The CITY PLAN
of
FLINT, MICHIGAN

including
the reports of

JOHN NOLEN,
City Planner

and

BION J. ARNOLD
Transportation Engineer

as approved by

THE CITY PLANNING BOARD

and accepted by

THE COMMON COUNCIL

GEORGE C. KELLAR, *Mayor*

FRANK D. KING, *City Clerk*

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THE COMMON COUNCIL

of Flint, Michigan

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Preface

March 7, 1917, the people of Flint, by an affirmative vote of 4008 out of 5618 ballots cast, created the City Planning Board by approving the following charter amendment submitted by the Common Council:

The People of the State of Michigan and the people of the City of Flint enact:

Section 1. That an act entitled, "An act to incorporate the city of Flint and to repeal all acts and parts inconsistent herewith, approved March 21, 1901, as amended, be and the same is hereby amended by adding a new chapter thereto, to be known as Chapter XXXI, to read as follows:

Chapter XXXI. Section 1. There shall be a city planning board of four members, consisting of the mayor and three citizen members appointed by the mayor and confirmed by the council, who shall be chosen because of their knowledge of city planning. That on the first day of May, the mayor shall nominate for confirmation by the council, one member of such city planning board for the term of two years, one member for the term of four years, and one member for the term of four years, all members of the board to hold office until their successors are elected and qualified. It shall be the duty of the board to keep itself informed of the progress of city planning in this and other countries, to make recommendations for the improvement of the plan of the city, with a view to the present and future movement of traffic, the convenience, amenity, health, recreation, general welfare and other needs of the city dependent upon city planning, to consider and report upon the plan of all new public ways, parks and streets, opening and vacating and closing of streets, lanes and public places, the design of public buildings, bridges and other structures, the approval of all plats and subdivisions and of all other public improvements in the city of Flint,and to plan the laying out of streets within all territory located within a distance of not more than three miles from the city limits, and to recommend to officials authorized to accept the dedication of streets and to approve plats within such territory adjacent to the city, plans conforming to the city streets.

Section 2. All acts of the council, the board of water commissioners, the park board or any other board of the city government affecting the city plan, shall be submitted to the city planning board for reports and recommendations. The council, the board of water commissioners, the park board and other boards of the city may at any time call upon the city planning board to report with recommendations, and the city planning board of its own volition may also report to the common council the recommendations of any matter which in the opinion of either body affects the plan of the city and the construction and extension of any public improvements.

Any matter referred by the council or any of the city boards may be acted upon by such board within thirty days of reference, unless a longer or shorter period is specified. No action by the council or any city board, involving any public work or improvement mentioned, shall be legal or binding until it has been referred to the city planning board and until the recommendations of such board have been accepted or rejected by the council or board having jurisdiction thereof.

Section 3. The city planning board shall submit to the council an annual report summarizing the activities of the board for the fiscal year, the recommendations made by and to the council and boards and the action of the council and boards in reference thereto during the year, or any and all recommendations made by the board in that or former years. The annual report of the board shall also contain a program of improvements on the city plan year by year during the next three years ensuing, with estimates of the cost thereof and recommendations as to how the cost shall be met.

Section 4. The mayor shall appoint as secretary of the city planning board a competent person, and in addition to his duties as secretary of the said board he shall also act as secretary to the mayor. He may with the consent of the common council employ city planning experts as need may arise. The city engineer shall also serve as engineer of the city planning board, and it shall be his particular duty to bring all the engineering works of the city into harmony as part of one comprehensive plan. The executive officers of the board of health, board of water commissioners, park board and all city boards shall advise the city planning board from time to time of any municipal improvements within the scope of their respective boards which in their opinion would improve the healthfulness, convenience and general welfare of the city. The city planning board shall have the power to call upon any branch of the city government for information and advice which, in the opinion of the board, will insure the efficiency of its work.

Two months later Mayor Kellar appointed the present members to carry out the broad provisions of the foregoing amendment. The City Planning Board inherited at the outset the valuable results of work on city planning done by a joint committee of aldermen and citizens composed of F. R. Armstrong, Otto M. Ramlow and John W. Collins, aldermen, and J.D. Dort, Rev. J. B. Pengelly and Geo. W. Cook. This committee, under authority of the council and at public expense, engaged Mr. John Nolen of Cambridge, Mass., to draw up a City Plan for Flint, and also engaged Bion J. Arnold, transportation engineer, to co-operate with Mr. Nolen in producing a comprehensive transportation plan. These studies were submitted to the council, and duly approved by that body. Various changes and extensions of the plan have been made in the meantime as a result of the city's rapid growth. The plan is put forward now, not as a solution of all our civic ills, but rather as a broad program to which future development may conform in general and as a platform of correct basic principles to govern city growth.

The City Planning Board herewith presents the Nolen report in full, and a summary of the Arnold report, for the enlightenment of the public of Flint. Here is the groundwork plan for the Flint of the future. Maps, blueprints, diagrams and other details are available to the public at the Mayor's office, City Hall, and will be explained by the Secretary upon call. We bespeak for this volume earnest reading and study, and for the Flint plan your public-spirited interest.

THE CITY PLANNING BOARD.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
DISTRICT MAP
Showing Flint in relation to the surrounding territory and the Cities that fall within a fifty mile radius.
GLADWIN
HURON
BAY
MIDLAND
TUSCOLA
SANILAC
SAGINAW
CRATIOT
GENESEE
LAPEER
ST CLAIR
CLINTON
SHIAWASSEE
OAKLAND
MACOMB
LIVINGSTON
INGHAM
WASHTENAW
WAYNE
CANADA
Saginaw Bay
Lake St Clair
FLINT
MIDLAND
BAY CITY
SAGINAW
CASS CITY
CARO
VASSAR
ALMA
ST LOUIS
ITHACA
ST CHARLES
OWOSSO
DURAND
LAPEER
PONTIAC
MT CLEMENS
DETROIT
WINDSOR
ANN ARBOR
YPSILANTI
LANSING
MASON
HOWELL
EATON RAPIDS
FENTON
To Mackinaw
To Grand Rapids and Grand Haven
To Port Huron
To Toledo
LEGEND
Cities
Railroads
Automobile Routes
Rivers and Lakes
County Boundaries
SCALE
JOHN NOLEN CITY PLANNER
HARVARD SQUARE CAMBRIDGE, MASS.

PLAN No 95

The Principal General Recommendations of the City Plan

1. The establishment of a business district for Flint, from Clifford to Church Streets.

2. The creation of a permanent centrally located open space around which the public buildings of the city can be grouped to the best advantage.

3. The location and construction of a new union station at the head of Harrison Street.

4. The abolition of grade crossings within the city limits.

5. The development and use of an adequate industrial district on the east side of the city.

6. The acquisition for park purposes of all land along the ponds, rivers and creeks.

7. The redemption for park purposes of properties now occupied by dwellings situated on low land unsuitable for housing purposes.

8. The acquisition of large parks in each important section of the city—for example, Burton Woods, Dening, Graham and Pierson Parks.

9. The establishment of local parks for intensive use.

10. The establishment of an aviation field at Dewey Woods.

11. The reclamation and improvement, as a recreation area, of the hollow from Fifth to Eighth Street east of Clifford Street.

12. Enlargement of any present school sites that are now inadequate.

13. The continuation of the present program of providing adequate sites for all future schools.

14. Adoption of a program for carrying out plans for the street thoroughfare system.

15. The widening of thoroughfares recommended, or provision for widening by the establishment of building lines.

16. The construction of the more important street extensions:---for example; Eighth Street to East Court Street; Industrial Avenue to North Saginaw Street, and Stockdale Road to Flushing Road.

17. Construction of new bridges at Clifford Street, Wood Street, Leith Street, Stewart Avenue, below Wilcox Street and below Third Street.

18. The completion of the system of Circuit Park Drives by suitable street improvements and planting.

Principal Recommendations on Transportation Plan

(From Arnold Report)

1. Encourage further service and co-operation from all available railroads, both steam and electric, in the vicinity of Flint, to conserve existing and future investment and to secure additional quota of automobile rolling stock.

2. Existing railroad facilities need expansion more in yards, interchange and belt line facilities, than in new main line .

3. Present industrial sites are, for the most part, unreasonably cramped, especially along railroad main lines, and require expansion, and to some extent relocation in other districts.

4. Abatement of railroad switching and interchange through the central business district.

5. Freight classification switching operations should be done outside of the settled district.

6. Adoption of Flint Belt Line plan on a basis of strictly impartial terminal service and charges.

7. Immediate construction of the Pere Marquette cut-off as the first element of the Flint Belt Line service.

8. Ultimate extension of Belt Line Service to the principal industrial districts of Flint—North, South and East Side.

9. Reconstruction of Thread Creek Bottoms for an enlarged freight terminal, especially for team track and warehouse facilities, together with proposed cut-off Chevrolet district.

10. Second St. viaduct and grade separation in connection with development of Thread Creek Bottoms and the Transit Plan.

11. Temporary use of Grand Trunk East Side yard along Burton St., for a holding yard only, with ultimate transfer to Belsay.

12. Arrange for future Union Station project on present Grand Trunk site, with extension of Clifford St. across the river and redemption of lower St. John St. as a thoroughfare.

13. Encourage new entrance for Michigan Electric Railway connecting with Owosso and the West.

14. Union electric terminal for all electric passenger and freight in the vicinity of Third Ave. and the Athletic Park.

15. Ultimate set-back of city freight terminals further from Saginaw St., especially for team tracks.

16. Work out various grade separations both for the immediate future and ultimate.

17. Create parallel by-pass streets on both sides of South Saginaw St. expansion of business district and avoid undue concentration of car lines and traffic in Saginaw St.

18. Ultimately, remove interurban lines from South Saginaw St., after the disposition of the Sixth St. depression has been decided upon.

19. Establish where practical local prepay car loading berths at large factory entrances, to increase the efficiency and decrease the present delay in rush hour service.

20. Establish a basic Transit Plan for future development, incorporating main radial lines, crosstown lines and through routes as a component part of the City Plan, capable of unlimited extension and encouraging the expansion of the business district.

21. Empower an official Commision or Board to deal with City and Transportation Plans concurrently and on its own initiative.

PART I. Civic Survey

GROWTH OF POPULATION

The growth of population in Flint is graphically represented to 1916 by the simple diagram shown below as Exhibit No. 1. This gives the government census figures for the three decades 1890 to 1910 and the figure estimated in Flint for 1916; as follows:-

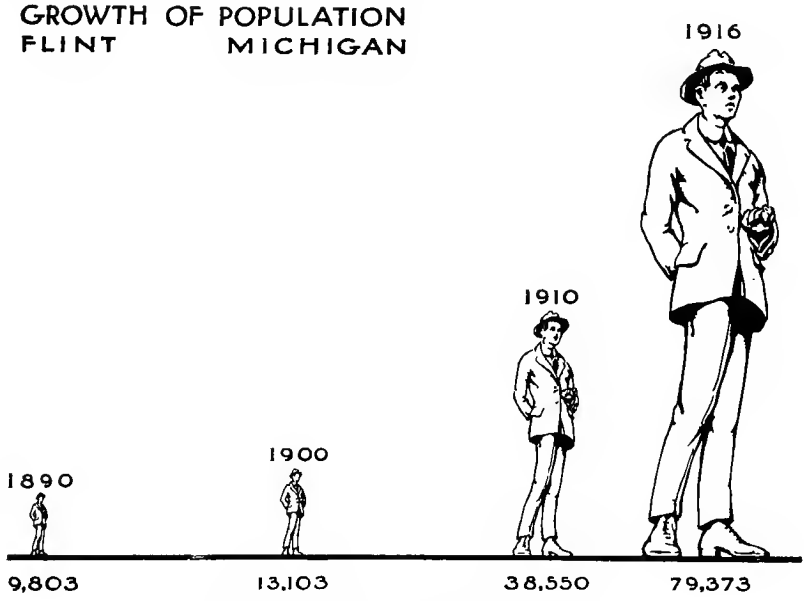
1890	9,803
1900	13,103
1910	38,550
1916	79,373

The general opinion in Flint at the present time sets the January 1, 1920, population figure at 100,000 for the entire area soon to be included within the city limits. The 1916 figure seemed at the time to be rather high but events have since proven it to have been conservative. The fourfold increase in population in the last ten years is a remarkable record for any city to make and one that causes a sense of pride if one only looks to size as an indication of success, but it is also a record that carries with it the serious charge to meet the new conditions and to give to Flint a name that stands for more than mere bigness.

In the coming year, 1920, U. S. Government census will be taken and the results then obtained will give an accurate basis for comparison and prediction.

An interesting comparison of the growth of a city in area with its growth in population can be made by referring to Exhibit No. 13.

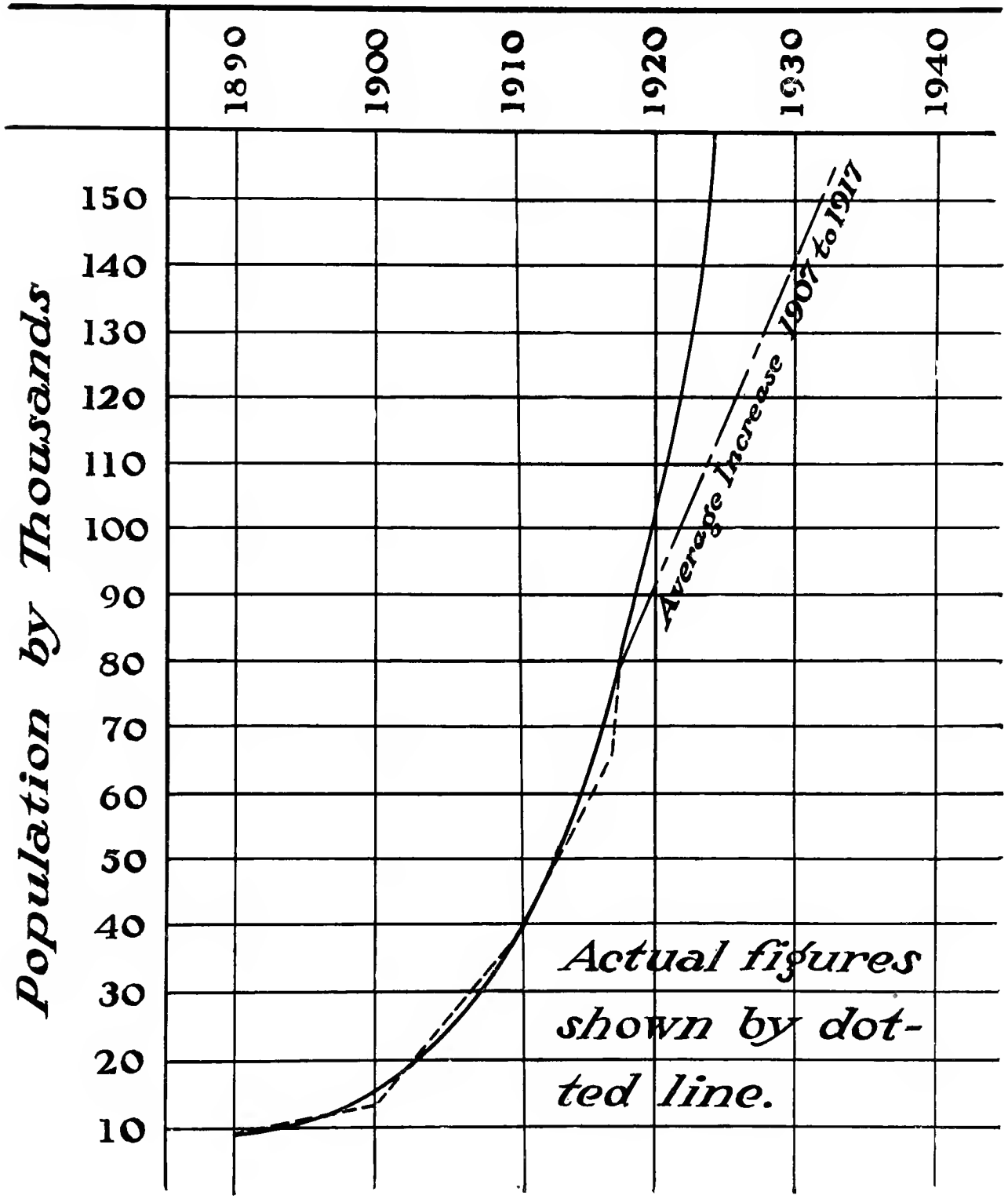
NOTE. Within the old limits the 1920 population is given by the Census Bureau as 91,499. Within the new limits the population was estimated as 103,845, on May 1, 1920.



CURVE OF POPULATION

The following diagram is submitted representing the Curve of Population from 1890 to about 1922 based on the figures given under the Growth of Population. The surprising increase in the population in the last five years is not common growth and cannot be used as a sure basis for predicting the future. With the new demands of peace it is safe however to predict that the automobile industry will continue to expand and with it will come a continued growth for Flint. If the present trend is taken as a true indication the 150,000 mark would be reached by 1922 at the latest, and 200,000 before 1925, but other factors are bound to come into play and in these times of general transition and adjustment it is unwise to judge from the past conditions. The only sure conclusion is that the growth of Flint is still on the upward swing and with an open field before it.

CITY of FLINT
MICHIGAN
CURVE of POPULATION



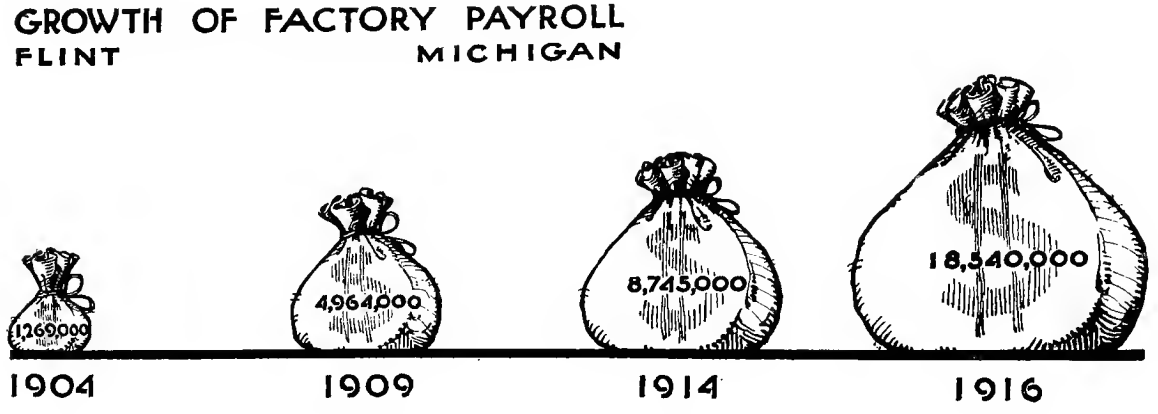
Growth of Factory Pay Roll

Particularly significant as evidence of the substantial character of Flint's prosperity are the facts shown in the diagram illustrating the Growth of the Factory Pay Roll. The actual figures are:

1904	$1,269,000
1909	4,964,000
1914	8,745,000
1916	18,540,000
1920	estimated 42,000,000

The big jump shown by the 1920 figure is not alone to an increase in the number of employees, but also to the new scale of wages and the new standard of money, so that in any comparison these new conditions should be taken into consideration.

This growth in the pay-roll, however, means a greater purchasing power and an increase in the number of purchasers which in turn means more and better stores, more places of amusement, more homes, and results in more tradesmen, clerks and artisans; an ever increasing circle of growth in the population of the city, due to prosperity.



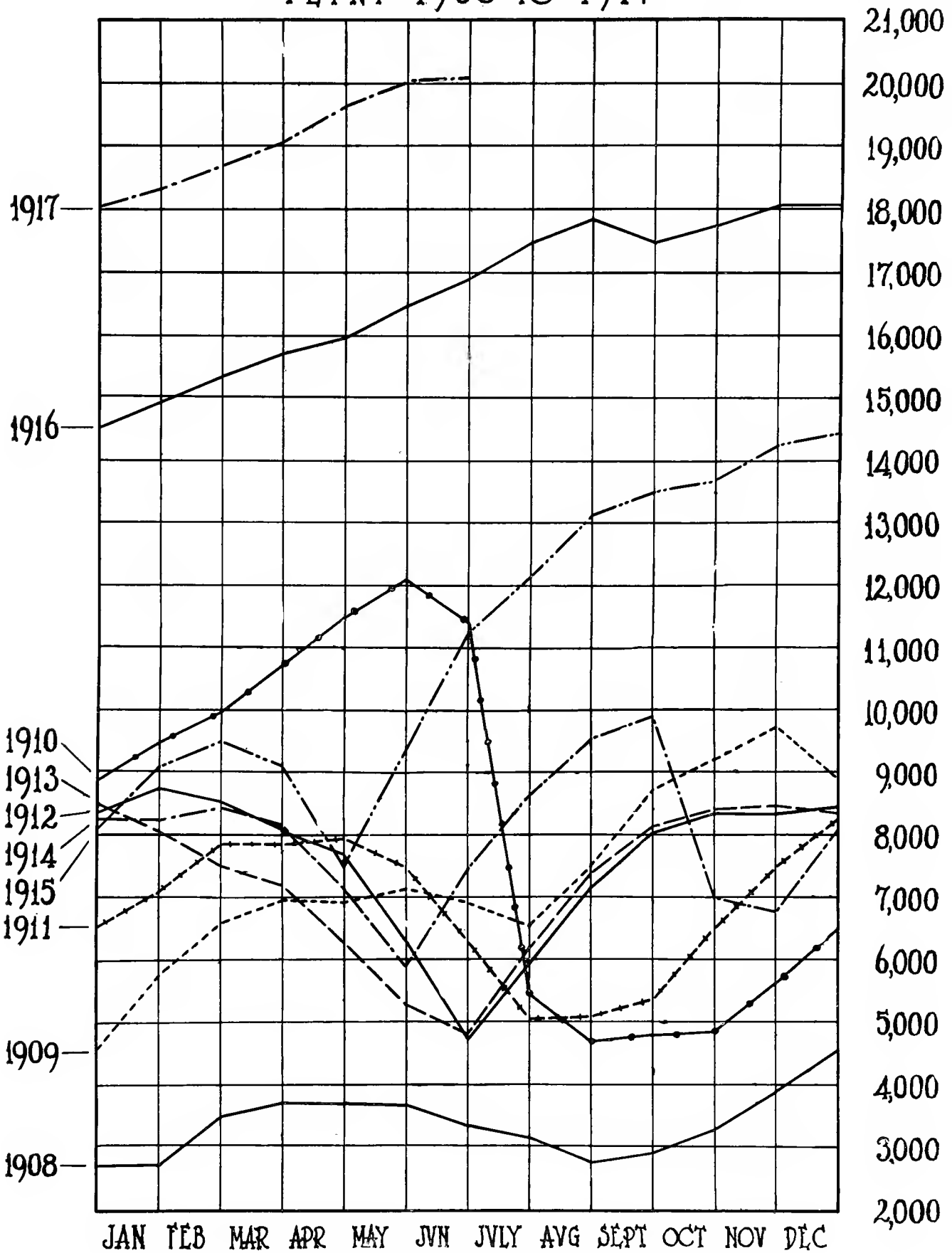
Monthly Record of Factory Workers

The diagram recording the number of factory workers covers the period by months from 1908 to 1917. The curve is fairly regular in 1908, but very irregular from that year until 1916, particularly in the year 1910. On the other hand, the curve for the years 1916 and 1917 is steady and regular throughout the year, showing sound industrial conditions. In January 1920 there were 29,981 persons employed in the Flint industries. The monthly average for the year was 25,953.

The steady increase in the number of factory workers is always another and hopeful indication of the growth of the city as a whole and an index of its prosperity.

An industrial city depends upon the conditions at the factories for its well being. Heavy fluctuation in the number of persons employed produces unsettled conditions and a shifting population which makes permanent planning a difficult problem. It is only with settled conditions that men are encouraged to make permanent store enlargements, build new homes and plan new developments.

Monthly Record of Factory Workers
Flint 1908 to 1917

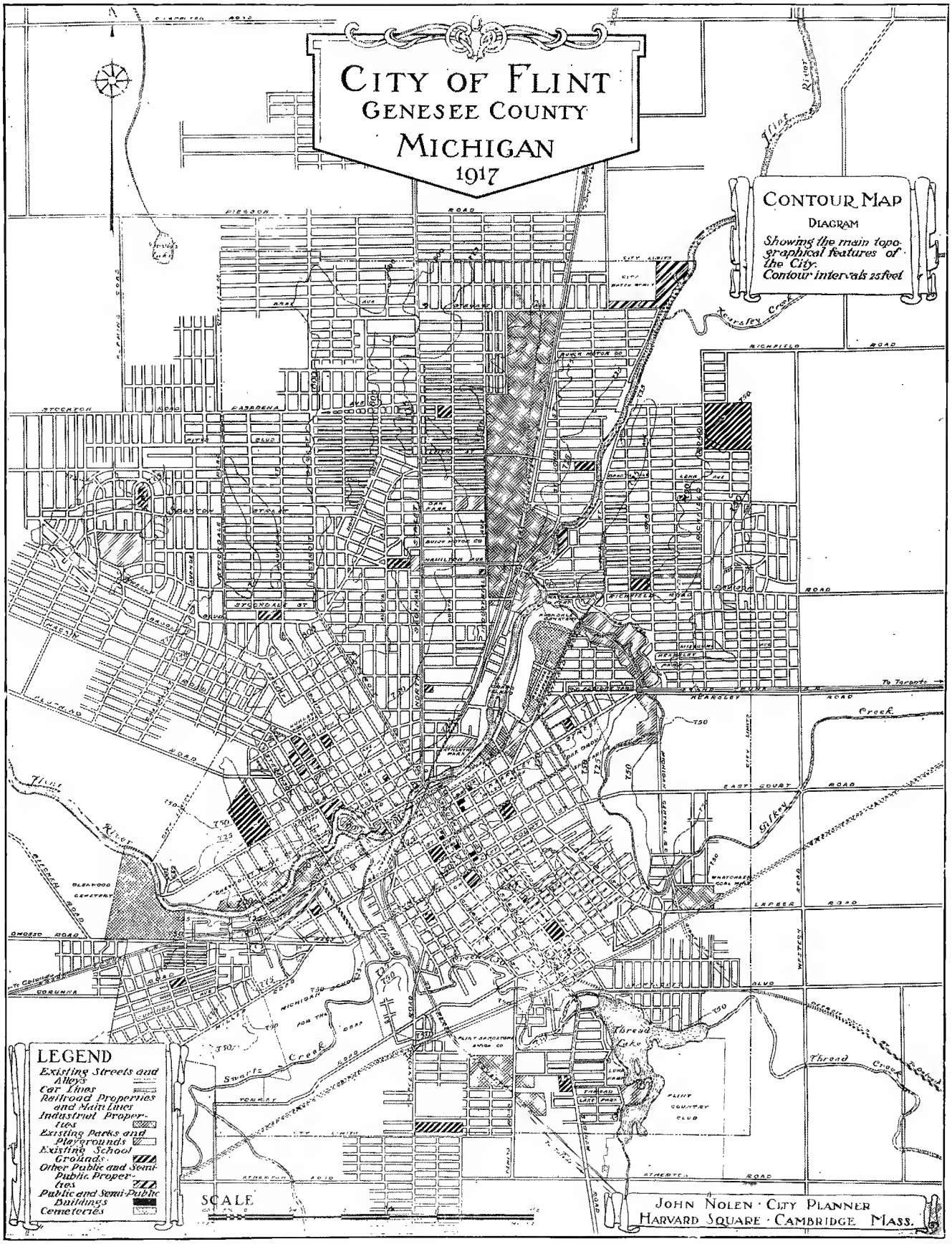


Contour Map

The city of Flint is divided into two parts by the Flint River. The western half lies within the large bend of the river and gradually rises from the valley approximately 100 feet to a ridge that runs north and south just east of Detroit street, reaching an elevation just over 800 feet. West of this ridge is a rolling prairie with very slight differences of elevation. The only marked natural feature in this section is the Devil's Lake and its outlet just beyond the city limits to the northwest.

The eastern half of the city is quite different and more varied in character being cut by four good sized creeks: Kearsley Creek to the north, then Gilkey, Thread and Swartz Creeks to the south. Between these stream valleys the land rises as on the other side of the river but only to about elevation 750 or fifty feet under that of the west side ridge.

East of Western Road is a broad level prairie now used for farming but offering an excellent site for industrial development. The east side creeks with Thread Lake, the one large body of water near Flint, form a wonderful basis for a park system. This valley land is not suitable for homes and should be taken over by the city to prevent unhealthful, dangerous, or at least undesirable living conditions.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
CONTOUR MAP
DIAGRAM
Showing the main topographical features of the City.
Contour intervals 25 feet
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi-Public Properties
Public and Semi-Public Buildings
Cemeteries
SCALE
JOHN NOLEN · CITY PLANNER
HARVARD SQUARE · CAMBRIDGE MASS.

Existing Conditions Map

The base map for the Civic Survey is the city map of Flint, with information compiled to form a basis for the proposed city plan. As the legend or note on the diagram indicates, the information shown graphically on the map is as follows:

Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi-Public Properties
Public and Semi-Public Buildings
Cemeteries

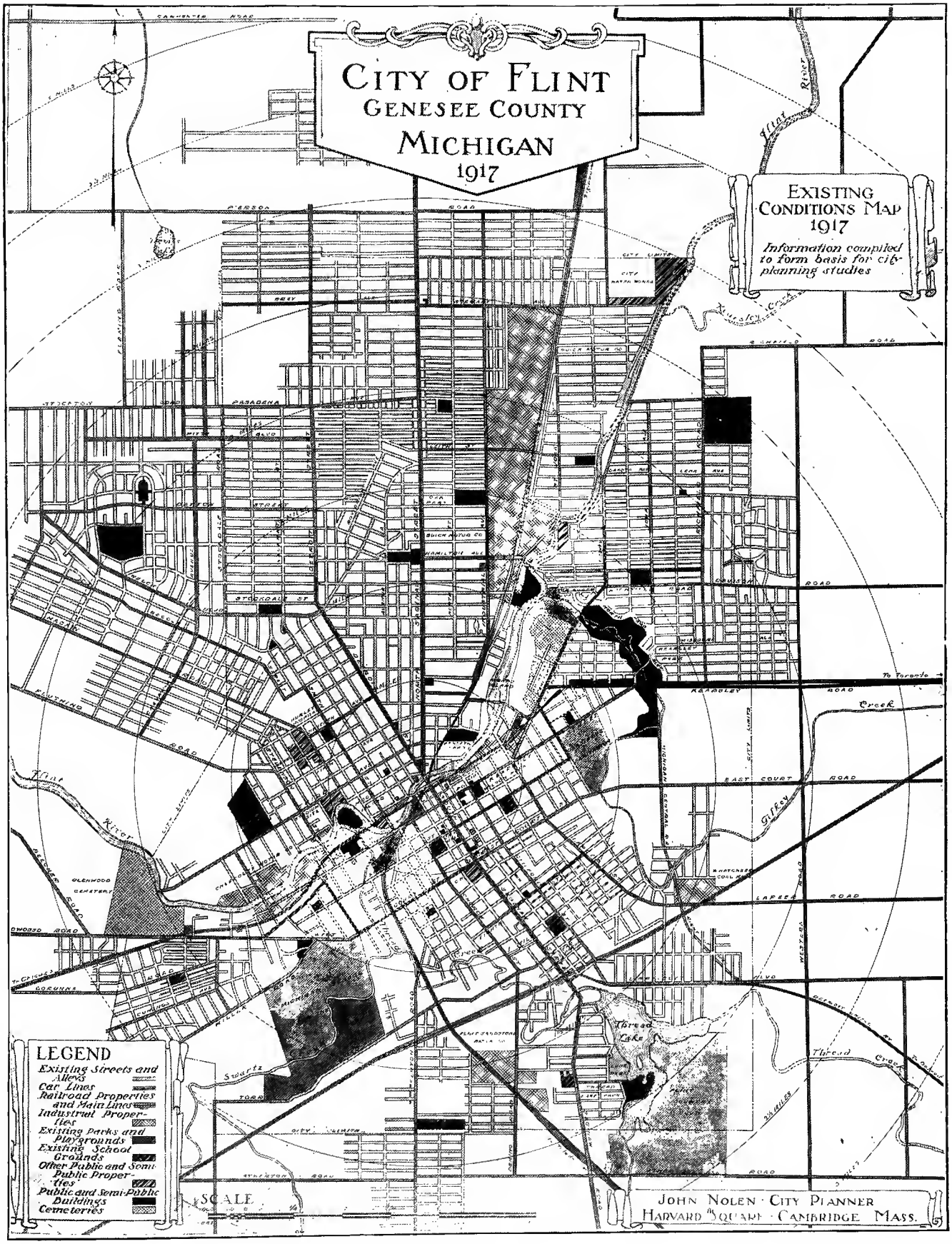
As a definite basis for future planning, one of the first steps is the collection, and so far as possible the graphic presentation of the existing facts as regards the topography of the city, the location and distribution of streets, public utilities, railroads, factories, parks, playgrounds, schools, public buildings, and other government features.

The existing conditions are continually changing even in a city that appears to stand still while with a city like Flint data collected today is out of date in a month. The City Plan Commission should hereafter make up at least annually a set of survey maps which taken consecutively would show clearly not only the conditions at any one time but also the trend, volume and rate of growth.

Since the original survey was made in 1917 many new developments have taken place both through private initiative and by official action.

New property has been laid out and developed, the building area covered by public utilities has been greatly extended, and the big proposed industrial district to the east of the city is already under way.

The city has acquired various parcels of land for building and storage purposes, the park properties have been extended by purchase and gift, and the school board has already acquired within the present city limits school grounds equivalent to the proposals originally made in the preliminary plans for the city. The purchase of Dewey Woods and the gift of the Whaley property are two moves of great advantage to the future city.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
EXISTING CONDITIONS MAP
1917
Information compiled to form basis for city planning studies
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi-Public Properties
Public and Semi-Public Buildings
Cemeteries
SCALE
JOHN NOLEN · CITY PLANNER
HARVARD SQUARE · CAMBRIDGE, MASS.

Public Utilities

The Public Utility diagram shows street car lines, permanent pavements, and areas supplied with water and sewer service.

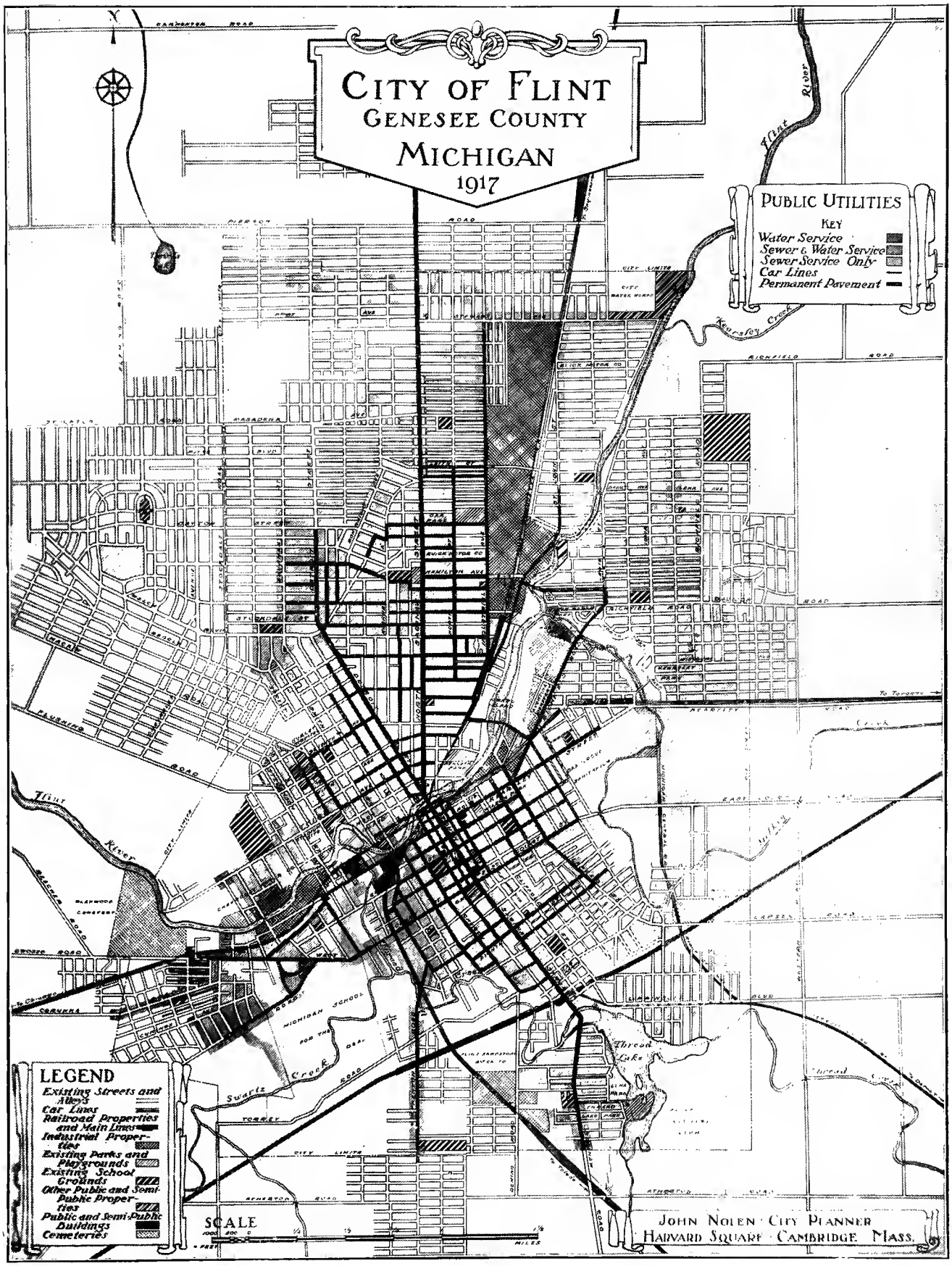
The work of pushing on the sewer, water and paving improvements to keep pace with the rapid building up of the residential districts has fallen upon the Engineering Department which is meeting the situation as fast as possible. The work is being done by the city and under the supervision of the City Engineer.

A comparison of the Public Utilities diagram with the present Building Distribution map will show how much of the built up area was furnished with the public utilities in 1917. The districts out East Court, Fenton and Flushing Roads are the nearest areas to the center of the city, not yet fully supplied with water, pavement and sewer. The installation of these utilities here would immediately develop three new, good class residential districts within easy distance of the center.

A comparison of the diagram showing Public Utilities with that showing Range in Land Values will make clear at once the close interrelation between values on the one hand and pavements, sewer and car lines on the other.

The recommendations with regard to the extension and improvement of electric car transportation, both urban and interurban, as well as changes in the railroads, have been made to the city by Mr. Bion J. Arnold of Chicago, whose services have been especially engaged for that purpose.

It must be borne in mind in studying the Public Utilities maps that the information is not now up-to-date having been collected three years previous. The extension of water and sewer mains is an absolute necessity in building up new territory in a satisfactory manner. Road improvements and car lines should be extended as fast as possible but are not of such vital importance. The city has made great progress in the matter of supplying utilities and any record of these activities would necessarily change considerably from month to month.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
PUBLIC UTILITIES
KEY
Water Service
Sewer & Water Service
Sewer Service Only
Car Lines
Permanent Pavement
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi-Public Properties
Public and Semi-Public Buildings
Cemeteries
SCALE
JOHN NOLEN · CITY PLANNER
HARVARD SQUARE · CAMBRIDGE MASS.

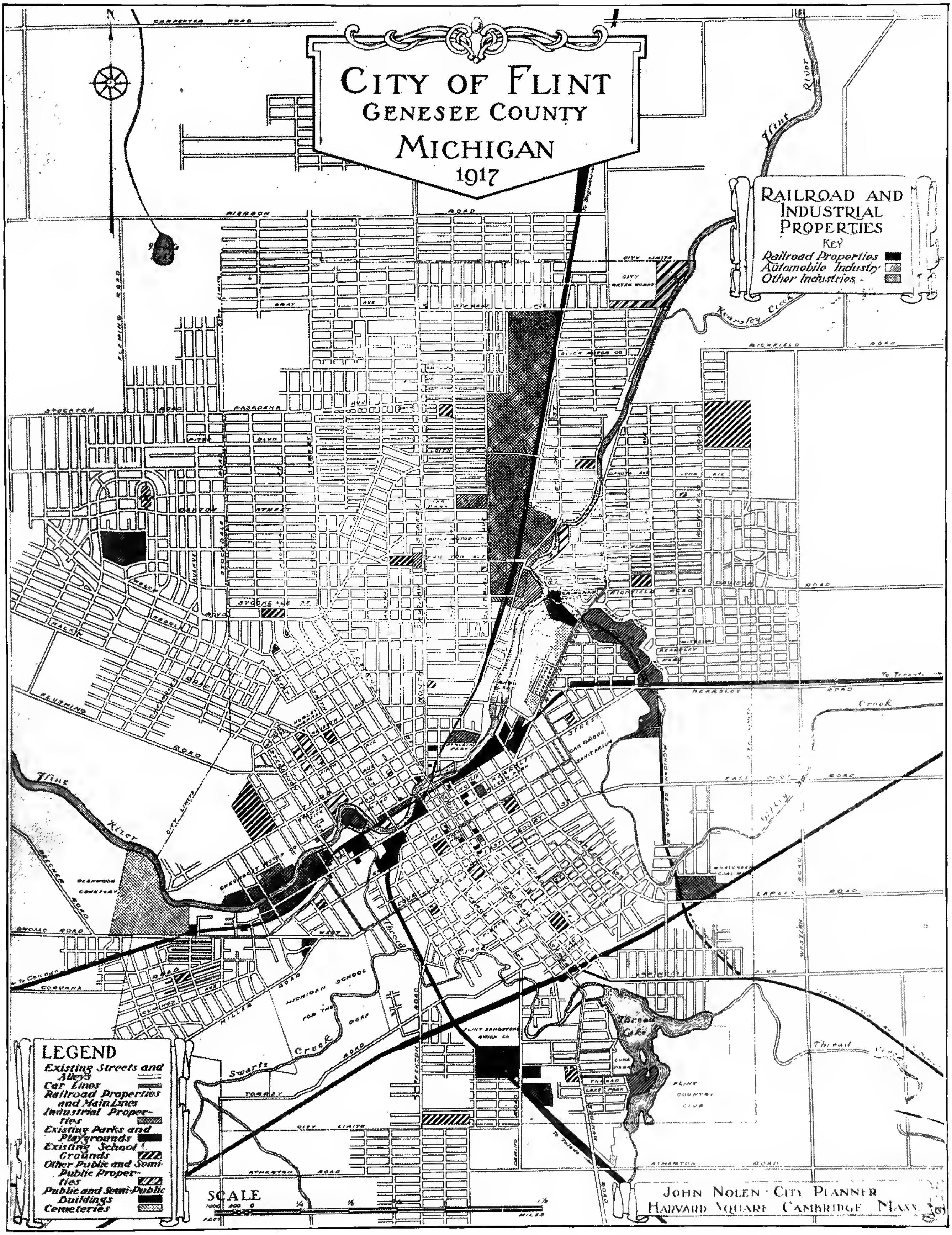
Railroad and Industrial Properties

The railroad and industrial growth of Flint is of comparatively recent date, beginning with the great commercial expansion of the automobile business which took place about 1900, and which, as far as Flint was concerned, meant the expansion and conversion of the existing carriage business. The railroad lines laid out years ago crowded down the valleys to what was then the Village of Flint, and probably little dreamed of what they would, before many years passed, be called upon to carry. The result is a congested, cramped condition of right-of-way, yards and shipping facilities, and an unsightly and dangerous condition of grade crossings.

To relieve the congestion, a temporary yard was constructed off Kearsley Street along Burton Street, and it is now considered a nuisance, and is detrimental to some of the best residential property in Flint. Again to relieve congestion, the Grand Trunk Railway built some years ago a freight detour to reduce mileage and prevent the delay involved in handling cars through the city. This is a great help, but was too narrow in its conception for the best interests of Flint, for it should have been run farther out beyond the Thread Lake section.

The railroad problem is very closely connected with the industrial welfare and hence the prosperity of the city, so that the early solution of the freight handling problem and the construction of the necessary freight detours and yards will be a material benefit to all. The development of the east side industrial district, on which work has already been started, with its railroad facilities will do much to relieve the congestion within the city and improve the entire railroad situation.

The existing railroad conditions have been thoroughly investigated by Mr. Bion J. Arnold.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
RAILROAD AND INDUSTRIAL PROPERTIES
KEY
Railroad Properties
Automobile Industry
Other Industries
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi-Public Properties
Public and Semi-Public Buildings
Cemeteries
SCALE
JOHN NOLEN · CITY PLANNER
HARVARD SQUARE CAMBRIDGE MASS.

Building Distribution

The diagram of Building distribution shows the extent of the following uses of land within the City of Flint in 1917.

1. Railroad Properties
2. Industrial Properties
3. Business properties with retail and wholesale differentiated
4. Park and open areas
5. Built up areas

This diagram is one of the most important foundations for the plan showing proposed building zones, with which it should be compared.

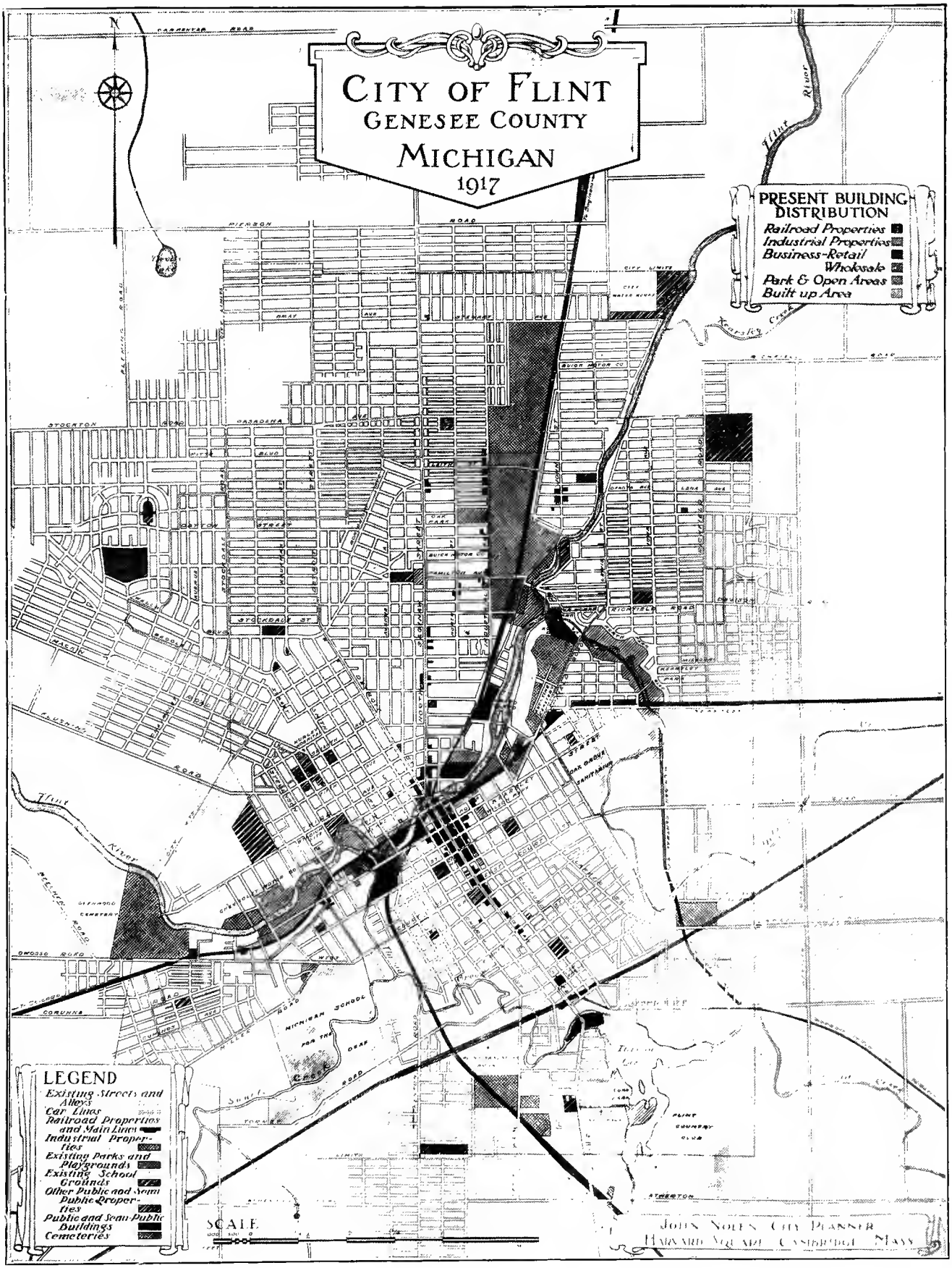
The present industrial development in Flint is confined to the valleys along the railroad right-of-ways. The largest single plant is the Buick to the north, and between there and the Chevrolet Motor Company to the south are most of the smaller concerns. There is little available land for factory expansion but the new industrial district will solve this problem.

The wholesale business, of course, follows the railroad and seeks locations central to the city area. There is plenty of opportunity to expand the wholesale business in connection with the present sites. The main group of retail business stores centers between First and Second Streets on Saginaw Street. There are a considerable number of stores scattered along both South and North Saginaw Streets and also at important points near the Buick works as at Leith Street and Industrial Avenue. Another small center near the Chevrolet works has been established on Kearsley Street at Glenwood Avenue. These business areas are the basis for determining the business districts on the proposed Zoning Plan. The built up residential area in and about Flint covers considerable ground largely because of the loose, disconnected, wasteful building developments. It would be possible to house a city half again as big on this larger area and not have over crowded conditions.

There is very little land within the city limits not now at least partly built up except to the east and northwest. In spite of the present high cost of materials and labor there is considerable building going on in Flint, forced by the demands of industry and the absolute necessity for housing. This growth is again reflected in new stores and office buildings, and the general prosperity, in the new modern hotel. Building operations on a large scale are being carried out by the General Motors Company upon land already beyond the present city boundary. This building up of property now beyond the city limits is a condition common also north and south of the city.

NOTE--Building permits were granted during, 1920 for $12,711,041.22, divided as follows: New construction, $11,694,861.22: Repairs, $1,016,180.00.

There were under construction on Jan. 1, 1920, 1563 houses, 100 duplex flats, 1 apartment building. 3100 factory employes were unable to find homes for their families in Flint. On Jan. 1, 1920, there were 98 families living in tents, and 651 families living in tar paper shacks, of which 40 were erecting homes.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
PRESENT BUILDING DISTRIBUTION
Railroad Properties
Industrial Properties
Business-Retail
Wholesale
Park & Open Areas
Built up Area
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi Public Properties
Public and Semi-Public Buildings
Cemeteries
SCALE
JOHN NOLEN, CITY PLANNER
HARVARD SQUARE, CAMBRIDGE, MASS.

Range in Land Values

The Diagram of Land Values shows approximate locations of various zones figured on the front foot basis as follows:

1.	Under	$25		4.	$100		$500
2.	$25	- $50		5.	$500		$1000
3.	$50	- $100		6.	$1000	-	$2000

7. Over $2000

These values are based on figures supplied in 1917 by the Assessors' office, but not taken directly from the assessment lists. The chart is of use in connection with practically every feature of city planning. It applies directly to the selection of parks and other public property, to the establishment of proposed building zones, and to the distribution of various types of homes.

The highest values, namely over $2,000 per front foot, are confined to four blocks, and the next highest are confined to two blocks. The high priced real estate then radiates from the center, following the business properties along the main streets, and including the adjacent residential property soon to be converted to business use. Land for this purpose ranges from $1,000 down to $50.

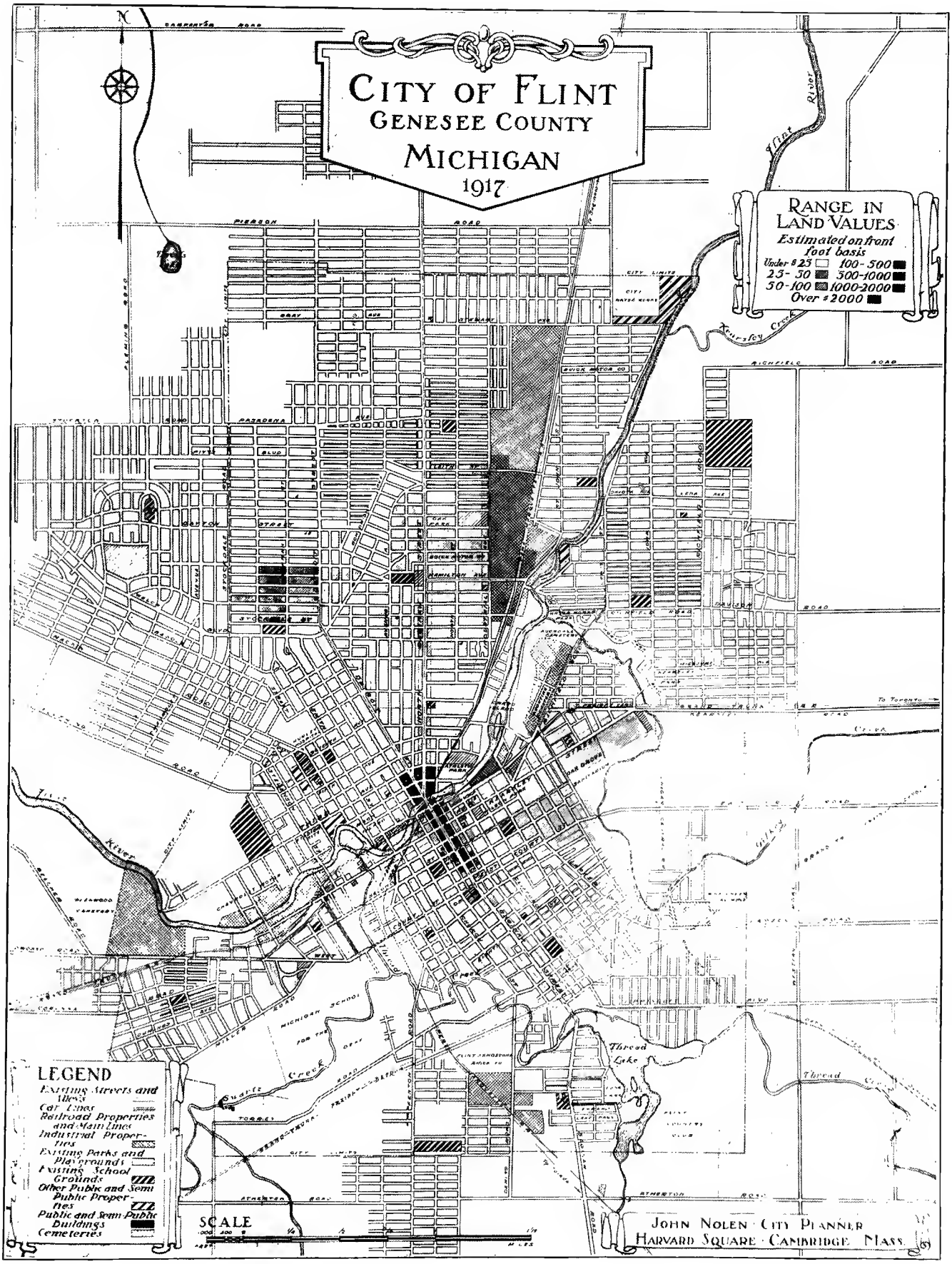
The great bulk of the residential area falls within the first and second classes, ranging in value from under $25 to $50 per front foot. By comparing the Range in Land Values diagram with the Public Utilities diagram, it will be observed that this residential area coincides very closely with the area supplied with water and sewer service. Outside of the public service zone the values drop to $25 or under. A considerable part of this land is still to be had at relatively low cost within two miles of the center of the city, and if given public utilities, it could be developed for low cost homes.

Various improvements that are recommended in the city planning report for Flint, especially the opening up of the main streets, the development of the car system, the extension of car lines and the development of public utilities, will lead to an increase in land values in most cases much beyond the cost of these desirable improvements. Furthermore, the tendency of the adoption of a well considered zone system will be not only to stabilize land values, but also to increase them.

The rapid change in values that has come about in the last three years has of course greatly altered the 1917 figures, and has affected all parts of the city. The boundaries of the zones have however probably changed but little, the values within having in each case simply moved to the higher class.

The present unsettled conditions in financial circles have upset many of our established ideas as to values, and this is particularly true in land values. Rents have risen abnormally and as a result improved land has sold at a much higher figure especially where the demand was imperative, but as a rule assessments have not as yet been changed to meet the new schedule of prices. To finance the increased cost of government and construction, cities will be obliged either to raise their assessments to approximate more closely the present condition or rely on an increased tax rate. The general increase in value of taxable property will of course be only temporary relief as it in turn will demand steady expenditures in the near future.

NOTE—The total assessed valuation of the city in 1919 was $104,253,227.00.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
RANGE IN LAND VALUES
Estimated on front foot basis
Under $25
25-50
50-100
100-500
500-1000
1000-2000
Over $2000
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi Public Properties
Public and Semi-Public Buildings
Cemeteries
SCALE
JOHN NOLEN · CITY PLANNER
HARVARD SQUARE · CAMBRIDGE · MASS.

Distribution of Population

The diagram of the Distribution of Population shows the relative density of Population based on actual count conducted in 1917. One dot represents ten persons of the population.

At the present time a new count is being carried on by the telephone company to determine the present location of the population. This new information will be of great value in planning out public improvement and will form an interesting basis of comparison with the original diagram to show the present direction of growth*.

Diagrams of this sort are of value in connection with street planning, the best distribution of schools, playgrounds, parks, etc., also to some extent in fixing the locations of the proposed building zones.

Flint is now practically free from the three-decker or other multiple dwelling, and the tenement row type of building which produces the congested, over-populated city district and excessive land values in low grade residential property. By legislative oversight Flint can keep under control all such development.

The following is a memorandum extracted from the National Real Estate Journal, January, 1918, concerning Michigan's new housing code. It bears directly upon the problem of the distribution of population in Flint.

It "regulates the construction of houses, the proximity to other dwellings, the size of lots and rooms."

It "applies to all towns of more than 10,000 population, and based upon sanitary grounds, is intended to protect one property owner from encroachments upon his rights by others."

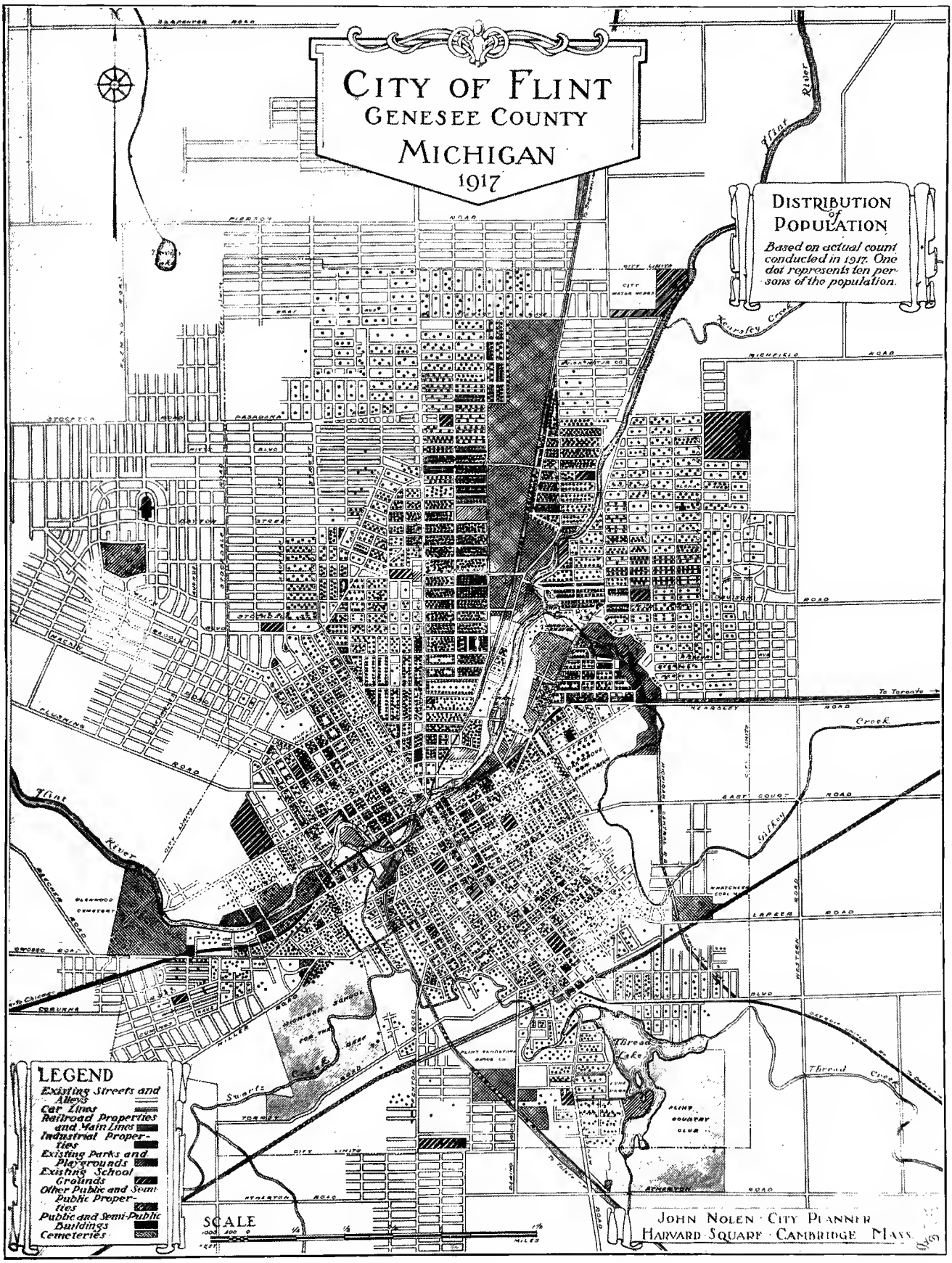
"Private dwellings and two-family dwellings hereafter erected, one-story or two stories in height and having a side yard which does not exceed sixty feet in length, the width of the side yard measured to the side lot line shall be three feet; such side yards shall be increased in width one foot for each additional story above the second, and shall be further increased in width by one foot for every ten feet or fraction thereof that the length of the side yard is in excess of sixty feet. Dwellings fronting on the same street and on a portion of a lot or plot without side lines of record shall be built having a space twice the width required above between them."

"The law requires that ceilings in houses must be eight feet six inches from the floor; garages may be attached to houses, but otherwise they must be fifteen feet from the rear line of the house or in case the house is two stories high the garages must be twenty feet back; no rooms except bath rooms and kitchenettes may contain less than eighty square feet in floor area; and chickens cannot be kept on the same lot with a dwelling except under conditions laid down by the health officer."

This law went into effect August 10th, 1917.

*According to a count recently made by the American Telegraph and Telephone Co. the most densely populated districts in Flint are as follows:

District	Persons per acre
69—Between Beach and Saginaw, W. Court to the river	96.3
5—Between Garland and Saginaw, Bridge to W. 3rd Ave	76.1
2—Between Industrial and Saginaw, Cornelia to Harriet	56.5
54—Between Industrial and Saginaw, Harriet to McClellan	48.9
24—Between Clifford and Saginaw, river and E. 2nd St	43.8
17—Between W. Court and Flint river, Glenwood to Thread Creek	40.3


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
DISTRIBUTION of POPULATION
Based on actual count conducted in 1917. One dot represents ten persons of the population.
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi-Public Properties
Public and Semi-Public Buildings
Cemeteries
SCALE
JOHN NOLEN · CITY PLANNER
HARVARD SQUARE · CAMBRIDGE MASS.
Flint River
Thread Lake
Thread Creek
Swartz Creek
To Toronto

Public Properties

The key to the Public Properties Map shows:

Park Lands

School Grounds

Other Public Lands

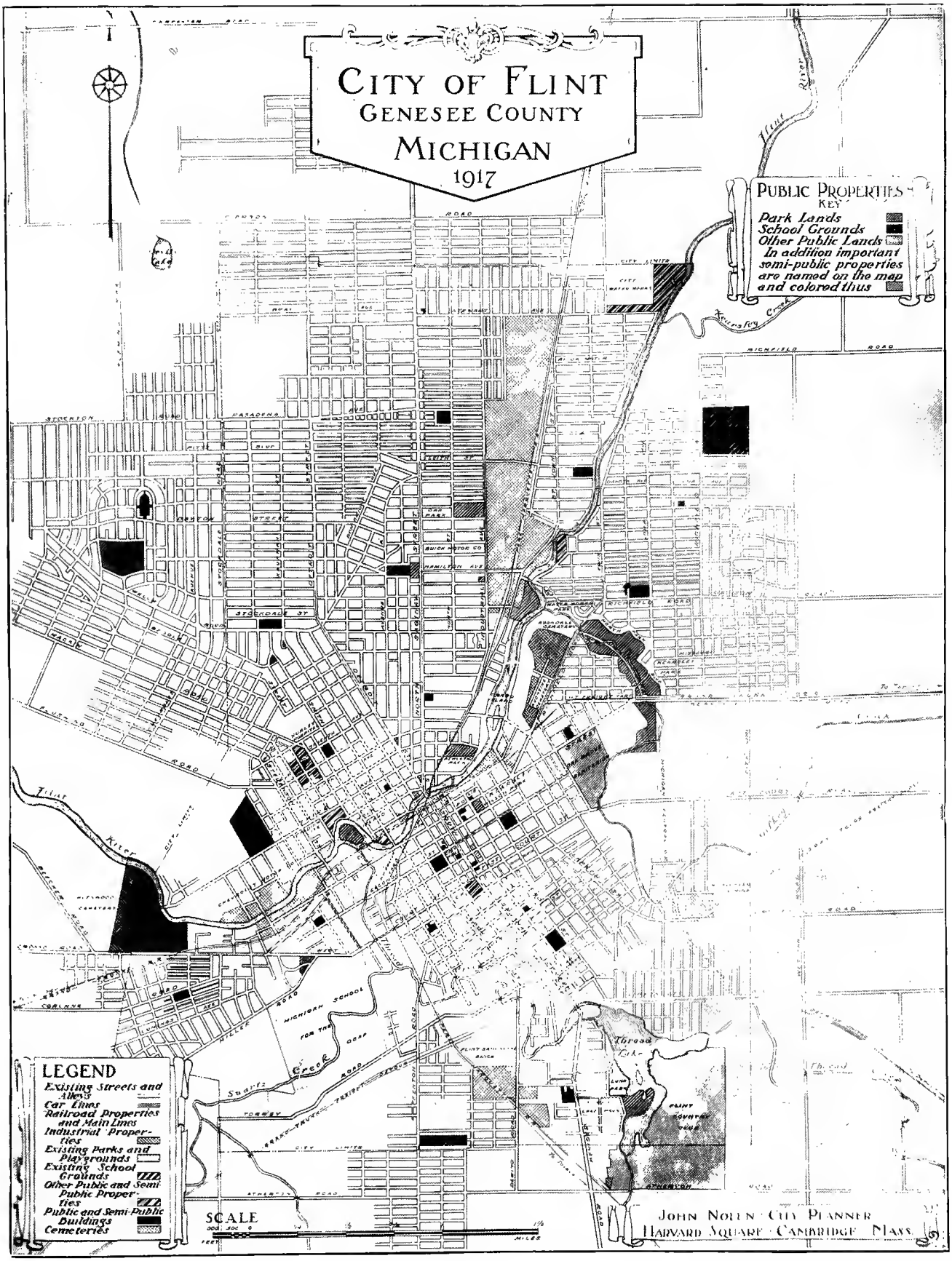
In addition, important semi-public properties are named on the map.

One of the striking things to note in connection with this diagram is the fact that with the exception of Kearsley Park, there was in 1917 no city owned public property which was larger than forty acres. The Michigan School for the Deaf, owned by the State, is a considerably larger area, and some of the semi- public properties also. It should also be observed that in the section to the northwest, which is being more rapidly developed than any other section, there was no public property, and no definite plan for the acquisition of the necessary public areas. Since the survey was made the city has acquired the Dewey Woods property containing approximately 120 acres recommended in the preliminary report and has thus assured to this section the much needed large open park area.

The school board has also made considerable progress in acquiring new and adequate school grounds, the most extensive purchase being the 50 acre Oak Grove Sanitarium property which is to be used for the new high school, trades and technical school.

It will be noted that with the exception of a few short stretches, river banks, creeks and ponds are not under public ownership or control. These waterways constitute the only interesting topographical features in the entire section and should be carefully guarded against influences that despoil or exploit there present opportunities. Some steps have already been made to improve these conditions and in the near future it is hoped that a real beginning will be made toward the ownership and control of these areas.

Large open properties are always difficult to obtain near the heart of the city, and as the city expands they become more remote and so increasingly less accessible and effective. This condition should be a serious warning and an incentive for prompt action.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
PUBLIC PROPERTIES
KEY
Park Lands
School Grounds
Other Public Lands
In addition important semi-public properties are named on the map and colored thus
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi-Public Properties
Public and Semi-Public Buildings
Cemeteries
SCALE
JOHN NOLEN · CITY PLANNER
HARVARD SQUARE · CAMBRIDGE · MASS.

Growth of City Area

The diagram entitled the Growth of City Area shows the additions by city ordinance to the original Village of Flint established in 1835.

One hundred years ago, that is in 1819, the first settlement was made on land now included within the city limits of Flint. From this small beginning there has grown steadily but with increasing speed the present prosperous city.

The Village of Flint established in 1835 extended approximately three blocks in width from the Flint River south nearly to east Court Street and covered the property from Saginaw to Harrison Streets an area of approximately 54.4 acres.

The principal additions were in 1897 and 1910, with minor additions in 1901, the boundaries of each being shown on the diagram submitted.

The present boundaries established in 1910, when Flint had a population of only 38,550, were apparently somewhat arbitrarily determined, not following closely topographical or street lines. They should be extended to include those immediately surrounding areas which are now being built up and occupied by the people of Flint, and which should be therefore included in the legal city area.

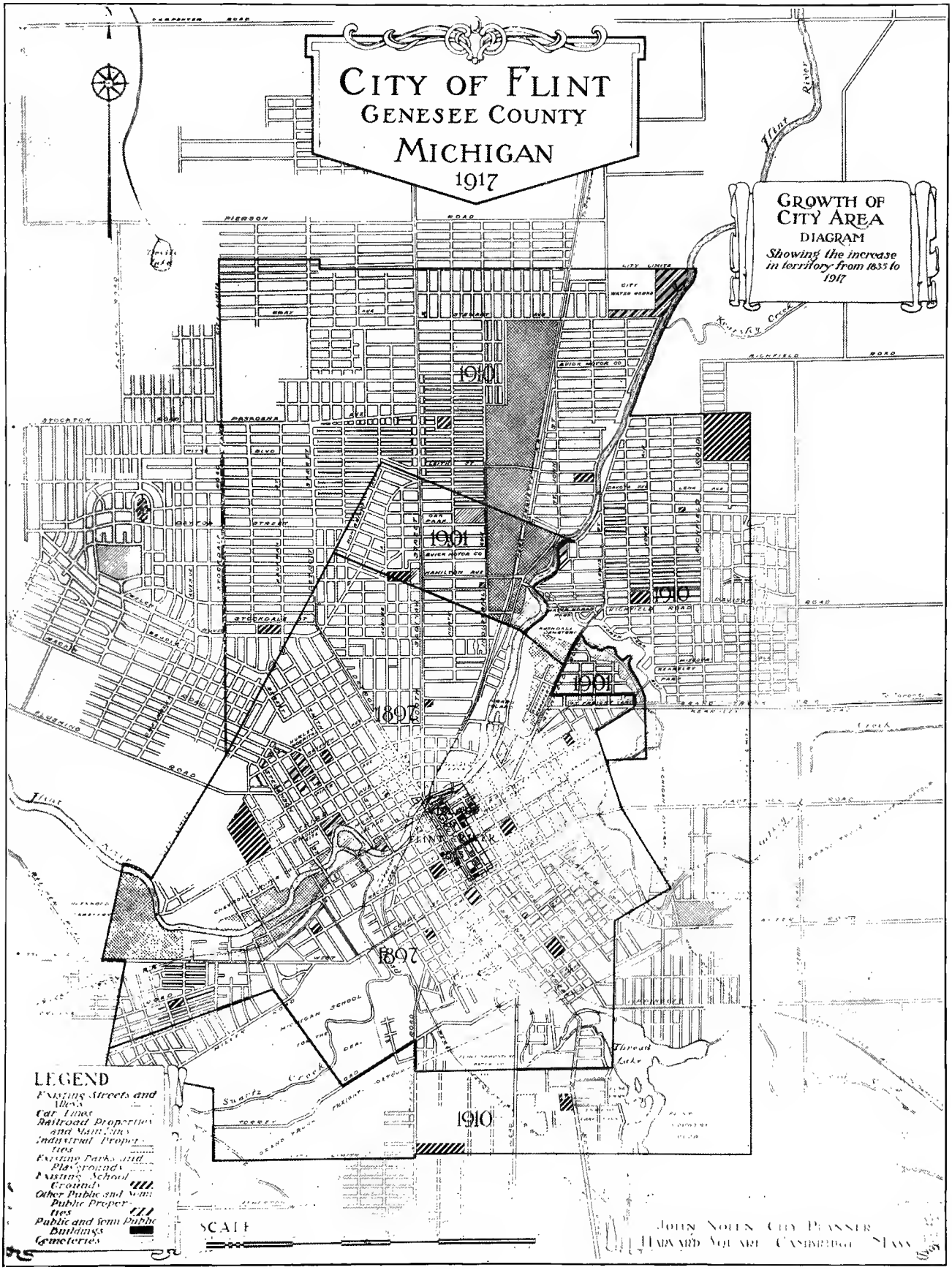
It is true of cities generally that there is a lack of logical extension of city boundaries—that is, the fixing of limits according to topographical features or main through streets. There is usually also an inadequate extension. The result is that the areas surrounding the city are built up under county conditions and county regulations without control by the city, and afterward become incorporated into the city by the necessary extension of the city limits.

City planning, to be effective in the future, must rely upon new laws, giving cities greater authority in the extension of city boundaries and the encouragement of city governments in taking action earlier, before the surrounding areas are laid out, developed and occupied.

During the last year plans have been made for an extension of the city boundaries during 1920. If this plan carries through it will give to the city a total area much nearer the standard of other American cities of an equal population and will include within the limits the greater part of the people dependent upon and interested in the activities of Flint. For the purposes of sewer and water design the Engineering Department has already gone much further afield, and has looked forward to the area that it will probably be necessary to serve with utilities in 1950.

The proposed 1920 City Limits line is shown on the General Plan used in the front of this report.

NOTE—The 1919 limits contained 8020 acres, the 1920 18,600 acres: the ultimate limits estimated as of 1950 include 41,342 acres.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
GROWTH OF CITY AREA
DIAGRAM
Showing the increase in territory from 1835 to 1917
1835
1897
1901
1910
1917
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Line Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi Public Properties
Public and Semi Public Buildings
Cemeteries
SCALE
JOHN NOLEN, CITY PLANNER
1 HARVARD SQUARE, CAMBRIDGE, MASS.

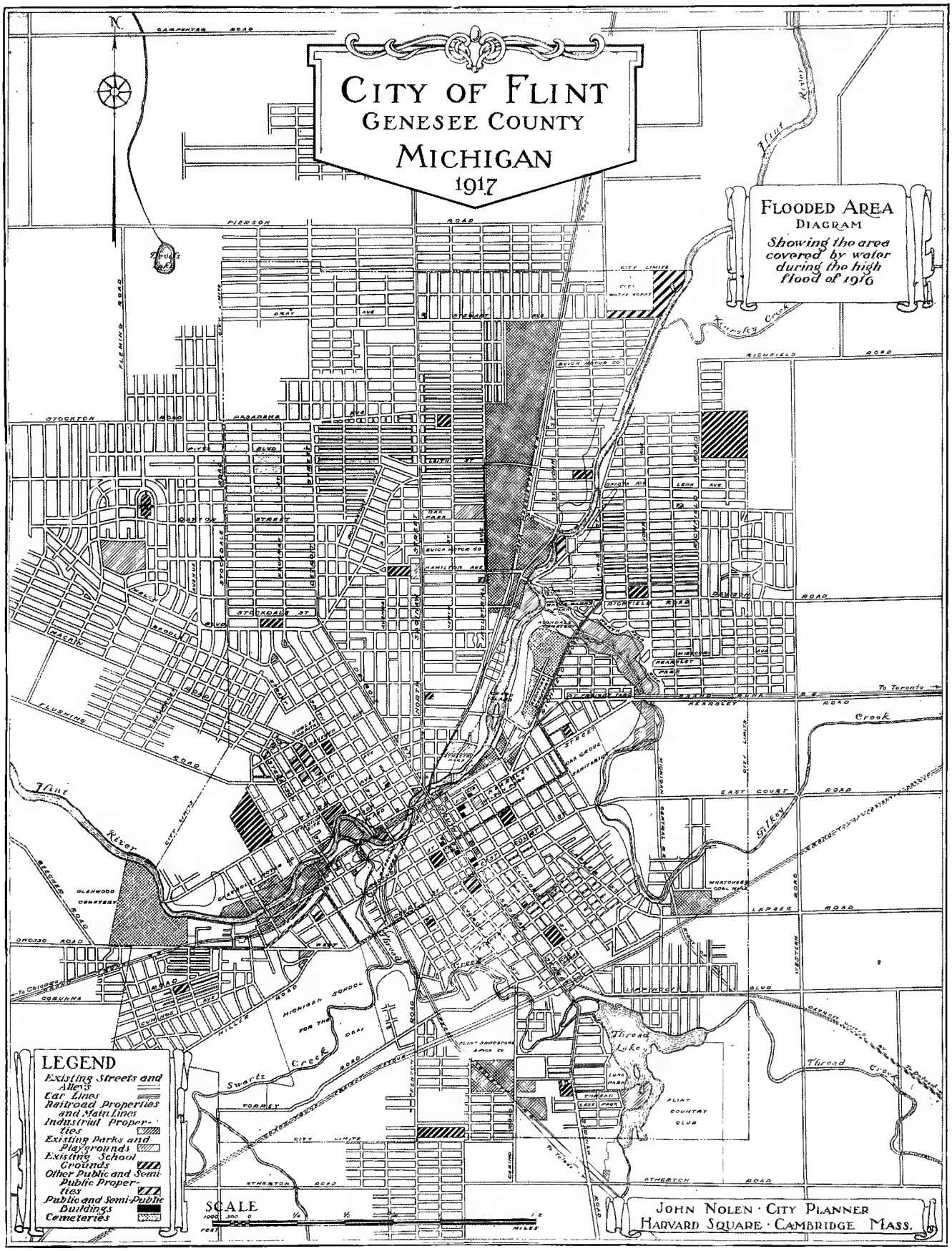
Flooded Area

The diagram for Flooded Areas shows the low lands which were covered by water during the high flood of 1916.

In civic surveys and city planning studies more and more emphasis is being given to the importance of having all these areas in or near cities that are subject to flood owned and controlled by public authorities. This action is designed primarily for the safety of the community in providing adequately and economically for the drainage problems of the area. It is fortunate that under sound and comprehensive city planning, these are usually the areas best adapted for natural parks and parkways, and they should not be used for building purposes, but unfortunately, they are often the areas which are built up for the cheapest housing or industrial development.

Other diagrams submitted, especially those dealing with the zoning of the city and the proposed park system, show the relation of the areas in the flooded district to a constructive city planning programme.

The disastrous experience of a few years back, from the point of view of both money and life, is an indication of the vital importance of this subject. Flint has already had a warning of what might happen to the city through neglect of this subject.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1917
FLOODED AREA
DIAGRAM
Showing the area covered by water during the high flood of 1916
LEGEND
Existing Streets and Alleys
Car Lines
Railroad Properties and Main Lines
Industrial Properties
Existing Parks and Playgrounds
Existing School Grounds
Other Public and Semi Public Properties
Public and Semi-Public Buildings
Cemeteries
SCALE
JOHN NOLEN · CITY PLANNER
HARVARD SQUARE · CAMBRIDGE MASS.
Flint River
Thread Lake
Thread Creek
Swartz Creek
Kearsley Creek
PIERSON ROAD
STOCKTON ROAD
PASADENA AVE
FLUSHING ROAD
RICHFIELD ROAD
KEARSLEY ROAD
EAST COURT ROAD
LAPEER ROAD
ATHERTON ROAD
MILLER ROAD
FLINT COUNTRY CLUB
GLENWOOD CEMETERY
MICHIGAN SCHOOL FOR THE DEAF
BUICK MOTOR CO
CITY LIMITS

Part II. Planning Studies

The plans for Flint are based upon the facts and tendencies revealed by the local survey and certain fundamental principles of design. These principles are:

1. To conform as far as possible to the topographical conditions.
2. To use locations for what they are naturally best adapted.
3. To conserve, to develop and to utilize all the natural resources of the city.
4. To aim to secure attractiveness by organic planning rather than by mere embellishment or adornment.

Cities, generally speaking, owe their existence to geographical location and the efforts of outstanding individuals. Such individuality as they possess is due largely to topography. The chief topographical characteristics determining the location and development of cities are the sea, rivers, hills and plains. It has taken decades of urban development and of costly mistakes to impress upon the cities of the United States the necessity of respecting and conserving their natural features, to which they owe not only their form, but even their very life.

Comprehensive planning for cities includes not only the physical features, but also the social. economic, financial and legal aspects. While these planning studies for Flint cover only the physical features they have been made with due regard to the other aspects.

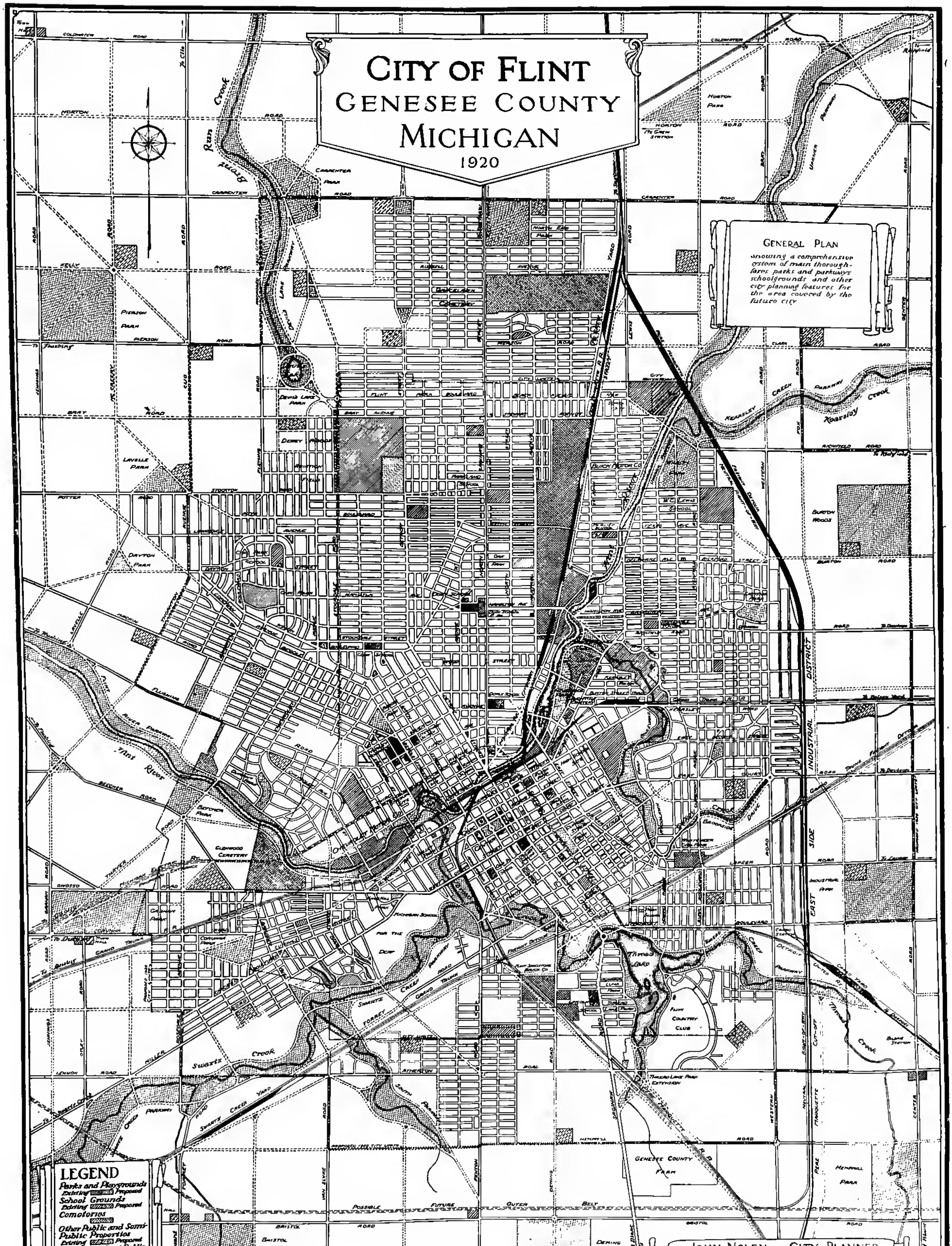
The requirements of the physical features themselves differ essentially from each other. For example, the considerations governing the parks and parkways differ from those of streets, streets from those of public buildings, public buildings from those of zoning, etc. While the best solution for each feature must be sought diligently, that solution must also consider the effect upon the other features. Good planning must always retain both viewpoints—the requirements of each separate feature, be it park, street or public building, and on the other hand, the total requirements of a well balanced general city plan. Thus it is necessary, in judging the planning studies of main thoroughfares, parks and parkways, park circuit drives, or a civic center, that such judgment should always be with regard to the individual merit and effect upon other related features of the city plan.

The General Plan for Flint presents the city planning proposals for street and park systems, public building sites, and other city planning features. The plans and recommendations with regard to the various divisions of the subject are given on the succeeding pages under the following headings:

Main Thoroughfares	Park Circuit Drives	School Playgrounds
Street Widths	Civic Center	Zoning
Parks and Parkways		

Each of these subjects has been closely studied on repeated visits to the ground in consultation with the local city officials, in order that the plans submitted might be definite and the recommendations specific. Each topic is fundamental to good city planning, and upon each in some real sense the prosperity or welfare or happiness of the people depends. The standards consciously adopted for Flint are high, because of the conviction that in the long run high standards in city planning pay.

City planning can no longer be confined to a consideration of streets, public buildings, schools, zoning, etc. A vital factor is the homes and the neighborhood surroundings of the people. Recreation is important. An unquestioned authority in this field has written, "Only in the modern city have men concluded that it is no longer necessary for the municipality to provide for the insatiable desire for play. In so far as they have acted upon this conclusion, they have entered upon a most difficult and dangerous experiment; and this at the very moment when the city has become distinctly industrial, and daily labor is continually more monotonous and subdivided. We forget how new the modern city is, and how short the span of time in which we have assumed that we can eliminate public provision for recreation." But even recreation is overshadowed in importance in some respects just now by the difficult and far reaching subject of housing. Acting publicly we do little except to pass building laws or regulations which are so far below wholesome requirements that even real estate developers seeking only profit are apt to do a little better than the law requires. The essentials of better housing are cheap and suitable land protected by zoning, broad planning of the neighborhood, with streets, stores, schools and local recreation, wholesale modern building operations, and a limitation of the dividend on the necessary investment of capital. In some thoroughgoing way we must convert the great forces which now produce bad housing, to produce good housing. We must do this by bringing into cooperation with them the community forces that believe in good housing and will gain from it. These are mainly the manufacturing and business interests that depend upon the efficient and happy workman. A great change in housing will come from the substitution of the reasonable profits of business for exploitation and excessive return, from the transfer of housing from the field of speculation to that of legitimate manufacturing. Then we shall proceed in much the same way that the manufacturer proceeds. We shall gather facts as to the nature and extent of the demand for houses, we shall adopt definite aims as to the produce, we shall employ skill and experience and factory methods, and we shall back the housing enterprises with adequate capital. While Flint, in common with other industrial enterprises, suffers from shacks and other forms of bad housing, the present big movement for better planning in Flint includes several good sized and meritorious examples of modern housing, worked out in relation to city planning.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1920
GENERAL PLAN
showing a comprehensive system of main thoroughfares parks and parkways schoolgrounds and other city planning features for the area covered by the future city
LEGEND
Parks and Playgrounds Existing Proposed
School Grounds Existing Proposed
Cemeteries
Other Public and Semi-Public Properties Existing Proposed
Public and Semi-Public Buildings Existing Proposed
Railroad Properties
Streets and Alleys Existing Proposed
SCALE
JOHN NOLEN CITY PLANNER
HARVARD SQUARE CAMBRIDGE MASS

PLAN No. 9

Main Thoroughfares

One of the most important features in the city plan and one that directly affects the convenience of every inhabitant of the city, is the system of circulation and communication, for upon this system rests the whole question of the economic distribution of supplies and the easy and direct movement of the people as they go to and from their daily work or seek recreation and pleasure.

This system of main thoroughfares is the framework that co-ordinates all the other city planning features and included in its lines are all those streets that are not local in their service, but which are used by persons of other neighborhoods in getting from one objective to another.

Flint, like many American cities, has a fairly well located system of radial streets making possible direct connections with all the outlying places of importance, but it is almost entirely lacking in any system that carries one conveniently and continuously about the city from one section to another.

Two of the most important automobile routes of Michigan pass through Flint and one other leads south from Flint to Toledo. The Dixie Highway connecting Detroit and Mackinaw through Flint comes in from the south over South Saginaw Street and proceeds over North Saginaw Street to Bay City and the city of Saginaw. The Central Michigan Pike connects Port Huron and Grand Haven, thus crossing the center of the state from lake to lake. This route comes into Flint from the east over Lapeer Road and goes west over Corunna Road. The third line, known as the Lima-Ann Arbor-Flint Trail, runs out of Flint to the south over Fenton Road and is the direct route to Ann Arbor and Toledo.

CENTER OF THE CITY

The center of the city is laid out on an irregular rectangular plan and meets the business needs well enough, although some streets should be widened and improved and extensions made to fit these arteries for the more important part they will some day play in the larger Flint. Saginaw Street is the most important thoroughfare and the chief business street. As the city grows, more and more traffic will find its way along this line, causing congestion and the resulting delays unless it is relieved by parallel streets. Business will cease to hold to the one street idea and a true *district* will build up, bringing additional importance to Harrison street, which leads directly to the proposed railroad station, and to Beach Street which connects by bridge with the west side.

The relieving through streets for Saginaw Street, however, will be Clifford Street to the east, and Church Street to the west. Clifford Street should be built up across the hollow between Fifth and Eighth Streets and extended south by relocating Pine Street to Lippincott Boulevard, and north across the river to Industrial Avenue extended and to North Saginaw Street. Church Street should be extended south to Saginaw Road and would thus divert much of the traffic from the south now reaching Saginaw Street by way of Saginaw Road and Deming Road. Both Clifford and Church Streets would draw from a territory now served by Saginaw Street and would thus greatly relieve the congestion. This would be especially true of the Clifford Street Bridge, which, by bringing the Industrial Avenue and some of the North Saginaw Street traffic into the city by this route, would relieve the Detroit-Saginaw Street bridge. Both Church and Clifford Streets should be widened their entire length to 80 feet. Of the cross streets, Kearsley, Second, Court and Eighth Streets are the important ones in the business part of the city. Eighth Street should be extended both east and west to complete a new cross connection from Fenton Road to East Court Road.

NORTH OF THE CENTER

North of the center the street system has been determined by section lines and the main streets are pretty definitely located, the chief needs being to see that the present system is carried to completion, and that several minor links are connected through. In the outlying district the introduction of a few diagonals will help shorten distances and make circulation more complete.

To perfect the system of north and south streets the following more important extensions are shown:--

McCreery Road north on the half-section line between Jennings and Clio to Coldwater Road

Clio Road south from Pierson Road to Stockton Road

Fleming Road north from Pierson Road to Devil's Lake Parkway

Stockdale Road extension north to Pierson Road and its diagonal connection to Carpenter Road and beyond

Detroit Street double extension north from Pierson Road and back to the single roadway beyond Carpenter Road

Selby Street north from Carpenter Road

Lewis Road and the next half section road east, north from Carpenter Road

Western Road north to connect with Bray Road at Carpenter Road

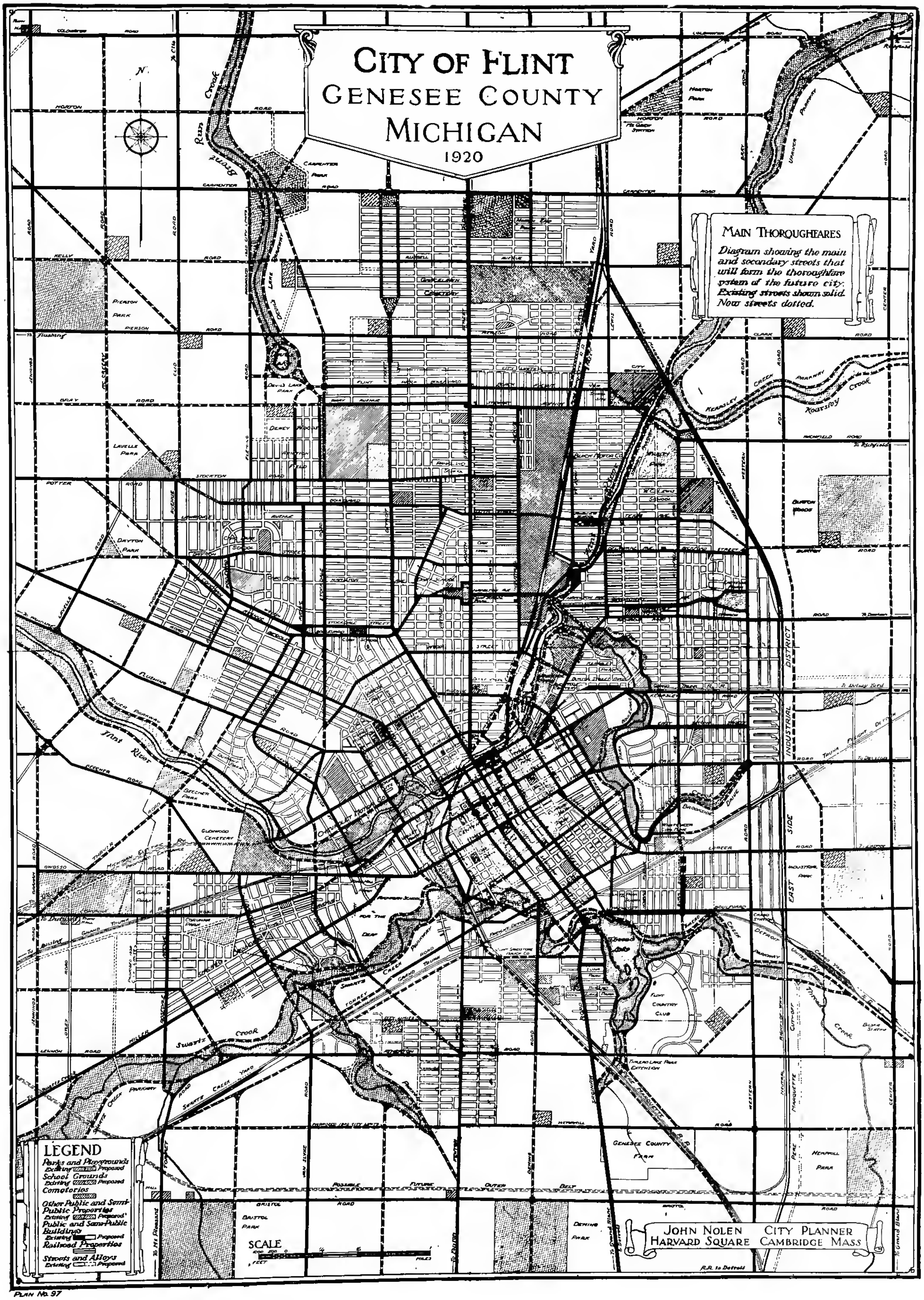
Center Street extension north and south to connect with existing streets beyond

Diagonal parallel with the railroad from McGrew Station to Coldwater Road

Diagonal extension of Fox Road to Center Road and back to Coldwater Road

St. Johns Street north to Lewis Road

The east and west extensions proposed to complete the street system north of the center are as follows:--


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1920
MAIN THOROUGHFARES
Diagram showing the main and secondary streets that will form the thoroughfare system of the future city. Existing streets shown solid. New streets dotted.
LEGEND
Parks and Playgrounds Existing Proposed
School Grounds Existing Proposed
Cemeteries
Other Public and Semi-Public Properties Existing Proposed
Public and Semi-Public Buildings Existing Proposed
Railroad Properties
Streets and Alleys Existing Proposed
SCALE
JOHN NOLEN CITY PLANNER
HARVARD SQUARE CAMBRIDGE MASS
Flint River
Swartz Creek
INDUSTRIAL DISTRICT
EAST SIDE
FLINT COUNTRY CLUB
GENESEE COUNTY FARM
GLENWOOD CEMETERY

PLAN No. 97

Bray Avenue west to Bray Road

Diagonal from Pierson and Clio Roads northwest through the intersection of Jennings and Carpenter Road

Russell Avenue west to Kelly Road

Horton Road on the half section line between Coldwater and Carpenter Roads from the Flint River to and beyond Jennings Road

Coldwater extension east to the Upriver Parkway

Russell Avenue extensions and connections east

Pierson Road to Clark Road and beyond

Flint Park Boulevard connection with Bray Road, and Black Avenue diagonal connection to the angle in Richfield Road

EAST OF THE CENTER

East of the city comparatively few changes are necessary, the original section roads carrying traffic through the proposed Industrial District.

Thom Street should be extended diagonally to Western Road at its intersection with Burton Road

Burton Road new proposed extension east from Western Road on section line north of Davison Road

Franklin Avenue should be extended south to Claremont Avenue and then south again connecting with Burr Boulevard and its proposed extension to Thread Creek Parkway

Sunnyside Avenue extended east along the railroad to Western Road

Diagonal cut-off from Western Road to Atherton Road

New north and south road east of railroad in the Industrial District connecting Fox Road with Center Road

Hemphill Road extension east to beyond Center Road

New Road paralleling Pere Marquette cut-off north from Thread Creek Parkway.

SOUTH OF THE CENTER

The country south of the city is at first quite broken, and then flattens out into more level country, but is complicated by railroad locations, making the street system quite irregular.

Diagonal paralleling Pere Marquette Railroad from Fenton Road to Western Road

Deming Road extension south through Deming Park

Diagonals paralleling the Grand Trunk Railroad from Fenton Road to South Parkway and from Atherton Road to Bristol Road

Torrey Road extension parallel with the railroad to Atherton Road

Half section streets between Fenton and Van Slyke Roads and Van Slyke and Torrey Roads

Jennings Road extension south from Corunna Road

Durant Street diagonal southeast to the intersection of Fenton and Atherton Roads

Bradley Avenue diagonal to Van Slyke Road

Hemphill Road on proposed 1920 City Limits west to Torrey Road

Rosedale Avenue connection with Torrey Road

Corunna Road diagonal connection with West Court Street

WEST OF THE CITY

The southern half of this area is similar in character to the country south of the city and a considerable amount of property is undeveloped, so that well considered new street locations should be easy to establish. The northern half is much more regular and for the most part the half section streets should be developed.

New half section street west from Chicago Boulevard between Lennon and Corunna Roads.

Rosedale Avenue extension north to Beecher Road

Thayer Road connecting diagonally Flushing Road with Corunna Road

Graham Road extension north to Beecher Road and diagonally across the river to Thornton Avenue extension

Brownell Boulevard extension south to Flint River Parkway

Stockdale Road south to the angle in Flushing Road

Dayton Street west to Mackin Road

Jennings Road south to the same intersection and then to Flushing Road

Copeman Avenue diagonally northwest to Potter Road

Pitts Boulevard diagonally northwest to corner of Bray and McCreery Roads

Copeman Avenue diagonally northwest to Potter Road

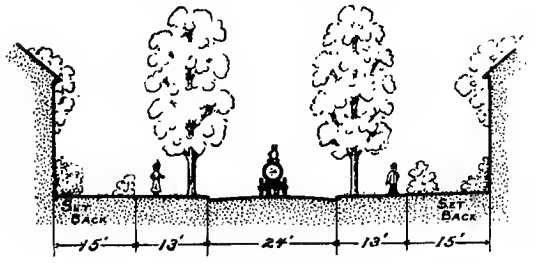
In addition to these principal street extensions and connections there are many changes in alignment, short connections, traffic squares, etc., that have been shown, especially in the older parts of the city and which should be carefully studied in detail and although minor in character, are necessary to insure the proper flow of traffic in and about the city.

Supplementing the traffic streets, the parkways are shown as part of the thoroughfare system. These lines will in the future greatly relieve the congestion on some of the traffic routes by providing a more pleasant and quicker means of communication for automobiles and pleasure vehicles.

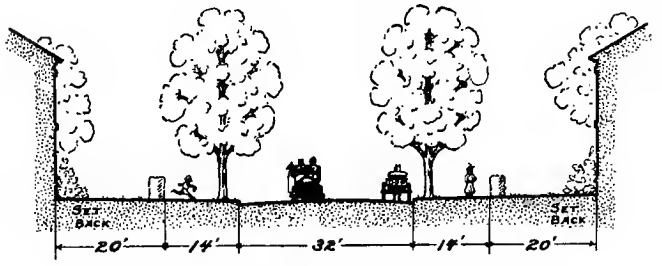
With the changes and additions named above and shown on the plan, properly carried through, Flint would have a system of main thoroughfares that would serve equally and conveniently all parts of the larger city and one that would form a well-balanced framework upon which to build up the minor streets and blocks.

NOTE—Mr. Nolen later gave his approval to the proposed opening of North street south to the Avon street bridge-head on St. John street, at which point it falls nearly into line with the East street extended.

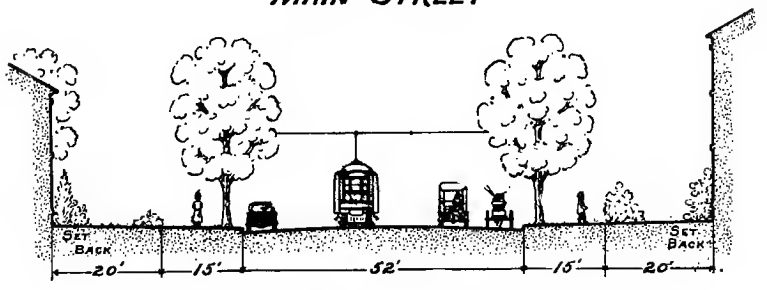
Street Widths



MINOR STREET



MAIN STREET



THROUGH STREET

It is important that street widths should be fixed more intelligently and discriminatingly. At the present time an average of 20 per cent to 40 per cent of the total area of cities is devoted to streets, rising in the case of exceptional cities to more than 50 per cent.

The width of main thoroughfares for Flint should be as generous as possible. As examples of accepted standards, it is generally agreed among those who have had to do with street planning and traffic conditions that a main thoroughfare should be at least 100 feet in width. Flint with the growing demand upon its streets for traffic, should go as far as possible toward these standards. Street widths should be worked out carefully for each street, considering existing private property lines, the most economic units for width based upon street use, and the size of vehicles and the probably future requirements of the particular street under consideration.

The automobile has changed traffic requirements and set new standards for width, grade and degree of curvature in the laying out of new streets. These conditions should be carefully studied and taken into account in all future street planning. There is a tendency at the present time to favor the automobile, and in Flint this would be a natural development. However, other factors enter into the question, and the rights of property owners and pedestrians should be properly safeguarded. Corners of minor streets should not be given too large a radius, and speeding through secondary and residential streets should be discouraged and made less easy by proper planning as to width and alignment.

The accompanying cut of residential street sections shows three typical street sub-divisions, a through street, a main residential street without car lines, and a minor or local street. These sections will not fit all conditions, but can be used as a guide for street widths and subdivision in the planning out of new property.

Center of the City

In a growing city the greatest changes usually take place in the so called down town district. As the city expands the open farm lands are easily subdivided and built up into residence sections and foresight enough is often used to predict the local store locations. With the center of the city, however, changes mean a transition in an area already fully or partly developed and occupied. Residence sections, and in many cases the best residence sections must give way to business expansion, small stores to office buildings, and valuable buildings and property to form open spaces to meet the requirements of a larger city. The developments which met all the requirements of a city of, say, 30,000 population are inadequate for, say, 90,000 people.

The first requirement in the down town district of Flint is the improvement of the main street itself, widening it where necessary, making the approaches convenient and adequate, improving the paving, and adopting regulations governing the use of the chief thoroughfare. Saginaw Street is adequate as far as Fifth Street but from thereon it should be widened to its full width of approximately 100 feet as far as the proposed circle at Thread Creek. The westerly approach is of sufficient width and open but is very dangerous and inconvenient because of the double grade crossing of the railroads. This condition will be corrected in connection with the proposed grade elimination and Union Station scheme. The easterly approach to Saginaw Street could be improved by the construction of the terminal circle at Thread Creek and by the new connection with Lippincott Boulevard. Here also is a grade crossing on the Grand Trunk cut-off that some time should be eliminated.

To relieve congestion on Saginaw Street it is proposed to develop Clifford and Church Streets and widen them to 80 feet. Harrison Street and Beach Street will always be important down town thoroughfares paralleling Saginaw Street, especially as one leads directly to the proposed railroad station and the other through the proposed Civic center. However, they will both be within the future business district and will not act as distributing streets as will be the case with Clifford and Church Streets.

The most important street change is the extension of Industrial Avenue from its present termination to the Saginaw Street Bridge. Much of the land in this section is used for storage and a very low class development which is a poor ecomonic return for property situated within such a short distance of the center of the city. The extension of Industrial Avenue and Third Avenue would bring this territory into good business use.

Another important street change is the cross connection from West Seventh Avenue to Margaret Street, thus joining Mackin Road with the East Avon Street bridgehead and then to East Court Street, avoiding the busy part of the city.

Eighth Street extension west, Ann Arbor Street extension to Smith Street bridge, Stevens Street to Eighth, Seventh to Clifford and Sixth to Stevens would all help to improve the down town circulation. In addition to the street extensions, there are shown a number of minor widenings, new alignments at intersections and in a few cases abandonments; these are all small improvements that could be worked up as the opportunity presented itself but eventually would add to the smoothness of traffic movements.

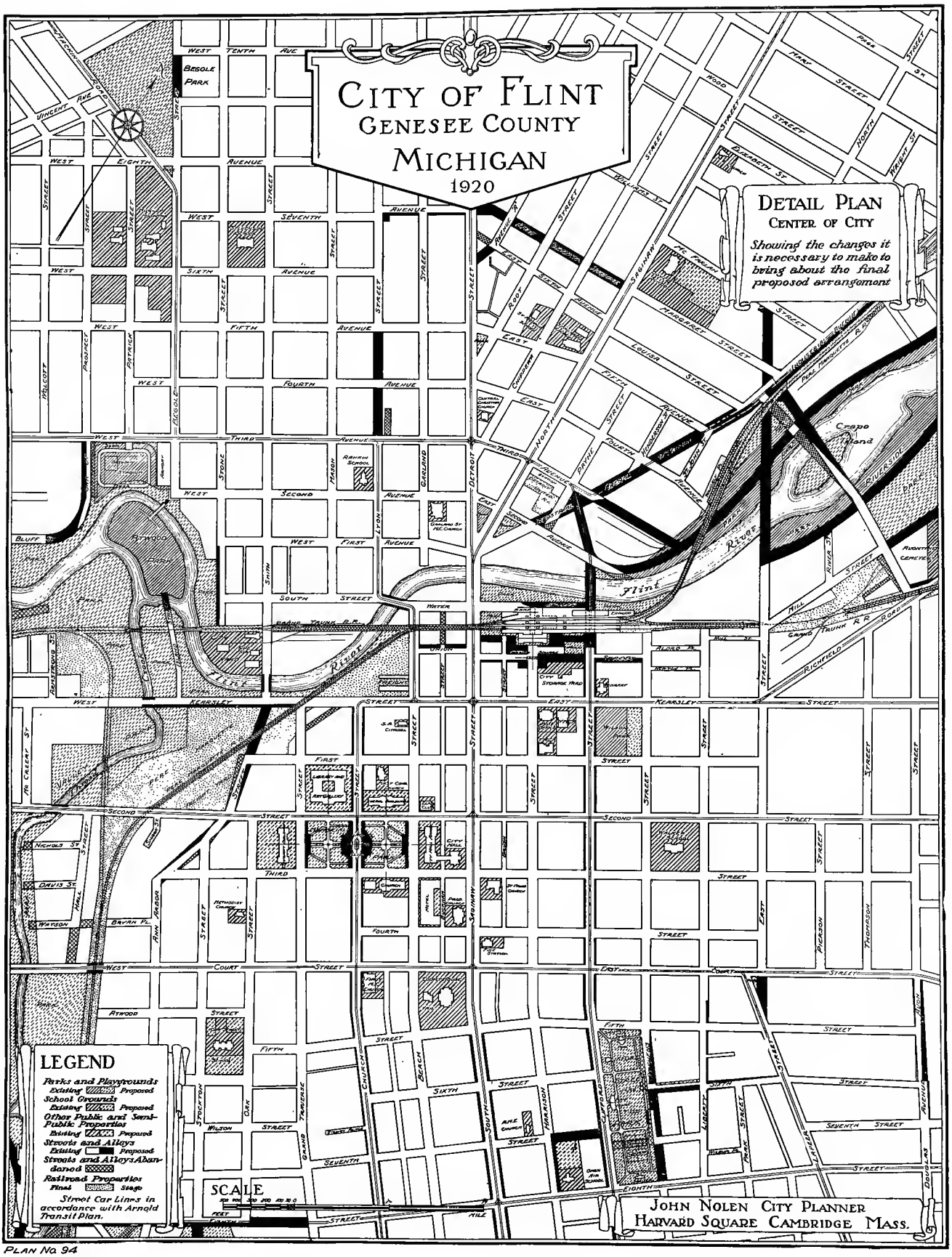
Where a city is built upon both banks of a river it is necessary, even in the case of a small river as at Flint, to have a sufficient number of bridges rightly placed to keep the entire district a single unit. Smith Street and South Street bridges should be rebuilt the full width of the street and new bridges should be built at Clifford, East and Avon Streets. The Clifford Street bridge alone would do much to distribute the traffic from the north and keep it from congesting Saginaw Street.

The development of the park areas along the Flint River and Thread Creek would greatly improve the approaches to the center of the city and would prevent much undesirable property from being developed in a temporary and dangerous way. Memorial Park, Wilson Park which is shown extended to take in the entire block, Clifford Park and a few odd triangular green plots would all do much to brighten up the down town district and break up the monotony of the continuous lines of buildings.

There are a number of school properties in the central section of the city that will continue to be in use for many years to come and steps should be taken at once to make these playgrounds sufficiently large for their present demands. Money invested in such property would not only be well expended for its immediate use but would be a very valuable asset to the city when the time comes to abandon some of the in town school sites in favor of others more closely related to residential areas.

In planning the down town district the question of providing for public buildings is of great importance. The proposed civic center would give a wonderful opportunity for Flint to group its public buildings in such a way as to make them convenient and accessible to everybody and to give them a setting in keeping with their character and importance.

Another dominant feature of the central area will be the proposed Union Station with its approaches and plaza treatment. The present station facilities have not kept pace with the growth of the city and it is only a question of a few years before the Union Station will become a reality. A discussion of the problems involved and the details of the scheme proposed are included as a part of Mr. Bion J. Arnold's report.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1920
DETAIL PLAN
CENTER OF CITY
Showing the changes it is necessary to make to bring about the final proposed arrangement
LEGEND
Parks and Playgrounds
Existing
Proposed
School Grounds
Existing
Proposed
Other Public and Semi-Public Properties
Existing
Proposed
Streets and Alleys
Existing
Proposed
Streets and Alleys Abandoned
Railroad Properties
Final
Stage
Street Car Lines in accordance with Arnold Transit Plan.
SCALE
JOHN NOLEN CITY PLANNER
HARVARD SQUARE CAMBRIDGE MASS.

PLAN No. 94

Parks and Parkways

There is considerable land in Flint along the creeks and the river which is unsuitable for housing or factory purposes but which could be readily adapted to park use. Unless acquired as park property and developed as time and opportunity occur, this land is almost sure to become a liability to the city. A good example of what can be done in converting undesirable building property into park land was recently furnished in Flint when the people under the leadership of the city engineer accomplished a quick transformation at Moon Island.

These valley lands are the most striking topographical units within the city district and they form the best opportunity for a continuous, natural park treatment and should be the dominant feature of the future park system of Flint. Taken together they form a radial park system convenient to all parts of the city, bringing the parks and parkways well into the more thickly built up sections.

To the northeast we have the beginning of the parks along the Flint River. From Kearsley Creek north the Upriver Parkway extends to and beyond the Coldwater Road and is planned with ample width not only to preserve the river beauty and provide for park treatment but also to furnish recreation facilities and include a number of thickly wooded areas which would serve as picnic groves. From the bridge connecting Stewart Avenue and Richfield Road, Kearsley Creek Parkway extends along the stream valley to the east carrying the park treatment beyond Center Road.

North of the city at the angle of Richfield Road it is very desirable to have a large park that will serve the thickly settled district centering about Delaware Avenue. The Whaley Park Property just acquired by the city together with the W. C. Lewis school ground and the city water works property make an admirable park opportunity for this area. These different units should be planned so as to co-ordinate and supplement each other in meeting the needs of the neighborhood.

Below this park and extending down the river to Gilkey Creek the river banks should be developed with bordering boulevards, planting and other features to form the lower stretch of the Upriver Parkways.

From Gilkey Creek south to East Avenue is another opportunity to widen out a bit along the river and bring into the river parkway scheme the existing Water Works Park on the west and the low land below the cemeteries on the east, making a recreation park which we have designated on the plans as Riverside Park. Crapo Island should most surely be acquired and be part of the park system.

East of Richfield Road, Kearsley Park has already started the development of the Gilkey Creek Valley, which should be continued in parkway form to the new industrial district at East Court and Western Roads. The new open air swimming pool now practically completed will make this park very popular during the summer. Where East Court Road crosses the valley the parkway should be widened to permit the establishing of athletic fields and other special recreation features. This parkway will border the new High School site and tie this property into the park system.

Through the center of the city it would be difficult to obtain land enough to make a continuous park treatment along the river; however it will be possible to improve the banks in connection with the railroad station by well-designed retaining walls and bridges, and by good planting where margins of land can be acquired, to make through this section of the city a very attractive canal like development.

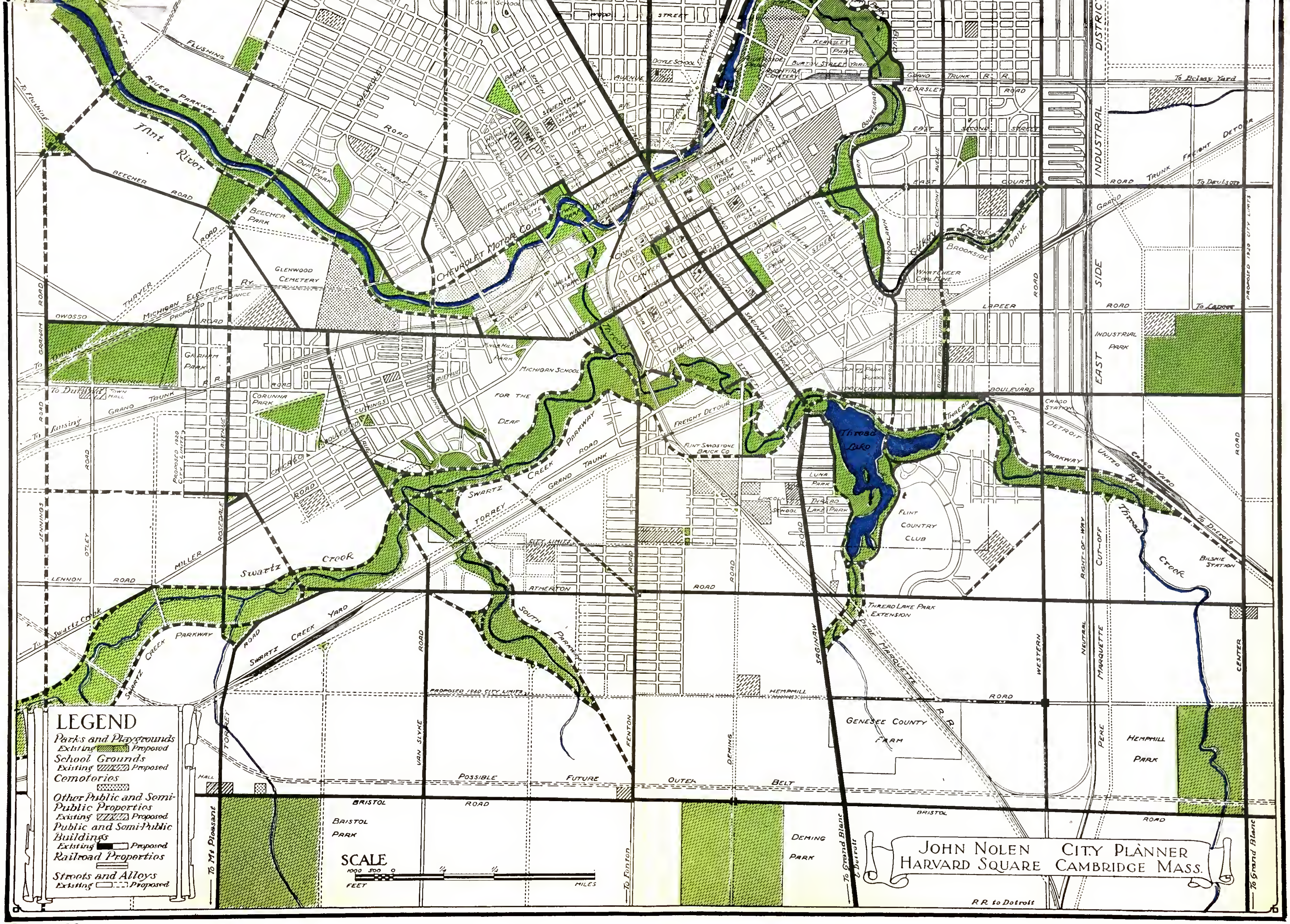
The natural river valley development could be taken up again at Moon Island and extended east by Valley Park and then on up Thread and Swartz Creek valleys. Swartz Creek valley is particularly unspoiled now and because of its width offers exceptional opportunities for park and playground development. To the south the parkway would be supplemented and continued along the branch creek forming what is shown on the city plan as South Parkway.

Thread Creek valley in its present state is a most convincing example of what

CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1920

PARKS AND PARKWAYS

Diagram showing proposed park system including parks, playgrounds, schoolgrounds and parked streets.


LEGEND
Parks and Playgrounds
Existing Proposed
School Grounds
Existing Proposed
Cemeteries
Other Public and Semi-Public Properties
Existing Proposed
Public and Semi-Public Buildings
Existing Proposed
Railroad Properties
Streets and Alleys
Existing Proposed
SCALE
1000 500 0
FEET
MILES
JOHN NOLEN CITY PLANNER
HARVARD SQUARE CAMBRIDGE MASS.
Flint River
River Parkway
Chevrolet Motor Co
Glenwood Cemetery
Beecher Park
Graham Park
Corunna Park
Swartz Creek
Swartz Creek Parkway
Thread Lake
Thread Lake Park
Thread Lake Park Extension
Flint Country Club
Genesee County Farm
Hemphill Park
Bristol Park
Deming Park
Industrial Park
Industrial District
East Side
Civic Center
Gilkey Creek
Brookside Drive
Possible Future Outer Belt
Proposed 1920 City Limits
Grand Trunk R.R.
Pere Marquette R.R.
Michigan Electric Ry.
To Flushing
To Detroit
To Lansing
To Fenton
To Mt Pleasant
To Grand Blanc
R.R. to Detroit
Saginaw
Bristol Road
Hemphill Road
Atherton Road
Lennon Road
Miller Road
Torrey Road
Van Slyke
Fenton Road
Western Road
Center Road

PLAN No. 98

will eventually take place along the streams and in the valleys if action is not taken by the city to prevent it. The development of the valley for parkway purposes is much more to be desired than the type of occupation now in progress. It is not necessary to use undesirable land for housing as there is plenty of first-class, unoccupied low cost residential property within easy distances of the center of the city.

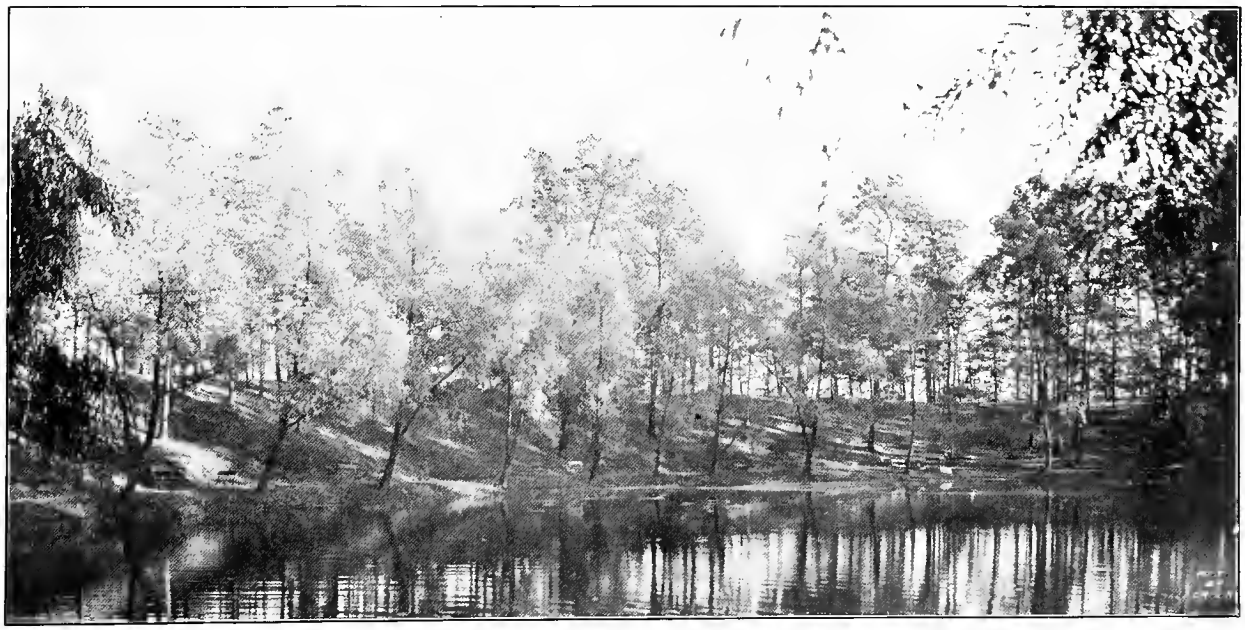
Thread Lake is the one large body of water near Flint and it should be retained as a unit with a continuous park treatment on all sides, for unless the entire lake shore is included the beauty of any development is likely to be lost through the undesirable treatment of the opposite shores, views over which the city could not control. A beginning has been made toward the development of the lake shores at the present Thread Lake Park where a new open air swimming pool is soon to be completed. The street along the west side of the lake is shown to be connected up and joined into a continuous park system tying into the other drives of the park system. To the south the park is extended along the inlet of the lake thus forming a direct connection with South Saginaw Street.

The island at the angle where South Saginaw Street turns south should be acquired and developed in a formal way to produce a fitting termination for Saginaw Street and an impressive gateway to the main street of the city.

Below the Chevrolet works the river valley is again unoccupied by buildings and presents almost unlimited possibilities for the development of a natural valley park. Here the Flint River Parkway is shown following the bottom lands along the river and eventually would lead to a large country reservation to the west.

Another excellent opportunity for a natural park treatment is supplied by the country about Devil's Lake and along its outlet, Brent Run Creek leading to the north and west. Here it is practically a virgin wilderness whose unspoiled beauty, it is safe to say, few people realize and fewer still have seen. This pond and waterway have been shown developed for park purposes and have been designated as Devil's Lake Park and Parkway.

The valley parks and parkways, while essential, are not enough. To supplement them it is necessary to establish local parks to serve those areas not directly adjacent to the waterways. These detached parks are distributed in such a manner that all residential areas are within a five to eight minute walk of a city park. Wher-



Thread Lake Park—where nature mirrors beauty of leaf and tree.

ever possible the sites chosen have been of odd shaped pieces of land less desirable for building or of land possessing natural woods or other attractive features.

In the northwest quarter of the city the Park Board has just acquired the greater part of the large block of land surrounded by Bray and Pasadena Avenues, Stockdale Road and Detroit Street. Much of this area is beautifully wooded and the remainder practically level. Flint will have here a park with broad level stretches suitable for recreation and the gathering place of great bodies of people for civic celebrations, pageants, etc., and judging from the present pace of the world perhaps it isn't looking too far ahead to suggest that such an area might offer a suitable location for a civic aerodrome or at least a landing field for aeroplanes on government mail service. The Park Board should take immediate steps to secure the acquisition of the remainder of this property at the corner of Detroit Street and Stockton Road.

West of the new civic park development two triangular parks, Dayton Park and Lavelle Park are shown located in such a way as to take care of the territory that will soon be developed as a result of the rapid building up of this part of the city.

North of this district Pierson Park is shown occupying the quarter section between Kelly and Pierson Roads, Jennings and McCreery Roads. In the future small local parks would have to be located throughout the section west and northwest of Fleming Road but the acquisition of Pierson Park would insure the one large open area needed to properly supply recreation and the larger park features.

Where Carpenter Road crosses Brent Run Creek a large irregular park area shown as the Carpenter Park is planned to take care of the bigger park features needed for the section north from Pierson Road and west from North Saginaw Street.

Two small local parks as shown at important positions in connection with the boulevarding of Detroit Street. These parks would make excellent sites for local public buildings.

Dort School Park should be enlarged to bring the boundaries to public streets and thus insure control of the surrounding property. This added area will be necessary in the future as the park is located in what will be a densely populated section. Oak Park will also serve this same neighborhood but the combined area of the two will not be excessive for the section to be covered.

A small local common is shown at the corner of Chevrolet Avenue and Welch Boulevard which will be open space in connection with a store center to be established at this point.

To serve the area north of Gracelawn Cemetery, North End Park has been

Spring in Kearsley Park

located at the corner of North Saginaw Street and Carpenter Road. Further to the east near McGrew Station, Horton Park is shown in the triangle formed by Horton Road and the two new street connections. These two parks would form the main areas for recreation northeast of the city but as the city grew would be supplemented by small local parks.

Cutting the new diagonal from Richfield Road across the river to Black Avenue will leave a small triangular piece of property at the corner of Lewis Road and Stewart Avenue. This land is already owned by the city and should be developed as a small local park.

On the east side of the river three detached parks are shown. Eastside Park at Western Road between what are really two branches of Broadway Avenue is a good location for a park that will have to serve the future densely built up areas adjacent to the industrial district. Burton Woods takes advantage of a natural wooded knoll that is a striking feature in the landscape. It would serve the northern half of the industrial district east of the factory sites in the same way that Industrial Park would take care of the southern half.

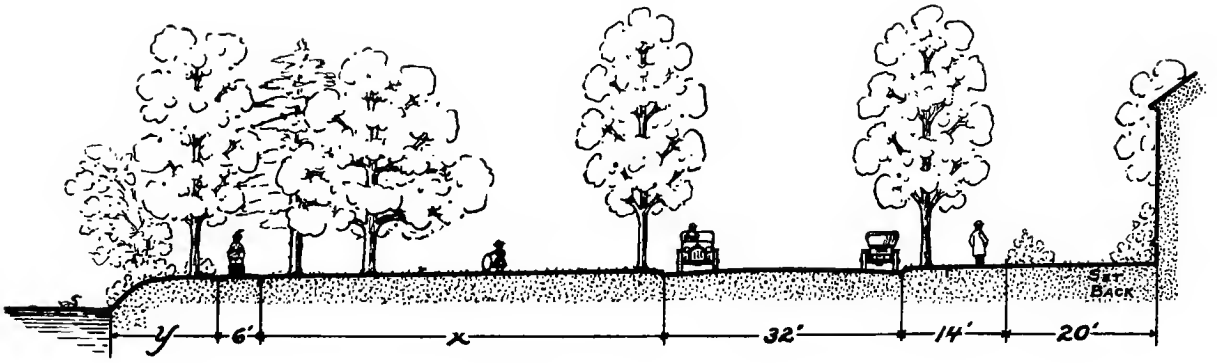
Looking to the future it is suggested that three large outlying parks be established to the south well beyond the present built up sections. First, Hemphill Park at Center Road between Hemphill and Bristol Roads is shown taking in part of the valley of Thread Creek. Second, Deming Park is located just south of Bristol Road on either side of Deming Road and covering an area practically equal to the quarter section. Third, Bristol Park is shown covering the quarter section southeast from the intersection of Torrey and Bristol Roads and containing the existing stream valley. These larger areas should be acquired as early as possible, because of the difficulty of obtaining large tracts of land intact; but the local parks which would be needed for this section could be located as developments take place.

Southeast of the city between the Flint River Parkway and the Swartz Creek Parkway, Graham Park is shown taking in the irregular properties within the area east of Graham Road between Owosso and Corunna Roads. This park area would be supplemented by two other smaller parks, Corunna Park south from Corunna Road and west from Bradley Avenue, and Beecher park which is shown in connection with the Flint River Parkway at Thayer Road.

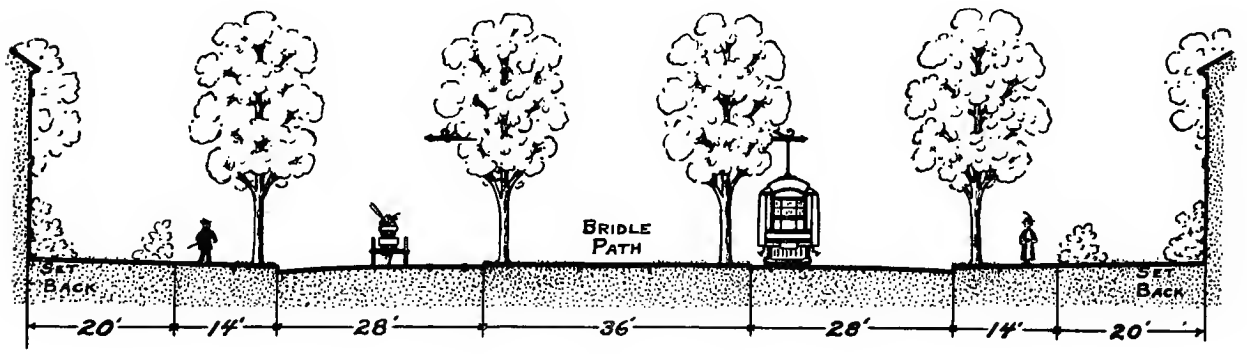
All these parks would be supplemented for recreational purposes by the school playgrounds which are located to serve this need as well as to be central to a school district.

Wading Pool in Kearsley Park

Park Circuit Drives



PARKWAY



BOULEVARD

By special treatment of certain selected streets it will be possible to form park drive circuits making continuous pleasant ways around the city and linking up the park system and practically all of the detached parks. Three of these circuits have been planned to carry around the city and all three are connected and cross connected at important points.

The outer circuit, which is located for the most part just beyond the 1920 proposed City Limits, follows Coldwater Road across the district north of the city, connecting with Center Road on the east, where for a distance of three miles it follows the new proposed boundary. Across the district to the south this outer Circuit Drive follows Bristol Road to Jennings Road, and then runs north over Jennings Road and Graham Road by a new connection to the Flint River, then back on Jennings Road to the starting point at Coldwater Road. This circuit, which would be undertaken as a future development, would form a drive something over twenty-five miles in length.

The second circuit lies just beyond the present built up sections of the city, and would form a drive approximately 16 miles in length. Starting to the northwest at Devil's Lake Parkway, the route would follow Carpenter Road, coinciding with the 1920 proposed City Limits as far as Western Road. It would then go south over Western Road along the proposed Industrial District to the new diagonal connection east of the Flint Country Club. Crossing on this diagonal the route would then follow west over Atherton Road to Van Slyke Road, then north over the new connection to Bradley Avenue, to Corunna Road, to Beecher Road, to the Flint River. North of the river the drive follows Brownell Boulevard through Civic Park and then north over existing streets and proposed connections to Devil's Lake Parkway.

The third circuit drive follows very closely the present city limits. Starting at Dewey Woods the line of the drive would be east over Bray and Stewart Avenues to the new bridge across the river connecting with Richfield Road, then south over Richfield Road, Claremont Avenue and Burr Boulevard to Lippincott Boulevard, then west through the proposed center at the head of South Saginaw Street along park drives and proposed connections to West Court Street. Here the route would turn west and follow West Court Street to Durand Street, where it would again turn north across the Flint river and proceed through the new Durant Farm subdivision to the proposed extension of Stockdale Road, which would lead back to the starting point. Flint Park Boulevard and Black Avenue are shown as an alternative route from Stockdale Road to Lewis Road.

All three circuits are cross connected north and south by South Saginaw and North Saginaw Streets and Detroit Street, and cross connected east and west by the route over Davison Road, Broadway and Hamilton Avenues, Welch Boulevard and Dayton Street, also by East and West Court Streets and Owosso Road.

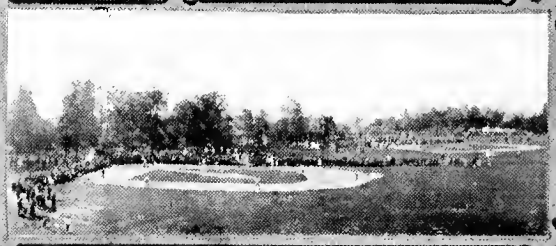
Beside the cross connections mentioned, the outer circuit and the second circuit drives are connected by the Devil's Lake Parkway, Lewis, Bray, Carpenter and Richfield Roads, Lippincott Boulevard, Thread Creek Parkway, Atherton, Western and Fenton Roads, South Parkway, Van Slyke and Torrey Road; the new quarter section road north of Lennon Road, Owosso, Beecher, Bray and Carpenter Roads. The inner and second circuit drives have additional cross connections over Lewis Road to the north and Fenton Road to the south, and in addition, the various boulevard drives that follow the river parkways.

In the center of the city a very short circuit of parked streets is shown, connecting the Civic Center and Clifford Street Park. This route would include Church, Second, Clifford and Eighth Streets.

Scenes in other Cities

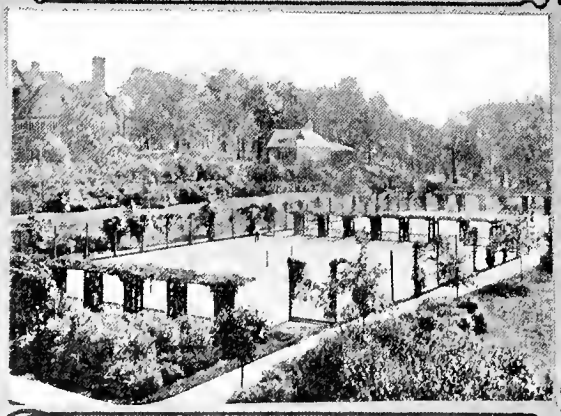
BEACON ST. MALL
BOSTON COMMON

MONUMENT TO
TITANIC VICTIMS
WASHINGTON, D.C.



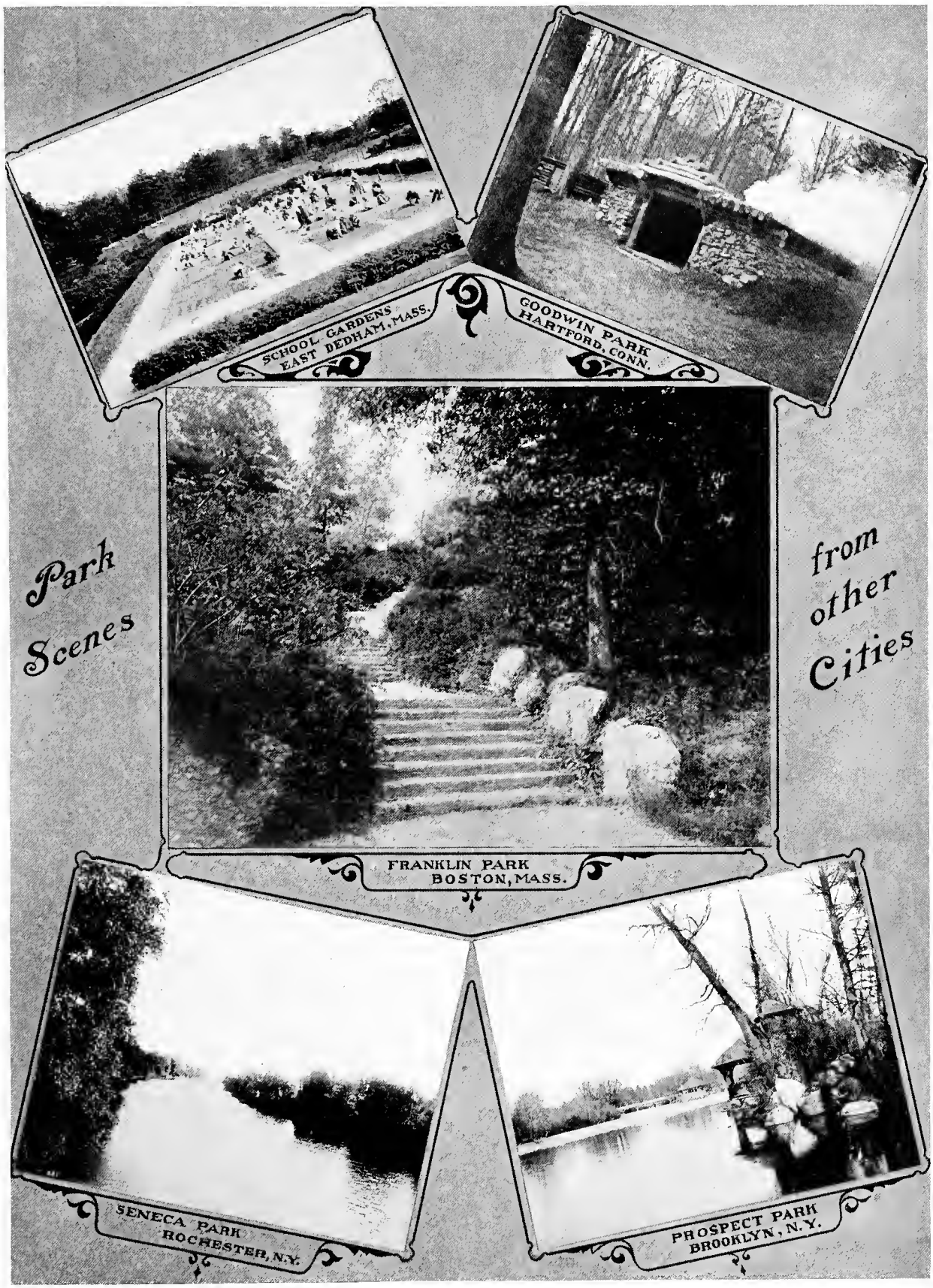
BASEBALL GROUNDS - WOODLAND HILLS PARK
CLEVELAND, OHIO

PARK SCENE
SACRAMENTO, CALIFORNIA



TENNIS COURTS POPE PARK
HARTFORD, CONN.

ERIE CANAL LOOKING
TOWARD AQUEDUCT


Park Scenes
from other Cities
SCHOOL GARDENS
EAST DEDHAM, MASS.
GOODWIN PARK
HARTFORD, CONN.
FRANKLIN PARK
BOSTON, MASS.
SENECA PARK
ROCHESTER, N.Y.
PROSPECT PARK
BROOKLYN, N.Y.

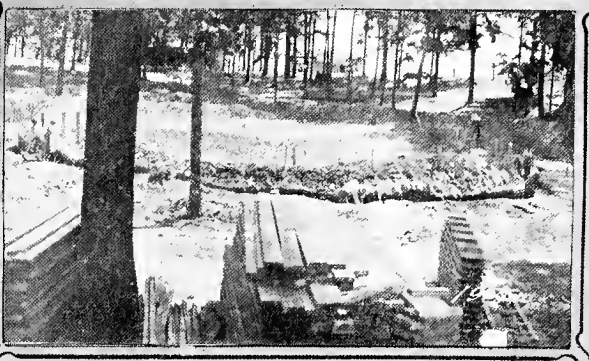
Swimming Pools

SWIMMING POOL IN KEARSLEY PARK

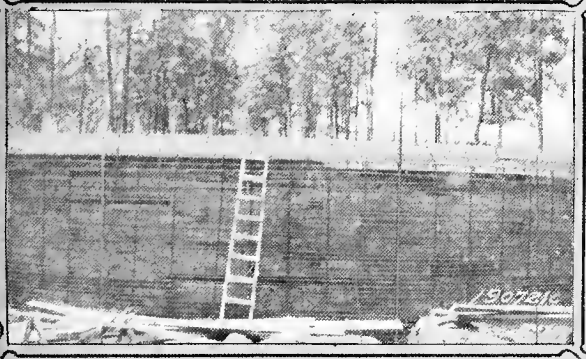
SIMILAR POOL IN THREAD LAKE PARK LOOKING TOWARD THE LAKE

A Pool's Progress

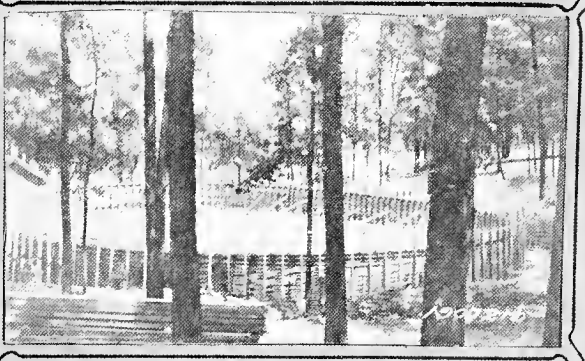
THREAD LAKE SWIMMING POOL SITE, LOOKING TOWARD THE LAKE



THE EXCAVATION

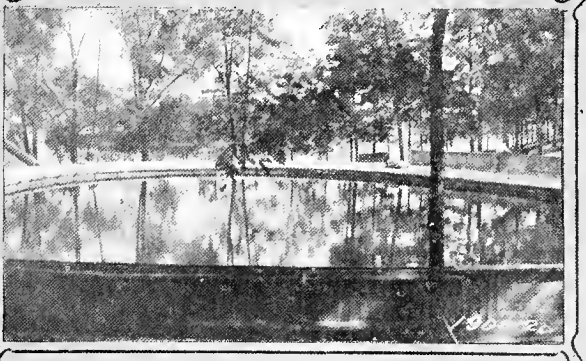


SHOWING STEEL IN WALL



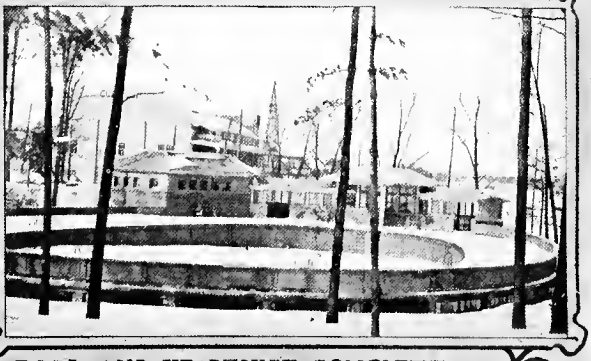
SHOWING FORM FOR WALL

SHOWING FORM WORK INSIDE



POOL FILLED ON TEST

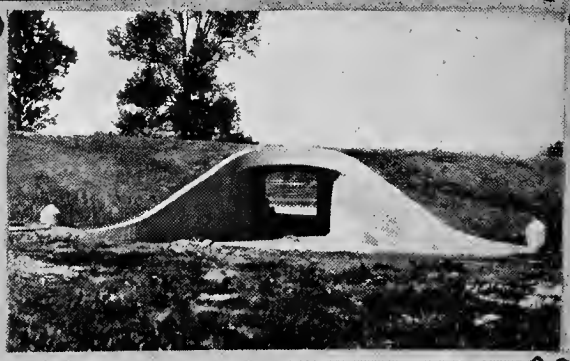
FRONT ELEVATION - FRAME BUILDING AT RIGHT WILL BE MOVED AWAY



POOL AND HEADHOUSE COMPLETE LOOKING TOWARD LAKE

Views in Flint Parks

VIEW ALONG KEARSLEY PARK BOULEVARD



KEARSLEY PARK PASS UNDER THE BOULEVARD FOR PEDESTRIANS

LOOKING WEST UP SWARTZ CREEK VALLEY

LOOKING NORTH OVER SWARTZ CREEK VALLEY

Winter Scenes in Dewey Woods

Civic Center

In order that a city may coordinate its official activities and have some point of attraction in which to focus its communal life, it is necessary to have some form of civic center, some place of meeting that will fulfill the function of the market place or common of the past.

It is proposed to establish such a center in Flint at Church Street between Second and Third Streets. This location is geographically central to the entire city, and is adjacent to the business district of Flint and well served now by street cars from Saginaw Street, and will be better served in the future by the proposed car lines on Church and Second Streets.

A start has already been made in the centering of interests at this point by the location of the City Hall, by the block on which the High School is located, and by the Elks' Club and new cathedral. Moreover the city has recently acquired the land to the rear of the City Hall on Beach Street to provide for a future extension of the city building. The present high school building will very shortly be vacated for school purposes, and the site will then be available as a beginning of the new civic center.

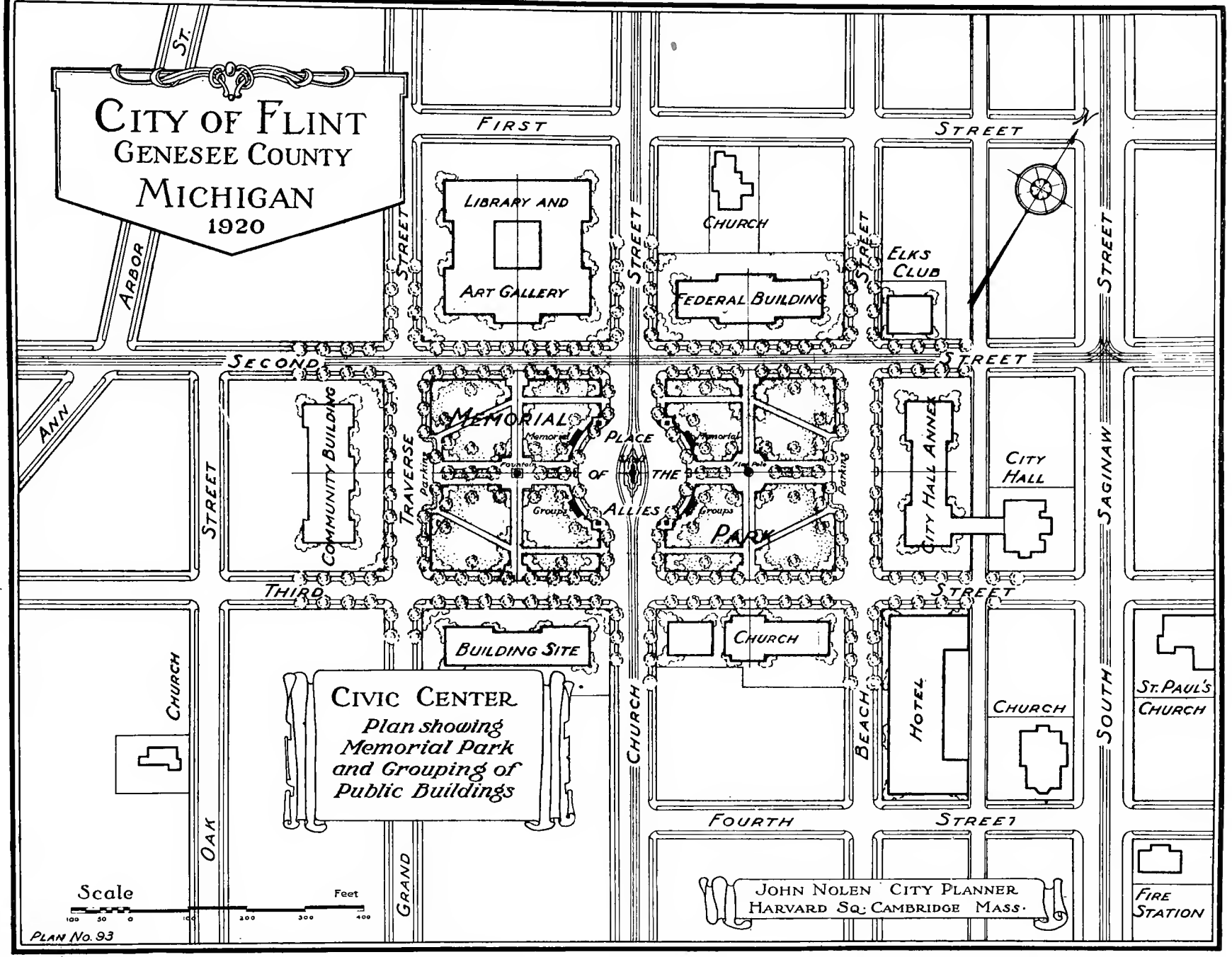
The scheme submitted proposes the acquisition of the next block to the southwest, which is very similar to the present high school site, thus forming an open park two blocks in extent from Beach Street to Grand Traverse Street between Second and Third Streets. This area would be cleared of buildings and developed with trees, planting, walks and other park-like features, making a central city open space. Benches should be freely provided, and everything possible done to make this area not only a beautiful place to look at, and a fine setting for public buildings, but a real meeting place for people from all over the city.

Church Street has been shown widened into a paved circle where it intersects the park, and here would be a very appropriate place for a memorial of unique design. In the center of the open place would rise a shaft, which, taken with the four groups of statuary, would commemorate local heroes, events or ideals of the World War.

The blocks facing these open spaces would make admirable sites for public or semi-public buildings. It is suggested that here would be located the Federal Building, a Community Building, and a Library and Art Museum, as well as the proposed new City Hall extension.

All these buildings are of general interest, and extend a welcome to the entire population to come and find in this location something of value or pleasure. The Community Building should contain a large auditorium for public gatherings, and should be available at all times for meetings that will promote the public welfare and the general good.

Of the semi-public buildings, a theatre and a modern hotel would do much to attract people and add interest and color to the proposed center, making it as far as possible an index of the life of the city.

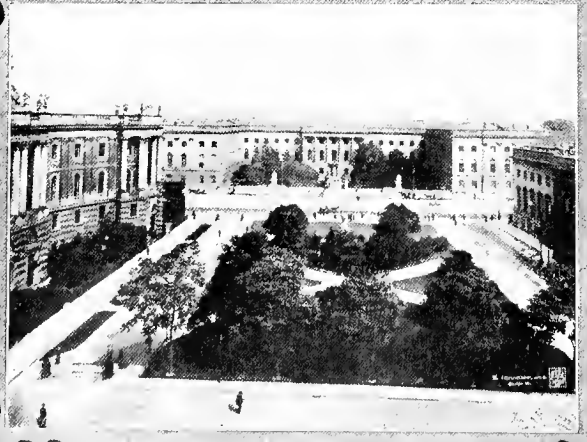

CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1920
ST.
ARBOR
ANN
FIRST
STREET
SECOND
THIRD
FOURTH
LIBRARY AND
ART GALLERY
CHURCH
FEDERAL BUILDING
ELKS
CLUB
N
COMMUNITY BUILDING
TRAVERSE
MEMORIAL
PLACE
OF
ALLIES
PARK
Memorial
Fountain
Parking
Groups
CITY HALL ANNEX
CITY
HALL
BUILDING SITE
CHURCH
OAK
GRAND
CHURCH
BEACH
HOTEL
CHURCH
SAGINAW
SOUTH
ST. PAUL'S
CHURCH
FIRE
STATION
CIVIC CENTER
Plan showing
Memorial Park
and Grouping of
Public Buildings
Scale
Feet
100 50 0 100 200 300 400
PLAN No. 93
JOHN NOLEN CITY PLANNER
HARVARD SQ. CAMBRIDGE MASS.

Distinctive Settings for Public Buildings

INDEPENDENCE SQUARE
PHILADELPHIA, PA.

PUBLIC GARDEN
LISIEUX, FRANCE

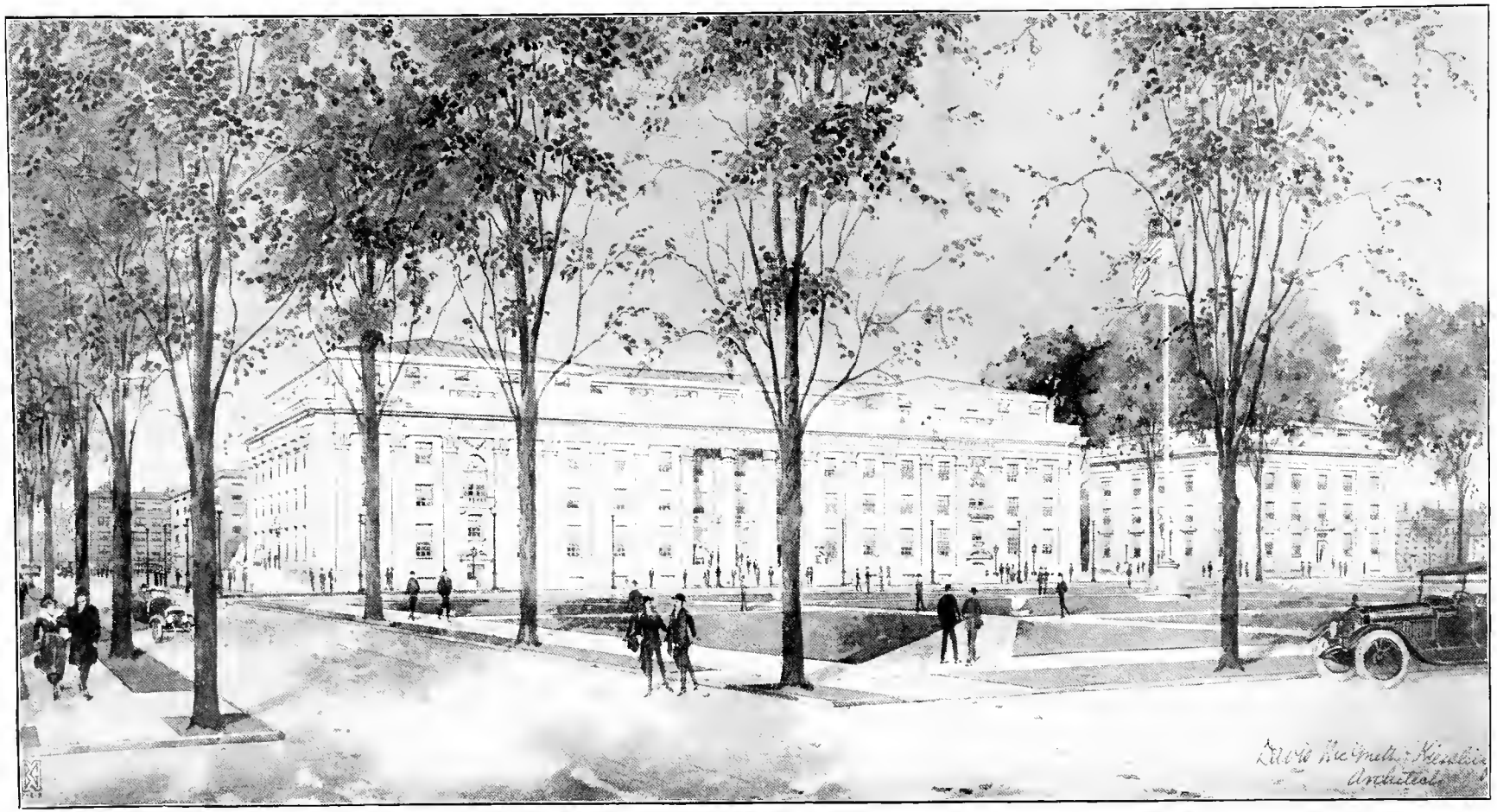
CITY HALL PARK
NEW YORK, N.Y.



UNIVERSITTY WITH ADJOINING PARKS
AND PUBLIC BUILDINGS – BERLIN.

RINGSTRASSE, VIENNA, SHOWING
CHANGE IN DIRECTION OF A STREET

Proposed Community Building on Civic Center



This drawing shows the Beach street side of the Civic Center as it would appear from the Northwest corner of Church and West Second streets, looking across the park site now occupied by the Central High School. At the right, the Municipal Courts and Police building is shown occupying the southeast corner of Beach and West Third streets. From a drawing by Davis, McGrath and Keesling, New York.

School Playgrounds

The proposed new school playgrounds have been located in such a way as to extend the present school system by half mile intervals into the residential districts about to be built up and settled. Also the locations selected have taken into account the areas not served by local parks and these playgrounds in most cases would be supplementary to the park system.

The areas shown are from 10 to 15 acres in extent and would be of ample size for school purposes and also as neighborhood recreation centers. The locations selected are not only central to the district served but are at points easily accessible. It is well to have this class of public property bounded by public roads and in some cases the existing grounds are shown enlarged to give not only adequate area but also to improve boundaries.

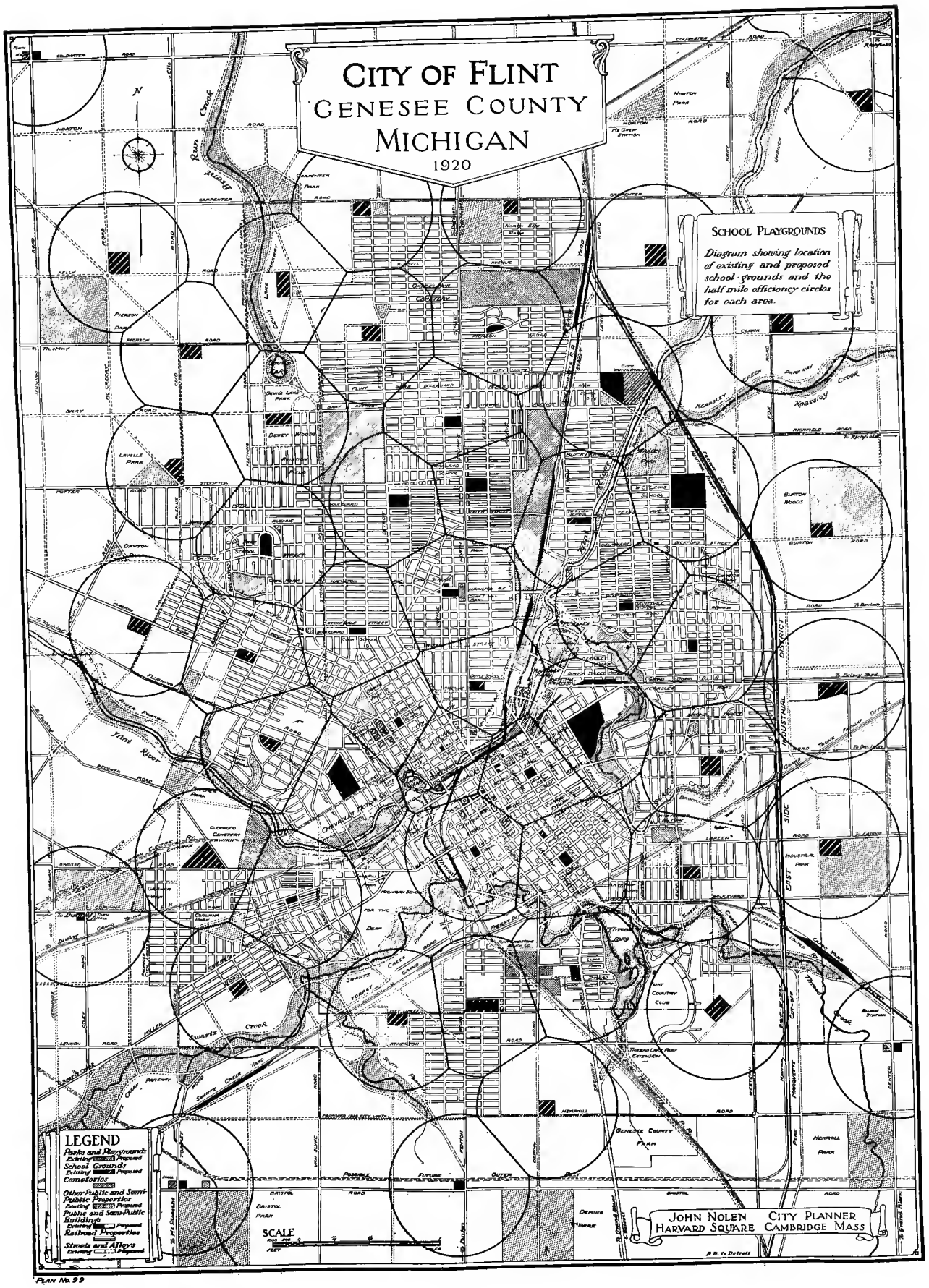
The advantage of securing playgrounds in advance is well recognized and has already been acted upon in Flint but it should be further recognized that the city is growing rapidly in population, spreading out over a large area so that there is still opportunity to show foresight and wisdom in preparing now for a need that will be felt very soon.

The school board has made numerous purchases of school properties within the last two years and has greatly extended the school area, practically completing the program laid down for the territory included within the present city limits. The next step will be to provide schoolground facilities for the area soon to be included within the city, as shown by the proposed 1920 city limits line.

Another notable addition to the school system was the purchase of the Oak Grove Sanitarium property, a fifty acre tract, for a high school site and for other school uses. This tract is well located and offers wonderful opportunities for the location of buildings and the development of recreation areas and athletic fields.

The School Playground diagram shows the half mile efficiency circles centered at each school and indicates at a glance the areas served by the proposed locations; also those areas that are more than a half mile distant from any school. The proposed school ground sites have been located to cover practically the entire area that will be included within the city under the proposed 1920 City Limits Plan.

NOTE—By gift and purchase the city has recently acquired the property lying between Parkland School and North Saginaw Street for playground purposes.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1920
SCHOOL PLAYGROUNDS
Diagram showing location of existing and proposed school grounds and the half mile efficiency circles for each area.
LEGEND
Parks and Playgrounds Existing Proposed
School Grounds Existing Proposed
Cemeteries
Other Public and Semi Public Properties Existing Proposed
Public and Semi-Public Buildings Existing Proposed
Railroad Properties
Streets and Alleys Existing Proposed
SCALE
JOHN NOLEN CITY PLANNER
HARVARD SQUARE CAMBRIDGE MASS
PLAN No. 99

Forest Monarchs on new High School Site

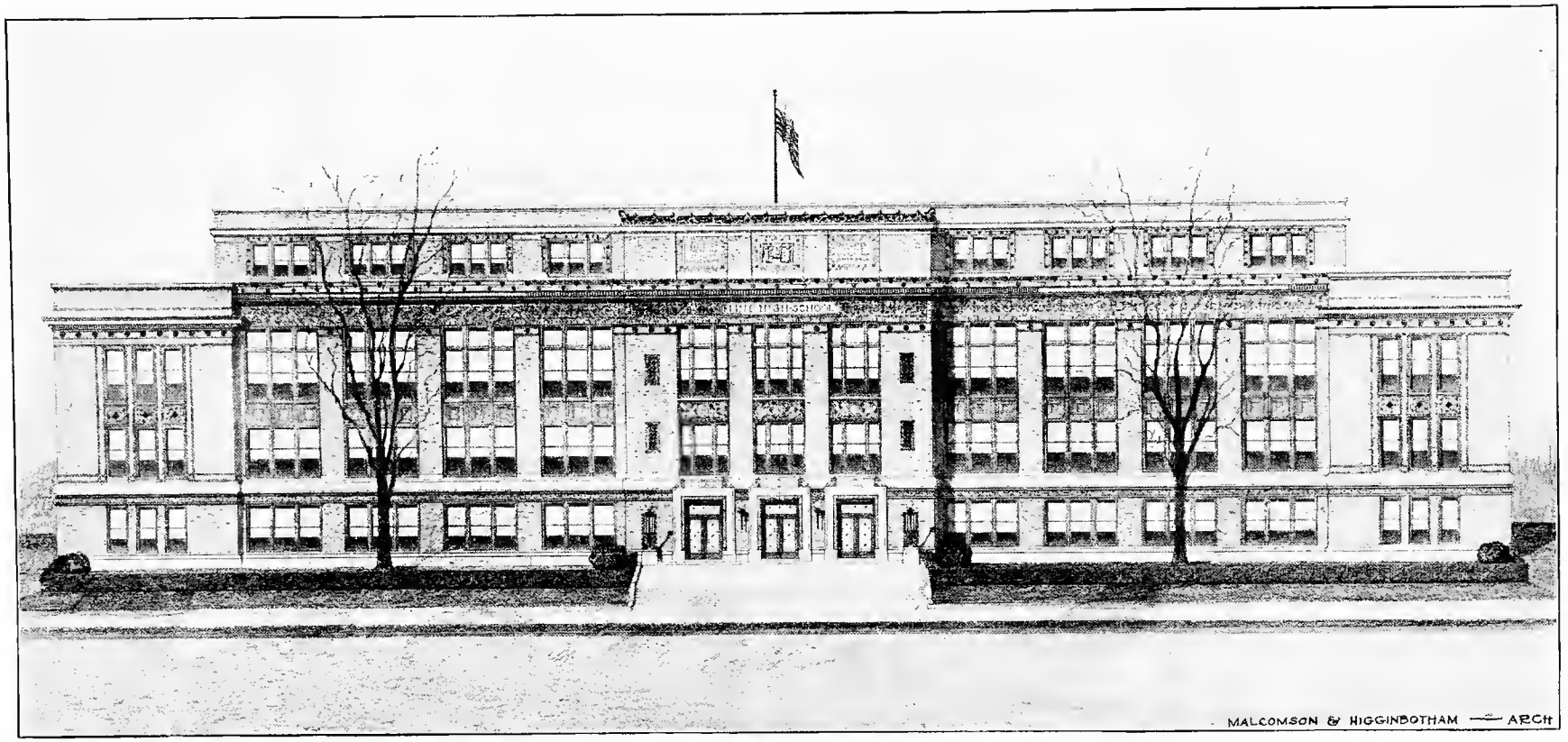
The New High School and Technical College

Flint's educational needs, rapidly growing with the population, have called into being a program of expansion designed to give the city one of the best school plants in the country.

Upon the Oak Grove site of 57 acres will be located the new High School Building This structure will contain upwards of sixty rooms, in addition to a large modern gymnasium and an auditorium to seat 1500 persons. It will face the East Second street opening, with dimensions of 270 by 207 feet, the greater length being the north and south dimension. Directly back of the main building and connected with it by extensions around an enclosed court will be the school shops, 270 feet wide and 204 feet deep, which depth brings the structure back to the edge of the ravine. In the valley east and south of the High School will be placed the athletic field, school gardens and facilities for other outdoor pursuits. The present plan is to use two of the existing buildings as dormitories for teachers, and the rest of the Oak Grove plant for vocational work. A grade school of twenty rooms will be erected in the future on the northeast corner of the property facing Kearsley street. The architects are Malcomson & Higginbotham of Detroit, specialists in school design. In placing the High School and its attendant buildings the Board of Education will retain as far as possible the magnificent forest trees which cover much of the tract.

Scene in Oak Grove

Front Elevation of the New High School and Technical College



This shows the structure as it will appear from Crapo street at the opening of Second. From a drawing by Malcolmson & Higginbotham, architects, of Detroit.

Zoning

A Zone Plan has been prepared for Flint to be used as a guide in preparing the official zone maps that are necessary accompaniments of the zoning ordinance. A tentative outline covering the points to be included in such an ordinance has also been prepared and is here set forth.

It is necessary to adopt some form of zoning ordinance if property of all classes is to be protected from undesirable developments due to the unsympathetic building up of property in districts that have been dedicated by use to other purposes. The division of the city into zoning districts protects an owner in any rightful development he may wish to make and insures him against nuisances and exploitation. The zoning ordinance also tends to raise values but acts as a check in keeping down speculative profits, especially on land coming into new uses.

The residential property has been grouped under two districts; the first allowing only single and semi-detached houses and providing for a relatively high standard of development, the second allowing group houses and a more closely built up area. The second districts have been located adjacent to the industrial developments and in transition areas between business and the first residential district. Apartments have been considered under business districts due to the nature of their operation and because of their similarity to business buildings and their undesirable influence on residential property. Apartments are allowed in all business districts.

The chief business district has been shown centering on Saginaw Street and extending from Eighth Street to Wood Street, and in width from Church to Clifford Streets and Detroit Street to Industrial Avenue. The main block of business is extended into the residential areas on North and South Saginaw Streets, Detroit Street, Industrial Avenue, Richfield Road and East Court Street. Minor local centers are shown scattered throughout the city at vantage points in the street system and at such intervals as best to serve the residence district. These areas should be capable of expansion as demand requires and new store centers should be allowed as the needs of the neighborhood dictate.

Within the built up part of the city the Industrial Districts have been confined to the locations along the river now occupied by factory developments. All new industries and similar undertakings should, if possible, be located in the large tract east of the city now definitely acquired and designed for industrial purposes. Beyond this industrial district further to the east is an area set apart as an Unrestricted District in which would be allowed such developments as are not desirable in other industrial districts due to unusual danger, offensive odors or noise.

To prevent a scattered, uncontrolled development of lots over large areas without water, sewer and other facilities, and the resulting misuse of adjacent farm lands, it would be very desirable if it were possible to establish beyond the built up portion of the city a Garden Suburb District. The boundaries of this zone would recede with the growth of the city, and new areas would be taken in for various uses as the need arose.

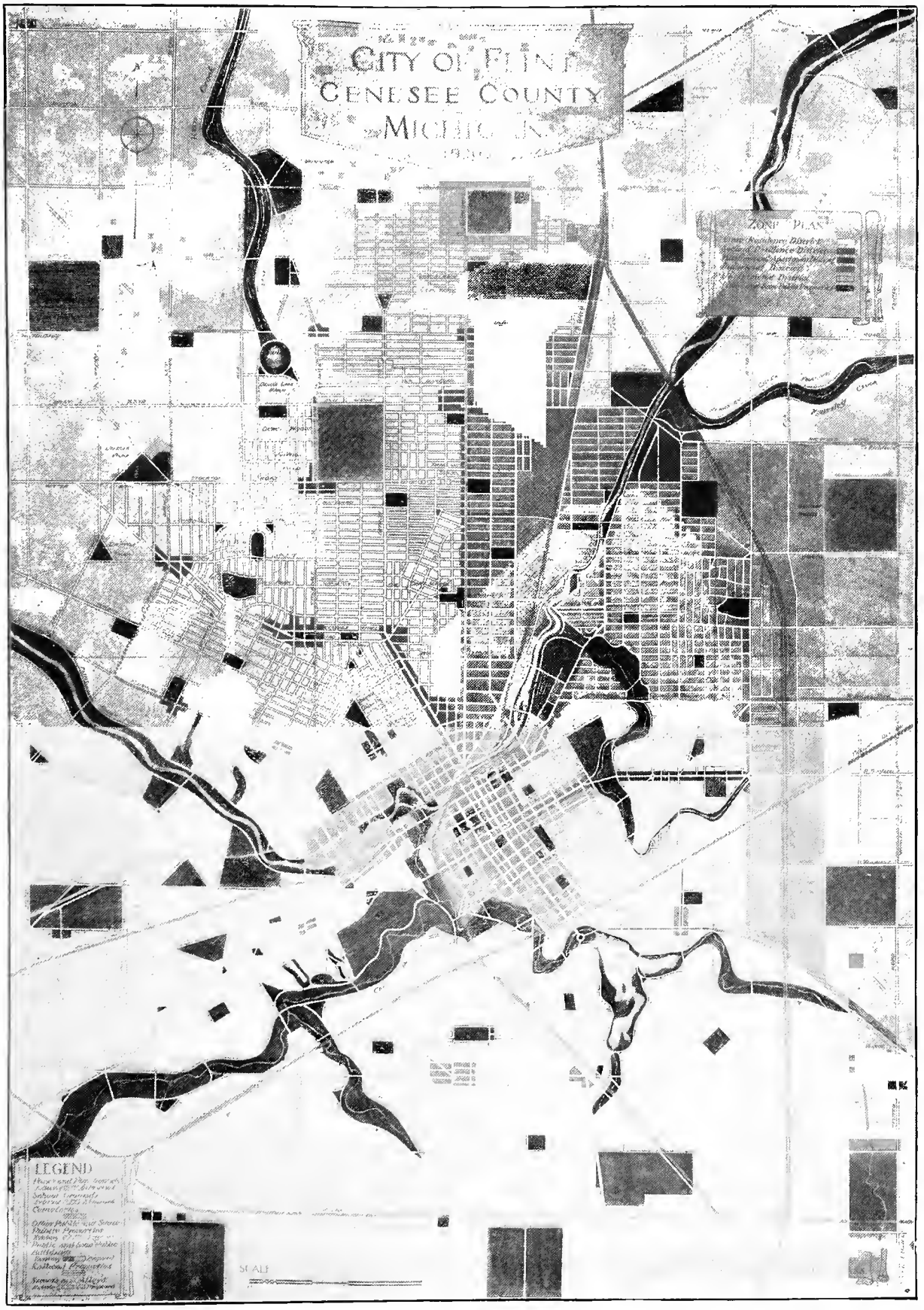
The following general restrictions should be used as a basis in drafting an ordinance to cover this outside district:

Use. All land in the Garden Suburb District should be used for and all buildings erected or used exclusively as single family dwellings and the usual accessories located on the same lot, and including farm buildings and private garages containing space for not more than four automobiles. Churches and educational institutions may be erected and maintained in the Garden Suburb Districts; farming, truck gardening, nurseries, and greenhouse business may be conducted, and the necessary buildings be erected and maintained in this district.

Height. No building exceeding forty-five feet in height should be erected in a Garden Suburb District except a wind mill, water tank, silo or other special storage structure used in connection with farming operations, and also as provided for towers and spires.

Area. No dwelling should hereafter be erected in the Garden Suburb District except on a lot whose area is at least a quarter acre in extent, and which has no dimension less than sixty feet in length, nor should such dwelling be built so as to extend within twenty-five feet of the street line, within ten feet of either side line or thirty feet of rear line. Garages, barns and all other buildings should be at least forty feet back from the street lines, and ten feet from all other lot lines, and at least thirty feet from a dwelling on the same lot. All buildings unless of fireproof construction must have at least ten feet clear space between them.

The following outline of restrictions covers the points that should be included in the proposed zoning ordinance.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
ZONE PLAN
LEGEND
SCALE

It is proposed to divide the city of Flint into the following five districts in order to regulate and restrict the locations of commerce, business, industries and all buildings designed for specified uses.

A. First Residential District.
B. Second Residential District
C. Business District
D. Industrial District
E. Unrestricted District

A. First Residential Districts.

This district is to be devoted to single detached houses and semi-detached houses with the usual accessories located on the same lot.

Farming, truck gardening and greenhouse business to be allowed within the district, also churches and educational institutions.

No buildings are to exceed forty-five feet in height except in the case of towers and spires.

No building shall exceed 30% of the area of the lot, nor to be erected within twenty feet of the street line, ten feet from either side line and thirty feet from rear line, except that a garage and other outbuildings may be built to within five feet of either side line and rear lines but must be at least forty feet from street line.

Area of all outbuildings must not exceed 12½% of the lot area.

B. Second Residential Districts.

Second Residential District is to be used exclusively for single detached houses, semi-detached houses, two-family houses and group houses made up of single family units with not over ten units in any group together with the usual accessories located on the same lot.

Churches, clubs, hospitals, educational and other similiar institutions are to be allowed in the second residential district.

Height restrictions are to be the same as for the First Residential Districts except that buildings other than dwellings may be built to sixty feet in height.

The area restrictions are also the same as in the first district except that 50% of the lot area may be covered by a building and the set back from the street need not be greater than fifteen feet.

C. Business Districts.

Buildings within the Business District may be used for the conduct of wholesale or retail business and other customary business enterprises, including light manufacturing incidential to the business use, provided it does not occupy more than 50% of the floor area of the building or use more than five employees.

Hotels, apartments and similar structures together with all uses allowed within the Second Residential District are allowed in the Business District.

No Building shall exceed in height one and one-half times the width of the streets on which it faces except in the case of towers and spires and in no case shall a building exceed one hundred and twenty-five feet in height.

A building may cover the entire lot in the Business District but light and air must be provided in accordance with the building code.

D. Industrial Districts.

Land and buildings are to be used for all trades and purposes of storage, industry, commerce and residence except for a specified list of industries known to be objectionable.

No building to exceed sixty feet in height except as provided for gas tanks, grain elevators, and other such industrial structures, towers and spires.

No building or group of buildings to cover more than 75% of the plot.

Separate buildings to be at least ten feet apart and ten feet from all interior property lines.

E. Unrestricted Districts.

In the unrestricted districts a building may be erected and used without restriction as to the nature of its use, provided the same is not prohibited by law or ordinance.

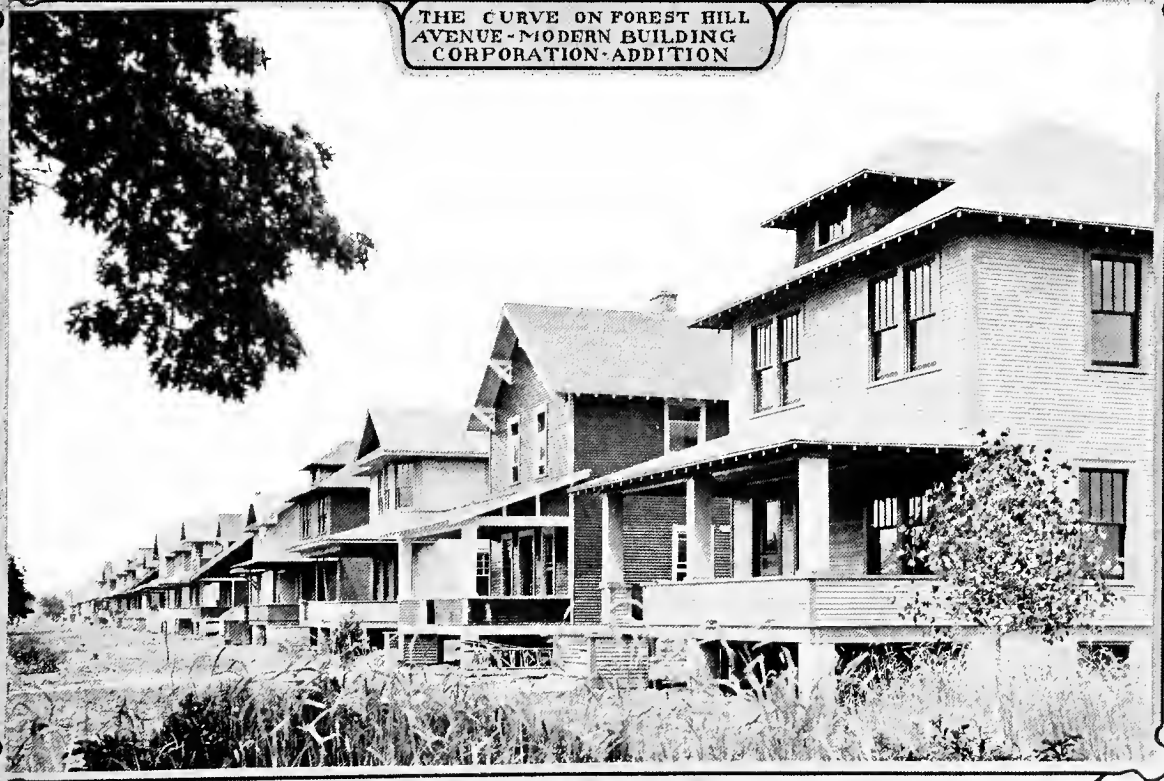
No building shall exceed fifty feet in height except in the case of gas tanks, grain elevators and other such industrial structures, and also towers and spires.

Area of lot to be covered and distance apart of building to be the same as stated for Industrial Districts.

House Groups

LOOKING NORTH ON LAWRENCE AVENUE - MODERN HOUSING CORPORATION - ADDITION

THE CURVE ON FOREST HILL AVENUE - MODERN BUILDING CORPORATION - ADDITION



STANDARD OIL CO. HOUSING DEVELOPMENT

Housing

Basic to a healthy Civic Condition of a city is the adequate housing of its people. In Flint the tendency seems to be toward a higher standard of living. The worker is altogether human; he, as other men, wants proper living conditions for his family and proper social conditions ought to be made possible. Overcrowding is a serious factor in the creation of unrest. The bad social conditions that exist where there is overcrowding do not permit of the rearing of children to be the kind of citizens that the ideals of our forefathers who founded this great country demand. And it is an undisputable fact that bad living conditions in many factory centers have done a great deal to undermine the confidence of the worker. Bad living conditions will always rank high among the causes of unrest and dissatisfaction of industrial workers.

Realizing the conditions in Flint the General Motors Corporation set aside seven million dollars for the construction of a large number of homes for its employees. One thousand of these homes have been built, a large percentage of which are now occupied by the purchasers and the balance will be occupied as soon as completed.

The citizens of this city realize that to develop houses for the people will not only assist the industries which are already here but will be the means of bringing to the city a considerable increase in all kinds of business.

The Board of Commerce has caused a fundamental engineer's survey to be made, which shows the needs of the city and the extreme points of saturation. The survey shows the need of a large number of modern priced homes, houses that can be bought or rented at terms within the reach of the man who is dependent upon a weekly or monthly wage and who has not sufficient funds to build. There is also a need for a good quality of homes where there are good social conditions. These homes should be placed on good sized lots where light and air can be had in every room, with some provision for a garden.

Owing to the high cost of land the best solution is to make it possible for homes to be built in the suburbs of the city. The extension of sewers, water mains and other street improvements into the subdivisions and suburbs would enable thousands of homes to be built on lots in those districts.

The extension of street improvements into subdivisions will help greatly to solve the problem of high prices. It would enable a greater number of additional lots and houses to be put on the market; thus creating a supply more nearly equal to the demand, this in turn would cause a decrease in the fabulous and oftimes, unreasonable prices asked by speculative real estate dealers.

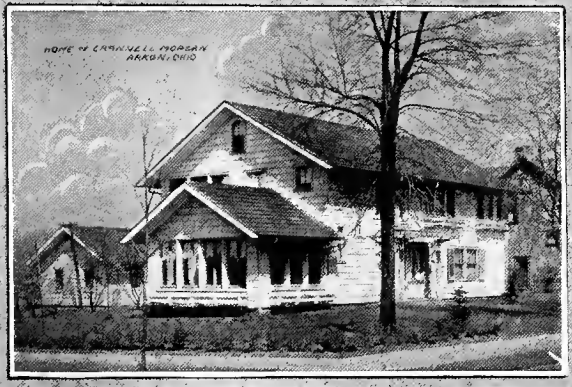
The law of supply and demand governs prices, and in proportion as the supply equals the demand the price will be decreased.

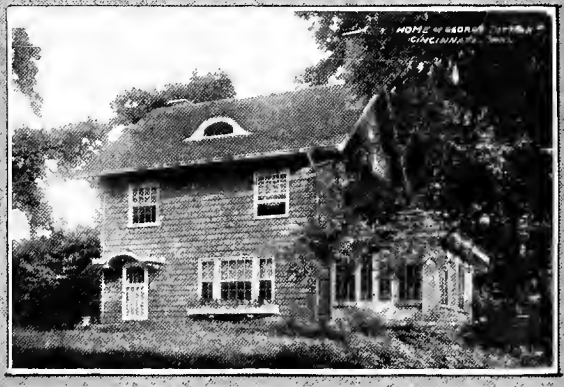
The economic and financial side of the problem is, of course, enormous. As to the social side, there is probably no other activity which does more to fix and determine the health and mold the character of the people than housing.

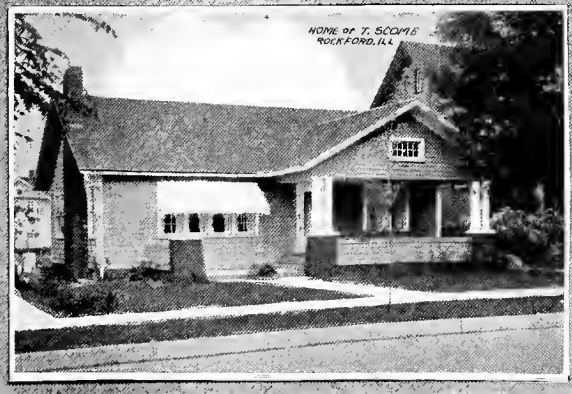
Flint has always met every problem no matter how hard it was, and a movement is now on foot to obtain large quantities of outside capital to finance the housing problem.

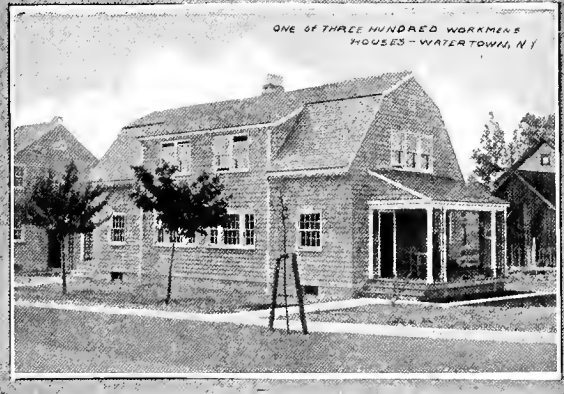
CHARLES R. BIXBY

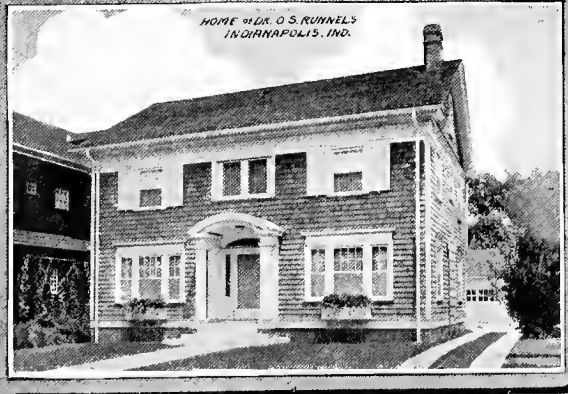
House Types Flint needs











PART IV. Transportation

Colonel Bion J. Arnold

Colonel Bion J. Arnold was appointed consultant on transportation development by the City Planning Committee in 1917 coincident with the appointment of Mr. John Nolen, city planning consultant, both consultants to work in collaboration toward the end that a complete and harmonious plan of development should be available for the city of Flint.

Colonel Arnold has for many years acted as consultant on transportation and utility development problems for most of the principal cities of the United States and Canada, including railroad and railroad terminals development and port and harbor development, electric railway construction, transit surveys in service, fares, extensions and reconstruction proceedings; surveys and examinations of power plant development and operation, both steam and hydraulic—valuations of steam railroad, electric railroad, interurban, telephone and light and power properties; grade separation, union stations and belt railroad development, passenger subway development, New York and Chicago; financial reorganization plans and legislation involved in various cities.

Specific mention may be made of Arnold reports concerning railroad and terminal development in the cities of New York, Cleveland, Baltimore, New Orleans, Jersey City and Syracuse; comprehensive local transportation plans in Chicago, San Francisco, Rochester, Cincinnati and other cities; valuations or reports of all the surface and elevated railways of New York and Brooklyn; the same for Chicago, Buffalo, Kansas City, Denver, etc.

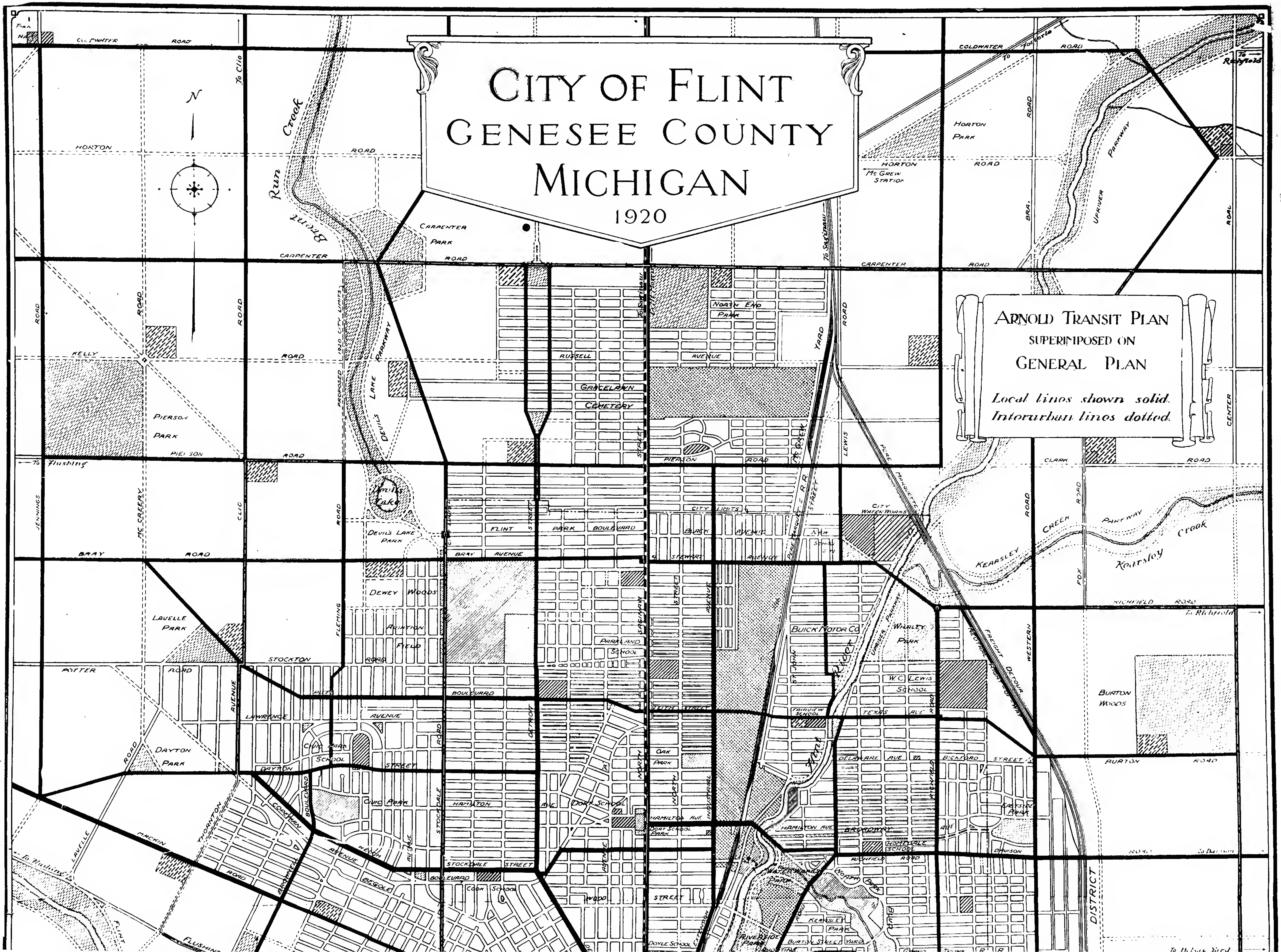
The detail of practically all of this work was conducted through the agency of the Arnold Company (Engineers-Constructors) of which Colonel Arnold is the founder and president.

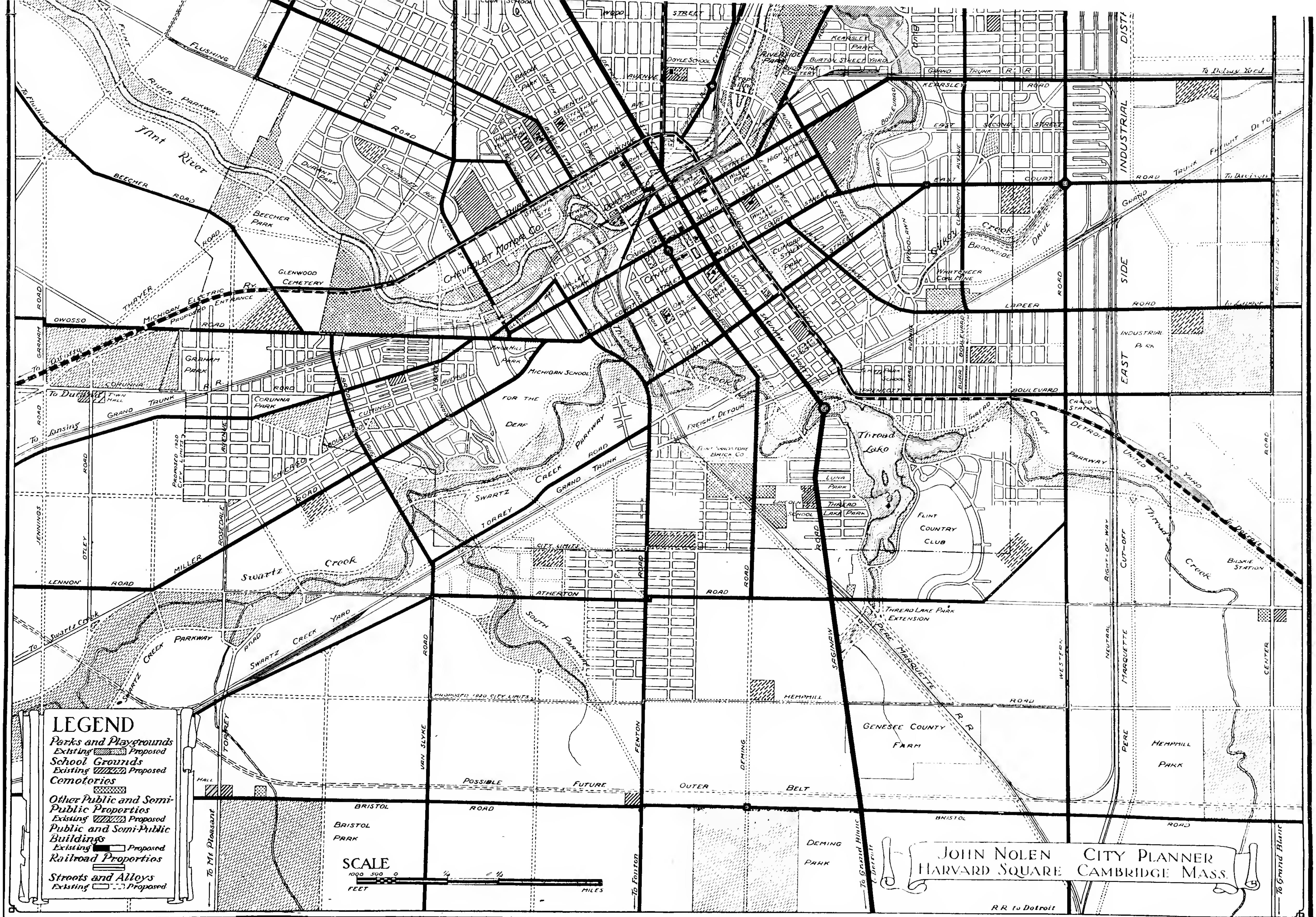
He has received many specific appointments on boards and commissions, notably, the Board of Supervising Engineers, Chicago Traction, of which he is chairman, and which has completely reconstructed the surface lines of Chicago at a cost of well over $100,000,000; the Railway Terminal Commission, Chicago, charged with the proper development of steam railroad facilities within the city; the Chicago Traction and Subway Commission, which commission made an exhaustive study of the combined elevated and surface lines of the city and presented a complete report with recommendations for a unified system of surface, elevated and subways; Board of Advisory Engineers of the Public Belt Railroad, New Orleans, to develop to its maximum possibilities the second port of the United States; now a member of the U. S. Shipping Board Port Facilities Commission, for which body he acted as consultant during the late war.

Of special interest in connection with the Flint plan may be mentioned Colonel Arnold's services as the first independent consulting engineer called to advise as to the feasibility of and to devise a plan for the electrification of the Grand Central Terminal in New York, and as a member of the Electric Traction Commission which carried on the work; also his connection with the electrification of the St. Clair tunnel between Port Huron, Michigan, and Sarnia, Ontario, the plans for which were devised by him, and the work carried out under his supervision; and finally his services in developing final plans and ordinances for the Pennsylvania-St. Paul union station, Chicago, now under construction.

Colonel Arnold is a past president of the American Institute of Electrical Engineers and the Western Society of Engineers; is a member of the American Institute of Consulting Engineers and many other technical organizations.

Just prior to the war he was one of five engineers selected by the national engineering societies of the United States to formulate a plan under which the services of the civilian engineers could be made available to the government in time of war. Out of this grew the Officers' Reserve Corps act. He was appointed by Secretary Daniels member of the Naval Consulting Board of the United States in 1916, served in this capacity, as well as Lt. Colonel in the Air Service of the Army throughout the war and is now a Colonel in the Reserve Corps.


CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1920
ARNOLD TRANSIT PLAN
SUPERIMPOSED ON
GENERAL PLAN
Local lines shown solid.
Interurban lines dotted.
N
COLDWATER ROAD
HORTON ROAD
CARPENTER ROAD
PIERSON ROAD
BRAY ROAD
KELLY ROAD
POTTER ROAD
CARPENTER PARK
PIERSON PARK
LAVELLE PARK
DAYTON PARK
DEVIL'S LAKE PARK
DEWEY WOODS
AVIATION FIELD
NORTH END PARK
GRACELAWN CEMETERY
BUICK MOTOR CO.
WHALEY PARK
BURTON WOODS
HORTON PARK
CIVIC PARK
FLINT PARK BOULEVARD
RUSSELL AVENUE
KEARSLEY CREEK PARKWAY
UPRIVER PARKWAY
RICHFIELD ROAD
BURTON ROAD
DAVISON ROAD
STOCKTON ROAD
HAMILTON AVE.
PARKLAND SCHOOL
W. C. LEWIS SCHOOL
DORT SCHOOL
CITY WATER WORKS
Brent Run Creek
Flint River
Kearsley Creek


LEGEND
Parks and Playgrounds
Existing Proposed
School Grounds
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Cemeteries
Other Public and Semi-Public Properties
Existing Proposed
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Railroad Properties
Streets and Alleys
Existing Proposed
SCALE
FEET
MILES
JOHN NOLEN CITY PLANNER
HARVARD SQUARE CAMBRIDGE MASS.
Flint River
Flint Country Club
Genesee County Farm
Thread Lake
Swartz Creek
Bristol Park
Deming Park
Hemphill Park
Possible Future Outer Belt

PLAN No 100

Letter of Transmittal

June 30, 1919.

To the Mayor and
Members of the City Planning Board,
City of Flint, Michigan.

Gentlemen:

In accordance with the request of Mr. J. D. Dort, Vice-Chairman of your City Planning Board, authorizing me to undertake a study of the transportation requirements of your city, I beg to hand you herewith my report upon the subjects submitted to me for consideration under the terms of the contract between your Board and myself. The essential requirements of this contract as stated therein are indicated by the following excerpt:

"(a) *A study of the steam railway traffic*, terminal, interchange and switching situation, especially with regard to the industries requiring spur track service, also the relative demands for house and team track service and the possibilities of further co-ordinating railroad facilities.

"(b) *Ways and means of securing relief from* the present shortage of shipping facilities in such manner that the solution recommended will be reasonably permanent as far as the track plan is concerned, which plan will make provision for future enlargement of industrial operations with the intention of avoiding the recurrence of the present embarrassments in shipping facilities.

"(c) *A study of the requirements of existing* and probable future interurban lines, utilizing the present lines and developing them where it is practicable to operate them more effectively, both as passenger and freight lines.

"(d) *A plan of development for the existing* local street railway system, in order that, as the city grows, extensions may be made to meet the demands of particular districts as required, in conformity with a comprehensive plan, and not, as is often done, without reference to such a plan.

"(e) *Close co-operation with the City's Consultant* in City Planning in order that recommendations may be worked out which will give the City of Flint an harmonious plan of development, meeting not only present needs, but also serving as a guide for the future."

Broadly speaking, these questions resolve themselves into the development of a general program of transportation improvement for your city, which, together with a closely related program of city planning improvement, might furnish a basis for action from time to time in furthering municipal improvements.

In developing this program I have familiarized myself with the special problems of your city, both by personal inspection on the ground at various times and through the work of my engineering staff in charge of Mr. J. R. Bibbins, my principal assistant on this class of work; and, in accordance with the spirit of the contract, this work has been carried out in co-operation with Mr. John Nolen, your specialist in City Planning, through numerous conferences in Flint, Chicago and the East. Particularly, I have endeavored to make as definite recommendations as possible consistent with the general plan presented, by which you might proceed definitely from time to time with your municipal improvements.

The essential problems involved appear to have sprung from the extraordinary industrial growth of the City of Flint, the consequent difficulty experienced by the railroads in providing additional facilities fast enough to keep up with this growth, particularly during the exceptional period of war time, and the desire on your part to provide intelligently for further industrial growth under conditions which would insure the most convenient surroundings and adequate transportation service. An important step has been taken by your public spirited citizens under the leadership of Mr. Dort, in organizing the proposed "East Side Industrial District," and I am glad to say that no better example of foresight has come to my knowledge than this action of pre-empting the large areas required for such development and carrying the financial burden until the plan could properly eventuate.

The program herein developed embodies the following:

1. Relief of the present railroad main line congestion by the construction of an East Side cut-off and industrial line and the creation of a new railroad service for the North Flint and other industries.

2. The perfection of arrangements whereby these railroad improvements may be instrumental in developing the East Side Industrial District for future city expansion and under conditions whereby the City of Flint may establish an industrially controlled railroad right-of-way open to all comers, forming the nucleus of a future Public Belt Line operating strictly as a neutral agency from which impartial freight service could be secured by all the industries tributary thereto.

3. Re-arrangement of railroad interchange and switching by means of which the interference with normal street traffic in Saginaw St. may be reduced to a minimum or eliminated altogether.

4. Re-arrangement of switching facilities whereby freight classification may largely be carried out beyond the limits of the settled districts of the city.

5. Re-arrangement of electric-interurban routing and service whereby through freight may be handled off the principal city thoroughfares and possibly also through passenger service whenever desirable.

6. Provision of suitable interurban entrances to the City of Flint for other roads and the grouping of both passenger and freight facilities.

7. The adoption of a general City Plan to direct the improvements instituted by the city

authorities from time to time so as to preserve an harmonious development for both civic and transportation needs.

8. Future development of a Public Service Belt Line so as to connect physically the important north, south and east side industrial districts, and secure maximum facilities for industrial freight.

9. Consideration of possible plans for ultimate grade separation and Union Station development in the heart of the city.

10. Proper development of Thread Creek bottoms and related thoroughfares; also the Chevrolet bottoms, south side flats and the Flint River frontage.

11. Consideration of a street railway or Transit Plan to which future extensions might reasonably conform, especially with reference to suitable radial lines and crosstown routes.

Aside from, but related to the matters above enumerated there has arisen also the peculiar problem of charter revision and the specific matters which should properly be included in your proposed charter. Ordinarily a charter is to be construed as purely an enabling act by which the public authorities are to be governed. It is only the machinery by which the city government operates. It seems, therefore, that the statement of principles rather than details should find their proper place in such a charter, and it is upon this assumption that the conclusions presented in this report are based. In other words, the charter, in my judgment, should state civic policies and organization rather than an exact rigid program from which the authorities might not be permitted to depart in some particulars, should eventual developments make it desirable to do so.

An important phase of the work which I have carried out in Flint has been the study of proper entrance facilities for the Flint and Great Lakes Railroad Co., a corporation associated with and to be operated by the Detroit United Railway in connection with its interurban service. A number of conferences have been held, including appearances before the Michigan State Railroad Commission, and a definite alignment for this new railroad entrance, based upon detailed surveys, was approved by me on October 29, 1917, and submitted to the Commission. Owing to conditions beyond our control. this plan was later challenged and the situation re-studied in its entirety, following which a supplemental report, analyzing this problem from its various angles, was submitted to all parties interested under date of August 31, 1918, including the Michigan Railroad Commission. This supplemental report, re-affirming the location formerly recommended, is approved by me and is included in the Appendix hereto.

Subsequently, with the termination of the war, the necessity arose for reviving consideration of the Pere Marquette cut-off and the Flint Belt Line. After a series of conferences with the parties concerned, three Belt Line propositions were developed and submitted for consideration on May 16, 1919, these being designated as Plans X, Y, and Z, respectively, and designed with the object of constituting the Great Lakes Railroad, all roads combined, or, as proposed, the Pere Marquette Railroad, as the agency through which the Belt Line would become a reality. A supplemental contract agreement to be entered into by such agency formed an essential part of each plan and the terms thereof, outlined in his preliminary report, hereto appended, appear to me sufficiently explicit to secure, in fact as well as in principle, the universal neutral switching service contemplated in my report as an important foundation stone upon which the future industrial city should be erected. Quoting:

> "The object has been to secure a fair and equitable working agreement suited to the present desire of the City of Flint for immediate action and still sufficiently flexible so as to enable the Belt Line Plan to be expanded gradually into the broad, modern conception of City Terminal Service, under economic conditions so stable as to render it a matter of complete indifference whether the terminal property is financed and operated by one or more railroads, by the City of Flint, or by the industries."

In the present state of development, I feel confident that if the operating agency (most logically, the Pere Marquette Railroad), will accept and carry out in good faith the broad principles laid down in the Belt Line Plan, the rapid and harmonious development of the industrial city will be assured as far as the transportation service is concerned.

Further tentative recommendations on Charter Amendments with respect to the City and Transit Plan were submitted and approved, and will be found in the Appendix.

In conclusion, I desire to express my appreciation of your consideration and deference in accepting the interference and delays due to war service directly or indirectly, and also to acknowledge the co-operation and assistance which have been most willingly rendered by the members of your Board, the City authorities, particularly Mr. Ezra C. Shoecraft and his engineering staff, the various public spirited men connected with the industries of Flint, and officials of the several railroads. While certain valuable railroad and industrial data requested did not materialize, enough has been obtained to warrant the conclusions presented in this report, and I take pleasure in saying in conclusion, that the active spirit and interest evidenced by many citizens of your City seems to me to promise unusually favorable development in the future.

Respectfully submitted,

BION J. ARNOLD.

Summary of Conclusions and Recommendations

Taking into consideration all of the facts and studies developed herein from this transportation survey of the Flint District, the following conclusions and recommendations are made:

1. The extraordinary recent industrial growth of Flint makes it necessary to depend to an unusual extent upon judgment and foresight rather than upon precedent, in providing for the future, as well as for the present city's needs. This is illustrated by the fact that population, factory employees and school attendance have *doubled* in less than six years; the assessed land valuation, upon which the bonding power of the city is usually based, has doubled in seven years; bank clearings in less than two years; and railroad business in Flint in about 2.5 years, the recent rapid growth having taken place since 1910, chiefly as a result of the expansion in the automobile industry.

2. But extension of local railroad facilities has not kept pace with the city's industrial growth, although such improvements as have been made would have been able to relieve the situation had not the shortage in rolling stock suitable for automobile carriage become so acute throughout the country. The problem of rolling stock appears to be a major problem. Hence a satisfactory solution becomes to a large degree a problem of national as well as of local importance, which can only be solved by (1) building a large amount of additional rolling stock; (2) giving Flint industries access to their pro rata share of automobile equipment of other roads; (3) devising means for using outbound empty cars of standard design for loading automobiles, as attempted before the Railroad Administration order prohibiting the use of empty flats and hopper-bottom cars for this purpose. Shortage of heavy railroad motive power, especially during the winter months, is also a part of the problem.

3. In view of the above conditions, it is believed that the City of Flint should encourage the entrance of other roads, such as the Michigan Central (New York Central lines), via the proposed Detroit United Railway and Great Lakes Railroad entrance, as detailed herein.

4. The valuable service rendered by the electric interurbans in Flint, during the so-called "transition period" of transportation development indicates that the possibilities of these interurbans have not been developed to their fullest extent for express and fast freight, as well as for passenger service, and also as connecting links for facilitating the entry of other steam roads, in order to conserve as far as possible the total railroad mileage and investment required for the service of the community.

5. The City of Flint should establish and clothe with proper authority some skilled official body to consider, plan and initiate continuous transportation development, both steam and electric, within the City and for several miles outside *(a) commensurate with its economic growth, so as to encourage new railroad connections, new industrial districts, centralized passenger and freight station facilities and a unified control by the City of railroad car service, switching and interchange, along lines of strict neutrality, removing inequitable economic barriers to competitive railroad development and securing the fullest co-ordination of Transportation and City Plans.

6. It is deemed desirable for the City to work progressively toward the Public Service Belt Line Plan of Terminal service even though the time may not yet be opportune for placing actual terminal operations under direct public control.

7. The underlying principles of this service should be strict neutrality of switching and car service and a reasonable cost-of-service-plus-profit basis of charges, with separate accounting

8. The Pere Marquette at present appears to be logically the nucleus of such Belt Line operations and may well be given the option to become the principal switching agency in Flint under the Belt Line Plan proposed herein, provided the essential conditions of such service are agreed to.

9. Existing railroads are confronted with the alternative of track elevation over Saginaw St., or the provision of more terminal yard and freight by-pass facilities. The Pere Marquette cut-off is considered an immediate necessity and may be established at minimum expense as a part of the Belt Line Plan, which offers the only real alternative to immediate track elevation.

10. Certain local grade separation problems require early solution independent of eventual track elevation. Such as Second St., Avon St., West Court St., Fenton Road, Stewart Ave., and possibly South Saginaw St.

11. The extension of industrial areas is one of the first desirable steps for the future City Plan, and the so-called East Side Industrial

*Present charter specifies ten miles.

District is believed to be the most advantageous site, offering great possibilities of development both for present and future from the standpoint of railroad service, housing and prevailing winds.

12. Thread Creek Bottoms should be developed more extensively for use for freight and warehouses, terminal yards for fuel and construction materials and for team tracks. The City should discourage housing in this area.

13. The Grand Trunk East Side yard along Burton St., is, unfortunately, located too near the settled districts for either present or future use as a local classification yard. The investment, however, could well be conserved by allowing the railroad to use this yard for a few years, under definite restrictions, purely as a holding yard supplementing the main yard at Belsay. Under such restrictions, the switching nuisance could be reduced to a minimum. However, grade separation for Kearsley St., should be provided, as described herein.

14. Until such time as other improved interchange connections are available, the interchange switching operations should be so scheduled by the railroads as to fall outside of business hours, especially morning and evening rush hours. This is desirable to avoid the interference with Saginaw St. traffic, which cannot be avoided with the present interchange.

15. In general, local switching and classification yards, engine terminals and other railroad facilities, the operation of which tends to depreciate surrounding property, especially when new facilities are contemplated within the settled district, should be receded to points beyond the settled districts. This is eminently a matter of City Planning.

16. Combined Union Station facilities should be incorporated in any future program of the City Plan, together with railroad and street grade separation through the center of the city. The engineering studies presented herein indicate that the existing Grand Trunk site can probably be developed most effectively for this purpose.

17. The unfortunate location of the Chevrolet group of industries in a depression or pocket, requires a new freight outlet, either across Thread Creek Bottoms, as indicated herein, or by a new approach from the rear. The restrictions of this site appear to offer no reasonable alternative.

18. The private right-of-way entrance originally acquired by the Detroit United Railway and the terminal lands in Gilkey Creek Bottoms should be abandoned for railroad purposes and turned back as city area for park, street or housing purposes.

19. Detroit United Railway should be given a right-of-user or franchise along Western Road and suitable connections thereto from Crago, and from Stewart Avenue (new bridge crossing), or other North Flint crossing, as may be later determined upon.

20. Both the City and the Detroit United Railway should have the option to join with the Pere Marquette in the construction of the Pere Marquette bridge, in order that joint facilities for railroad, electric railway and highway may be secured at minimum expense, in case the City desires to develop a highway crossing at this point.

21. The Detroit United Railway should be adequately compensated for the investment which it has already made in good faith and sustained to provide additional freight facilities for Flint, in accordance with the expressed desires and suggestions of the authorities and industries concerned.

22. The provision of a Union Station and opening of through streets across the river, suggests the beginning of a plan for removing the heavy through interurban service from the congested city streets, which eventually will become imperative, at least for freight.

23. The street railway or Transit Plan should be developed along the principal main thoroughfares and through the center of the city on the general plan of *through-routes*, some of which are now in operation. Ultimately, crosstown routes will also be required to provide the shortest riding between outlying sections adjacent to each other, and especially to the factory districts. It is quite probable that auto-motor service could be advantageously operated on certain outlying routes, particularly to "try out" the best route and to avoid expensive street railway construction, before the necessity therefor becomes clear.

24. The Michigan Railway Company should be encouraged to build a new entrance into the city from Owosso via West Third Ave., or private right-of-way, so as to provide a connecting link for electric service through Flint to the West. This connection would also relieve the Chevrolet situation, as stated in paragraph 17.

25. The excessive demands of rush hour service over mid-day or non-rush service in Flint suggests that every effort be made to develop aids to local transportation, such as the overlap or staggered hours of working, special pre-pay

car loading berths for large factories, and the establishment of restrictions which will make the jitney a dependable part of the service, rather than an irresponsible competitor for the lucrative short-haul business. The local fare and service problem should be worked out on the cost-of-service-plus-profit plan, which alone can secure the proper economic balance.

26. Finally, the City Plan should be conserved and developed in perfecting parallel streets supplementing Saginaw St., to accommodate part of the car and vehicle traffic, also the construction of new bridges across the River to avoid long detour riding and resulting needless congestion of the central district by crosstown passengers. These and various other minor City Plan improvements noted herein are strongly recommended for immediate consideration, so that they may be executed or put under reservation before the opportunity disappears through rise in value of property required or by the building of permanent obstructions, as has already occurred at the intersections of Asylum St., Kearsley and Glenwood Ave.

SUMMARIZING, this Report recommends especially:

1. The Pere Marquette Cut-off.
2. The Flint Belt Line.
3. The East Side Industrial District.
4. Perfection of the City Plan.
5. Development of Thread Creek Bottoms.
6. Second Street Viaduct.
7. Michigan Railway Entrance.
8. Union Electric Depot Terminal.
9. Basic Transit Plan Reservations.
10. Ultimate Steam Union Station and elevation.
11. Board or Commission with power to act.

REPORT AS SUBMITTED INCLUDES THE FOLLOWING:

Railroad Track Development

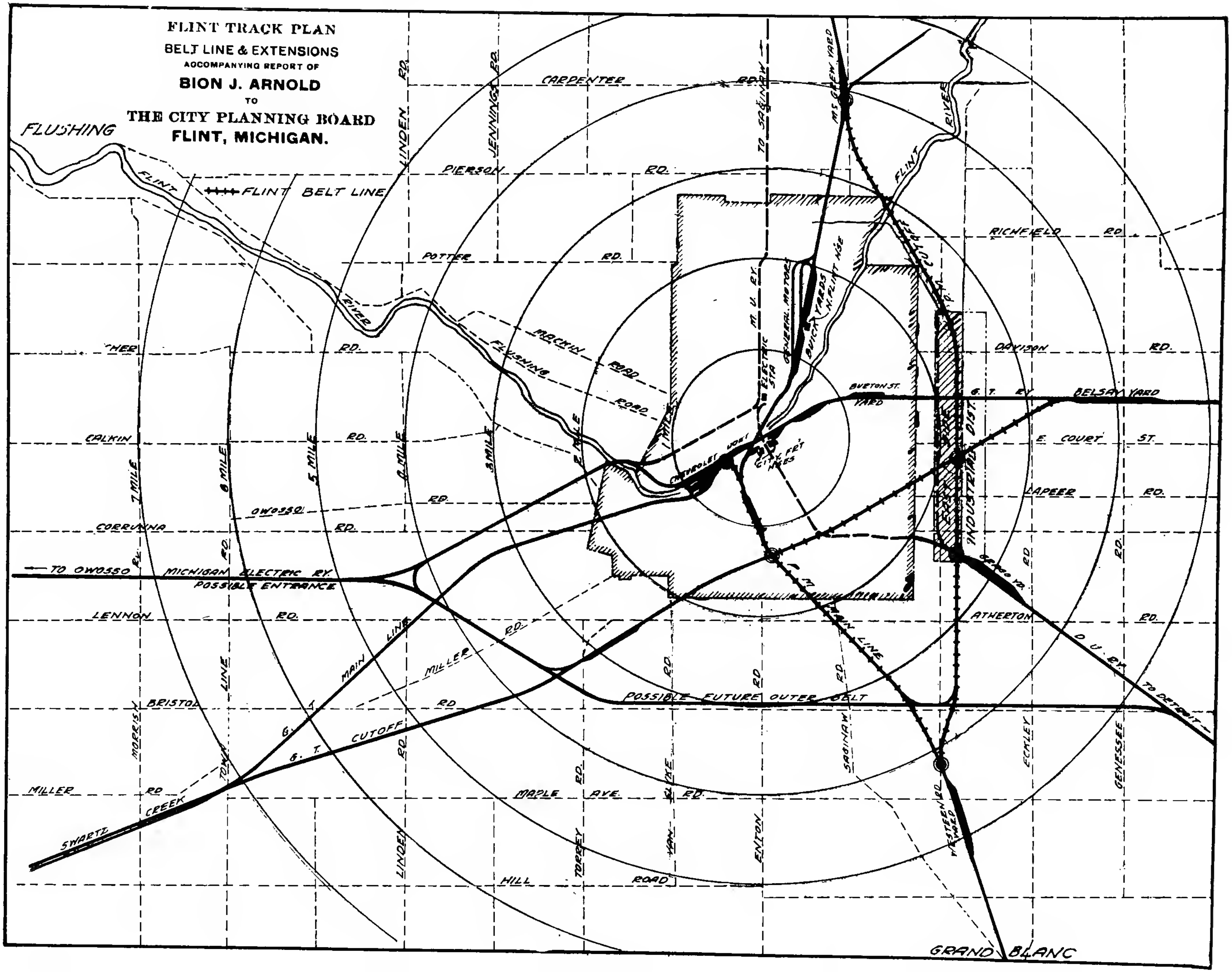
This diagram shows in a simplified manner the relation of the railroad main lines through Flint, the function of the Grand Trunk cut-off and the proposed Pere Marquette cut-off in by-passing freight around instead of carrying it through the center of the city, and the full possibilities of ultimate development. When the Grand Trunk cut-off was built, it was thought far enough outside of the city, but it is now well within the city. The proposed Pere Marquette cut-off is located about twice as far from the business center, in a right-of-way extending through the proposed East Side Industrial District, which may be served by all railroads, including the Flint and Great Lakes Railroad, operating over the Detroit United Railway lines to Oxford and there connecting with the Michigan Central. This east side location takes advantage of the prevailing winds to keep the city reasonably free from smoke, dust and gases from the factories to be located there.

In dotted lines are indicated the electric interurban roads, which serve Flint so effectively at the present time. A much needed and very effective additional service would be that of the Michigan Electric Railway extension west of Flint to Owosso for both passenger service and for freight connection with the Ann Arbor, Grand Trunk and Pere Marquette Railroads at Owosso, and with its own electric lines to Lansing, Jackson and western points. This connection could also relieve the Chevrolet industries in the same manner as the Detroit United connection at Crago would relieve the east side industries.

The plan of the proposed Flint Belt Line, of which the Pere Marquette cut-off represents the first element, is indicated by code. Later it is hoped the railroads will agree to co-operate and extend the Belt Line service so as to give the Chevrolet industries a southern outlet to avoid switching across the city; i. e. by the Chevrolet cut-off in Thread Creek Bottoms, and ultimately, an Outer Belt connection may be desirable, thus completing the belt system from McGrew to Crago, Grand Blanc and the west side junction.

This diagram covers all the principal railroad operations devoted to Flint business, the McGrew, Belsay, Crago and West Side yards being the principal points where road trains would be made up from city freight hauled out from the city yards and industries, freight houses and team tracks. Thus all the principal freight classification and switching therefor may be done outside of the residential and business district, leaving the downtown facilities only for city freight.

The entire northwest section of the city under this plan should remain for residential development, which is one of the most fortunate features of the railroad plan.


FLINT TRACK PLAN
BELT LINE & EXTENSIONS
ACCOMPANYING REPORT OF
BION J. ARNOLD
TO
THE CITY PLANNING BOARD
FLINT, MICHIGAN.
FLINT BELT LINE
FLUSHING
FLINT RIVER
GRAND BLANC
TO OWOSSO
TO SAGINAW
TO DETROIT
MICHIGAN ELECTRIC RY.
POSSIBLE ENTRANCE
POSSIBLE FUTURE OUTER BELT
P. M. MAIN LINE
G. T. MAIN LINE
G. T. CUTOFF
G. T. RY.
D. U. RY.
M. U. RY.
P. M. CUTOFF
INDUSTRIAL DIST.
BELSAY YARD
BUICK YARDS
GENERAL MOTORS
ELECTRIC STA
MS GREW YARD
WESTEND YARD
CARPENTER RD.
PIERSON RD.
POTTER RD.
RICHFIELD RD.
DAVISON RD.
E. COURT ST.
LAPEER RD.
ATHERTON RD.
CALKIN RD.
CORRUNNA RD.
OWOSSO RD.
LENNON RD.
MILLER RD.
BRISTOL RD.
MAPLE AVE.
HILL ROAD
LINDEN RD.
JENNINGS RD.
TORREY RD.
ENTON RD.
SAGINAW RD.
ECKLEY RD.
GENESSEE RD.
MACKIN ROAD
FLUSHING ROAD
1 MILE
2 MILE
3 MILE
4 MILE
5 MILE
6 MILE
7 MILE
SWARTZ CREEK

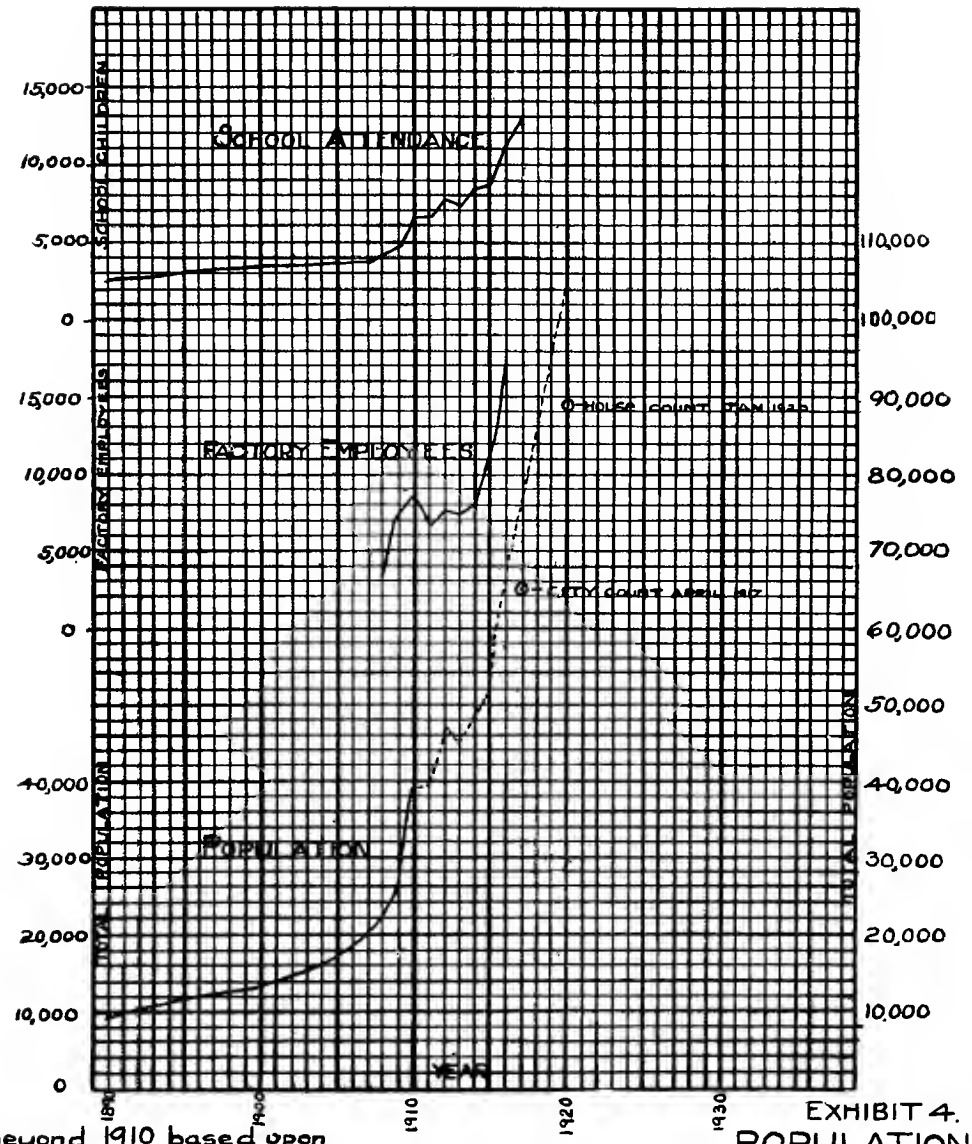
Indices of Growth of City and Forecast

Exhibit IV.

Starting in 1890 with approximately 10,000 people, the growth of Flint as measured by the United States census and school returns and forecast for the future, is indicated by the lower curve. A forecast of population increase may be based upon various factors, but on none so surely as on the school attendance. In 1890, the population was found to be 3.6 times the school attendance, in 1900 4.1 times, and in 1910 5.8 times. Since 1910 the school attendance has continued to increase, as indicated by the upper curve, so named. The increasing proportion of adults to children clearly reflects the great expansion of industrial life, but evidently a limit can be reached, or the city would otherwise become disproportionately full of male workers, consequently the estimated population since 1910 is based upon a maximum ratio of 6.0 inhabitants for each child attending school.

This basis indicates at the present time a population of approximately 100,000 persons has been reached in Flint, and, if continued to 1925, a population of 140,000 would have to be provided for. The most definite forecast of the immediate future of Flint that may be made is, that within a comparatively few years, from 100,000 to 140,000 people may be anticipated.

Another indication of the rapid trend of increase in population will be found in the curve of factory employees, showing an increase in the average yearly number of employees from about 3,000 in 1908 to 17,000 in 1916. It is to this curve of population that housing activities must be directed.



Forecast beyond 1910 based upon maximum school ratio of 6.

EXHIBIT 4.

POPULATION

FLINT MICHIGAN

ACCOMPANYING REPORT OF

BION J. ARNOLD

TO

THE CITY PLANNING BOARD

Railroad and Vehicle Traffic at Saginaw Street

Exhibit VI.

Actual observation of the intersecting steam railroad and street traffic at the two downtown railroad crossings in Saginaw St. disclosed striking results. The diagram indicates not only the frequency of passenger trains and freight trains, but also the length of the trains and the number of switching engine movements for each railroad. Thus there were 47 train movements across Saginaw street in 10 hours (6 a. m. to 5 P. M.) with 502 cars total. One-third of the movement was over the Grand Trunk tracks, two-thirds over Pere Marquette tracks. Pere Marquette trains as long as 35 to 55 cars moved over the junction, the average length of trains being about 20 cars, against an average of about 10 cars on the Grand Trunk. Most of the switching engine movements were on Pere Marquette tracks. This train movement appeared to be fairly well distributed throughout the day.

Crossing this train traffic, were counted from about 400 vehicles per hour (6 to 7 A. M.) to about 1100 per hour for the busy hours of noon and evening. The counts varied considerably, but showed about 900 automobiles, 100 horse-drawn vehicles, 75 street cars during rush hours. Traffic delays recorded by the Detroit United Railway showed from 340 to 430 car-minutes in total outage per month (only delays exceeding five minutes being reported) averaging from 7 to 10 minutes per car during four months observation. Occasionally the crossings are held from 15 to 20 minutes even during rush hour.

It is obvious that any thoroughfare handling 1,000 vehicles per hour with an intersecting train movement of 5 trains per hour, calls for a prompt remedy, especially in view of the rapid growth of the city.

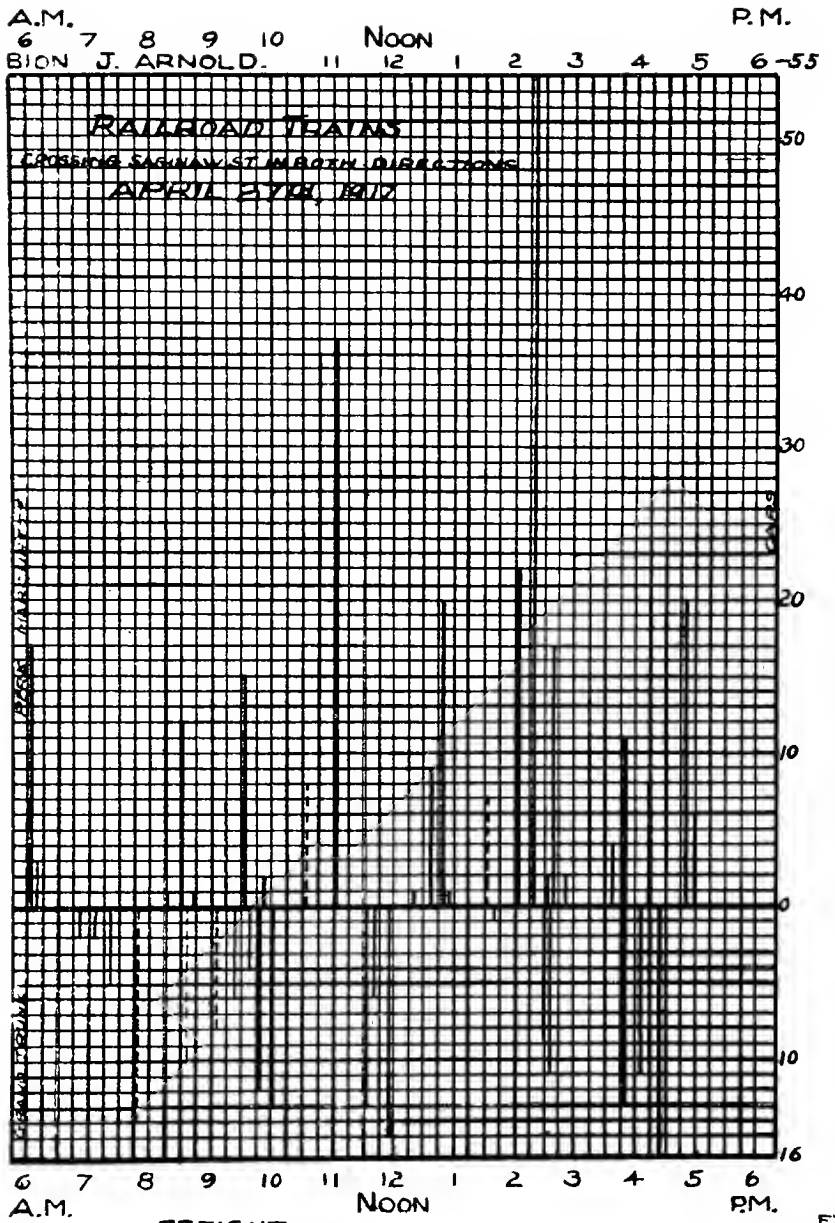
Note: In 1916 a traffic survey showed more than a thousand vehicles per hour crossing the railroad tracks on Saginaw street during the rush periods at noon and evening. Day after day the count showed upwards of 900 automobiles, 100 horse drawn vehicles and 75 street cars in each of its rush hours. The lighest hour of the day—between 6 and 7 A. M. upwards of 400 vehicles of all kinds crossed the tracks. The traffic reached its peak from 12 M. to 1 P. M. with 1,100 vehicles.

Recent counts for 1919 indicate a 40 per cent. increase in the above figures.

Traffic counts in November, 1919, at the corner of Avon St. and the Richfield Road (Grand Trunk Main Line crossing) show an average of slightly more than 275 vehicles per hour for ten days, including two Sundays, when traffic at that point is cut down more than half. The highest noon hour peak reported is 412. No traffic was delayed there more than five minutes.

At Hamilton Avenue a count in November, 1919, showed an average of 162 vehicles per hour for 94 hours crossing the Pere Marquette, with noon day peak of about 225.

West Kearsley street crossing showed 169 per hour average for 65 hours.



FREIGHT
PASSENGER -----

TOTALS – 6 A.M. TO 5 P.M.

PERE MARQUETTE – 3 PASS., 22 CARS; 23 FRT., 304 CARS.

GRAND TRUNK – 4 PASS., 38 CARS; 17 FRT., 138 CARS.

EXHIBIT No. 6

TRAIN TRAFFIC
ACROSS SAGINAW ST
FLINT MICHIGAN

ACCOMPANYING REPORT OF
BION J. ARNOLD.
TO

THE CITY PLANNING BOARD

Condensed Profile of Grand Trunk Main Line

Exhibit XVI.

Railroad grades are difficult to measure by the naked eye. This profile, which is exaggerated in the vertical scale, shows how Flint developed outwardly in both directions from the original settlement in the valley. The Grand Trunk main line descends from a level plateau on the east (elevation 760) to the bottom of the valley (elevation 712) then ascends to the western plateau (elevation 780). The controlling grades on the east are at Gilkey Creek 0.92% and Stevens St., 1.0%; on the west at Kearsley St., 1.33%, this grade being on a curve.

The short level stretch west of Gilkey Creek along Burton St. illustrates the reason for the desire of the Grand Trunk to locate a local holding yard there, as the only other reasonable location is clearly west of the new East Side Industrial District, i. e., at Belsay.

On the profile, is indicated the minimum track elevation required for development of the Union Station downtown. To extend this elevation entirely across the valley, so as to eliminate the steep western grade, more than twice the construction work here shown would be necessary. For a more extensive plan of track elevation, the approach shown here would preferably be carried further east, in order to secure a much needed grade separation at Avon St. and Richfield Road. But owing to the rising railroad grade, it would probably be necessary to depress the street grade at this point considerably.

This profile indicates very clearly the necessity of the Grand Trunk low grade cut-off for through freight and the foresight of the railroad in building its cut-off years ago.

Condensed Profile of Pere Marquette Main Line

Exhibit XVII

This profile illustrates, for the Pere Marquette, the same general features as the preceding one for the Grand Trunk. Here the Pere Marquette also drops down into the valley from McGrew Yard, with a comparatively easy grade, to the same bottom level (elevation 712); thence rises by a long 0.5 grade to the southeastern summit around Grand Blanc. Because of this rise, the Court St. viaduct line is somewhat higher than would be necessary at Second St. Similarly, the proposed Fenton Road grade separation will have to rise still higher (probably above elevation 745).

The *minimum* track elevation through the center of the city which is necessary for a Union Station project, is generally indicated on the profile, this elevation being shown along the present main line from Fourth Ave. on the north to Second St. on the south. The sharp break in grade at about Avon St. naturally suggests the point of beginning the track elevation, but a more extended program of track elevation should encourage the provision of some form of grade separation at Avon St. which could be brought about by the slight diversion of the Avon St. under crossing. An extension of track elevation on the south end, however, will probably be unfeasible, by reason of the necessity of a viaduct in Second street, for if the south approach incline were carried as far south as the Court St. viaduct, it would probably be found impracticable to build the viaduct in Second St., and the team yard development on the ground level would then render a surface street quite ineffective.

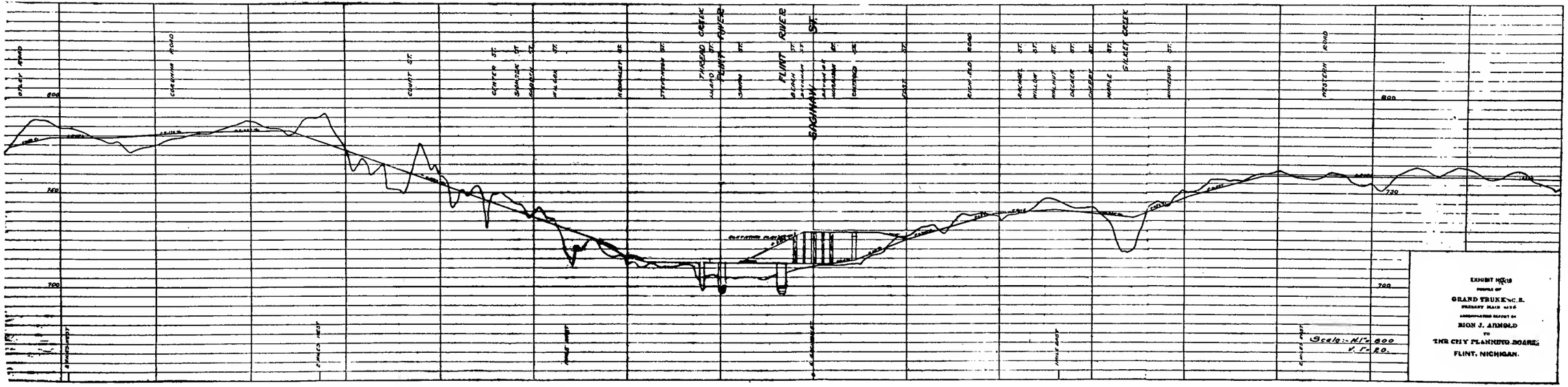


Exhibit XVI—Condensed Profile of Grand Trunk Main Line

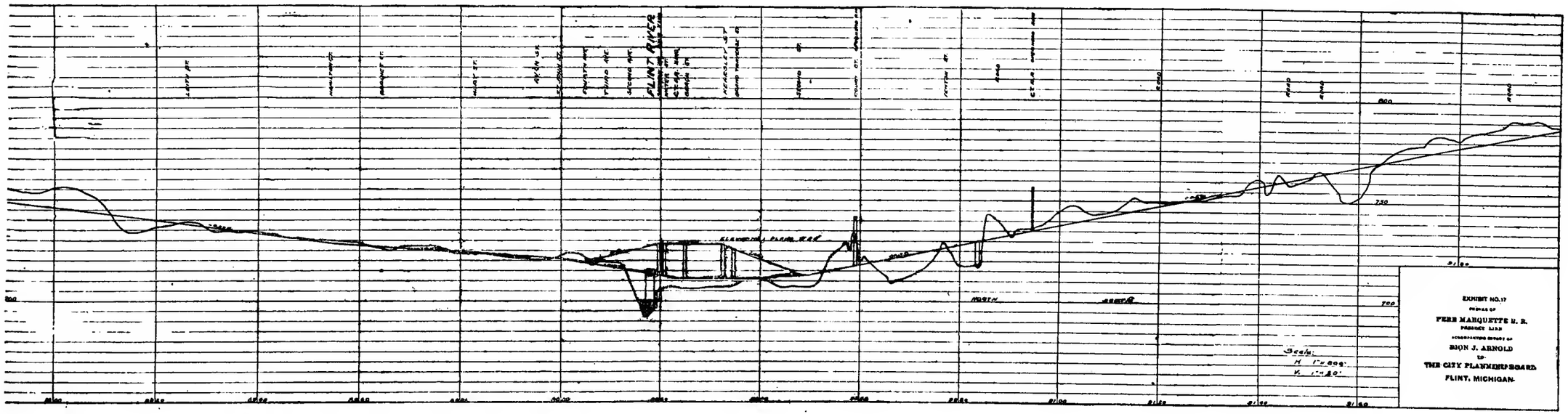
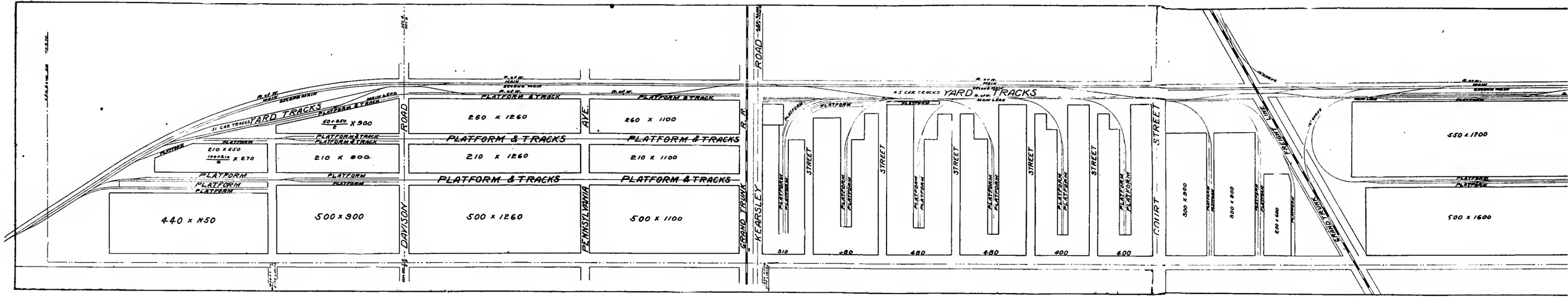
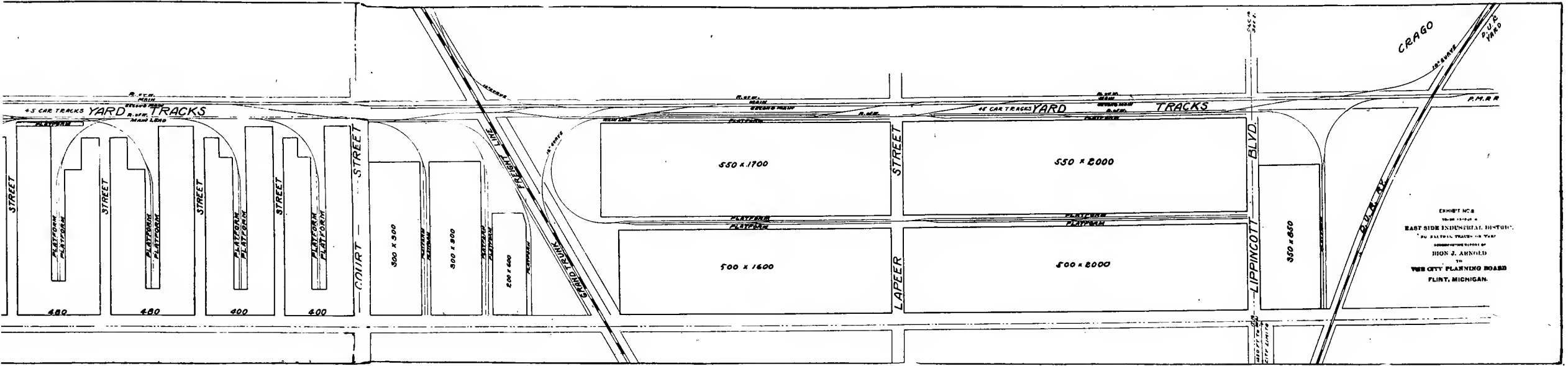


Exhibit XVII—Condensed Profile of Pere Marquette Main Line

TYPICAL TRACK LAYOUT---EAST SIDE INDUSTRIAL DISTRICT



. TRACK LAYOUT---EAST SIDE INDUSTRIAL DISTRICT



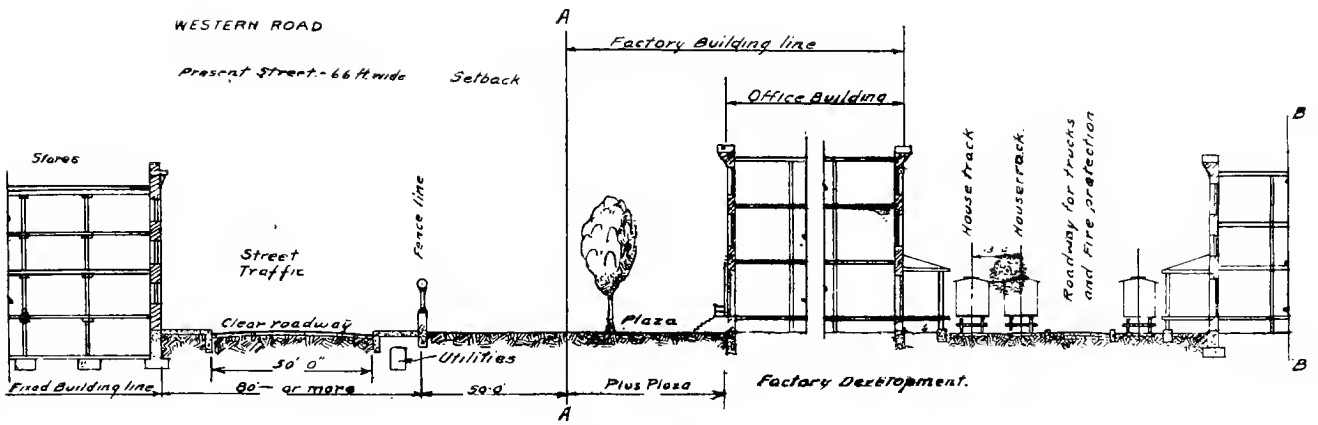
Typical Factory Development, East Side Industrial District

Exhibit XI.

Western Road is today too narrow for the principal future thoroughfare on the East Side, and should be widened to 80 feet or more, the west side being developed for stores, garages and other business establishments. On the east side, the factory buildings ought to be set back at least 50 feet, and office and administration buildings still further, to provide an attractive entrance or plaza. Between the factory buildings would run the platform service tracks and preferably a roadway for trucks and fire apparatus. In the rear of the factory development would be the yard tracks and switching-leads connecting at suitable points with the Belt Line tracks within the 100 feet right of-way reserved to the Pere Marquette for this purpose.

The development west of the Belt Line should be planned for *now* in order to prevent the possibility of starting unsuitable housing, which would later be required for factory purposes.

It is of course impossible to anticipate whether factories will develop *along* Western Road and the Belt Line, or at right angles thereto. If of the latter type, the factory spur tracks would of course curve into the industrial property at right angles to the direction herein indicated. Either type is feasible. Note that no railroad will have exclusive right of development of this district, as freight service will be available not only from the Pere Marquette, but also from the Grand Trunk and the Michigan Central (via Great Lakes connection to Oxford.)



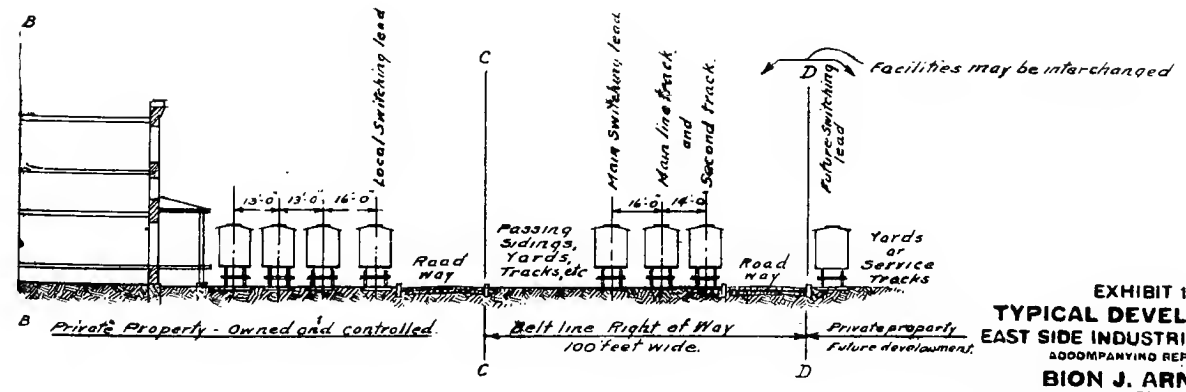


EXHIBIT 11

TYPICAL DEVELOPMENT

EAST SIDE INDUSTRIAL DISTRICT

ACCOMPANYING REPORT OF

BION J. ARNOLD

TO

THE CITY PLANNING BOARD, FLINT, MICHIGAN.

Chevrolet Cut-off—Grand Trunk-Pere Marquette Inter-change

Exhibit XII.

The Chevrolet industries unfortunately are in a pocket to which there are only two means of access other than the present Grand Trunk main line. The first is from the west along the Chevrolet bottom lands and the other is from the south as indicated in this plan and profile. Connecting with the Pere Marquette main line beneath the Court St. viaduct, a track could be built across Thread Creek Bottoms and curving westerly into the industrial tracks of the Chevrolet works, which cross the Flint River farther west. This Chevrolet cut-off, if operated in connection with the Belt Line (first plan referred to) adds the final link to the ultimate Flint Belt line advocated herein. It would provide a simple means of inter-change between the three industrial districts without passing through the business district and would also eliminate from the Saginaw street crossing all in and out through freight from the Chevrolet District, as this would find a simpler entrance and exit via Pere Marquette, Grand Trunk or Belt Line.

While the line must necessarily cross Kearsley street, local switching would not be done on these tracks, as suitable holding tracks are available on Chevrolet property and the Belt Line plan contemplates the use of the Pere Marquette yard between Court street and Fenton Road.

To complete the Belt, a curve connection would be built in the south corner of the Pere Marquette-Grand Trunk crossing South Flint, over which Belt Line traffic would move. The advantage of this cut-off and how well it works into the railroad plan for Thread Creek Bottoms is indicated on the next exhibit, No. 14B.

Industrial Development of Thread Creek Bottoms

Exhibit XIV. B

Flint will need more freight yard and warehouse capacity for accommodating rough construction materials, such as coal, oil, lumber, cement, etc., and for local business ordinarily done on team tracks. Thread Creek Bottoms offers an unusually good location for such uses and housing therein should be discontinued.

In the Transit Plan presented herein, Kearsley street, through this district, is reserved entirely for vehicles and Second street, which is a far better connecting business street, is to be elevated between Ann Arbor and McCreery streets by viaduct across the Pere Marquette main line and all proposed yard tracks.

The plan shows an adaption of the present warehouse arrangement, capable of handling 130 cars on team tracks alone in addition to the warehouse tracks. A double end team yard is possible by developing both the lower as well as the upper levels of Second street, using the railroad "air-rights"* for the latter. Incidentally, the Thread Creek channel could well be changed from its present location, thereby greatly increasing the capacity of the district for yard purposes and at the same time reducing the difficulties of flooding.

The proposed Chevrolet cut-off alongside Hall street works well into the general plan and the ultimate elevation of the Pere Marquette main line, downtown, does not interfere in any respect. Also with this plan, the present Pere Marquette team tracks along Beach street, which are altogether too near this business district, may be set back into the Thread Creek Bottoms to very good advantage.

* Meaning right-of-usage above existing facilities on ground level.

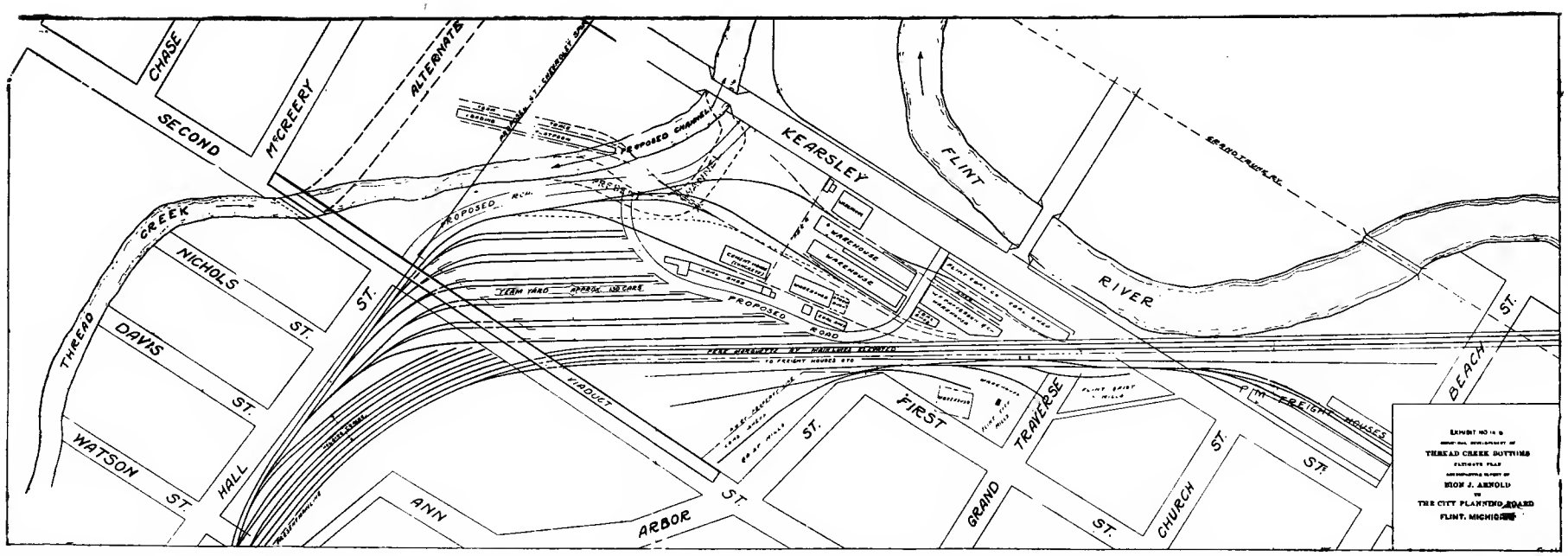


Exhibit XIV-B—Industrial development of Thread Creek bottoms

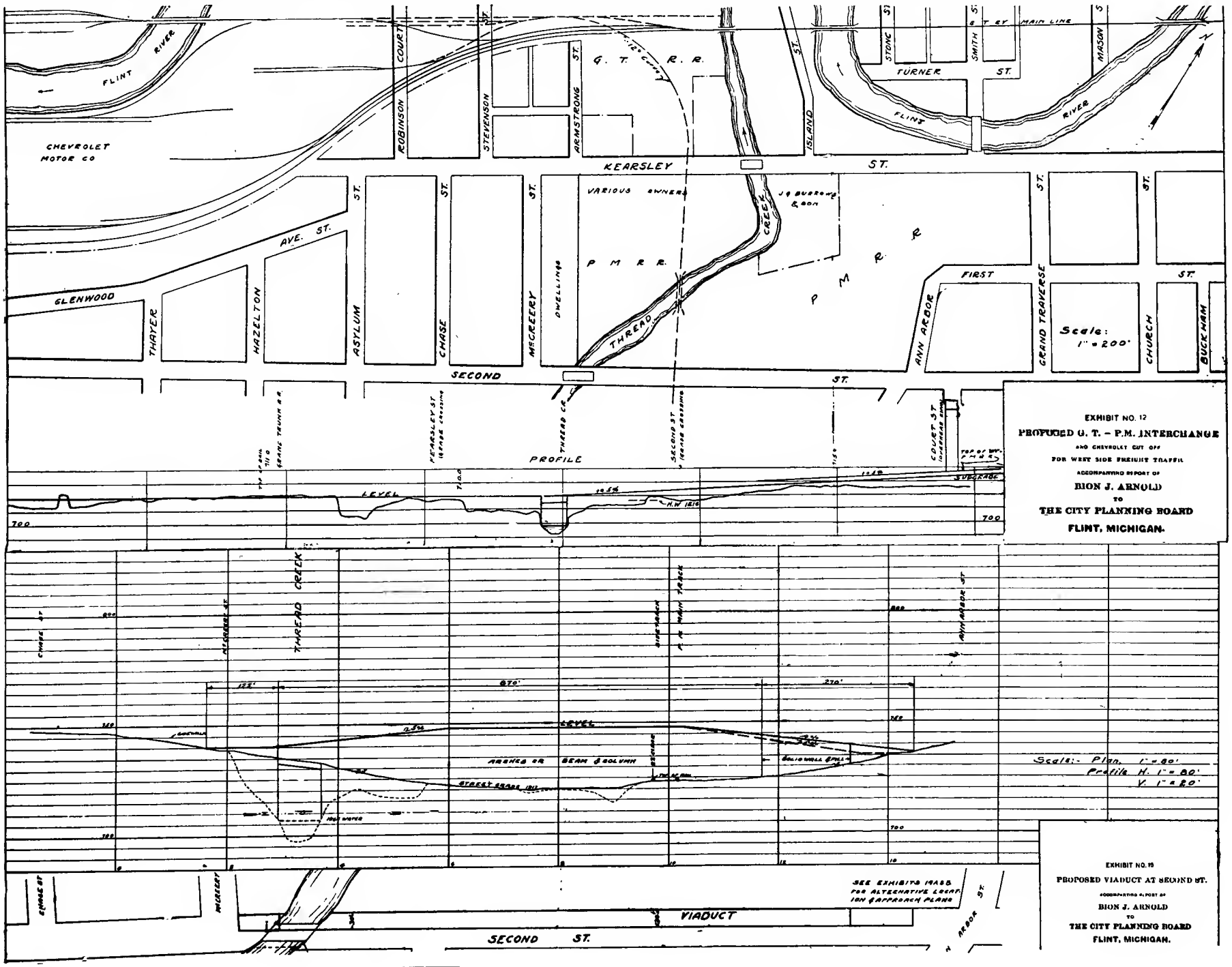


Exhibit XII—Proposed Grand Trunk and Pere Marquette Interchange—Chevrolet Cut-off

Exhibit XV—Proposed Viaduct at West Second Street

Second Street Viaduct and Grade Separation

Exhibit XV.

The logic of the provision of a viaduct crossing over Thread Creek Bottoms in Second street is illustrated by this profile. Second street like Court street, connects the general high level of the business district with the high ground west of Thread Creek, which is the apex of a great stretch of excellent habitable territory running westerly between Miller Road and Beecher street.

Only three thoroughfares are available for east-west traffic, viz., Kearsley, Second and Court streets. As previously noted, West Kearsley street should be reserved for vehicle traffic exclusively, leaving only Second and Court streets for car-line traffic. Both should be high level connecting thoroughfares, and with Second street extended west to Court street (where now obstructed at Fox street), these two thoroughfares should furnish ample accessibility to the Southwest district.

The Union Station and track elevation plans presented herein all provide for the Pere Marquette elevation through the city, descending to present grade at Second street. Consequently, Second street viaduct will be practically on the same level as the Court street viaduct, with full 22 feet clearance to the railroad track. On the west, the viaduct approach should be carried to McCreery street, on the east, to Ann Arbor street, thus giving easy approach grades.

It will undoubtedly be found desirable to keep open the lower level of Second street for giving access to the double-end freight yard previously described.

It is probable, therefore, that an easement over railroad property could be secured on very reasonable terms, thus developing both the street rights and the "air-rights" in this important thoroughfare.

Track Plan of Proposed Union Station

Exhibit C--XXI.

After a detailed study of various sites which might be considered feasible for a Union Station, and the problems involved in finding suitable approaches and traffic grades to the station level, the present Grand Trunk site, with adjacent land, is recommended for ultimate development. The exhibit indicates in a general way the *minimum* limits of elevation, which would be necessary to carry out the project at all. Of course more extended track elevation would be desirable from the city's viewpoint, which question should be settled at the time the Union Station elevation is actively undertaken.

In this plan C, the Pere Marquette is diverted from its St. John street right-of-way near Avon street, carried over the river on ascending grade and joined to the Grand Trunk main line at the station level. Across Saginaw street, the station tracks would be reduced as far as possible and at Beach street the two railroad lines would diverge, the Pere Marquette coming to grade at Second street and the Grand Trunk at Smith street or across the Flint river. All streets from Clifford on the north to Kearsley on the south would pass underneath the elevation structure with sufficient clearance for loaded vehicles and for car-lines where necessary.

This station location is unique in its accessibility to the business district, and yet, being "tucked away" along the river, it offers no obstruction whatever to proper business development. The valuable frontage on Saginaw street would be retained, and the station headhouse developed at about Harrison street facing an enlarged plaza, largely upon railroad owned land. The river frontage would also be developed in connection with the station.

Clifford street passing underneath and across the river, would provide an efficient through car-line service street, with Harrison street affording an opportunity for vehicle approach to the station building. With car lines in Saginaw and Clifford streets and Harrison street thus reserved for motor vehicles, it is believed that no station site could be selected having greater natural conveniences to the traveling public.

To carry out these plans, the Grand Trunk freight house and team yard would have to be set back, at least to Clifford, with the office building facing thereon. The team tracks should be receded still further, preferably to land along the Michigan Light Company's tract next to the railroad, now occupied by coal piles. In fact, it is probable that considerable team track capacity could be developed at the junction of these two elevated lines, thus utilizing otherwise waste land for this useful purpose.

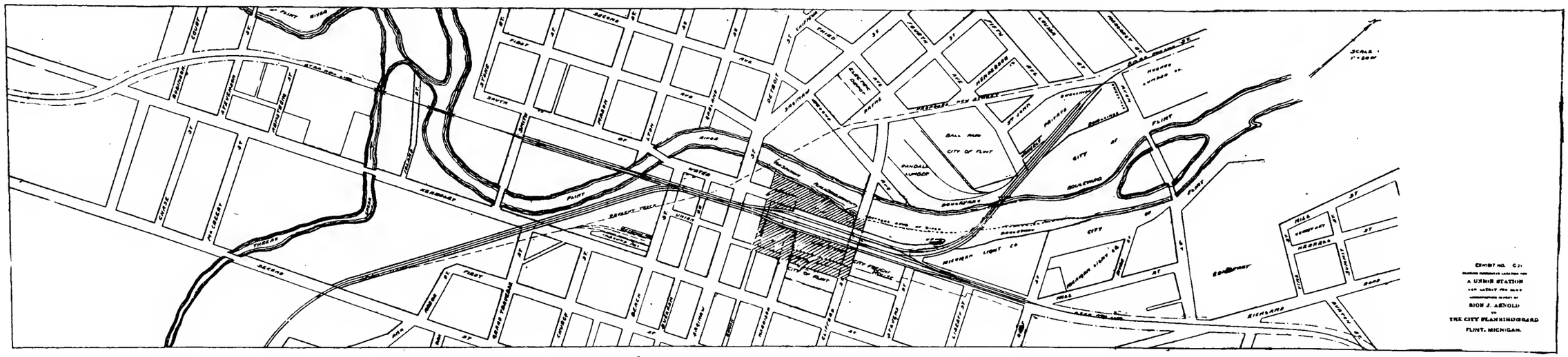


Exhibit C-XXI—Showing suggested location for Union Station and track layout for same

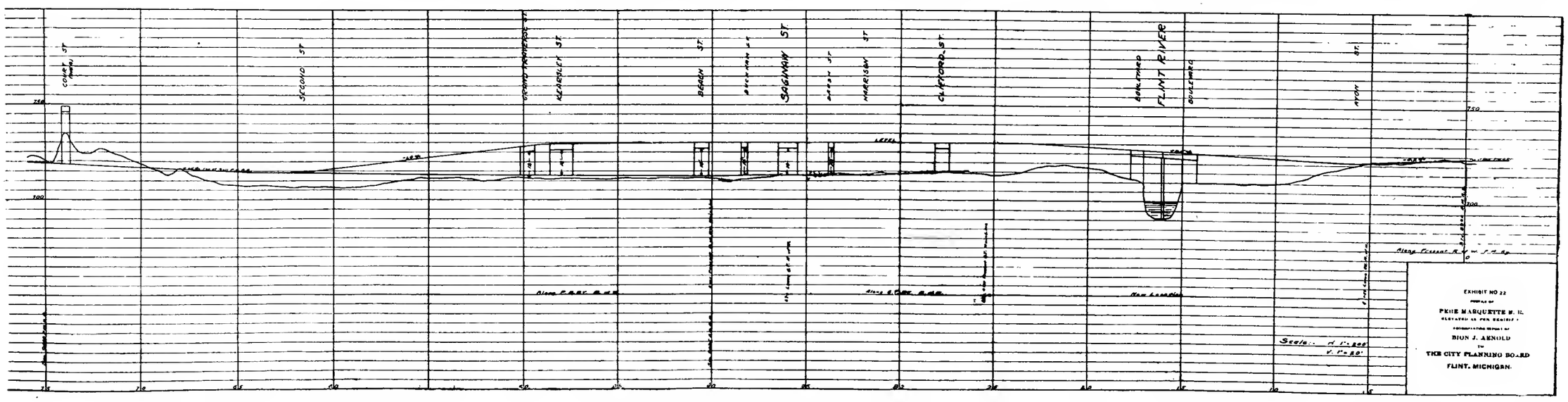


Exhibit C-XXII—Pere Marquette elevation Union Station Plan

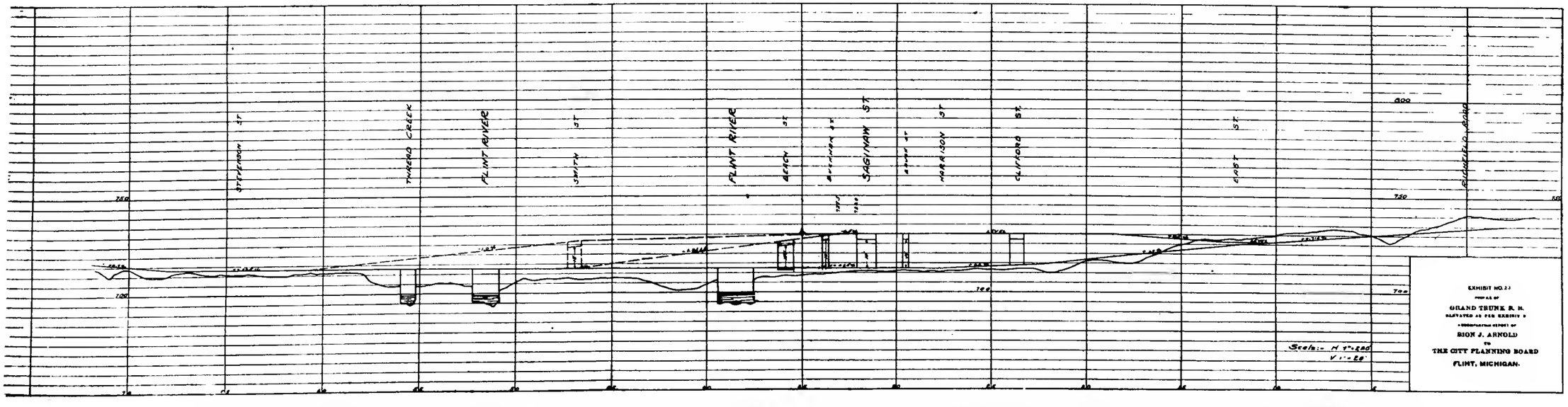


Exhibit C-XXIII—Grand Trunk elevation Union Station Plan

NOTE—On page 87 the numbers of the exhibits should be reversed, Exhibit XXII being Pere Marquette and Exhibit XXIII being Grand Trunk.

Grand Trunk Elevation, Union Station Plan

Exhibit C--XXII.

On the *minimum* plan of track elevation for the Union Station, this profile indicates track elevation work about 3,700 feet in length, or about 5,000 feet in length, if the westerly descent is carried across the Flint River. From the level of the Burton street yard, the Grand Trunk line breaks grade at about East street, thence descending at 1% grade to the station. Taking advantage of this, an ascending grade of only 0.5% would result, if the station elevation were commenced at East street.

On the west, it is a little more difficult to secure an easy descent unless the elevation is extended 1,500 feet further across Thread Creek. This, however, is largely controlled by the changes possible in the grade of Smith street.

Ultimately, if not soon, a grade separation at Richfield and Avon streets, and possibly Crapo street, will be forced by the increasing traffic of these very important thoroughfares. While the construction of the river roads along Flint River and new bridges at Clifford and Wood streets will probably go far to relieve this Richfield-Avon crossing, the separation becomes part of any more ambitious plan of track elevation than that shown. The profiles indicate that either a pronounced hump in the railroad elevation or a dip in the street grade can hardly be avoided. Hence it seems desirable that all three crossings should be worked out together as one problem, even if a slight diversion of street is necessary.

Pere Marquette Elevation, Union Station Plan

Exhibit C--XXIII.

As a companion profile, to the preceding Grand Trunk profile, this exhibit indicates the *minimum* elevation necessary for the Pere Marquette to carry out the proposed Union Station plan. North of Avon street, the existing tracks are comparatively level (0.2%), but at about Fifth avenue, the existing track grade breaks sharply in its descent to the river. Taking advantage of this, the Pere Marquette (in the minimum plan), beginning at Avon street, would detour east across the flats, rising on a 0.5% grade, crossing the river to the station level (elevation 730). This level practically continues south to Kearsley street,when the line would descend to reach the present track grade at Second street, a total distance of 4,700 feet. This provides for the recommended viaduct over the tracks in Second street.

Here again, the Avon street grade separation becomes an eventual if not an immediate problem. The problem is complicated somewhat because the present Pere Marquette north-bound grade line flattens out north of Fifth avenue to nearly level, so that to obtain a 17 foot grade separation with Avon street crossing in its present position, would require an approach incline about 2,500 feet in length, i. e., well up into the South Buick yard at Page street. The best method seems to be to contour Avon street slightly to the south under the Pere Marquette tracks, and connecting with Fifth Ave., so as to reduce the Pere Marquette elevated construction to as small an amount as possible. The Flint River bridge required for this elevation is very modest in its dimensions, being only about 15 feet above the level of prevailing shore line.

Ultimate Transit Plan Showing Car-line Reservations

Exhibit XXIX.

In this exhibit is outlined a transit plan designed to accommodate the progressive future development of Flint in those districts which seem likely to become residential or business areas. The street railway mileage is indicated far in excess of any reasonable requirements of the city for probably many years to come. Therefore, this is an ultimate plan intended to be worked to as development proceeds.

The plan is purposely made flexible, so that expansion may take place in any direction along logical lines. Thus the underlying system of radial lines or arteries is preserved for future expansion, while a secondary system of crosstown lines or laterals is developed so as to encourage direct riding between outlying districts without congesting downtown centers with unnecessary outbound transfer traffic.

In general, feeder lines would be first built approximately one mile apart; later, intermediate lines one-half mile apart.

An important feature is the provision of trunk lines on Clifford and Church streets parallel to Saginaw street and designed to relieve the main thoroughfare. It will also encourage expansion of business in both directions, i. e., both along and across Saginaw street and incidentally remove the Detroit United Railway interurban cars from South Saginaw street, which will undoubtedly become desirable. The proposed Michigan Electric interurban line enters in West Third avenue, all three interurban lines joining at a common point in an electric union station for both freight and passengers, for which an excellent position is available in the vicinity of the base ball park.

All of these lines are worked out in collaboration with the thoroughfare plan of Mr. John Nolen, except that in addition a new northwest thoroughfare is recommended along the northern boundary line of the old "Smith's Reservation" and extending from Dayton street at the city limits, to Pierson Road, Section 33.

Note the possibility of through routes from any given section of the city to the opposite section, each passing through the enlarged business district and transferring at the farther end of the business district to other intersecting lines. Note also the importance of a crosstown line such as Leith Street, having a great industry at the center; also, Stockdale Road, reaching from the Chevrolet district into the northwest addition and avoiding the present detour routes downtown. In this plan, outlying car-line loops several blocks across, which are found in so many cities, are rigorously excluded, as not being flexible enough to insure the expansion of such a rapidly growing community as Flint. The radial system is preferred.

A comparison of this plan with a county map will indicate that the main highway entrances to the city have been preserved in their entirety, except where necessary to correct imperfections.

To bring about the most desirable features of this Transit Plan, a considerable number of city planning improvements are required, notably Clifford street and other bridges, and the correction of the old swamp-hole, 6th and Clifford.

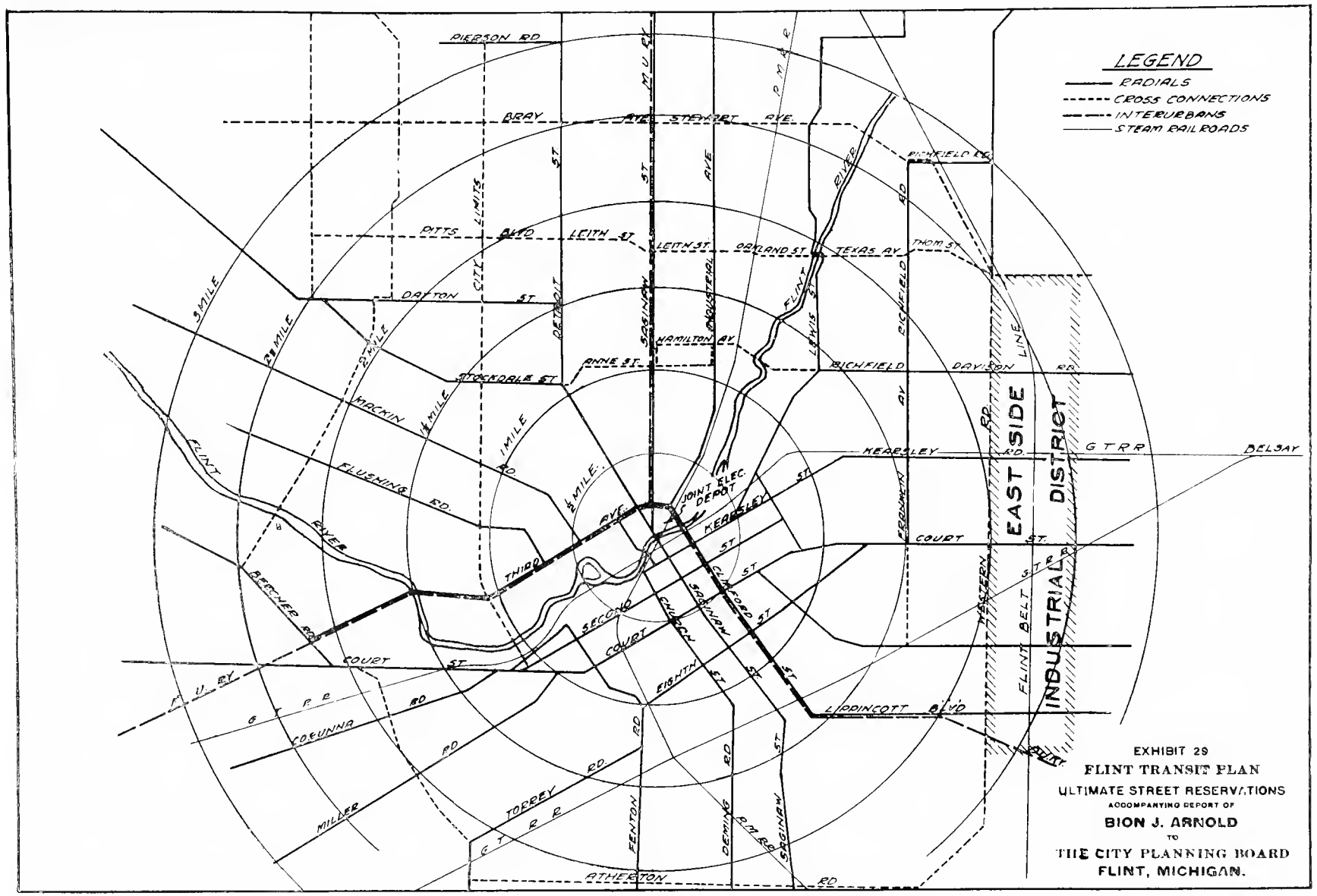


EXHIBIT 29

FLINT TRANSIT PLAN

ULTIMATE STREET RESERVATIONS

ACCOMPANYING REPORT OF

BION J. ARNOLD

TO

THE CITY PLANNING BOARD

FLINT, MICHIGAN.

West Court Street Viaduct

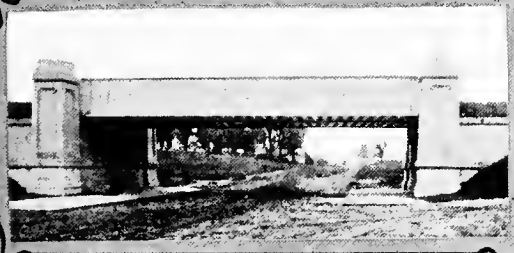
SIDE VIEW OF WEST COURT STREET VIADUCT LOOKING NORTH. PERE MARQUETTE GRADE SEPARATION IN RIGHT FOREGROUND

DETAIL OF CONCRETE LAMP-POST AND RAIL

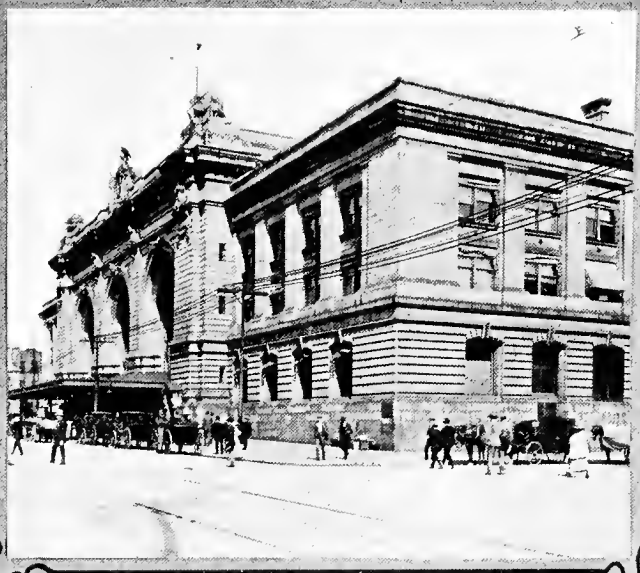
COURT STREET VIADUCT LOOKING EAST

COURT STREET VIADUCT FROM THE SIDE SHOWING P.M.R.R. BRIDGE AND THREAD CREEK CONCRETE ARCH

Planned Developments in other Cities

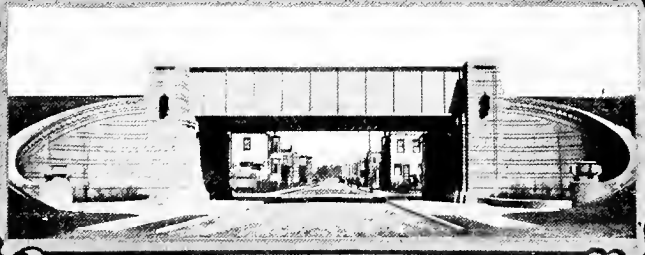


RAILROAD BRIDGE
PHILADELPHIA, PA.



UNION STATION - ALBANY, N.Y.

LINCOLN PARK REFECTORY
CHICAGO, ILL.

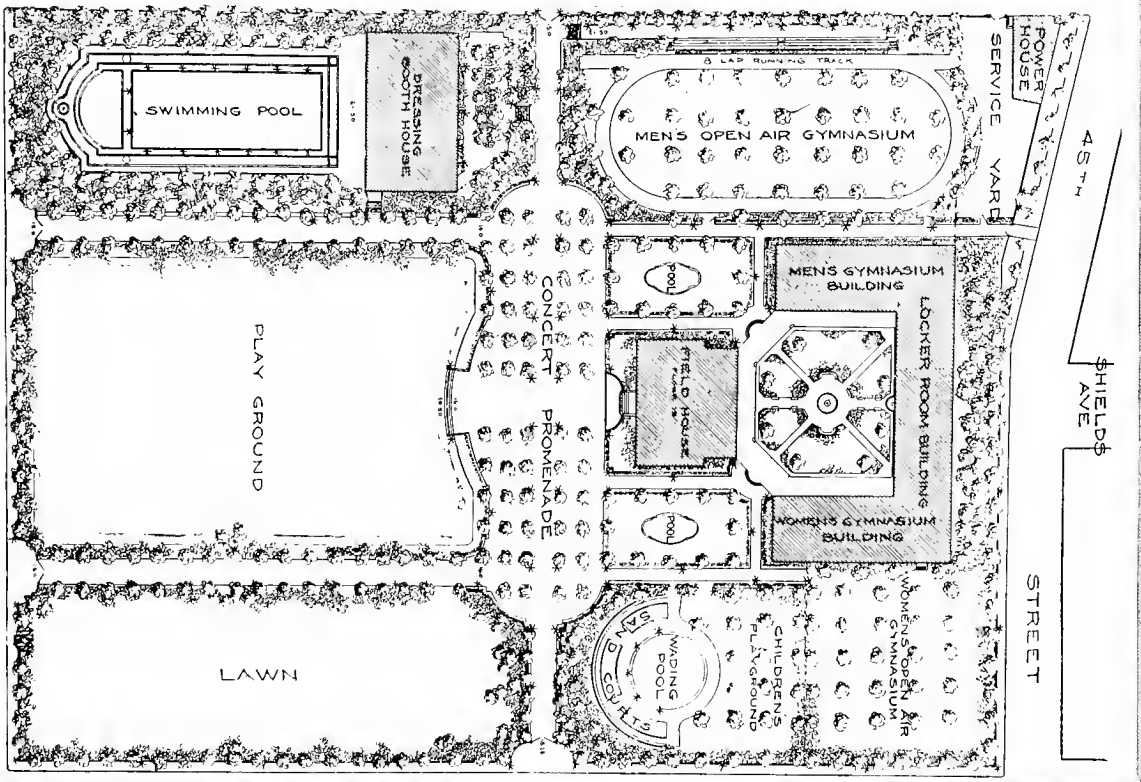


RAILROAD BRIDGE - PHILADELPHIA, PA.

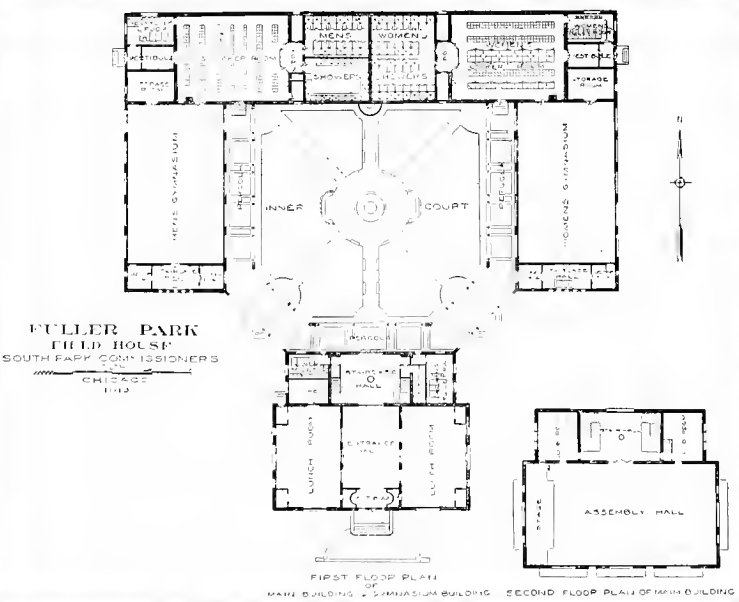
RAILROAD BRIDGE - BELFIELD AVE.
PHILADELPHIA, PA.

UNION STATION
DENVER, COLO.

One of Chicago's Many Field Houses



MUCH IN LITTLE IS THE MOTIVE OF THIS CHICAGO DEVELOPMENT IN FULLER PARK, WHERE LACK OF SPACE MADE IT NECESSARY TO USE EVERY INCH. THE FIELD HOUSE OUTLINED ABOVE IS HERE SHOWN IN ITS GROUND SETTING

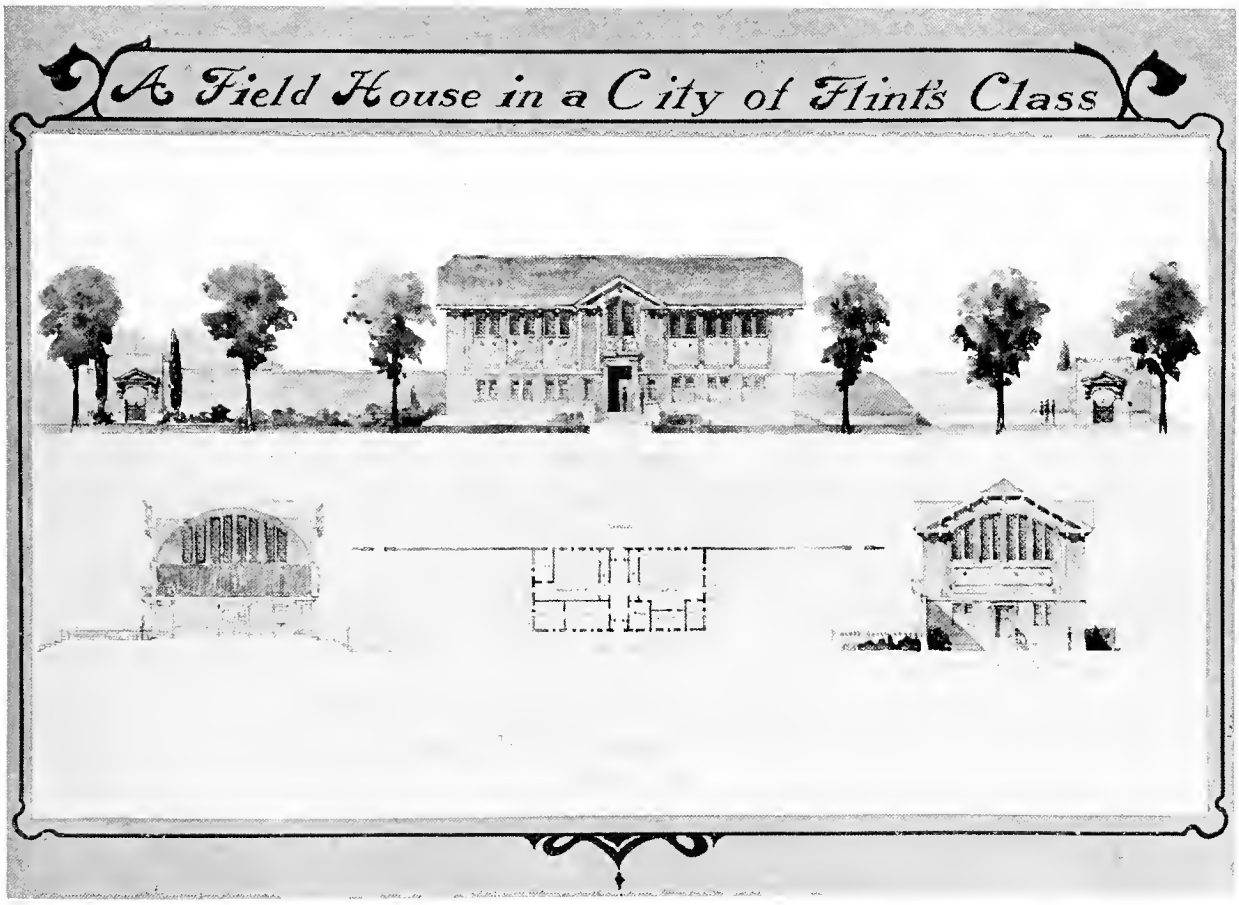


FULLER PARK
FIELD HOUSE
SOUTH PARK COMMISSIONERS
CHICAGO
1913

FIRST FLOOR PLAN OF MAIN BUILDING & GYMNASIUM BUILDING SECOND FLOOR PLAN OF MAIN BUILDING

PLAN OF FIELD HOUSE IN FULLER PARK, CHICAGO, PROVIDING ALL YEAR ROUND RECREATION IN A SMALL SPACE

A SIMILAR DEVELOPMENT IN WATERWORKS PARK AND THE PROPOSED CLIFFORD STREET PARK PLAY GROUND WOULD MEET THE RECREATION NEEDS OF THOUSANDS.



FIELD HOUSE FOR THE GROUNDS OF THE McKINLEY SCHOOL, SCHENECTADY, NEW YORK
John Nolen, Landscape Architect, Harvard Square, Cambridge, Mass.

Materials: Grayish yellow brick, granite trim. with stucco panels. Roof of mixed slates of tiles. gellow. grcen and blue.
Cubical contents: [exclusive of basement story with swimming pool] 130,400 cu. ft.. @ $.15 per cu. ft , $19.550.

Scale of elevations: Three-thirty-seconds inch equals one foot.

A Page of Pleasant Streets

RESIDENTIAL STREET
MONTCLAIR, NEW JERSEY

A DEPARTURE
FROM RIGID DETAILS

A TREE LINED AVENUE. LE
BOULEVARD MONTMARTRE, PARIS

WILLIFIELD WAY, HAMPSTEAD, ENG.
NOTE IRREGULAR BUILDING LINE
AND STREET VISTA FROM CLUBHOUSE

STREET SCENE, BILTMORE, N.C.

WINDING STREET IN OMBERSELY
ENGLAND

Conclusion

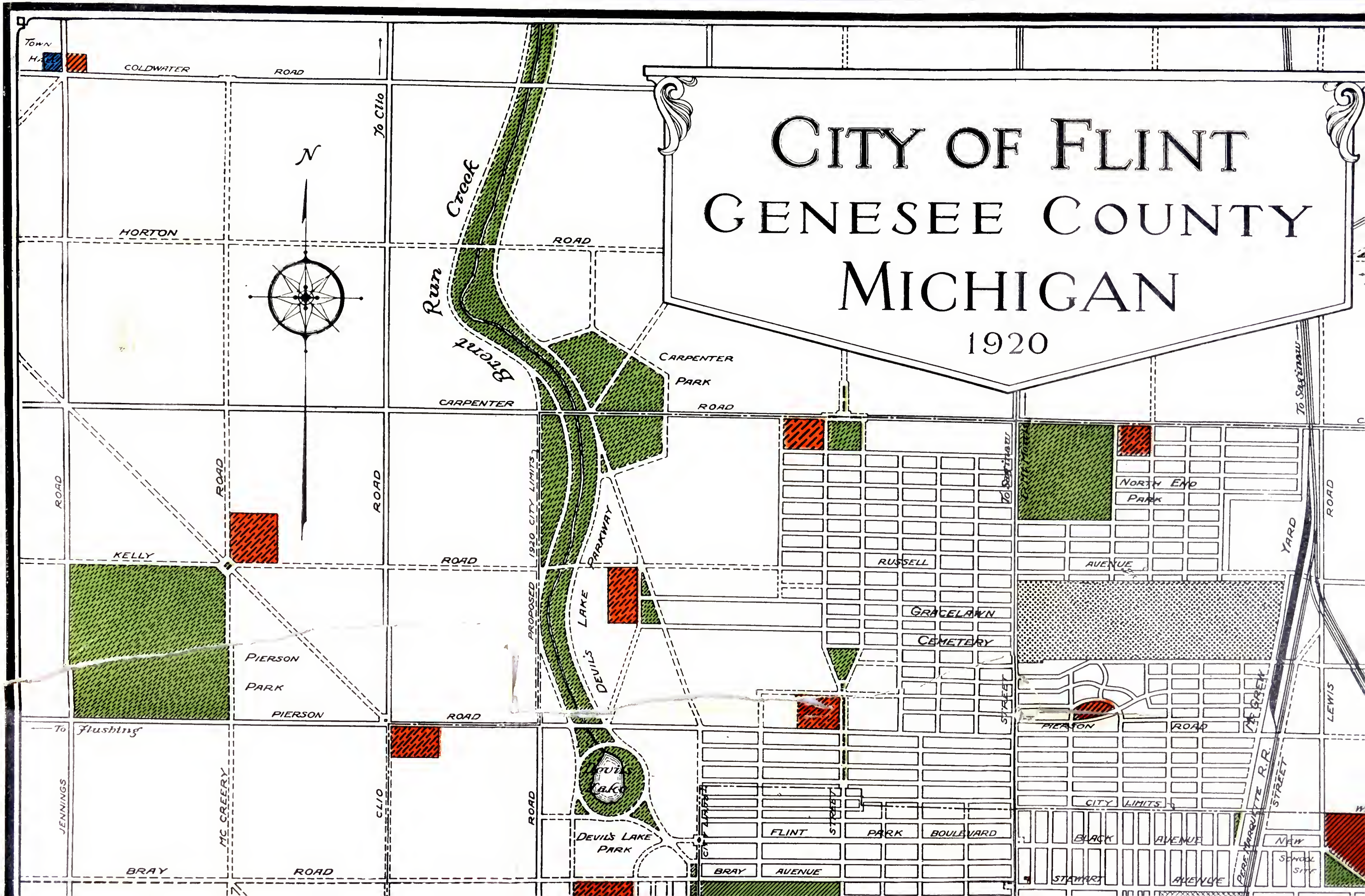
This, in brief, is the City Plan of Flint. The more it is studied the more comprehensive it will appear. Its authors, and the public officials charged with its progress, have cast their eyes ahead to the Flint of 1950.

Picture, if you please, this city in 1950. In area it will be at least as large as the area indicated by the outside boundaries on the General Plan map which forms the frontispiece of this volume. Its population, in all probability, will exceed 200,000 persons. It will be a city known not only for its industrial output, but also for its outpouring of human happiness and social content. It will be a city of schools and playgrounds, of parks and recreation facilities, of neighborliness and community centers, a city of noble architecture and spacious groupings, a city in which honest pleasure may follow worthy toil, and men and women live for something more than wages and duties.

That is the harvest; the Nolen Plan and the Arnold Transportation Plan are the seed. But between seed-time and harvest there is work to be done through all the intervening years. The City Planning Board, under the amendment which brought it into existence, is well founded to endure and well fortified to push the good work. It is safe to assume that whatever public money is spent here in the next thirty years will be spent in accordance with the provisions of this plan. Even so that is not enough; the co-operation of the public is necessary and vital. From time to time the municipal government must go to the citizens for authority to bond for public improvements in line with this schedule of operations.

Steady, consistent, moral support of the plans by individuals and groups of individuals is absolutely necessary to its realization. Such support will mean, not alone a continuation of official efforts and municipal action, but also that property owners in the areas affected will be moved in increasing numbers to assist either by donating desired lands or by selling at figures under current values. Already several public-spirited citizens have made valuable acreage gifts to the city; and many others have proved their willingness to co-operate by accepting the judgment of the Planning Board as valid in matters running counter to their financial welfare. In fact, public opinion has already made itself felt for the plan; and when that public opinion has been informed more thoroughly on the subject, through the medium of this publication and others, there is no doubt the public will place behind the program of civic betterment an irresistible force.

In placing the City Plan of Flint under the protection of the public from whose mandate we derive our duties, the City Planning Board invokes the highest power affecting its destiny. The City of Flint shall be as the citizens will it to be, and if the people will it the City Plan is certain to come into existence through the years. If they give this board and the other municipal authorities their support in putting through the program, then nothing can stop the City of Flint from realizing the boons and benefits herein presented.

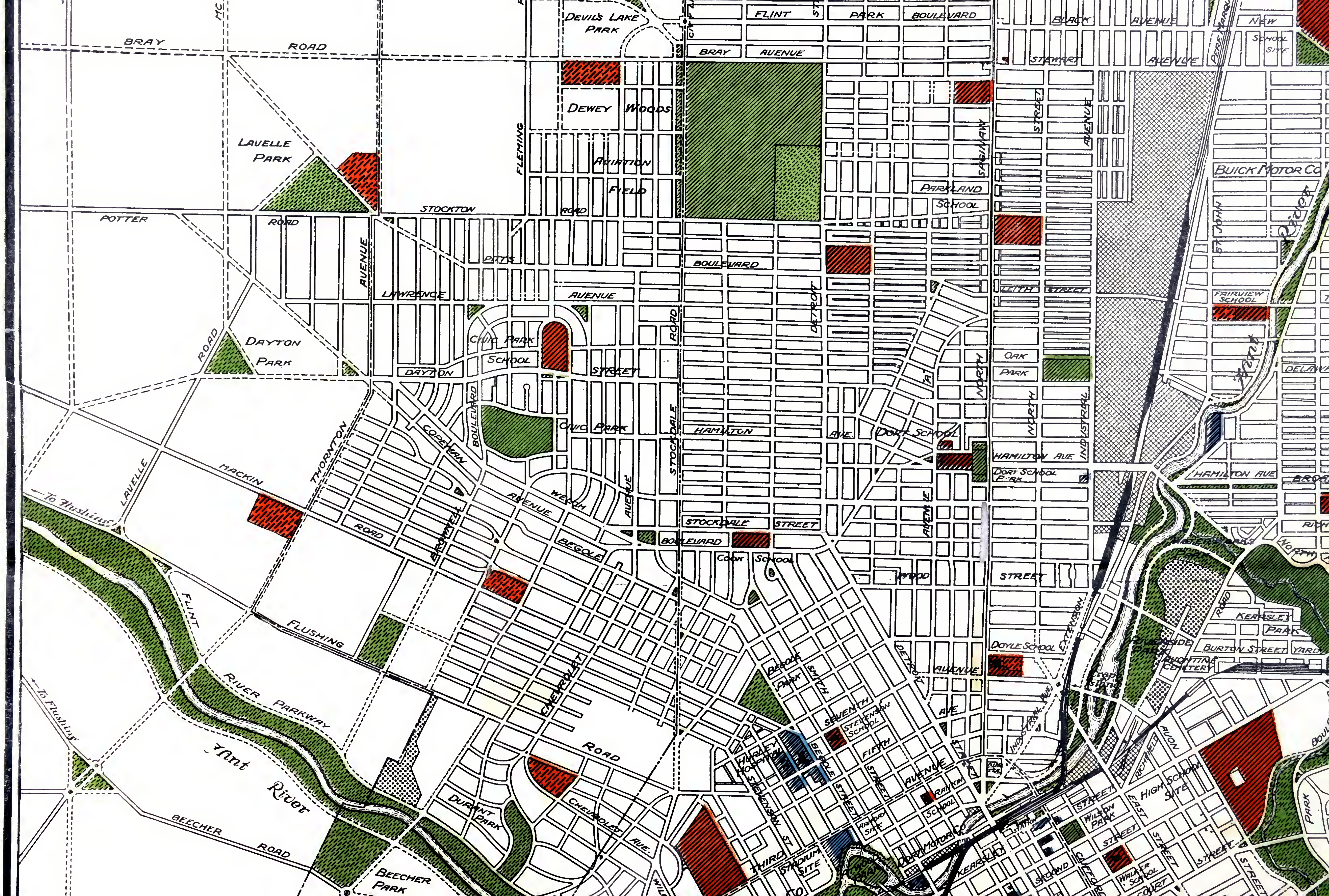

CITY OF FLINT
GENESEE COUNTY
MICHIGAN
1920
TOWN HALL
COLDWATER ROAD
To Clio
N
HORTON ROAD
Brent Run Creek
CARPENTER PARK
CARPENTER ROAD
To Saginaw
KELLY ROAD
NORTH END PARK
RUSSELL
AVENUE
PROPOSED 1920 CITY LIMITS
DEVILS LAKE PARKWAY
GRACELAWN CEMETERY
YARD
PIERSON PARK
PIERSON ROAD
To Flushing
Devils Lake
DEVILS LAKE PARK
JENNINGS ROAD
MC CREERY ROAD
CLIO ROAD
STREET
MC GREW
PERE MARQUETTE R.R.
LEWIS ROAD
CITY LIMITS
FLINT PARK BOULEVARD
BLACK AVENUE
NEW SCHOOL SITE
BRAY ROAD
BRAY AVENUE
STEWART AVENUE

Y OF FLINT
ESEE COUNTY
MICHIGAN
1920

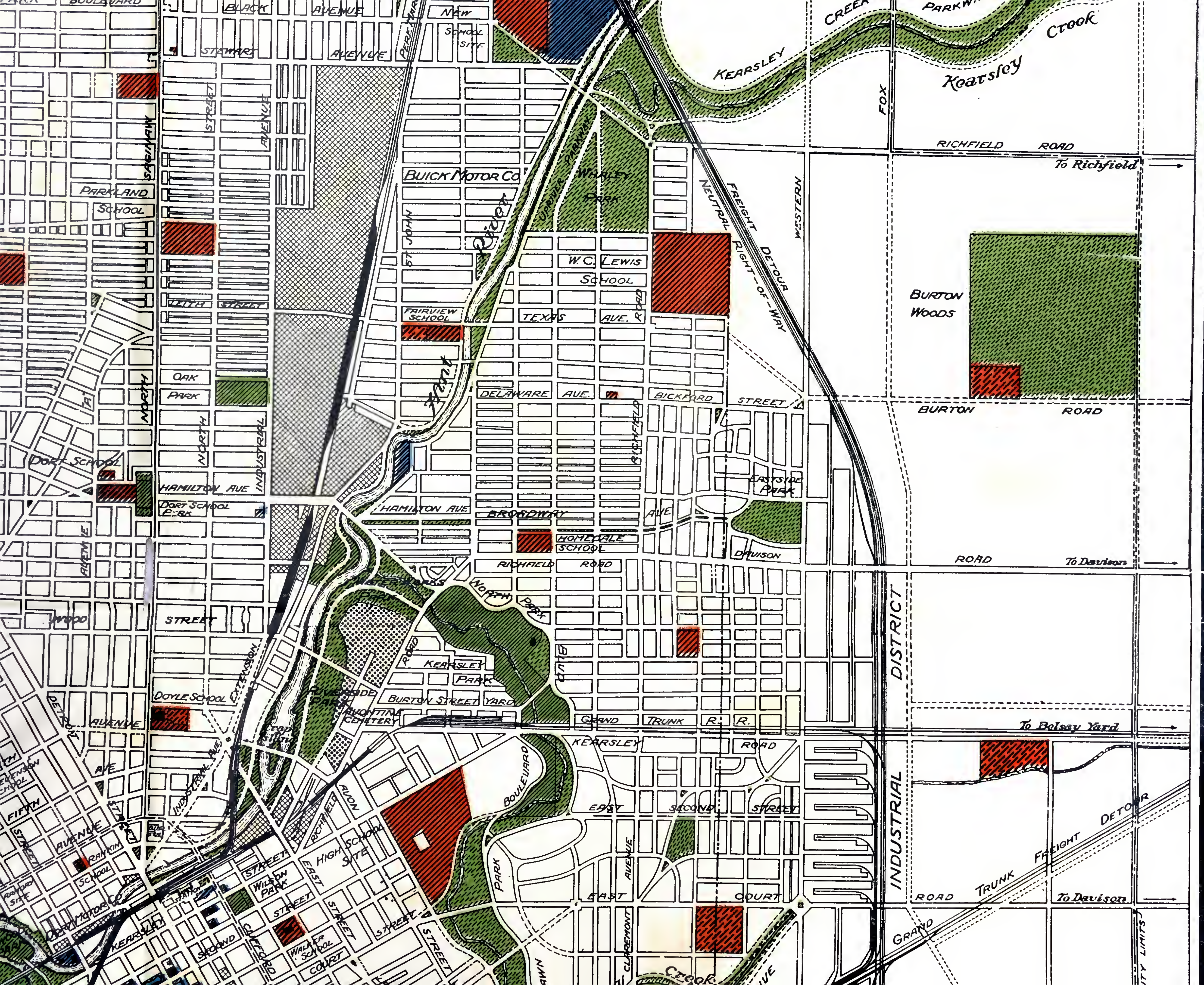
GENERAL PLAN

Showing a comprehensive system of main thoroughfares parks and parkways schoolgrounds and other city planning features for the area covered by the future city

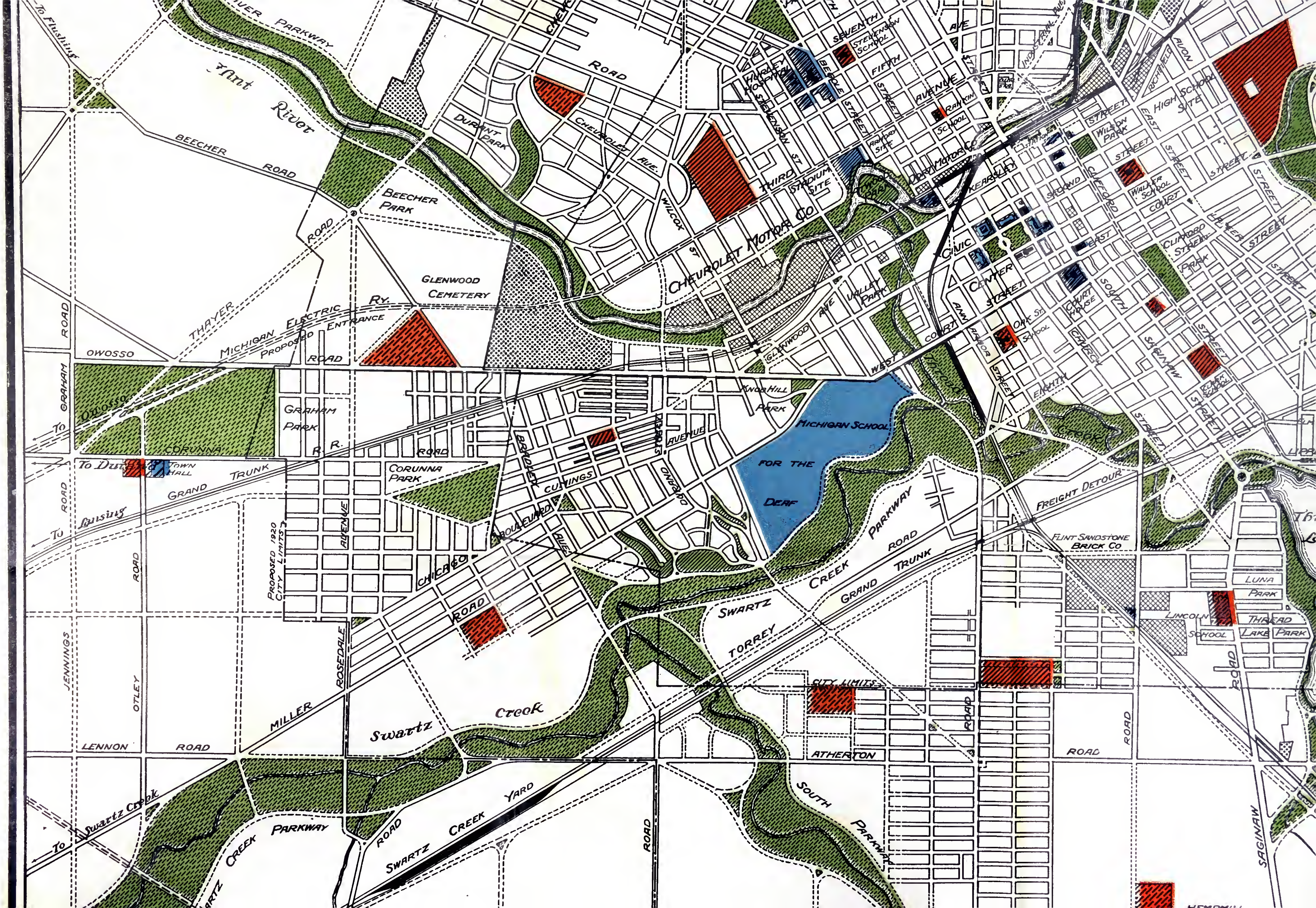
COLDWATER ROAD
To Fostoria
To Redfield
HORTON PARK
HORTON ROAD
To McGrew Station
ROAD
BRAY
UPRIVER PARKWAY
To Saginaw
CARPENTER ROAD
NORTH END PARK
YARD
ROAD
RUSSELL AVENUE
GRACELAWN CEMETERY
STREET
PIERSON ROAD
ST. CREEK
LEWIS
PERE MARQUETTE R.R.
CITY LIMITS
CITY WATER WORKS
STREET
CLARK ROAD
CENTER ROAD
PARK BOULEVARD
BLACK AVENUE
NEW SCHOOL SITE
STEWART AVENUE
ROAD
CREEK
PARKWAY
KEARSLEY
Crook



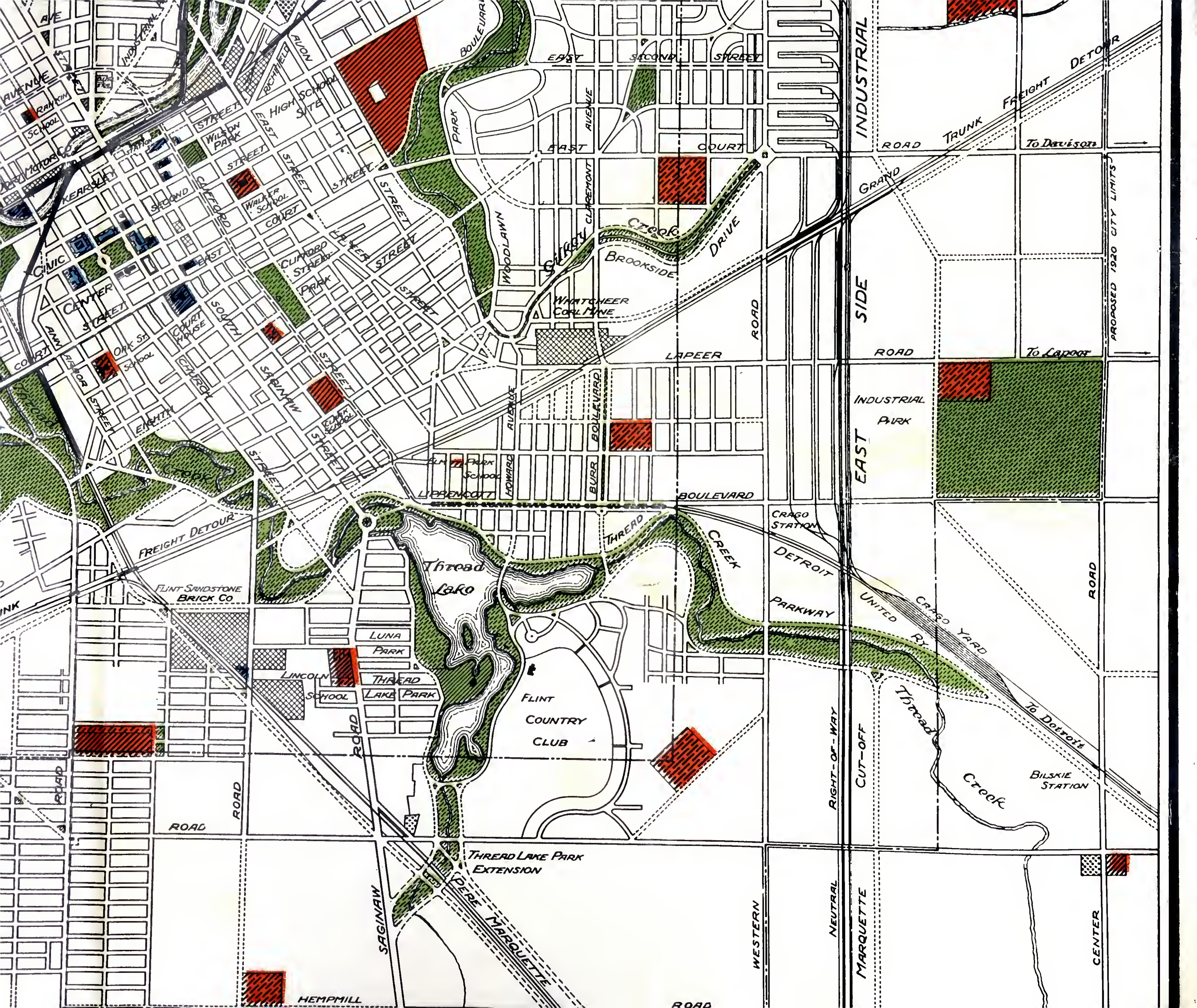
DEVIL'S LAKE PARK
FLINT PARK BOULEVARD
BLACK AVENUE
NEW SCHOOL SITE
BRAY ROAD
BRAY AVENUE
STEWART AVENUE
PERE MARQUETTE
DEWEY WOODS
LAVELLE PARK
AVIATION FIELD
FLEMING ROAD
SAGINAW
STREET
AVENUE
BUICK MOTOR CO
PARKLAND SCHOOL
POTTER ROAD
STOCKTON
ST JOHN
PITTS
BOULEVARD
LAWRENCE AVENUE
LEITH STREET
FAIRVIEW SCHOOL
DETROIT
DAYTON PARK
CIVIC PARK SCHOOL
DAYTON STREET
OAK PARK
NORTH
Flint River
DELAWARE
STOCKDALE
HAMILTON AVE.
DORT SCHOOL
CIVIC PARK
HAMILTON AVE
DORT SCHOOL PARK
INDUSTRIAL
COPEMAN
BOULEVARD
LAVELLE
MACKIN
THORNTON
WELCH AVENUE
To Flushing
STOCKDALE STREET
BOULEVARD
COOK SCHOOL
ROAD
BROMWELL
BEGOLE
WOOD
STREET
FLINT
FLUSHING
KEARSLEY PARK
DOYLE SCHOOL
EXTENSION
BURTON STREET YARDS
AVENUE
RIVER PARKWAY
BEGOLE PARK
SMITH
SEVENTH
STEVENSON SCHOOL
CHEVROLET
HURLEY HOSPITAL
FIFTH
AVE
To Flushing
Flint River
ROAD
DURANT PARK
CHEVROLET AVE.
STEVENSON ST
BEGOLE STREET
RANKIN SCHOOL
DORT MOTOR CO
WILSON PARK
HIGH SCHOOL SITE
RICHFIELD
AVON
EAST STREET
PARK
BEECHER ROAD
BEECHER PARK
THIRD
STADIUM SITE
KEARSLEY
SECOND
WALKER SCHOOL
COURT STREET



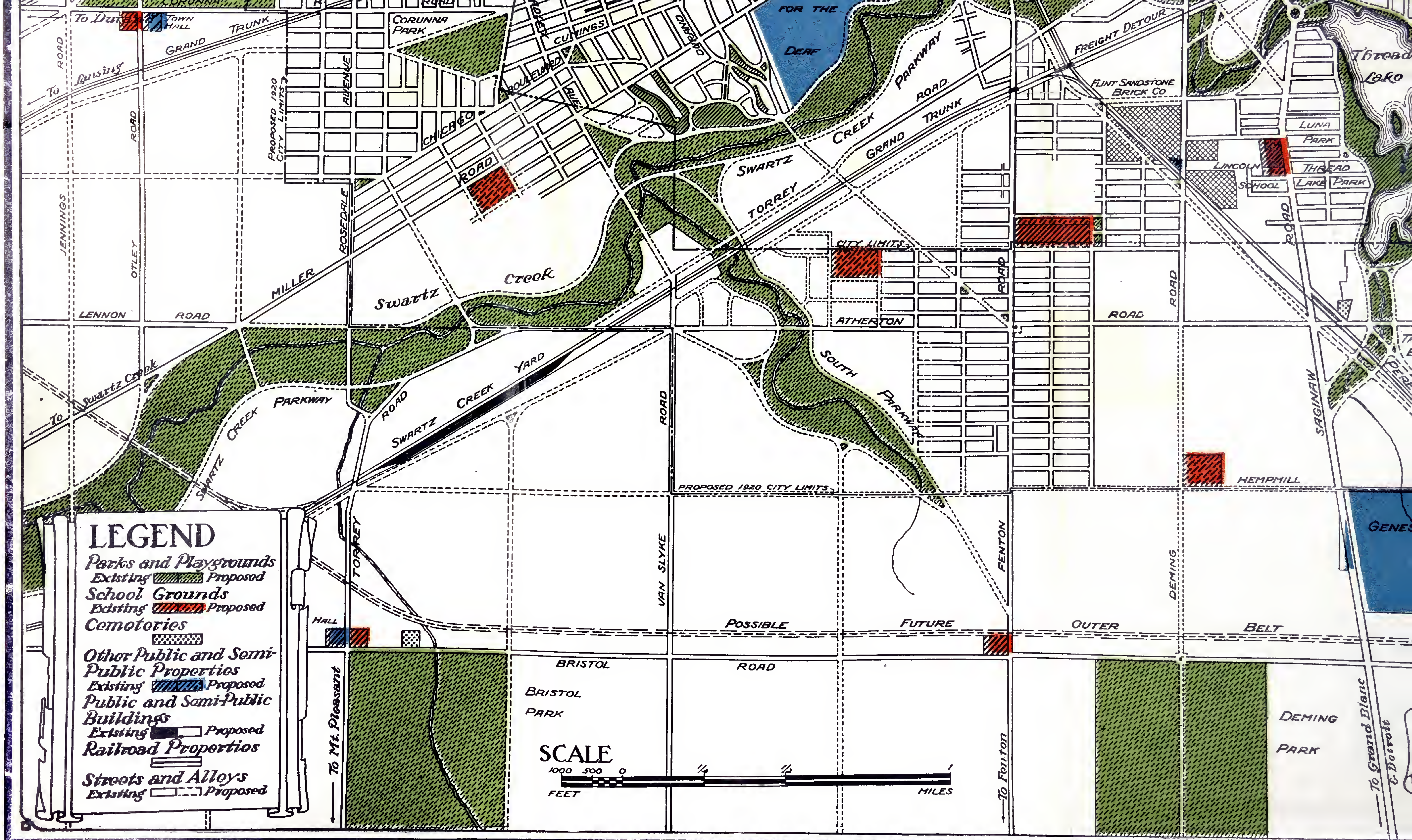
Black Avenue
New School Site
Stewart Avenue
Pere Marquette
Kearsley Creek Parkway
Kearsley Creek
Fox
Richfield Road
To Richfield
Saginaw
Street
Avenue
Buick Motor Co
Parkland School
Flint River
Whaley Park
Neutral Right of Way
Freight Detour
Western
St John
W. C. Lewis School
Burton Woods
Leith Street
Fairview School
Texas Ave.
Road
North
Oak Park
Industrial
Delaware Ave.
Bickford Street
Burton Road
Richfield
Dort School
Hamilton Ave
Eastside Park
Dort School Park
Broadway Ave
Homedale School
Davison Road
To Davison
Richfield Road
Water Works Park
North Park
Wood Street
Extension
Kearsley Park
Blvd
District
Doyle School
Detroit Avenue
Riverside Park
Burton Street Yard
Avontine Cemetery
Grand Trunk R. R.
To Belsay Yard
Kearsley Road
Industrial Ave
Boulevard
Avon
High School Site
East Second Street
Fifth Avenue
Rankin School
Armory Site
Wilson Park
Park
Avenue
Industrial
East Court
Road
Grand Trunk Freight Detour
To Davison
Motor Co
Kearsley
Second
Street
Walker School
Court
Clifford
Claremont
Creek
City Limits



To Flushing
Flint River
Beecher Road
Beecher Park
Glenwood Cemetery
Thayer Road
Michigan Electric Ry.
Proposed Entrance Road
Owosso
Graham Road
To Owosso
Graham Park
Corunna Road
R. R.
To Durand
Town Hall
Grand Trunk
To Lansing
Corunna Park
Cumings
Proposed 1920 City Limits
Avenue
Chicago Road
Boulevard
Jennings Road
Otley Road
Rosedale
Miller Road
Lennon Road
Swartz Creek
To Swartz Creek
Swartz Creek Parkway
Swartz Creek Yard
Road
South Parkway
Atherton Road
City Limits
Torrey Road
Swartz Creek Road
Grand Trunk
Parkway
Freight Detour
Flint Sandstone Brick Co
Lincoln School
Luna Park
Thread Lake Park
Saginaw
Michigan School for the Deaf
Knob Hill Park
Glenwood
West Court
Valley Park
Civic Center Street
Chevrolet Motor Co.
Third
Stadium Site
Wilcox St
Chevrolet Ave.
Durant Park
Road
Hurley Hospital
Stevenson St
Seventh
Stevenson School
Fifth Avenue
Beecher Street
Rankin School
Kearsley
Second
Clifford Street
Willson Park
East Street
High School Site
Walker School
Court
Clifford Street Park
Court House
Church
South
Saginaw
Eighth
Street
Avon
Rochester



Thread Lake
Flint Country Club
Industrial Park
Luna Park
Thread Lake Park
Thread Lake Park Extension
Lincoln School
Flint Sandstone Brick Co
Wilson Park
Walker School
High School Site
Civic Center
Court House
Oak St. School
Rankin School
Clark School
Clifford Street Park
Elm Park School
Whatcheer Coal Mine
Gilkey Creek
Brookside Drive
Thread Creek
Detroit Parkway
Grand Trunk Freight Detour
Freight Detour
Lippencott Boulevard
Lapeer Road
To Lapeer
To Davison
To Detroit
Proposed 1920 City Limits
Industrial Side
East Side
Right-of-Way
Cut-Off
Neutral
Marquette
Western Road
Center Road
Saginaw Road
Pere Marquette
Crago Station
Crago Yard
United Ry
Bilskie Station
Hemphill Road
Woodlawn
Claremont Avenue
Burr Boulevard
Howard Avenue
Park Boulevard
East Second Street
East Court Street
Saginaw Street
Ann Arbor Street
Church
South
Eighth Street


LEGEND
Parks and Playgrounds
Existing Proposed
School Grounds
Existing Proposed
Cemeteries
Other Public and Semi-Public Properties
Existing Proposed
Public and Semi-Public Buildings
Existing Proposed
Railroad Properties
Streets and Alleys
Existing Proposed
SCALE
1000 500 0
FEET
1/4 1/2 1
MILES
To Durand
Town Hall
Grand Trunk
To Lansing
Road
Corunna Park
Cumings
Durand
For the Deaf
Boulevard
Ave.
Avenue
Chicago
Road
Proposed 1920 City Limits
Jennings
Otley
Rosedale
Lennon Road
Miller
Swartz Creek
Swartz Creek Parkway
Torrey Road
Grand Trunk
Freight Detour
Flint Sandstone Brick Co.
Luna Park
Lincoln School
Thread Lake Park
Thread Lake
City Limits
Atherton
Road
South Parkway
Swartz Creek Yard
Road
To Swartz Creek
Swartz Creek Parkway
Van Slyke
Fenton
Deming
Saginaw
Hemphill
Proposed 1920 City Limits
Torrey
Hall
Possible Future Outer Belt
Bristol Road
Bristol Park
Deming Park
To Mt. Pleasant
To Fenton
To Grand Blanc & Detroit

FREIGHT DETOUR

FLINT SANDSTONE BRICK CO.

Thread Lake

LUNA PARK

LINCOLN SCHOOL

THREAD LAKE PARK

FLINT COUNTRY CLUB

ROAD

ROAD

ROAD

THREAD LAKE PARK EXTENSION

SAGINAW

PERE MARQUETTE R.R.

CREEK

DETROIT PARKWAY

UNITED RY. CARGO YARD

To Detroit

ROAD

RIGHT-OF-WAY

CUT-OFF

Thread Creek

BILSKIE STATION

WESTERN

NEUTRAL

MARQUETTE

CENTER

HEMPMILL ROAD

GENESEE COUNTY FARM

R.R.

PERE

HEMPMILL PARK

FENTON

DEMING

OUTER BELT

BRISTOL ROAD

DEMING PARK

To Fenton

To Grand Blanc & Detroit

To Grand Blanc

R.R. to Detroit

JOHN NOLEN CITY PLANNER
HARVARD SQUARE CAMBRIDGE MASS.