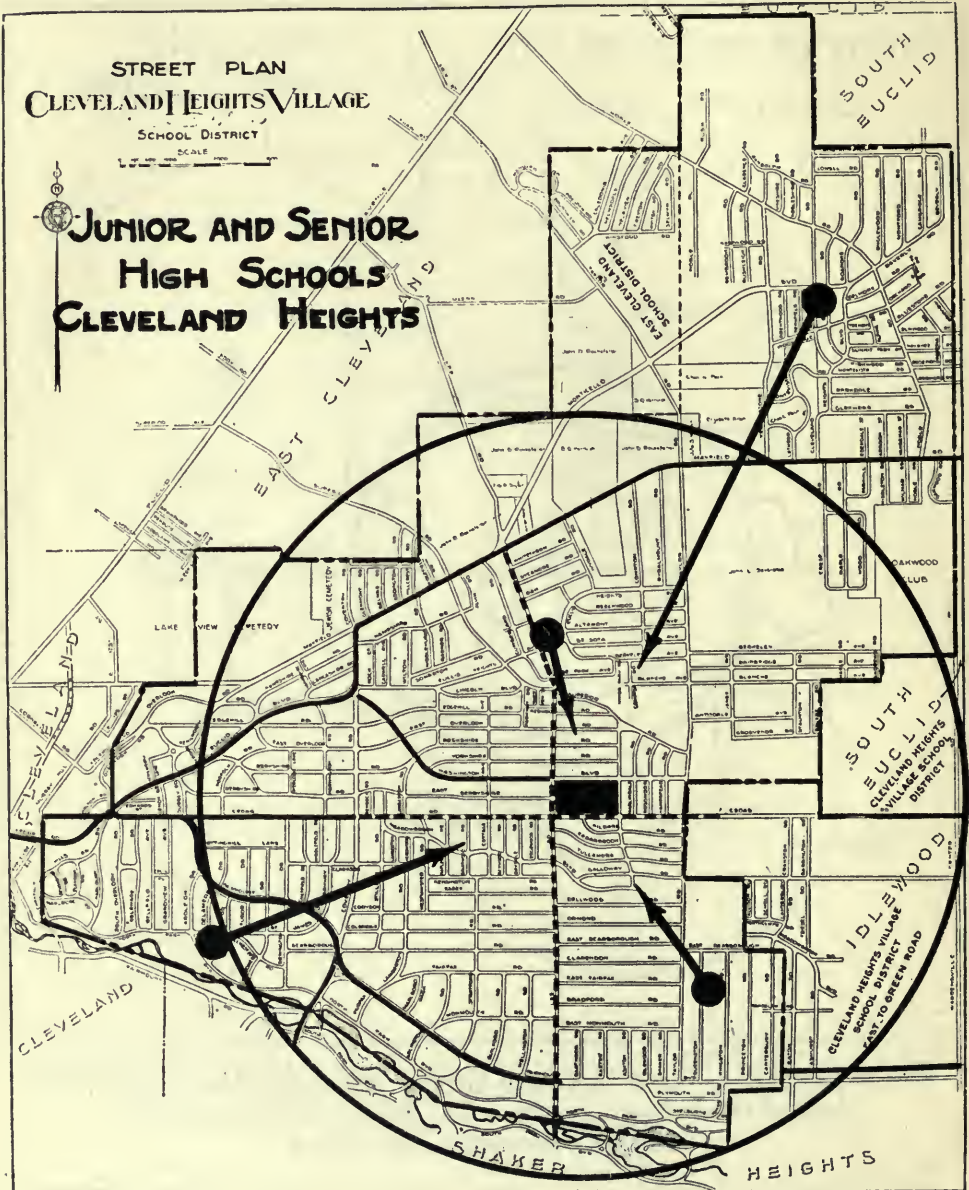
Plate X



The proposed site for the Cleveland Heights High School is shown by the largest dot and heavy circle. The bordering High Schools in other communities are shown.

# Relationship of Junior High Schools to Senior High Schools

Plate XI



## Ultimate Plant Recommendations

The recommendations, then, covering the location of the ultimate school plant for Cleveland Heights, based on the 6-3-3 type of organization, are as follows:

That elementary schools be located in present Coventry, Roxboro, Fairfax and Noble Schools and that the additional future sites be in the vicinity of:

1. Washington Boulevard and Goodnor Road.
2. Lee Road and Mayfield Road.
3. East Scarborough and Princeton Roads.
4. In Idlewood east of Warrensville Center Road.
5. In South Euclid on Grosvenor Road.
6. Lowell Road and Quilliams Road.
7. Taylor Road and Monticello.
8. On Severance Estate.\*

That the four junior high schools be located:

1. In the present high school.
2. On the present owned Roxboro site.
3. In the vicinity of East Scarborough and Queenston.
4. In the vicinity of Monticello Boulevard and Quilliams Road.

That the senior high school be located near the junction of Cedar and Lee Roads.

That Superior and Severance schools be ultimately abandoned.

\*Although the Severance estate may not be platted for years to come, this program has been so planned that a school may be located on this estate, thus safeguarding the city against any future contingency.

## Immediate Requirements

The fourth consideration in a building program is the determination of the minimum requirements which must be immediately carried out in order to meet the most urgent needs of the city.

### Sites

In the preceding section of this report the sites for the ultimate school plant have been located. Undoubtedly, one of the most urgent needs is the immediate acquisition of these sites. A careful survey of whether or not they are available revealed the fact that there are no serious obstacles in the way of their immediate procurement, either on or in close proximity to the places indicated. But, because of the phenomenal growth of the city, many of the sites will be occupied by buildings in a short time. This will make their acquisition practically prohibitive and may necessitate the purchase of other sites which will not only be poorly located, but will likely be inadequate in size. It is necessary, therefore, to secure the sites at once.

In order to assure adequate playgrounds and room for further building expansion, additional land should be bought for the Fairfax and Noble School sites. (See Appendix, Page 36.)

### Elementary Building Needs

The immediate elementary building needs must depend largely on the overcrowded condition in the present schools, the construction now going on and the relief afforded thereby, and the rate of growth in the different sections of the city. The numerous portables stand as eloquent witnesses of the overcrowded conditions of the elementary schools. (See Appendix, Table VIII, Page 35.) Over two-fifths of the pupils are housed in temporary structures. This is a condition which could not have been avoided during the war with its accompanying cessation of building operations. In a rapidly growing city such as Cleveland Heights, the use of temporary buildings cannot be



entirely obviated before the city more nearly approaches its maximum growth. Thus, even in the future portables must be temporarily used in outlying districts.

The immediate elementary building needs are based on the probable enrollment in February, 1922. (See Appendix, Tables X and XI, Pages 38 and 39.) Conditions of labor and materials seem to preclude a likelihood of an earlier completion of buildings recommended in this program.

## **Fairfax School**

**(Fairfax and Lee Roads)**

The present capacity of the Fairfax School, on Fairfax and Lee Road, based on 35 pupils per room, which is considered by the authorities in Cleveland Heights as a desirable maximum, is 315. By means of portables the school is now accommodating over 500 pupils or more than 190 in excess of the actual capacity. An addition of nine rooms is under construction; this will increase the capacity of the school to 630. During the past three years, building growth in the area served by the Fairfax School has been about 33 per cent annually. A similar growth in school enrollment will yield a total of approximately 900 in February, 1922. Thus, in order to accommodate the pupils in the Fairfax district two years hence, it will be necessary to add sufficient rooms to take care of at least 270 pupils, or at 35 pupils per room, eight school rooms in addition to the construction now under way.

## **Coventry School**

**(Washington and Euclid Boulevards)**

Coventry School is a splendid example of a modern fire-proof building with a capacity for 455 pupils. The enrollment in February, 1920, was 457, only two pupils in excess of the present capacity. The growth of the section served by this school was approximately 15 per cent annually from 1916 to 1919. At this rate, the enrollment in February, 1922, would exceed 600 pupils or over 145 more than present capacity. On this basis, at least five additional rooms will be needed to adequately take care of the Coventry district two years hence. While this is all the construction needed at present, attention is called to the fact that further extension of this plant can be made to provide for any demands that are likely to be made upon it.

## **Roxboro School**

**(Roxboro and Colchester Roads)**

The Roxboro School with a capacity of 630 pupils is now under construction. This building will be the third modern fireproof elementary school in the city. The growth since 1916 in the area surrounding this school has been 23 per cent annually. At this rate, the enrollment in February, 1922, will be approximately 305 pupils, leaving room for 325 additional pupils. It may be possible to transfer to this building a number of pupils now attending Coventry or Fairfax, thus affording a measure of relief to these schools. Another possibility is the retention in the Roxboro school of the eighth grade of this vicinity. This will insure temporarily a more complete use of the building until such time as the district will be more densely populated.

## **Noble School**

**(Noble Road and Parkdale)**

The school at Noble Road and Parkdale, built in 1910, is a four-room building, and in February, 1920, with the assistance of a portable, was housing 149 pupils. The school has grown approximately 21 per cent each year since 1917. On this basis, the enrollment in February, 1922, will be about 220 pupils. There are reasons to believe that this section of the city will grow even more rapidly in the near future. A new fireproof unit should be started on this site, the first year's construction consisting of four rooms.

## **Lee School**

**(On High School Grounds)**

The Lee School, built in 1902 and 1905, is not a modern fireproof building, and should have no place in the final elementary school plant. It is, however, a building which, in view of present costs and difficulty in the way of construction, should be utilized for several years. The pupils attending this school should ultimately be transferred to the elementary buildings recommended for this section of the city.

## **Washington Boulevard (Goodnor Road School)**

It is evident from an analysis of the facts, that the first new elementary building should be constructed on a location at or near Washington Boulevard and Goodnor Road. The area of the city to be served by this school is growing at an exceedingly high rate. The number of homes practically doubled from 1916 to 1919. (See Appendix, Table XI, Page 39.) A similar growth of the school population during the next two years will find at least 260 pupils in this section. Provisions for eight rooms of a unit which can be extended indefinitely should be made at once.

## **Junior and Senior High Schools**

The immediate need in Cleveland Heights is to provide elementary schools. Adequate accommodations for grades eight to twelve until February, 1922, will be supplied by the present high school building, with the addition now under construction. This report, therefore, does not recommend the immediate construction of either junior or senior high schools. It is urged that the growth in the high school grades during the next year be watched carefully in order that the proper steps may be taken as soon as the need arises. The next year's program may find it necessary to build a junior high school in the vicinity of East Scarborough and Queenston, or on the Roxboro site.

## Specific Recommendations for Immediate Building Program

I. Immediate adoption by the Board of Education of the 6-3-3 plan of organization.

II. Immediate purchase of the following sites:

1. Addition to Fairfax School and Noble School sites.
2. Five acre elementary school site at or near Washington Boulevard and Goodnor Road.
3. Five acre elementary school site in vicinity of Lee Road and Mayfield.
4. Five acre elementary school site in the vicinity of East Scarborough and Princeton.
5. Five acre elementary school site in Idlewood, east of Warrensville Center Road.
6. Five acre elementary school site in South Euclid, on the extension of Grosvenor Road.
7. Five acre elementary site in vicinity of Lowell Road and Quilliams' Road.
8. Five acre elementary site in the vicinity of Taylor Road and Monticello.
9. No assurance can be given at this time of what will ultimately be the disposition of the John L. Severance estate. The elementary program, however, has been planned so that a school may be located on this estate, should the need arise.

10. Seven to ten acre junior high school site in the vicinity of East Scarborough and Queenston.
11. Seven to ten acre junior high school site in the vicinity of Monticello Boulevard and Oxford Road.
12. The two full blocks bounded by Lee Road, Goodnor Road, Washington Boulevard and Cedar Road for a senior high school.

III. Construct immediately the following:

1. Eight rooms at Fairfax School.
2. Five rooms at Coventry School.
3. Four rooms at Noble School.
4. Eight rooms of new unit on site in vicinity of Washington Boulevard and Goodnor Road.

## **Probable Cost of Recommendations**

A careful estimate of the cost of the different sites was made, based on present land exchange values. It was estimated that the expenditure for sites would not exceed \$750,000.

The total construction amounts to 25 elementary school rooms, as recommended above.

The estimation of the cost of this amount of construction is left to the architect. It is believed that the total expenditures to carry out the above recommendations will approximate \$1,750,000. To care for any unforeseen contingencies it is recommended that at least a \$2,000,000 bond issue be provided.

## Appendix

This appendix gives the statistical data upon which the discussion and the recommendations in the report are based. The first step in planning a comprehensive building program, as was pointed out in the discussion, is the determination of the general character of the city.

### Growth of City and Schools

Table I gives the school census, school enrollment and the total population for Cleveland Heights since 1910, together with the per cents of growth since that year for each of these items. As shown in the table, the school census in 1919 increased 386 per cent since the census of 1910; school enrollment an increase of 580 per cent, and total population an increase of 400 per cent. School enrollment is increasing more rapidly than the population, while both have shown phenomenal growths.

TABLE I.  
SCHOOL CENSUS, ENROLLMENT AND POPULATION OF  
CLEVELAND HEIGHTS SINCE 1910  
(Source of Information, Annual Report for 1918-19, page 10)

Year	School Census		School Enrollment		Total Population	
	No.	%	No.	%	No.	%
1910	555	100	363	100	2955	100
1911	596	107	407	112	3152	107
1912	656	118	491	135	3704	125
1913	707	127	551	156	4520	153
1914	867	156	591	163	4959	168
1915	1130	204	752	208	6257	212
1916	1504	271	958	264	8645	289
1917	1848	333	1366	377	11213	380
1918	2131	385	1731	478	14811	500
1919	2701	486	2466	680		

In 1910 there were 555 pupils enumerated in the school census; 363 in the school enrollment, etc. In 1911 the school census was 596, or 107 per cent of the figure for 1910, in 1912 it was 656, or 118 per cent of the figure in 1910.

## Relationship Between Population and School Enrollment

Table II shows the per cent of the total population enrolled in the schools since 1912. This is consistently about 15.5 per cent and is a relatively high figure when compared with other cities.

TABLE II.

### PER CENT OF POPULATION ENROLLED IN SCHOOLS SINCE 1912

Year	Population	School Enrollment	Per Cent
1912	3,152	491	15.6
1913	3,074	551	15.
1914	4,520	591	13.1
1915	4,950	752	16.2
1916	6,257	958	15.3
1917	8,645	1,366	15.8
1918	11,213	1,731	15.4
1919	14,811	2,466	16.8
Total	57,252	8,906	15.5

This table reads as follows: In 1912 the population was 3,152. The school enrollment was 491 or 15.6 per cent of the total population.

## Possible Future Growth

Another factor that must be considered in determining the general character of the community is its possible future growth. Table III shows the estimated population for each year up to 1940. The estimates are based on the report by Barclay, Parsons and Clapp for the proposed subway, and studies by the Water Department and the Telephone System. It shows an estimated population in 1940 of 110,000. For the purposes of this report it was also desirable to estimate the future developments of the school population in the three types of schools—elementary, kindergarten to sixth; junior high schools, seventh to ninth; and senior high schools, tenth to twelfth. Using the figures of June, 1916, as a basis and assuming the growth for each group to be in the same proportion as that of the growth of the population as a whole, the estimates given in Table III were derived. The estimated enrollment in 1940 in the elementary grades is 11,300; in the junior high schools, 3,380; and in the senior high schools, 2,200—a total estimated school enrollment of 16,880. It is evident that a comprehensive school building program must take into consideration this important factor of growth. Two factors that might affect this growth are the restrictions on buildings and the space available for additional building facilities.



TABLE III.

## ESTIMATED FUTURE DEVELOPMENT OF THE POPULATION AND SCHOOL ENROLLMENT OF CLEVELAND HEIGHTS

Year	Population	K-6 Enrollment	7-9 Enrollment	10-12 Enrollment	Total School Enrollment
1916*	6,260	641	192	125	958
1917*	8,650	921	230	215	1,366
1918*	11,210	1,164	335	232	1,731
1919*	14,810	1,542	470	286	2,298
1920	22,400	2,290	680	440	3,410
1921	27,000	2,750	830	540	4,120
1922	29,500	3,030	910	590	4,530
1923	33,500	3,430	1,030	670	5,130
1924	37,000	3,780	1,130	740	5,650
1925	41,000	4,200	1,260	810	6,280
1926	44,500	4,550	1,360	890	6,800
1927	48,000	4,940	1,480	960	7,380
1928	51,500	5,300	1,580	1,030	7,910
1929	55,000	5,650	1,690	1,100	8,440
1930	59,000	6,050	1,810	1,180	9,040
1931	62,500	6,400	1,920	1,250	9,570
1932	66,500	6,750	2,070	1,310	10,130
1933	72,000	7,380	2,210	1,440	11,030
1934	77,000	7,900	2,360	1,540	11,800
1935	83,000	8,520	2,560	1,660	12,740
1936	88,000	9,050	2,700	1,760	13,510
1937	94,000	9,600	2,880	1,880	14,360
1938	99,000	10,580	3,020	1,980	15,580
1939	105,000	10,800	3,220	2,100	16,120
1940	110,000	11,300	3,380	2,200	16,880

\*Actual figures for these years.

## Building Restrictions

Table IV shows the number of blocks of the city subdivided before March 1, 1920, under each type of restriction and the per cent each is of the total. Forty-eight per cent of the total is restricted to one-family residence, 15 per cent to two-family residences, 34 per cent to mixed doubles and singles, and only three per cent is unrestricted or open to apartments and business or commercial enterprises. Most of these restrictions do not expire until 1940. It is very clear, therefore, that Cleveland Heights is almost completely residential and will remain so.

TABLE IV.

## NUMBER OF BLOCKS UNDER EACH TYPE OF RESTRICTION

	Singles	Doubles	Mixed	Unrestricted	Total No. of Blocks
Number	150	45 $\frac{1}{3}$	110 $\frac{2}{3}$	10	316
Per cent	48	15	34	3	

Table V shows the different types of buildings actually found in Cleveland Heights January 1, 1920. These figures are based upon data from the office of Inspector Williams of the Cleveland Heights Building and Plumbing Inspection Department. The table shows that there were at that time a total of 3,513 residences in Cleveland Heights. These can accommodate approximately 4,602 families. Of all the buildings now erected, 2,788 or 79 per cent are single residences. This proportion will undoubtedly grow less as the newer allotments are developed, for they are open for doubles and singles, whereas most of the older section is restricted to singles.

TABLE V.

**DWELLINGS ERECTED IN CLEVELAND HEIGHTS, SHOWING  
KINDS AND TOTAL NUMBER OF FAMILIES ACCOMMODATED**

Dwellings	Prior to 1915	1915-16	1917	1918	1919	Total
One-family .....	*852	717	344	156	719	2,788
Two families .....	...	113	94	78	347	632
Four families .....	2	18	6	..	6	32
Six families .....	5	20	21	..	4	50
Eight families .....	..	2	1	4	..	7
Twelve families ...	1	..	..	..	..	1
Sixteen families ..	1	..	..	..	..	1
Eighteen families..	..	..	..	..	1	1
Twenty families ..	..	..	1	..	..	1
Total .....	861	870	467	238	1,077	3,513
Families accommodated—	918	1,151	710	344	1,479	4,602
Cumulative totals of families—		2,069	2,779	3,123	4,602	

\*Probably some of the buildings erected previous to 1915 were two-family houses, but this is not determinable. This number has been treated as singles in the family estimates.

This table reads: Prior to 1915 there were 852 one family residences, in 1915-16, 717 new one family houses were built, etc.,—a total of 2,788 singles by the end of 1919. At the foot of the table are shown the number of families accommodated by the new buildings erected each year and the cumulative total.

## Available Space for New Buildings

Another factor that might affect the possible growth of the city is the space available for new buildings. A study of the lot occupancy before January 1, 1920, reveals the following facts:

TABLE VI.

	No. of Lots
1. Total in space allotted up to Jan. 1, 1920.....	12,828
2. Total occupied .....	3,577
3. Remaining area allotted but unoccupied .....	9,251
4. Number in unallotted area, assuming five lots per acre.....	7,150
5. Total available space in Cleveland Heights.....	16,401
6. Number of additional people who can be accommodated, assuming five individuals per lot .....	82,005
7. Estimated population, June 1, 1920.....	19,200
8. Total number of people who can be accommodated.....	101,205

Table VI shows that 101,205 people can be accommodated within the present limits of Cleveland Heights. It is believed that this number is somewhat conservative, as only five lots per acre were allowed for the area not subdivided and as it has been found that in developed communities there are generally more than five individuals per lot occupied. In view of these facts, it is quite probable that Cleveland Heights can easily accommodate the estimated 110,000 people.

Cleveland Heights is a rapidly growing city of a predominantly residential character. Any comprehensive school building program must, therefore, be based upon the needs of a rapidly growing city of homes.

## Policy of Organization

The traditional American scheme of organization is commonly called the 8-4 plan, which means the regular eight-grade elementary school and the four-year high school. These two types of schools grew up as completely separate units. This plan of organization is rapidly changing throughout the country and there is a distinct tendency toward a six-year elementary school, followed by the junior high school (grades seven to nine) and the senior high school (grades ten to twelve). There are numerous variations from the 6-3-3 plan, such as 7-5, 6-6, 6-4-2, 6-2-4, etc.

The general tendency toward the 6-3-3 organization was initiated largely through the studies of retardation and elimination of pupils made by various cities. These showed that only about one-third of the pupils who entered the schools continued into the high schools. The elimination was greatest in grades seven and eight. "During the early years of school life it is important that all children require a common fund of aims, ideals, ideas and habits of thought and action in order that there may be social and national solidarity. It is in the elementary school that the child should gain control over the tools of the fundamental subjects. All research studies show that pupils who are in the seventh and eighth grades gain little ability in the tool subjects beyond that of the average sixth grade child. The work of the two upper grades is largely review work in the traditional school and has become very much formalized."\* The demand of the communities that the work of these grades be vitalized and enriched led to the movement for the junior high school.

\*From report by Charles L. Spain, Deputy Superintendent of Schools, Detroit

More recent investigations of the physiological and psychological development of the child give an even stronger justification for the six-year elementary school and the three-year junior high school, distinct from both the elementary school and senior high. It has been found that the period of adolescence begins with the ordinary child at about the age of twelve, which is the age the normal child enters the seventh grade. It is during the period of adolescence that the child goes through the most critical stage, in many respects, in his whole life. He is restless, uneasy, highly emotional, and is going through the period of most rapid physical development. In the classroom, the methods of the elementary school are illy adapted. The child cannot be dealt with in the same way. It is to meet this need on the part of the child that the distinct and separate junior high school should be provided. The child can be given special attention; he can be helped to overcome the problems peculiar to this period; and the curriculum can be greatly enriched to develop the child in the broadest sense possible.

"It is at this time that vocational interests begin to dawn, when children begin to think about their life work. By the time they reach the age of sixteen the great mass of them must find their way into industry. Their interest is no longer in books. What they need is the opportunity to test themselves in a variety of vocational activities. These things the elementary school cannot well provide."\* In order that the group that is to be dealt with in these difficult years may be as homogeneous as possible, it is essential that a separate type of school be organized.

The junior high school should be followed by a three-year senior high school as a distinct unit. The curriculum of this school should be differentiated in as many respects as possible. It should be adjusted to meet the needs of the community. It should be considered in every sense a higher educational unit, designed to meet the demand for educational opportunity beyond the junior high school.

Reports from thirty-five of the larger cities of the country show that all but three of them have this policy in operation, or are planning to introduce it.

#### TABLE VII.

##### PRESENT STATUS OF 6-3-3 PLAN IN THIRTY-FIVE CITIES

###### 6-3-3 Plan in Operation—

Baltimore, Md.	Milwaukee, Wis.
Boston, Mass.	Minneapolis, Minn.
Chicago, Ill.	Newark, N. J.
Cincinnati, Ohio.	New York City, N. Y.
Cleveland, Ohio.	Philadelphia, Pa.
Columbus, Ohio.	Pittsburgh, Pa.
Denver, Colo.	Richmond, Va.
Des Moines, Ia.	Rochester, N. Y.
Detroit, Mich.	San Francisco, Cal.
Duluth, Minn.	Salt Lake City, Utah.
Grand Rapids, Mich.	San Antonio, Texas.
Kansas City, Mo.	Springfield, Ill.
Los Angeles, Cal.	Washington, D. C.

\*From report by Chas. L. Spain, Deputy Superintendent of Schools, Detroit.

## Planning to Introduce 6-3-3 Plan—

Atlanta, Ga.	St. Louis, Mo.
Buffalo, N. Y.	St. Paul, Minn.
Omaha, Nebr.	Seattle, Wash.

## Not Planning to Introduce 6-3-3 Plan—

Indianapolis, Ind.
Birmingham, Ala.
New Orleans, La.

The buildings that are now being used can easily be incorporated into the ultimate plant if this organization policy is adopted.

## Number and Type of Buildings Needed

The third consideration in planning a comprehensive building program is the determination of the number of buildings of each type that will be needed to carry out the organization policy and the selection of the sites.

Table VIII shows the conditions of the present school plant, presenting the number of buildings of a permanent character, the number of portables, the enrollment to date, and the capacity of the permanent buildings, placing the room capacity at 35 pupils.

TABLE VIII.

## CHARACTER OF PRESENT ELEMENTARY PLANT

School	Grades	Rooms in Building	Portables	Enrollment to date	Stand. Cap. of School Bldgs.
Coventry	K-6A	13	0	465	455
Fairfax	K-7A	8	8	551	280
Lee	2B-7A	9	9	542	315
Noble	1A-7	4	1	150	140
Roxboro	1A-7A	0	7	202	0
Severance*	K-2B	0	2	42	0
Superior*	K-2A	0	5	130	0

\*Severance and Superior are residences equipped for school purposes.

At the present time over 40 per cent of the elementary pupils are housed in temporary structures. This condition was unavoidable due to the Government restriction on building during the war, and the phenomenal growth of the city. Since the restrictions were removed, additions have been begun on the Fairfax School, and the High School, and the Roxboro elementary building has been started. These three buildings and Coventry are all new and of modern fireproof construction. They can be incorporated into the ultimate plant. The other buildings will help meet the present demands but are not recommended as a part of the ultimate plant. Severance and Superior are two of the buildings which should be definitely abandoned in the ultimate school plant, for they are not well located, they are small, they do not meet the needs of the modern school, they are not of modern fireproof construction and would be merely an unnecessary expense to the school district.

## Play Ground Area per Pupil

Table IX shows the present playground area per pupil for each school, based on present enrollment and also the area based on the possible capacity of each school when the new additions are completed. The table shows that at the present time the average area per pupil ranges from 87 square feet at Superior to 403 square feet at Roxboro. Taking into consideration the additions that are being built, the range in the playground area is reduced to 50 square feet in Superior and to 130 square feet at Roxboro. In the Fairfax and the High School-Lee sites, the area will be less than 100 feet per pupil. When it is considered that 100 square feet means a plot of ground only 10 feet by 10 feet, or a space about six times as large as the space the pupil is given in the classroom, it becomes obvious that provision should be made in the purchase of future sites to secure sites of adequate size, so that there will always be sufficient playground area to meet the possible growth of the school. In each of the new modern elementary school buildings there is a gymnasium and an auditorium. The use of these adds greatly to the play facilities of the schools.

TABLE IX.  
SQUARE FEET OF PLAYGROUND AREA PER PUPIL

School	Playground Area (Square Feet)	Park Area	Present Enrollment	Projected Enrollment	Present sq. ft. per pupil	Projected sq. ft. per pupil
High School & Lee			1,269	2,000		
Present Site .....	191,176	62,400			150	96
Projected Site .....	160,572	62,400			126	80
Fairfax (new) .....	47,734	80,875	508	630	94	76
Coventry (new) .....	51,000	34,848	457	455	112	114
Roxboro (new) .....	81,517	56,100	202	630	403	130
Noble (new) .....	53,945	27,900	149	420	362	128
Superior (new)			125	200		
Inclusive of covered playground ..	12,833	16,500			102	60
Exclusive of covered playground ..	10,883	16,500			87	50

This table reads: Fairfax has a playground area of 47,734 square feet, a park area (lawn) of 80,875, a present enrollment, including portables, of 508, a capacity of 630 when the additions are completed. The present playground area per pupil is 94 square feet; when additions are completed, 76 square feet per pupil will be the possible play area.

## Size of School Sites

In general, elementary school sites should be not less than five acres, junior high school sites not less than seven acres, and senior high school sites not less than fifteen acres. The size of elementary schools will vary with the density of population and with the size of the area from which they draw. But at the present time it is not possible to estimate the ultimate size of a school. Any school building should be so planned and constructed that it will be possible to add extensions to it as they are needed. The sites should be large enough to accommodate these extensions and still provide adequate playground area.

## Distances Children May Travel

Elementary schools should be more numerous than high schools, as they must be so situated that young children will not be obliged to travel long distances to reach them. The larger the area drawn from, the fewer schools will be needed. It is fairly well agreed that elementary school sites should not be more than one mile apart. This would mean that no child would be obliged to travel more than one-half mile to reach the nearest elementary school. Older children can be required to travel greater distances. This makes it possible to locate junior high schools so that they will draw from larger areas, say from an area equivalent to that of four elementary schools. This would place junior high schools about two miles apart, no child being obliged to walk more than a mile to reach a school of this type. A senior high school can draw from a still larger area. If a high school were located in the center of Cleveland Heights, no child would be more than one and one-half miles from it, except the children in the extreme northern part of the district. This section is very conveniently located with respect to the high schools in East Cleveland and South Euclid. Shaker Heights High School is situated less than a mile from the Roxboro site. In making plans to secure an adequate high school site, the location of the high schools in the vicinity must be considered.

A high school site should be at least 15 acres in size in order that provisions may be made for adequate space for playground and athletic facilities and for future growth. Four junior high schools are sufficient to meet the ultimate needs of Cleveland Heights. In terms of the estimated growth they would accommodate on the average about 800 students. The ultimate elementary school plant, as recommended, will contain 12 schools. They are so located that not more than 10 or 15 per cent of the pupils will be required to travel more than half a mile to reach the nearest school. At the present time over 20 per cent of the pupils must travel more than this distance.

## Immediate Requirements

The immediate recommendations for additional buildings must take into consideration the buildings and additions now under construction and the relief afforded by them; the overcrowded condition of the present schools; and the growth in different sections of the city.

Table X shows the relation between the capacity of the present buildings with their additions and the probable enrollment in 1922, based upon the probable growth of the district within which they are located. It shows that each of these schools with the exception of Roxboro, will be overloaded. This factor determined the recommendations made for each school. The Lee School is at present overcrowded and could be relieved only by the building of a new elementary school.

TABLE X.

### PROBABLE ENROLLMENT IN FEBRUARY, 1922, IN PRESENT SCHOOLS, COMPARED WITH CAPACITY

School	Capacity	Probable Enrollment	Overload
Coventry .....	455	594	139
Fairfax .....	630	843	213
Roxboro .....	630	295	335
Noble .....	135	170	35
Lee .....	350	now overloaded	

Table XI shows the rate of home construction in the districts from which the various schools will draw in the proposed immediate building program. It can be seen that the Coventry and Noble districts are showing the least growth. The growth in the Fairfax district is very large, having an average increase of 33 per cent annually in the last three years. Similar conditions exist in the district of the proposed Washington Boulevard and Goodnor Road site. A building erected on this site would help to materially relieve the congestion at both Lee and Fairfax Schools. Extensions to the Fairfax, Coventry and Noble plants would meet the pressing needs of the next three years for the respective districts.



TABLE XI.

RATE OF HOME CONSTRUCTION IN DISTRICTS BOUNDED BY  
CIRCLES OF ONE-HALF MILE RADIUS ABOUT SCHOOLS  
AND PROPOSED SITES

School or Site	Houses in 1916	Houses Built Since 1916	Total Percent of Growth	Annual Percent of Growth
Coventry .....	593	268	45	15
Fairfax .....	312	307	98	33
Roxboro .....	241	169	70	23
Rockefeller Site..	173	124	72	24
Washington Blvd. & Goodnor Road	151	146	97	32
Noble .....	103	21	21	7

At the present time the high school building can accommodate the junior and senior high schools. The district in the vicinity of the Fairfax School is growing very rapidly and it is probable that a close study of the development of this section will justify the construction within a short time of a junior high school on the proposed East Scarborough-Queenston site. The growth in the Roxboro district is so small that for some time to come the Roxboro School can accommodate both the elementary school and grades seven and eight of the junior high school. This should be only a temporary arrangement and should be changed when the proposed junior high school is constructed on the East Scarborough-Queenston site.









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