

A SATELLITE TOWN FOR WINNIPEG

A THESIS presented to the faculty of
Graduate Studies in partial fulfill-
ment of the requirements for the
Master of Architecture (C.P.) Degree

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The purpose of this Thesis is to propose a Satellite Town in the portion of the Town of Tuxedo, bordered by Kenaston Street, MacDonald Road, Wilkes Avenue, and McReary Street. In order that the people housed in this area may have a source of income close at hand I propose that the area between Kenaston Street, MacDonald Road, Wilkes Avenue and Waverley Street be developed as an industrial zone for light industry and warehousing.

The design of the project presented has been based, like some of the housing developments in Scandinavia and Britain, on an integration of different types of housing: row housing, duplexes, single family homes, walk-up apartments, and high-rise apartments. This approach to the design of a Satellite Town is believed to have definite advantages; through a combination of the various dwelling types, families of different sizes and compositions within a neighborhood should be able to satisfy their needs and aspirations better than when the basic housing types are separated.

I would like to acknowledge the assistance of all those who helped me in the gathering of material and the presentation of this Thesis. Because of the large number of persons involved it is not possible to list each person and organization individually.

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I N T R O D U C T I O N

I N T R O D U C T I O N

Shelter is one of man's essentials. During the past few years it has become increasingly difficult to obtain accommodation of an acceptable standard and at an economic rent in many parts of this country. According to the latest reports, the provision of such housing has become one of the greatest social and economic problems in Winnipeg as in the rest of Canada.

Aside from the moral argument there are economic reasons for the provision of adequate housing for lower income groups. There is a great deal of statistical data available to prove that the direct and indirect costs to the taxpayer of the average slum area, as a result of ill health, broken homes, delinquency, fire hazards, and other causes, far exceed the cost of providing decent subsidized housing within the means of families now occupying substandard housing.

As yet there has been little done to solve the problem of housing in Metropolitan Winnipeg. The existing situation has given rise to several housing investigations. The latest of these is a study of the Notre Dame area of Winnipeg by Professor Gerson of the University of British Columbia. This study reveals that a large portion of the Notre Dame and Point Douglas districts in Winnipeg are better suited to Industrial and Commercial purposes than

they are for residential use.

It would be a gain to the city in appearance, increased revenues, and reduced costs, if the Notre Dame and Point Douglas districts could be redeveloped in such a manner as to serve the purposes for which they are better suited. The families now living in these districts would have to be moved out of the dwellings they now occupy and settled in a new housing development to suit their differing age groups, and sizes and compositions of family.

It is suggested that this first group of families constitutes the nucleus of the population of the proposed new town. The first neighborhood of the Satellite Town has been visualized with them in mind, and as such, the Town has been designed for housing types easily adaptable to both low rental and medium rental standards. The Town has been planned as something more than a residential subdivision. It is for a great variety of people in different trades and professions, and of different income levels. It is contemplated as having approximately the same social structure as the country as a whole. Further, most of the population can have work within the Town which is likely to prevent the Town from becoming a dormitory suburb as is the nature of the suburbs of Winnipeg. The task of a town is to attract a balanced population by supplying a varied assortment of occupations.

If families and individuals were to be removed from the Point Douglas - Notre Dame district, then they would be further away from their sources of income. In order that the working members of the family might have an income, some source of employment would have to be provided. The most feasible solution to the employment problem would be to develop the area between McGillivray Boulevard, Kenaston Street, Wilkes Avenue, and Waverley Street, as a light industrial and warehousing district. This would mean that the existing agricultural zone would have to be changed to a zone for light industry and warehousing, with some nonconforming heavy industries such as the Canada Cement Plant, being allowed to remain.

The industrial and warehousing zone is of a size as to provide work for some 26,000 people; therefore, it can be developed initially to provide employment for the population nucleus of the Town. As the industrial zone continues to develop, it is likely to draw workers from both the new Town and the surrounding municipalities.

Several prominent businessmen and Industrial Planners are of the opinion that the proposed industrial development and the Fort Garry industrial zone are well located in relation to the rest of Metropolitan Winnipeg. Rail and road access to all parts of the city and country are good. The latter will be further improved when the Trans-Canada by-pass route is completed.

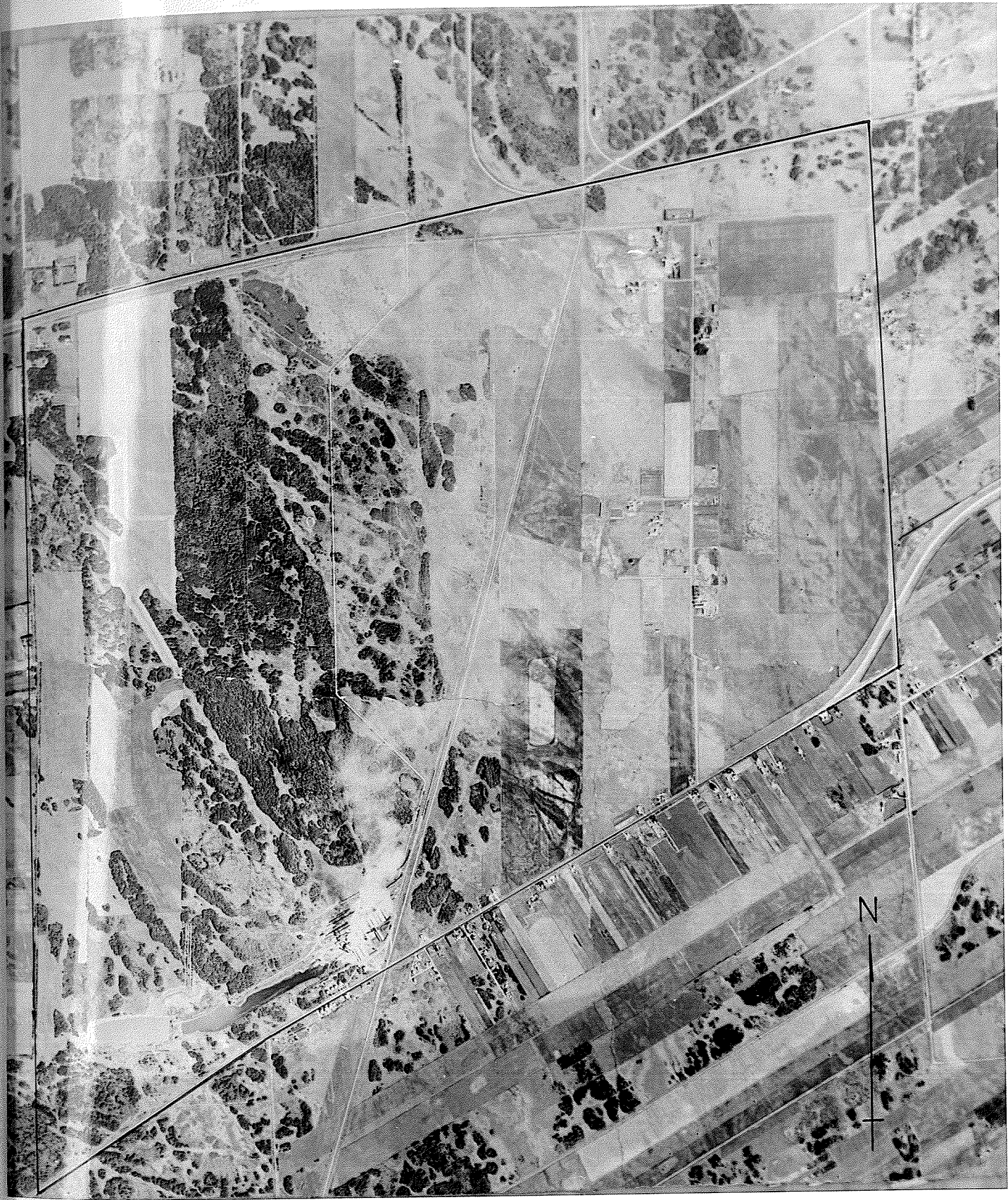
The topographical features of the industrial and residential sites assure a practical and economic development. The site is predominantly flat with good ground drainage to the south-east. A tree belt running north and south, to the west of the C.N.R. and C.P.R. tracks that bisect the site, provides a natural park area and a wind break against the prevailing north-westerly winds.

Nearly all facilities required for the development of an industrial site either exist or can be easily installed. Within two years a sewage treatment plant is to be built near the Manitoba Sugar Company Plant on Pembina Highway. A new ~~water treatment plant and~~ pumping station, serviced by a new aqueduct, ^{is} are in the process of being constructed in south-west Fort Rouge. Other utilities and services, such as electrical power and gas for residential and industrial purposes, are available.

The first section of this report is a general description of the topography and existing conditions of the site and its relationship to the rest of Metropolitan Winnipeg. There is also a discussion of the principles involved in planning a residential development composed of integrated dwelling types. One chapter of the report also deals with the planning and development of Industrial and Warehouse zones. The second section of the report is devoted to a discussion of the actual development and the final plan of the area.

This thesis is primarily intended to answer several problems, chief of which is the design of a "Satellite Town for Winnipeg". The main task has been the preparation of a master plan for a Satellite Town, incorporating residential, industrial and recreation areas. The residential development is located between McReary Street, Kenaston Street, Wilkes Avenue, and the north boundary of the Canada Cement Company property. The light industrial and warehousing zone is located between Waverley Street, Kenaston Street, Wilkes Avenue and MacDonald Road. A District Recreation Area, the location of which has been suggested by some authorities around the artificial lakes on Canada Cement Company properties, has been incorporated in the design of the Satellite Town.

T H E S I T E



THE EXISTING FEATURES

The proposed Satellite Town is located on the southwest periphery of Greater Winnipeg, which is the capital of the province of Manitoba. Winnipeg is located in southern Manitoba at the confluence of two rivers, the Red flowing northward from south-eastern North Dakota, and the Assiniboine, flowing eastward from the province of Saskatchewan.

The city occupies an area of land equal to 16,000 acres or 25 square miles. It is the focal point for all road, rail, and air transportation routes crossing Canada. About 60 air miles to the south is the Canadian - United States border. The nearest large urban centres are Regina, the capital of Saskatchewan, 320 air miles to the west; Fort William which is 420 air miles to the east; and Minneapolis which is 420 air miles to the southeast.

The proposed development area is bounded by MacDonald Road, McReary Road, Wilkes Avenue, and Waverley Street, and is situated in the southern two miles of the Town of Tuxedo in the south-west portion of Metropolitan Winnipeg.

The proposed residential area is in the western portion of the site development and is bounded by McReary Road, Wilkes Avenue, Kenaston Street and the northern boundary of the Canada Cement Company property. The residential area covers 946.5 acres. The eastern half of the area is still undeveloped and heavily

treed. The western portion of the residential area is at present devoted to farm and pasture land, with several houses and farm buildings facing on McReary Road, just south of Wilkes Avenue. The land is predominantly black loam with some silty clay. It has a slight slope to the south-east and the Red river. On inspection there appeared to be few low spots in which swampy conditions might exist. The only swampy area noted was in the heavily treed section just to the south of Wilkes Avenue.

In the proposed development the industrial area is located between Mac Donald Road, Kenaston Street, Wilkes Avenue and Waverley Street, and includes the Canada Cement Company property located to the south of the residential district.

Most of the site is open farm land, divided by a strip of grazing land running north and south between Brock Street, Franklin Street and the north and south boundaries of the industrial zone. There is some treed area on the Canada Cement Company property, in the area between the C.N.R. tracks and Kenaston Street, and in the corner between the C.P.R. tracks and MacDonald Road. The land is relatively flat with few low swampy areas, and has a gentle slope of about five feet to the south-east boundary and the Red river.

One feature of the area that could bear some development is the presence of artificial lakes in the south-west corner of the Canada Cement Company property. When the time comes

that the Lakes are no longer useful to the Cement Company, it should be possible to develop them and the surrounding property into a recreation area for swimming, fishing, picnics, etc. The Lakes ~~are at present~~^{were} used for swimming and fishing by residents of the surrounding countryside. If developed as proposed it is quite conceivable that this might become a major recreation area.

The industrial zone is relatively more developed than the adjoining residential area, with several industries, homes and farm buildings. The Canada Cement Company property is quite well developed and the proposed new zoning will have little or no effect upon it. The Winnipeg and Central Gas Company distribution plant and facilities are located in the corner bounded by Kenaston Street and Wilkes Avenue. There is also a small Alfalfa Treatment Plant between Kenaston Street and the C.N.R. tracks. It is expected that due to the odor from processing its product some control over this property will be necessary.

In addition to the existing industrial facilities, there are two service stations and ten houses with other minor buildings facing onto McGillivray Boulevard. There are approximately thirteen farm homes and ancillary buildings facing on or adjacent to Brock Street one-third of a mile from Wilkes Avenue. It is expected that developing the area will necessitate the removal of these buildings and payment of compensation to the owners.

The physical boundaries of the proposed development are formed by Waverley Street, MacDonald Road, and McReary Road, with Wilkes Avenue and the C.N.R. tracks forming the north boundary of the development. There are few internal impediments to the planning of either the industrial or residential areas. Brock Street is the only graded road in the industrial area and should be considered in the final plan. Both the C.N.R. and C.P.R. railroads, necessary for developing the Industrial Zone, run from the Canada Cement Company plant north-east to where they cross Wilkes Avenue.

The problems involved in developing the area and installation of services are dealt with elsewhere, but it should be noted here that some facilities do exist at the present time. A Manitoba Hydro Commission high tension power line on steel towers runs parallel to and south of Wilkes Avenue. It is expected that this line could be tapped to provide initial electrical power for the development. There are also several power lines on wooden poles which run through the site. One crosses over from Fort Garry and runs south of and parallel to the High Tension line noted above. It branches off at the C.P.R. tracks and runs beside them south to the Canada Cement Company plant. The other branch continues west till it turns north and crosses Wilkes Avenue at Edgeland Street. There are also light power lines serving the farm homes adjacent to Brock Street and to McReary Road.

THE PUBLIC UTILITY SYSTEMS

GENERAL STATEMENT

Both the Industrial and Residential areas are physically well situated with regard to servicing by the city and private firms. As the site is relatively flat and of typical Red River Valley soil, with no rock either above or below ground, the site should be easy to trench for sewer, gas and water supply, and should not present problems for other miscellaneous services.

The conditions to be met here are very similar to those that would be met in most other parts of Metropolitan Winnipeg. As the installation of these necessary services does involve some trenching and grading, the planning of the project should be such that any trenching or grading that occurs will not disturb the existing tree belt. Trees and shrubs are natural amenities to a site that once disturbed take generations to replace through natural growth.

WATER DISTRIBUTION AND SUPPLY

At the present time, Tuxedo and Fort Garry obtain their water supply from the ~~Greater Winnipeg Water District~~ ^{City of Winnipeg}. The water supply to the proposed housing development would come through mains linked to the reservoirs and pumping stations on McPhillips Street and James Street in the north-east district of Winnipeg. In the near future, this supply is to be augmented by a new reservoir ^{and} pumping station, ~~and treatment plant~~ ^{is} to be located in the south-west corner of Fort Rouge. This station is to receive its supply from a new aqueduct carrying water to Winnipeg from the Lake of the Woods district, and is to be built during the next year. These two readily available sources of fresh clean water should be another inducement to industry, and to those concerned with housing, to concentrate their building endeavors in the proposed development area. The actual method of distribution will depend entirely on the proposed site development, and on the needs of the industries which may locate in the district.

At the present, or in the near future, construction or expansion of the water distribution system should cause no great problem. Any extensions should cost no more than the installation of new facilities in any other portion of Metropolitan Winnipeg.

SEWERAGE

The problems of financing and constructing the sewerage system are apt to be more difficult than those encountered with the water distribution system, but they do not seem to be insurmountable.

The need might arise for trenching, and possibly grading and filling, but these problems must also be overcome in the rest of the Metropolitan area. As the slope of the land is very slight, being about 25 feet in three miles towards the southeast and the Red river, it is quite probable that lift stations will be necessary in the sewerage system. This is especially so if, as at present, the sewage must flow to the north and tie into the existing Tuxedo system. The tie to the Tuxedo and Winnipeg system would be an extension of one of the main trunk sewers down Handsart or Grenfell streets in Tuxedo, south of Roblin Boulevard.

Here is where the greatest expense would be involved, as this sewer would have to pass through a section of Tuxedo only partially developed. Once this system has been constructed however, there remains only the installation of the sewer collector system in the best and most economical arrangement to suit the street layout.

An improvement of the above system will result as soon as the proposed new Sewage Treatment plant is built and put into operation in the Municipality of Fort Garry. As yet this plant has

not been definitely located, but the authorities concerned believe it will be near Pembina Highway, somewhere in the vicinity of the Manitoba Sugar Company Plant. If this is so, and the plant is built in the next year, it will be in an ideal location to service the Housing Development and the Industrial Zone. The plant lies in the direction of flow from the proposed development to the Red river; therefore some savings should occur in lift stations and equipment. Any trunk sewers to the development would necessarily pass through Fort Garry, a built up area. This would solve the main objection to a sewer system which had to run north through the undeveloped portion of Tuxedo.

It is quite likely that storm sewers will also be needed to service the proposed residential and industrial sites. As the ground in the development area has a very slight grade to the southeast, a water run-off problem is liable to occur after severe storms or during the spring thaw. Storm sewers would have to be installed to take care of this problem. The most reasonable solution for the disposal of storm water would be a system of storm sewers following the slope of the land and draining into the Red river. The alternative would be to drain north, through the Tuxedo system and into the Assiniboine river. This method would be more costly, because of the deeper trenching involved, possible lift stations, and a long run of trunk sewer through the portion of Tuxedo that is undeveloped.

OTHER SERVICES

Any problems encountered in the installation of Telephone and Electric Power facilities will be of a nature common to most new subdivisions. It is expected that to service this area will entail only an expansion of existing services that are adjacent to the site. As the residential subdivision is to be planned for low cost dwellings, the pole lines would be best situated along rear lot line easements, leaving only the lamp posts visible on the street.

It would be aesthetically desirable if all telephone and electrical power lines could be placed in underground conduits but at the present time this seems to be a financial impossibility.

The provision of domestic gas should not be too difficult due to the location of the main gas distribution plant of Winnipeg and Central Gas Company on the southeast corner of Wilkes Avenue and Kenaston Street. The only problem likely to result from this is the undesirable proximity of the gas distribution plant to the Residential development.

It is not expected that there will be any problem in serving the industrial areas with the above utilities. At present there is an existing High Voltage transmission line on Wilkes Avenue serving Fort Garry, and with some extension it should be able to service the proposed Tuxedo Industrial zone.

As the new development will be rather far from present fire stations, it will probably be necessary to include in the design requirements provision for a fire hall in the "community centre".

Other local services, such as snow removal, garbage disposal and road maintenance, will only require expansion of the existing services in Tuxedo to meet the needs of the new development.

THE TRANSPORTATION SYSTEM

ROAD AND RAIL ACCESS

At present the proposed development site is well served with both rail and vehicular traffic routes. With some future development in Metropolitan Winnipeg it should be possible to serve the Satellite Town exceptionally well. It is expected that both Waverley Street and McReary Road will be developed into major north-south traffic routes with access to Academy Road and Roblin Boulevard as well as to Portage Avenue, by existing or proposed bridges over the Assiniboine River. With the development of these two roads into major arterial routes some problem may occur in crossing the C.N.R. and C.P.R. tracks on the north side of Wilkes Avenue. If problems should occur it may be necessary to construct either overpasses or underpasses in order to facilitate traffic flow.

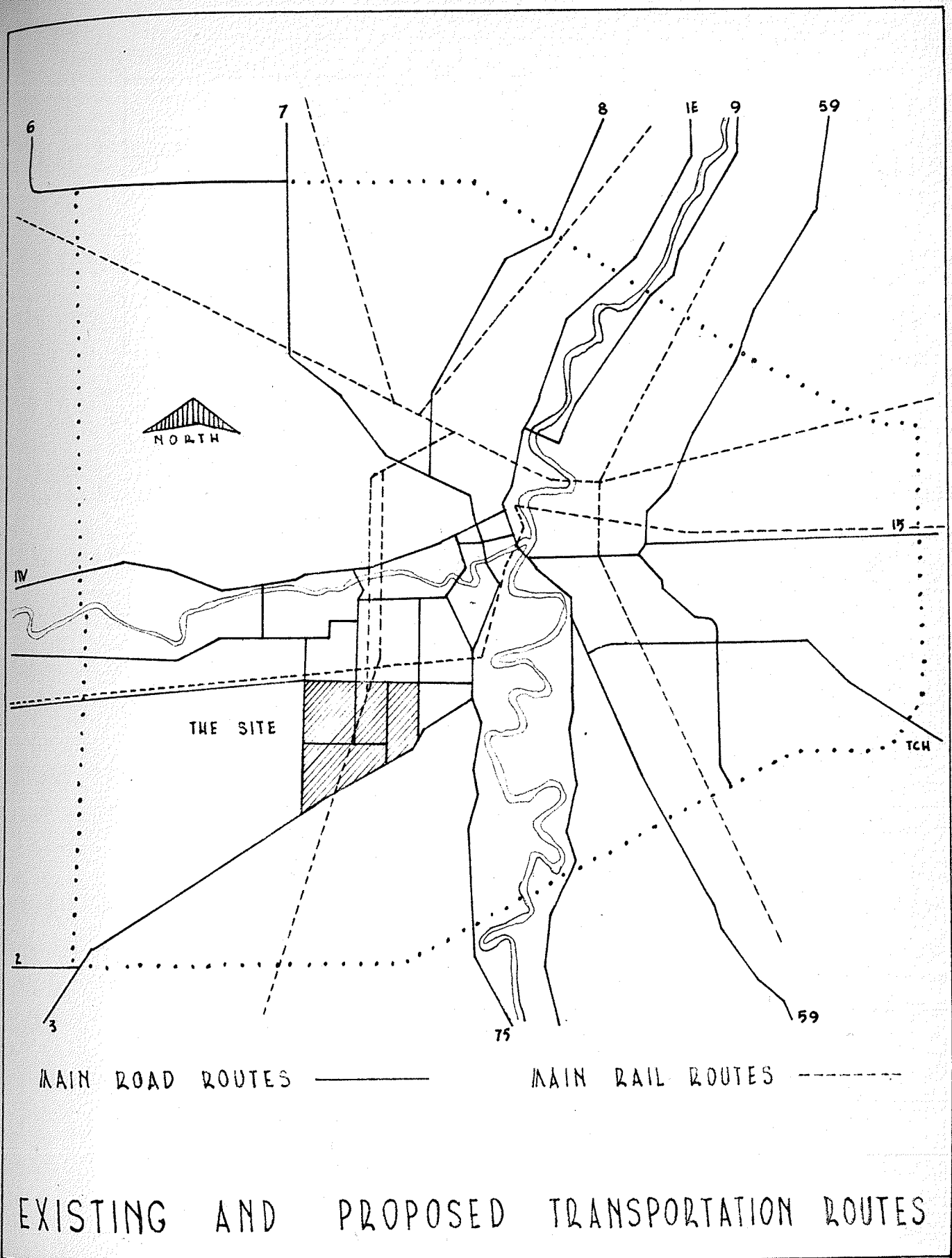
With the development of Wilkes Avenue into a major vehicular traffic route and with the existing Provincial Highway #3 (MacDonald Road), excellent east-west access to both the country and the Industrial, Residential and Commercial zones of the city should be ensured.

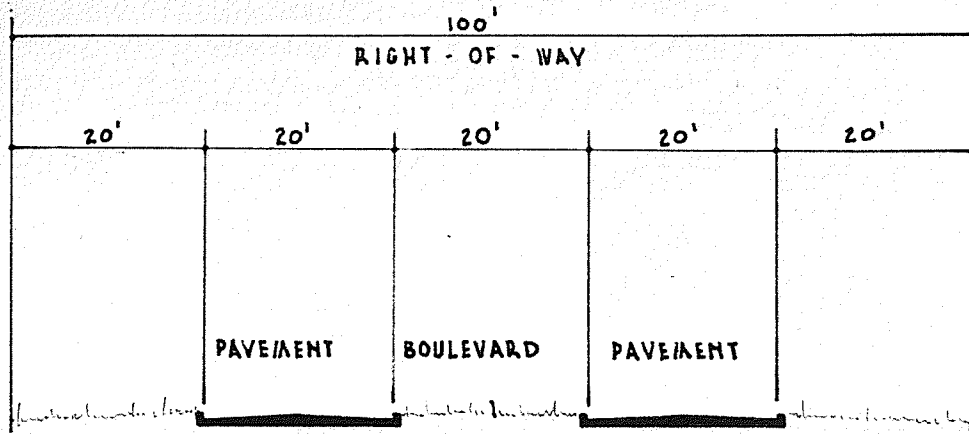
The construction of the Winnipeg By-Pass route, just to the south and west of the proposed development site, should be an added inducement to firms contemplating plant construction to concentrate their activities in the proposed industrial zone. While the new highway route will encourage heavy trucking to by-pass the city, it will still enable them to reach the

industrial site with few traffic problems.

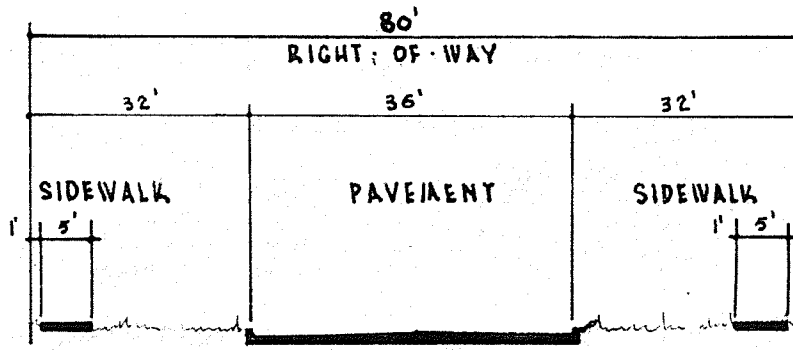
Both the C.N.R. and C.P.R. officials are of the opinion that the proposed industrial zone is well situated for railway servicing. Both the railways now have trackage running through the site and with some small development of spur trackage it should be possible to give complete service to the industrial zone. The C.N.R. officials are of the opinion that a track crossing Waverley Street would give the best service to the area and would permit a link up with the C.P.R. trackage running north-south on the site. One problem to be encountered would be the crossing of Waverley Street by the C.N.R.; it might be necessary to build an underpass to allow unimpeded flow of vehicular traffic.

It is not expected that there should be any other major problems in either rail or road access to the development zone. The following diagrams illustrate the major existing and proposed rail and road routes in Metropolitan Winnipeg, and also suggested street widths and cross-sections for the main roads within the Satellite Town.

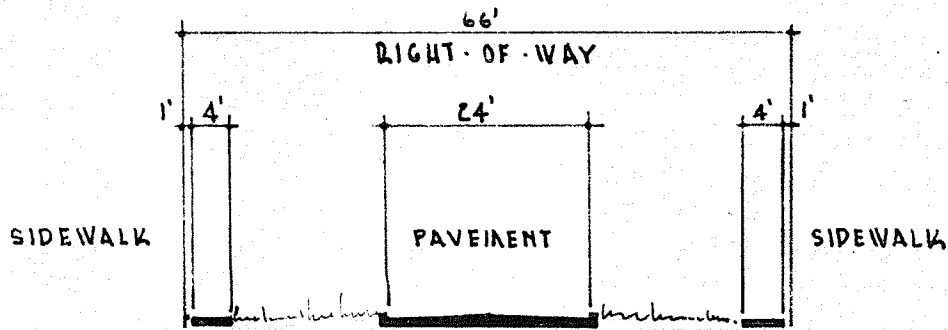




ARTERIAL PARKWAY



MAJOR RESIDENTIAL STREET



MINOR RESIDENTIAL STREET

SUGGESTED STREET WIDTHS

INDUSTRIAL PLANNING

PRINCIPLES OF INDUSTRIAL PLANNING

Before proceeding with a discussion of Industrial Planning some clarification of the term "Light Industry and Warehousing" is essential. The classification for industry is based on the effect that industry has on its environment. This classification is more important than one which is based on the nature of raw materials and finished products. For example, such industries as steel plants, rolling mills and industrial chemical plants, are considered as heavy industries because of the nature of their raw materials, processing, and finished products. However, for a complete classification of industrial types, such factors as noise, types of power, noxious odors and fumes should be considered. If these characteristics are present in any industry then that particular industry should also be classified as "heavy industry". If these attributes are absent industries can then be considered as "light".

The average Canadian community is a place where people live and also make a living. Such a community needs land set aside for industries that will provide employment and also pay taxes for community improvements. The closer the work is to the home the less human energy, time and expense are wasted in travel. While this reasoning cannot be carried to the point of controlling a man in his choice of work or living quarters, some advance can be made toward one objective of planning - to cut down traffic congestion on city streets.

In metropolitan areas such as Greater Winnipeg there may be separate residential and industrial communities, just as in most municipalities there are separate residential and industrial zones. In cases where municipalities are adjacent, such as with Fort Garry and Tuxedo, the zoning on both sides of the boundary should be similar; in this way one type of zoning does not encroach on another and cause blight.

Few cities or towns can support residential areas without offering gainful employment in industry. Trades, services, and other secondary types of employment will develop, but these remain dependent on the major industry in the community.

Industrial use should be considered equal to any other land use under zoning. One of the chief principles of zoning is that "Industrial use is a legitimate land use possessing integrity comparable to other classes of land use established under zoning and is entitled to protection against encroachment" (1, P.3). Residential or commercial buildings should not encroach on industrial zones for these reasons: first, small lots suitable for residential or commercial purposes are difficult to adapt to industrial purposes; and second, encroachment is conducive to blight.

Many industrial plants have been established close to residential areas and have shown over a period of time that they can be good neighbors. Such industrial zones are characterized by relatively low buildings which permit sufficient light and air to reach nearby residences. If properly planned they have

wide setbacks with landscape treatment of lawns, trees and shrubs; and they have been provided with paved, well drained off-street parking areas to accommodate all the cars of employees and visitors to prevent undesirable congestion of nearby streets. Such standards promote plant security, capitalize on the advertising value of an attractive plant and grounds, and contribute to employee morale and efficiency.

Good industrial zoning will recognize the industrial potentialities of easily serviceable lands. Industrial plants and warehouses must bring materials in and ship products out. The means of transportation will vary from plant to plant, but by far the most common means of transportation is by rail. This indicates that unoccupied lands convenient to railroads should be carefully studied as to their physical characteristics and the present and future needs for an industrial zone in the community. Similarly land near freeways and main trucking routes should be examined for their prospective industrial value.

Many of the largest industrial installations, including those handling large quantities of raw materials, find it advisable to locate near rivers which provide a disposal area for waste and sewage.

In planning new highways and main streets through or adjacent to industrial areas every effort should be made to avoid close proximity to parallel railroads. "Narrow strips of land between highways and railroads seldom are desirable for industrial

development. If the highway is a major artery, difficulties will be encountered in attempting to cross it with spur trackage, thus introducing problems of crossing maintenance, interruption to flow of highway traffic and creation of traffic hazards." (1, P8).

A highly desirable course is to select in advance those areas having reasonable prospect of future industrial development, to protect them through appropriate zoning, and then make provision for the construction of highways at sufficient distances from railroads, in order to achieve usable industrial properties between the highways and the railroads. Such an arrangement also makes possible the orderly construction of grade separations and approaches when necessary. The economic value of the property located between the highway and the railroad will be greatly enhanced by having both modes of transportation available for the moving of products and persons.

SITE PLANNING

In the planning of industrial sites it is important that consideration be given to the depth of the property suitable for development: for example, it is wasteful to develop a narrow grid of streets in an area zoned for industry. This may mean the cutting of total acreage into individual lots too small for proper use by average size plants. Similarly it is wasteful to construct streets and services when it is not known whether they will be in the right place to serve the intended area. Only major streets should be constructed, with preparations made for the installation of local service streets where needed as the area develops. Square or near square areas of land are likely to suit almost any development.

In planning for warehousing a lot depth of between 200 and 300 feet is most suitable. This provides space for a warehouse, including facilities for handling freight from a private siding and for trucks reloading on the street side of the plant.

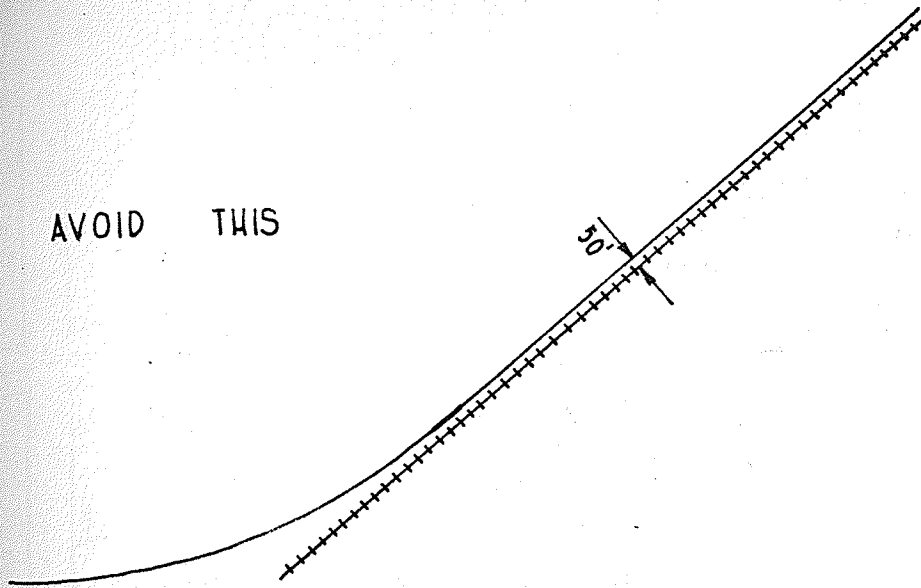
It is generally thought that a depth of between 225 and 400 feet is most suitable for light industrial developments. Large or heavy industries generally require lots 500 feet in length for development.

A practice has developed in many cities to create a green belt or park area around industrial zones. This, in conjunction with substantial setbacks and landscaped grounds of the industrial sites, enhances the attractiveness of the area from both

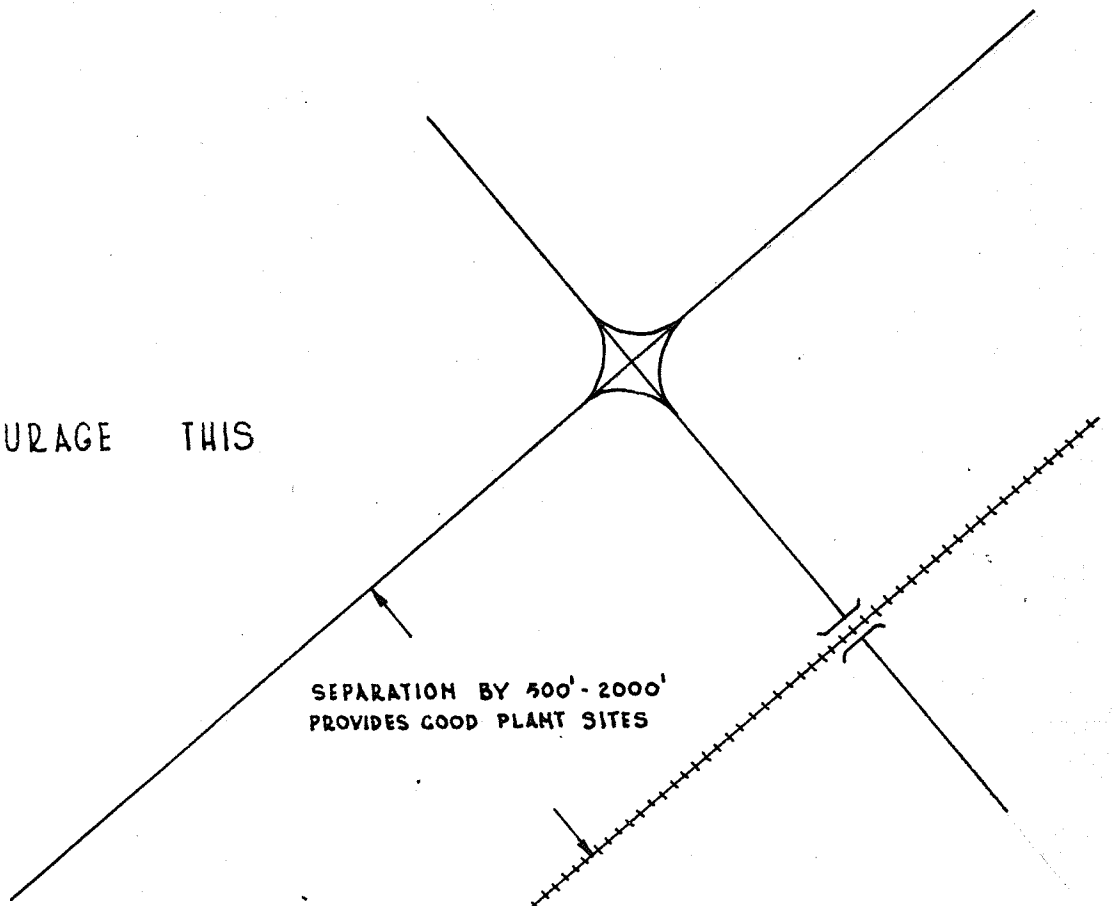
the human and the advertising standpoints. The green belt separates the industrial area from the residential and commercial areas, and serves as a buffer to noise, sight and sound.

Illustrations of the aforementioned industrial site planning principles are contained in the following drawings.

AVOID THIS



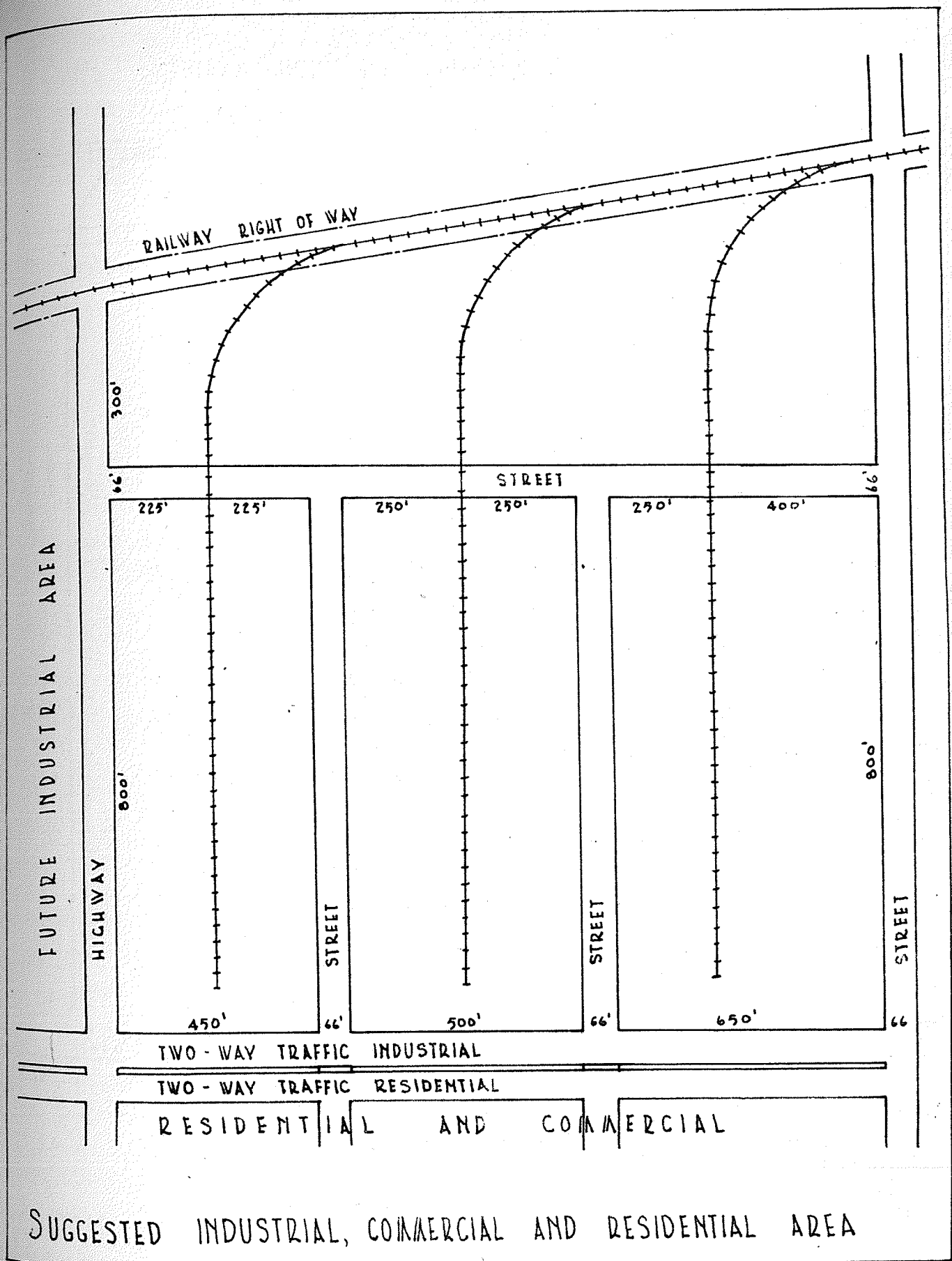
ENCOURAGE THIS



SEPARATION BY 500'-2000'
PROVIDES GOOD PLANT SITES

RAILWAY AND ROAD

RELATIONSHIPS



FUTURE INDUSTRIAL EXPANSION

RAILWAY RIGHT OF WAY

STORAGE SITES

STREET

HEAVY INDUSTRIAL AREA

STREET

LIGHT INDUSTRIAL

AND

STREET

MANUFACTURING

AREA

STREET

WAREHOUSING AREA

STREET

WAREHOUSE

STREET

GREEN BELT

RESIDENTIAL

1400'

66'

900'

66'

600'

66'

550'

ONE WAY TRAFFIC

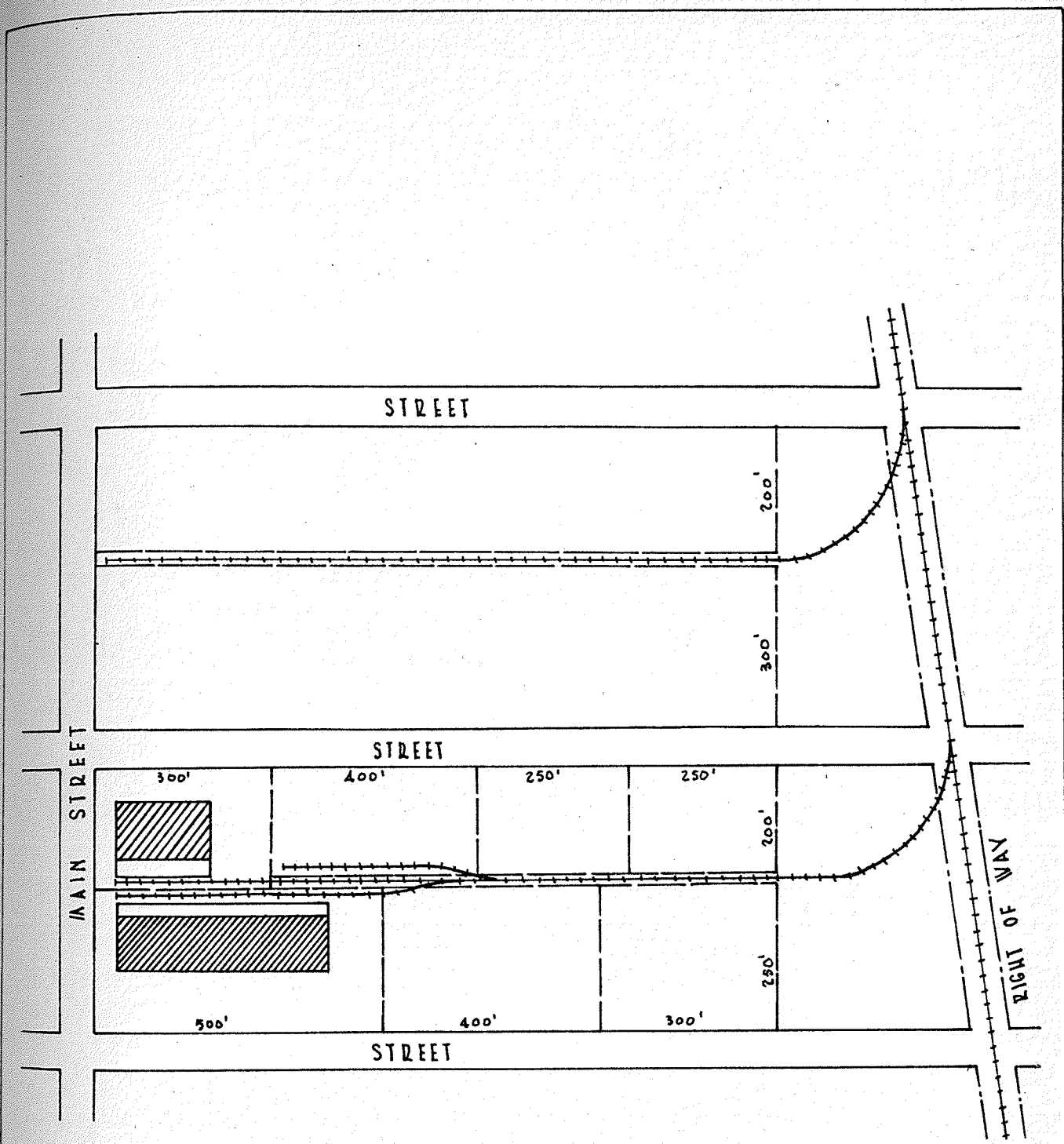
ONE WAY TRAFFIC

C O M M E R C I A L

1100'

1100'

COMBINED INDUSTRIAL, MANUFACTURING, WAREHOUSING AND STORAGE AREA



SUGGESTED WAREHOUSING AREA

TOWN PLANNING

GENERAL

The housing problem in Canada is almost as old as our nation's history. The first statement on housing problems that is on record is an 1891 article called "Working Men's Homes", by Goldwin Smith. Mr. Smith in raising the point of where working men were expected to live, stated that there were plenty of homes for the well-to-do (those with incomes of \$1000 to \$2000) but that the \$10 to \$15 a month rent usually asked of working men was considerably more than they could afford to pay.

The problems indicated here were to be greatly increased in the forthcoming generations, aggravated by thousands of immigrants, rapid urbanization, and the expansion of Canada's industries.

Society has come ^{gradually} increasingly to accept the principle underlying social assistance, old age pensions, etc., that every person, able and willing to work or to care for a family, is entitled to at least a minimum of the essentials for healthful living.

Shelter is one of these essentials, but owing to the chronic shortage of rental housing, accommodation of an acceptable minimum is unobtainable in many cities at rents anywhere approaching the financial limits within which the local commu-

nity can be expected to provide assistance to its less fortunate members. In addition to people receiving public assistance there are many thousands of working families in the low income group, in particular those with dependent children, who cannot provide adequate housing. It is these larger families for whom the consequences of bad housing are most serious.

All of these reasons provide justification for state aid in housing. Most municipalities and provinces do not have the financial resources to pay the complete costs for new housing and we have seen that private industry building for a profit finds it quite impossible to provide housing at a low enough rental rate to meet the requirements of the low income group. As housing is a necessity and poor housing produces costly social problems, the provision of adequate housing has generally come to be regarded as a necessary social obligation of the state.

The problem of housing the lower income group has been met most successfully and realistically in Europe. The war resulted in the destruction of the homes of thousands of people. Solving the problem of housing so many destitute men, women and children, and meeting the demands for housing an economically poor but greatly increasing population, necessitated a new approach to planning. Such an approach is best illustrated in the Scandinavian countries of Europe.

The comparison between lower income group housing in Canada and

that of Scandinavia, Sweden in particular, highlights the better points of Scandinavian urban and economic planning, and suggests where changes should occur in the Canadian planning policy. In the Scandinavian countries, the "mixing" of dwelling types: i.e., single family dwellings, duplexes, row houses and apartments, has produced much less monotonous residential areas and far more flexible arrangements in meeting the needs of families differing in size and composition. In comparison, nearly all new developments in Canada have been for the middle and upper income brackets. This has resulted in row after row of single family houses, too expensive for those able to afford only \$35 a month to buy or rent. Such developments ignore the needs of social groups of differing age and marital status.

A comparatively high density of population in a residential development, as is common in Sweden, would be a great advantage to most Canadian cities. Urban sprawl, or the spreading out of cities, invariably causes a number of problems in the financing and installation of services, and is also the cause of many of today's traffic problems. By keeping population densities high, and thereby decreasing urban sprawl, these problems can be partially overcome.

PRINCIPLES OF SWEDISH PLANNING

Sir Patrick Abercrombie, a leading English town planner, has written, "The interest in Swedish architecture which is taken by this country is intense. We have watched the transition from the last phase of romanticism, which in Sweden reached a delicacy of fantasy and perfection of craftsmanship unequalled elsewhere, to the modern and more austere idiom. And here again we see a quality of charm which is not always present in modern music, painting, sculpture or architecture elsewhere. There is one thing to which Swedish architects have given great attention, the setting of their buildings in Town and Country. It has been suggested that the severity of their long white and grey winter has made them include greenery inside and outside their buildings. However that may be, we here see modern building in its architectural and landscape treatment as attractive as it is efficient" (2, P.5)

The climate and topography of Sweden are very similar to conditions in much of Canada. Its northern limits stretch into the Arctic circle but the gulf stream gives it a warmer climate than is usual so far north. 55% of the country is forested, with the best farming land in the south. It is a country which has both plains and mountains, cut up by a great many lakes, streams and rivers.

Sweden has the second oldest representative ruling body in the world, and its people put democracy into very real practice.

Labour unions have a great deal of importance, and as could be expected in a Socialist Democracy, social welfare enables everyone to have a life of basic security and equality. The government is generally in favor of nationalisation, but only where private enterprise fails. The cooperative principles applied to shops, and what is more important, to housing, have been developed further than anywhere else in the world.

In Sweden, as in most Scandinavian countries, towns have a large number of tall apartment buildings, whereas in Canada, the predominant type of housing is the small one or two family house. These Swedish apartment houses vary in height from six to ten stories, with smaller blocks of three storied apartments. In small groups or rows, "point buildings" or high-rise apartments give weight to a certain part of the town, a valuable feature from the town-planning point of view. The smaller apartments are often built as terraces either straight or curved, each house having a frontage of about 45' feet. They give the advantage of a private house combined with the advantages of communal life. There is a great demand for single family homes, but due to high costs, material and labour shortages, most people choose to live in rented flats. There are many forms of communal housing. A popular form is a large apartment house where nursery, restaurant, laundry and domestic help are all provided. Besides this there are other more specialized kinds of communal housing.

Since 1940 the building industry has to a great extent been run by the local authorities under supervision of the central

government. Cooperative building organizations are very popular and are given state loans. Most people like to own their apartments, and through cooperative organizations or the local authorities, may pay 5% of the construction costs, the remainder in their yearly rent.

For a full appreciation of contemporary Swedish planning and an understanding of why the principles of Swedish planning are applicable in Winnipeg and the rest of Canada, some knowledge of the background of Swedish planning is necessary.

During the 1930's planning was based on rational arguments and reasons. Architecture in its application to town planning utilized new techniques in building and administration. Town planning schemes were expressions of the new city planning policy. With regard to civic design, however, no marked advancement was achieved. In civic design the spaces enclosed by buildings are as important as the design of the buildings themselves. During the 1930's one finds that the location of buildings on the site usually did not receive enough attention by the designers, and the civic compositions were, therefore, not particularly successful.

Planners began to study the effects of economic, sociological and geographical influences on planning. In the thirties, a start was made on the laying out of roads, taking into account the existence of motor cars. Plans were developed to separate pedestrian and vehicular traffic. By the 1940's planners were

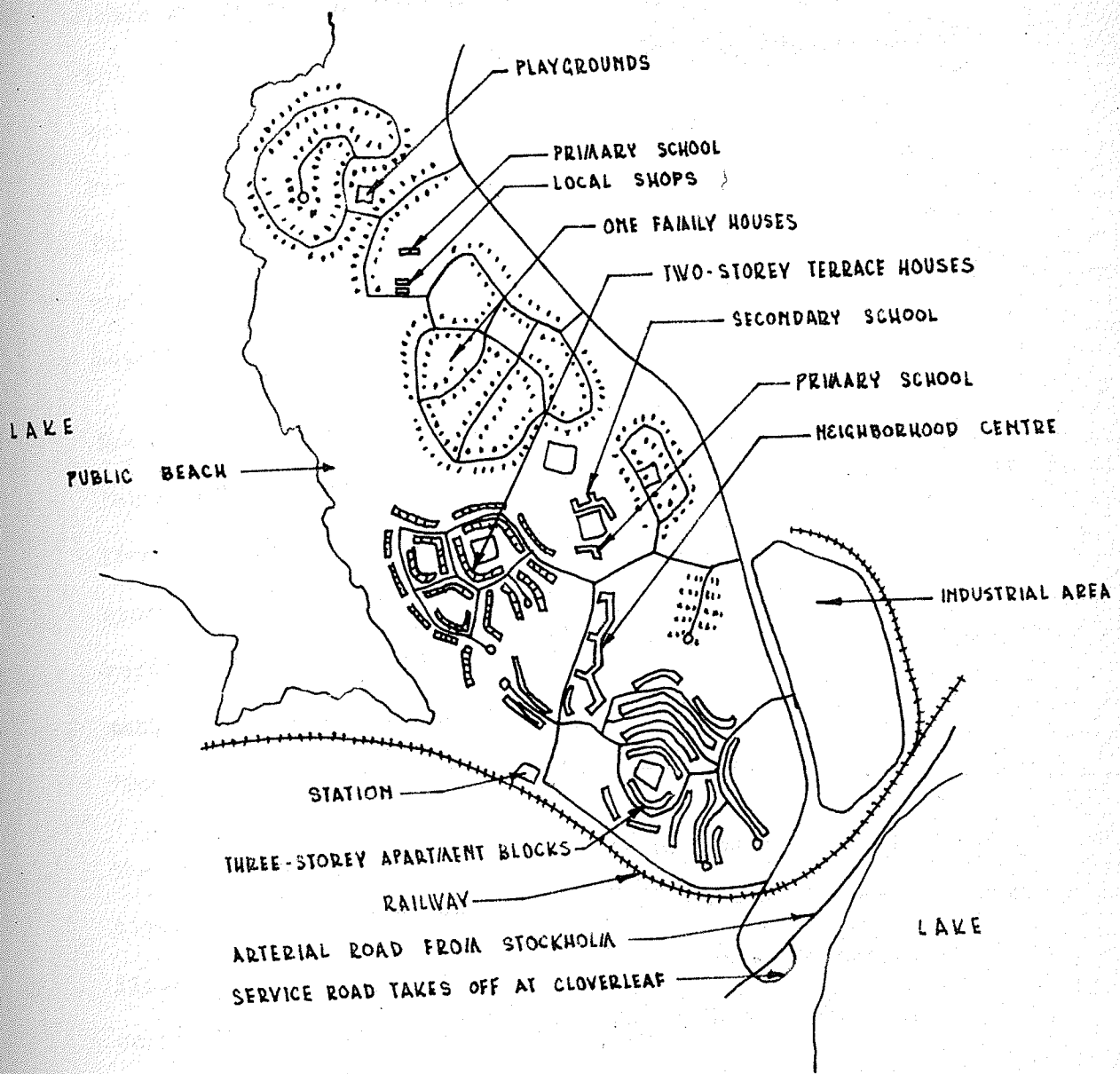
beginning to arrive at the idea of a "neighborhood unit". They were greatly influenced by the principles of neighborhood planning advocated by Clarence Arthur Perry in 1929. They may be briefly stated thus (3, P.19).

1. Size. - a residential development should provide housing for that population for which one elementary school is ordinarily required, its actual area depending upon population density.
2. Boundaries. - the unit should be bounded on all sides by arterial streets sufficiently wide to facilitate and accommodate all by-passing through traffic.
3. Open Spaces. - a system of small parks and recreation spaces planned to meet the needs of the neighborhood.
4. Institution sites. - sites for the school and other institutions should be grouped about a central point or a common.
5. Local Shops. - one or more shopping districts, adequate for the population to be served, should be sited in the circumference of the unit, preferably at traffic junctions and adjacent to similar districts of adjoining neighborhoods.
6. Internal Street System. - the unit should be provided with streets sized in proportion to the traffic load and to discourage through traffic.

Most of these ideas have been accepted and used to great advantage in Swedish planning. Most town planners today begin on a

large scale by planning for whole areas, including cities, farmland, industries and roads. Inside this broad pattern detailed planning of towns, neighborhood units and housing is undertaken.

A typical example of neighborhood planning as applied in Sweden is the plan of Hagernas, (see accompanying drawing) a suburb of Stockholm. Hagernas is planned for some 6000 people. It is hoped that the people who live in a unit of this size can work there and go to school there; they can know their neighbors, and take an interest in communal and cultural life. At present the area is hilly farmland and forest, with a view westward to a lake. Most houses will be within ten minutes walking distance of the suburban railway station. A road for vehicular traffic will pass round the back of Hagernas, serving the houses on one side and the industrial area on the other. The houses are in small groups; the group nearest the station is composed of three storey apartment buildings, the one in the middle of two storey terrace houses and the northern group of duplexes and single family homes. There are three schools in the neighborhood and one large shopping center near the railway station. In addition there are some small shops in the northern part of the development. The industrial area will provide work for about one-half of the working population.



PLAN OF HÄGERNÄS, SWEDEN

HOUSING TYPES

New towns in Sweden have a great variety of building types. There are large apartment houses, six to thirteen stories high, and smaller blocks of three storied flats. The smaller blocks are built in terraces, either straight or curved, each house having a frontage of about 45 feet. There is a great demand for single family houses, but shortage of labour and materials means that flats have often to be built at the expense of small houses.

Now that many women have work and interests outside their own family circle, some type of communal housing is usual. A popular form in Sweden at present is the unit of families in a large apartment house where the necessary facilities, such as restaurant, laundry, and domestic help, are all provided. Apartment dwellings are generally divided into three main types - "Deep Houses", "Shallow Houses" and "Point Houses".

The "deep house" has a depth of 14 to 16 meters and is a comparatively recent building type. Its plan is generally complex, with flats, especially the smaller ones with windows on one facade only. The dark interior parts of the building, receiving no daylight, are used for bathrooms, closets, service rooms and halls. This type of building is usually located running north and south, thus making the flats - unless they are sufficiently large to extend across the entire depth of the block - face either to the east or the west.

"Shallow houses" are approximately 23-30 feet deep. This type of house makes it possible to spread even small flats from one side of the building to the other. All rooms can be provided with windows, therefore the block can face any direction. In its pure form, the "shallow house" has only two flats per landing. This arrangement implies, however, that a lift is not a paying proposition and for this reason the "shallow house" is usually limited to three or four floors. The "shallow house" along with the detached cottages are the most familiar type in the suburbs of Swedish towns.

There is no hard and fast borderline between the "deep house" and the "shallow house". The "deep house" is more usually found in a tall block than in a low block. But the tall block requires lifts, mechanical ventilation, more expensive treatment, etc., whereas the "shallow house" will permit a less elaborate and less expensive construction.

The "point house", in its simplest plan, is a form of "deep house" limited to four corner flats in a square or nearly square plan. The same conditions that govern the idea of the "deep house" also apply to the "point house". This means that three of the flats on each floor have southerly and westerly views, while the remaining flats have to be satisfied with facing the north and east. This is the biggest drawback of the "point house". If the block is made T- or Y-shaped the flat in the north-east can also be provided with sunlight from the south during some part of the day. Some of the advantages attaching to

the "shallow house" are also present in the "point house": for example, cross-ventilated flats and a frontage which is sufficiently long to enable all rooms, in certain cases even the bathroom, to be provided with ample daylight. There are two varieties of the "point house": a low three to four storey building and a six to nine storey or even higher tower-like block. As the number of flats per floor is larger than in the "shallow house" the installation of a lift can be afforded. For this reason the "point house" has mainly been used in developments where the cost of the site was too high to allow for the construction of low buildings. It has also been used with the object of enhancing the appearance of the city.

One of the better and most interesting types of housing is the so-called "star house". It occurs either detached as a "point house", or in various combinations forming the corner block of "shallow house" schemes. One of the advantages of the "star house" is that all apartments in the wings of the "star house" have three frontages which permits great freedom of planning. The 120 degree angle between the wings reduces the risk of overlooking adjacent corner flats.

One of the most popular and successful methods of housing in Sweden is "collective housing". Technical progress has made possible and promoted the collectivisation of town dwellings, but the main factor has been the increase in the number of women gainfully employed outside the home and the resulting demand for more and more labour-saving services. The communal amenities

can be provided for a group of blocks of flats or for an entire residential district. It is also possible to concentrate all amenities in one block of flats which therefore will be able to offer a particularly comprehensive service, and thus becomes what we generally mean by "collective house". The modern version of the "collective house" is a block of flats for families with all kinds of house services concentrated in the same building. The "collective house" for families is equipped with all those communal amenities which in the case of the ordinary block of flats belong to the entire district: for example, wash houses, baths and steam baths, domestic service, restaurant, shops, day nursery, and recreation rooms. In order to be able to provide all these facilities without charging rents considerably higher than those payable in an ordinary block, the number of flats must be very large - estimated at about two hundred. As a rule, the tenants must agree to eat most of their meals in the restaurant.

The difference between flats in "collective houses" and ordinary blocks of flats is that the kitchens of the "collective house" are smaller, very often nothing more than a kitchenette; The "collective house" is, in fact, a kind of residential hotel and consequently the corridor plan applicable to hotels has also become the type of plan governing the "collective house".

Another type of housing very popular in Sweden is the "terrace house", a type of building half way between the detached cottage and the multi-family building. It offers closeness to the garden spaces and a garden of one's own. So far as privacy and quiet are concerned, the terrace house, at any rate in its more expensive form with small screened terraces, offers greater advantages than the owner-built cottages which are usually on very small plots and so close to neighbors as to make privacy rather impossible.

At the present time the single family dwelling in Sweden is very popular among the mass of people. Cooperative housing, using prefabricated units, is the most common type built today. Private houses are often delivered from the factory in sections. This cuts the cost, as the owners can help put them up; and people have the real satisfaction of building their own houses. The traditional small house in Sweden is wooden, painted red with white trim and with a pitched roof of tiles. Today this type of house has great influence over country and suburban architecture. Brick houses are also becoming quite popular. Most of the single family housing in Sweden is arranged in groups, taking advantage of all natural conditions. There are few fences or walls to divide one from the other. Quite often the original flatness of the land has been varied by a series of terraces and gardens, some pieces of sculpture, and sandpits and playgrounds for the children.

THE CHURCH AND THE NEIGHBORHOOD

Town planners have emphasized the need for the improvement of localities, building of new towns, and the provision of adequate and decent housing. Both government and private industry finance housing schemes, but a concern for the spiritual fulfillment of those living in these new developments is lacking. Planning schemes, though new, efficient, safe and sanitary, are spiritually barren. If true neighborhoods are to develop a feeling of community spirit or neighborliness, the social values and mores must be realized. In order that religion and the Church may thrive there must be a renewal of a community spirit and awareness.

Dr. J. H. Oldham says, "There is nothing greater that the Church can do for society than to be a center in which small groups of persons are together entering into this experience of renewal and giving each other mutual support in Christian living and action in secular spheres It is in the wide field of rebuilding vital social tissue through the experience of communal living that the direct service of the Church to society can best be rendered The task of multiplying opportunities of cooperation and of building up social communities with common interests and shared responsibilities may often seem humdrum and commonplace The strength to persevere comes from the knowledge that relations with persons are the staff of life and that through loyalty to personal obligations in a multiplicity of individual instances social

tissue is being restored and new vitality if being infused into human society. In these relations with other persons we are living man's true life and the results can be left in the hands of God" (7, P.6).

This quotation serves to indicate that the most deep-rooted and lasting sense of belonging results from spiritual experience. In this sense the mission of the church in the urban community is that of serving as a spiritual and social focus for the neighborhood. Planners and churchmen should plan to develop neighborhoods to meet this basic aspect of life.

The location of the church depends upon the extent of the area it serves. Those serving only the neighborhood should have central positions, and those which draw people from outside the neighborhood should be at or near the boundary. Therefore, before the question of location can be solved, the planner must investigate whether a particular church is to serve a specific neighborhood or several neighborhoods.

The population served by churches of various denominations varies a considerable amount. A Roman Catholic parish unit usually contains from 5000 to 10,000 people. Most Protestant churches serve a parish of 1500 to 2500 persons. Because of the heterogeneity of the population in most Canadian cities and towns, seldom can one church serve all people, or even a majority of an entire neighborhood. For example, there is

little possibility of one church serving Roman Catholics, Protestants and Jews, but the possibility of comity agreements among the Protestants for interdenominational services should not be overlooked.

Where churches draw from a large area, which may comprise more than one neighborhood, it is usually preferable that they be located on the periphery of the neighborhood, possibly near the shopping center. In such a location the residential interior of that neighborhood is not likely to be disturbed by much automobile traffic to and from the church. In such a location the church is close to public transport and off-street parking facilities and can be better seen by the public.

The congregation of a church on the periphery will arrive by automobile using major streets. This type of church requires adequate off-street parking to prevent vehicular traffic hazards and congestion. The amount of parking area required depends on the seating capacity of the church rather than total membership. Off-street parking requirements range from one-car-space for ten seats to one-in-three.

To allow both for integrating the neighborhood and for meeting a diversity of religious needs, it is probable that each neighborhood unit should have at least one church in the neighborhood center, serving primarily the neighborhood, and one on the periphery near the major traffic arteries, the latter

to serve on a regional or community, rather than a neighborhood, basis.

Churches that are placed within the neighborhood should be close to a school site, shopping center, and green belt, or park. If the church provides all of its own grounds it should have a site of at least three acres, preferably four. Most Roman Catholic churches, which are often in conjunction with a Convent and a Parochial school, require at least an 8 acre site. Even with the church located near the center of the neighborhood a minimum of off-street parking should be provided. This will encourage walking to church and discourage penetration of vehicular traffic into the neighborhood.

THE TOWN CENTER

The "Town Center" is the chief administration, business, entertainment and cultural center of the town as a whole. The town center is a meeting place for the population as a whole - for such activities as the announcement of election results, the celebration of important events, and the worship of God - and must provide a main civic square, a civic hall, and the most important church buildings. In addition the town center is the focus of the circulation system, and either in or near to it will be the bus station, garages and the railway station.

As an administration center it contains the council chambers, municipal offices and the police station. As a business center, it provides the citizen with many types of goods, beyond what he can obtain in his own neighborhood. It is also the business center for commercial and professional firms. It contains every kind of shop building, from the large department store to the small intimate shops selling luxury articles; and all kinds of office and warehouse buildings, from multi-storey office blocks with large floor areas to the chambers of a lawyer.

As an entertainment and cultural center it is the place where the citizen goes to watch a play or to see the latest film; where he should be able to enjoy all types of music,

to read and eat good food, and to join clubs of his own choosing. Buildings appropriate to it are the theatre and concert hall, the museum, art gallery, library, restaurants, dance halls, cafes, and all other miscellaneous halls and rooms.

Frederick Gibberd says, "For the purpose of planning a town centre, it is usual to divide these various functions into three broad groups: the business or commercial group, which may be subdivided into the shopping centre, offices, and wholesale warehouses; the civic group, being the main administrative, cultural and social centres, containing the town hall and other public buildings, and educational and recreational buildings, like the technical college and the theatre; and the light industrial area, containing the small factories and workshops" (5, P.47, 48).

Considering the character of the central areas as a whole, it is obviously the place that should give the greatest feeling of urbanity: its spaces should be the most highly organized, the most architectural, and generally those which give the greatest impression of a town environment. As the meeting places for all sections of the community, it should be the busiest and most lively area in the town. Since it performs so many different functions it should provide the most picturesque and varied environment in the town. Since it is the focus of the town's life and is the place to which the visitor is first drawn, it should be the place where the

most care will be lavished on civic spaces, buildings, and urban embellishment.

NEIGHBORHOOD DESIGN
REQUIREMENTS

GENERAL STATEMENT

In this thesis the neighborhood is defined as an urban unit with a functional arrangement of its elements, those elements being the circulation system, the built up and the open spaces, the building sites, and the recreational, educational and social welfare facilities.

Many social scientists disagree on the effectiveness of the neighborhood principle in an urban area; they claim that because of their automobiles, families will satisfy social and recreational needs outside, in the heart of the city or in other areas. However, there are the children to consider and there is a necessity of restoring some recognizable human scale in the physical reorganization of the city. The scale is, therefore, man's walking pace, - or the child's. The elements in a neighborhood depend on the daily needs of a child, the mother, and the family. The livability of residential areas is not based solely on the livability of individual dwellings, but by the extent to which all family members can fulfil their daily recreational needs within a comfortable distance from home.

The neighborhood is conceived as a series of integrated parts, called housing groups, varying in size from 50-300 persons. A desirable neighborhood is one with 4000-5000 people, the minimum population sufficient to support an

elementary school. Children living in the neighborhood unit should not have to cross a main road while going from home to school. A child, with his imagination and energy, may skip, hop, slide and run at five miles per hour, but in terms of a straight line covers only two and one-half miles. The following chart shows what Robert Dowling believes is the ideal maximum distance from the dwelling to the various neighborhood and distant facilities.

<u>NEIGHBORHOOD FACILITY</u>	<u>DISTANCE FROM DWELLING IN MILES</u>
Nursery School	1/4
Elementary School	1/3
Neighborhood Park	1/3
District Park	3/4 - 1 1/4
Shops	1/2
Cultural and Recreational	1/2

Each unit would need a neighborhood center, perhaps focused around the school. The open spaces, apart from the regularly distributed playgrounds and parks, are designed as far as possible to surround the community; together with main arterial routes, they form a natural boundary between one community and another.

A street arrangement in which the arterial traffic routes bound a large block penetrated by a series of loops and cul-de-sac service drives is usually called a superblock. The interior of the block which accommodates the park area is accessible by footpaths only. Neighborhood streets should

carry only that traffic beginning or ending within that particular neighborhood. There should be a clear distinction in widths of roadway between major and minor routes. The pattern formed by these two kinds of streets should be as simple and straightforward as possible, enabling easy access to all parts of the neighborhood.

The neighborhood of 4000-5000 population will require an elementary school site of 1.8-2.2 acres. This acreage will accommodate an average size school building for 360-450 pupils. In addition a playground of 5-6 acres in size will be needed. A part of the playground should be set aside as play space for pre-school children.

The design of parks and open spaces should follow the so-called green wedge system whereby the various green areas are connected as much as possible by green wedges of varying widths. Such a pattern provides for pleasant walks and its various parts offer desirable views on which to front the dwellings. The smallest area of public open space ^{is} if the neighborhood play lot. They are essentially places of fresh air for infants up to the age of six who are too young to be integrated with older and more active children in neighborhood parks and who still need constant supervision. To reflect the imagination and playfulness of infants, their design should include areas of contrast, shade and sunshine, and hard and soft surfacings.

The neighborhood park is a desirable space and should be provided. Its shape and design are as important as its size. The neighborhood park is the focus of outdoor activities in the neighborhood. While there may be several dozen play lots in a single neighborhood, there is usually only one major neighborhood park. It is essentially an intermediate recreational space, permitting the more passive activities of the adults - sitting, reading, horseshoe pitching, etc. - and the active play of children - swinging, see-sawing, running, wading. It is an outdoor area, the function of which is to tie the neighborhood together through recreational activities and face to face contact. The size of this park depends on the habits and needs of the particular neighborhood; but, in general, ten percent of the total area in the neighborhood is considered a desirable minimum.

The playground serves the district (a group of neighborhoods). It facilitates participation of adults and older children in active sports. Some of the facilities needed are open green spaces for informal play; surfaced areas for tennis, volleyball, etc.; fields for softball and football; pools for swimming and wading, and shelters for protection and refreshment. The area recommended is a minimum of 10 acres or a rate of half an acre for every thousand persons served.

The neighborhood shopping center is a retail establishment built as a unit, and operated on a rental basis. The following is a summary of a study done by Robert Dowling on

neighborhood shopping facilities.

<u>NO. FAMILIES</u>	<u>FLOOR AREAS</u>	<u>TYPE</u>
50	3,500	one general store
250	9,500	market, drugs, bar and grill
500	12,000	same as above with stationer, laundry, cleaner
1000	17,000	same as above with specialty shops, delicatessen, beauty shop, bakery
2500	35,000	same as above with addition of market, drugs, stationery and laundry
5000	90,000	same as above with addition of market, drug store, also theatre, variety shops, post office, professional offices, doctors, etc.
10000	290,000	same as above with library

The above chart seems to be arbitrary; yet it indicates a rational relationship between the number of people in an area and the facilities to be provided. Successful shops are those which are convenient and pleasant to shoppers, and those which do not add congestion to surrounding streets. In a new neighborhood, shops are grouped together into a center, located inward into the residential area away from the busiest vehicular routes, and convenient to the pedestrian as well as to the driving shoppers. The neighborhood of 4000-5000 persons should be able to support a center of about 10 shops, including a food store, a drug store, and several service stores such as a dry cleaning branch store,

more than about 25% of its site, about 3 acres for a neighborhood of 4000-5000 people.

In order to achieve a proper relation between the population of a neighborhood and the community facilities required, the density of development must be controlled by setting up the desired population limits. Table 1 (6, P.27) indicates the maximum permissible net residential and neighborhood densities for the population of 4000-5000 persons. Net residential land is land devoted to residential buildings and accessory uses, such as informal open spaces, drives and service areas, but excluding land for streets, public parking, playgrounds and non-residential buildings. Neighborhood land means net residential land, plus streets and land used for schools, recreation, shopping and other neighborhood purposes.

Table 2 (6, P. 27) gives the recommended land areas for the community facilities in the neighborhood of 4000-5000 persons. The physical characteristics of the site as well as the density employed in the project will necessitate some deviation from the figures given.

TABLE ONE

Dwelling Type	Maximum net residential density, number persons per acre of net residential land	Maximum neighborhood density, number persons per acre of total neighborhood land
Single-Family	25.2	18-19
Duplex	43.2	27
Row	68.4	42
Apartment, 2-storey	108.0	56
Apartment, 3-storey	162.0	71-72
Apartment, 6-storey	270.0	98-99

TABLE TWO

Land uses	One or two family developments with private yards	Multi-family developments without private yards
School Site	1.80-2.20 acres	1.80-2.20 acres
Playground	5.0 -6.0 "	5.0 -6.0 "
Park	3.0 -3.5 "	5.0 -6.0 "
Shopping Center	2.6 -3.0 "	2.6 -3.0 "
General Community Facilities	1.5 -1.9 "	1.5 -1.9 "
Total	13.9 -16.6 "	15.9 -19.1 "
Square feet per family	550-530	630-610

Other facilities required in a community of several neighborhoods of 4000-5000 population are as follows: a Junior high school and a Senior high school. The Senior high school would include facilities for recreation, sports, theatre, culture and education of adults as well as students.

The Neighborhood Center located at the center of residential gravity, is a focal point for shopping, recreation and social activities. Its main elements are: the shopping center; the

elementary school; the community club house; the health center; the library; the recreation center including facilities for bowling, billiards, lounges, club meeting rooms, dining and licensed quarters and a movie theatre. Considering the number of elements the Neighborhood Center is bound to be a group of buildings. They should be planned to surround a plaza free of vehicular traffic. Such a concentration of everyday living essentials should help toward the development of a community spirit.

In this age of machine and speed we have two human scales, the walking and the riding man. Although the emphasis must be placed on the pedestrian, the riding man must not be forgotten. The major urban arteries should be enclosed by neighborhoods which in total appearance are soft and simple in silhouette designed to create tension of voids and masses when seen at thirty miles per hour. As the driving man enters the local streets, this reduction of speed must be mirrored in the general design of the buildings. The relationship of mass and voids, shade and shadow must be apparent. When man parks his car and commences to walk, his attention is directed away from the busy streets inward to the quiet of the neighborhood.

Housing groups are the most desirable form of subdivision. The group may comprise single family dwellings, row houses or apartment blocks, and it may take the form of a street or a square, or be an irregular spatial arrangement. The housing

group must be able to hold the attention of the viewer against the distraction of surrounding features. In the design of architectural space, interest is achieved by the employment of a range of dwelling types: for example, row houses and apartments "mixed" with detached or semi-detached units. The achievement of interest is in this case the result of variations in height and of the corresponding contrasts in building mass. It has been recommended that the dwelling types be varied from street to street since in such an arrangement both sides of a street will be occupied by the same dwelling type and the change of type will occur at the rear lot line. "Variety of dwelling types corresponds to the existing variations in the size and composition of families. Therefore, there are reasons to believe that a mixed development, by virtue of being able to offer flexible accommodation, will keep the families within the confines and will thus strengthen the social unity of the area" (6, P. 42).

Streets should be laid out in such a manner that the group of buildings around them are varied in size and character. However, when the differences introduced between the buildings in a group are too marked, the resulting inharmonious clash mars the overall composition.

The view along the street should be terminated in order to avoid infinite views. The eye should encounter an interesting and not too distant vista, whether it be buildings or

trees. An ever changing but limited view is provided by a curving street. Natural vistas are provided by contour levels, vegetation, and various idiosyncrasies of the site, and these should be exploited in the design layout.

THE SATELLITE TOWN PLAN

GENERAL STATEMENT

As the Satellite Town is part of a wider region, one has to consider its relation to the rest of Metropolitan Winnipeg. Up till the present time the population and density of Winnipeg have grown by continual expansion of the existing suburbs. It is now generally agreed that the large city leads to social disintegration. Apart from the high death and low birth rates and the increase of juvenile delinquency and crime, the city makes it increasingly difficult for the ordinary citizen to enjoy a full life.

It is now becoming generally accepted that we need to redress the balance of population between the central areas and the suburban areas, as well as between the Metropolitan area and the countryside. It is also an accepted fact that population needs to be moved from inside the older, densely built-up areas, such as the Notre Dame area of Winnipeg, to allow for proper space standards, densities of population, and land utilization. The Satellite Town is initially planned to meet this challenge.

Before a town plan can be designed it is necessary to find out all that is relevant to its development. After the preliminary survey is completed, a broad planning policy

should be decided on and adhered to in the future. Once a planning policy is formulated, a forecast of future growth is made in the form of a master plan. As it is not possible to decide exactly when this development will take place, the plan should be flexible and easily amended to meet the changing needs of the community for which it is designed.

The purpose of a town plan is to give the greatest possible freedom to the individual. The interests of the community as a whole are met by providing employment of one type or another; providing places for recreation, libraries and the like; and, in addition, by supplying all the services connected with the civic, business, shopping and transportation facilities that are required in a town.

Most towns today have a characteristic functional pattern as follows: a central core containing the principal shopping center, civic group and business zones around the core, suburbs of houses, each with its own shopping center and other social services; and areas of industry, some of which are generally associated with the town center and some with the railway.

The chief purpose of the Master Plan is to provide and to define the zones that function as: town center; industrial areas; areas for housing; a pattern of open spaces for recreation and general amenities including the delineation

of the town itself by an agricultural belt; and a pattern of arterial roads which run between the built-up areas and connect them to each other and to the region or the metropolitan area.

The plan of the Satellite Town thus has three main purposes: building groups, landscape and circulation. In the words of Frederick Gibberd (5, P. 24), "It defines the ultimate growth of the town in relationship to the region; it lays down a pattern of urban growth related to the existing topography, and it shows the lines of movement in the static building and landscape pattern. Insofar as details are concerned, it shows in terms of buildings the principal areas or zones required for housing and industry; it defines the position of schools, shopping centres and social centers; and it usually defines the principal zones in the town centre for civic, business, cultural and shopping purposes. In terms of landscape the plan shows the agricultural areas of natural landscape that are worth preserving for their own sakes, or that are created for passive recreation; and it shows the active recreation areas necessary for the housing groups and for the town as a whole. In terms of circulation it shows the principal road systems connecting the various building zones to each other and to the region; it shows the relationship of the railway station and sidings to the town centre and the industrial areas; and it may define principal pedestrian ways, and tracks for cyclists".

In planning a Satellite Town for Winnipeg, a site was chosen which could be easily served by road and rail transportation routes and which, because of its relation to industrial areas and to the commercial and residential areas of Metropolitan Winnipeg, would have the best possibilities for future expansion. The site finally decided upon is located in the Southern Two Mile portion of Tuxedo, bordered by McReary Street, Wilkes Avenue, Waverley Street and Macdonald Road. A description of the site can be found earlier in this report under the heading "The Site". In addition, a map showing the existing facilities on or adjacent to the site may be found at the end of this chapter.

Once the site was chosen there remained the problem of forming and deciding on the planning policy to be followed in the design of the Town. A map illustrating this planning policy may be found at the end of this chapter. After talking to several businessmen, prominent in the field of planning in Winnipeg, and after due consideration of various factors affecting the site, the portion of land from Kenaston Street east to Waverley Street, and adjacent to the Fort Garry Industrial Site was zoned for light industry and warehousing. As the Satellite Town would be part of the Metropolitan Area it was decided that this zone would function best if it were restricted to Light Industry and Warehousing, with a few existing nonconforming industries being allowed to remain. All heavy industry

would be encouraged to situate in a more suitable industrial zone in St. Boniface. Thus, the new industrial zone would conform to the pattern previously established in the Fort Garry Industrial zone. The portion of land to the west of Kenaston Street, excluding the Canada Cement Company property, and located between McReary Street, McGillivray Boulevard and Wilkes Avenue has been devoted to the town center and the residential, recreational and park areas.

In order to prevent undesirable encroachment on the site, an agricultural belt has been proposed for the areas west, south and to a certain extent to the north. The area to the south of the site is now predominantly farmland with some dwellings and other buildings facing on Macdonald Road. This area would remain agricultural, with any future building having to take place within the Satellite Town. The area west of the site is wooded and farm land with a few farm homes facing on McReary Road. It is proposed that this land be treated in the same manner as that to the south of Macdonald Road. To the north, the site is separated from the rest of Tuxedo by Wilkes Avenue and the C.N.R. railway tracks. In order that no construction might occur immediately to the north of this boundary, a park belt of approximately 1/4 of a mile is proposed. The land to the east of the site would remain as an industrial zone, while the land to the north of the Industrial portion of the site,

as indicated on the map at the end of this chapter, would be left as an industrial zone.

Taking advantage of the existing roads on the extremities of the site, which form its boundaries, and the heavy belt of trees running north-south through the center of the site, a road pattern was planned which divides the site into five neighborhoods, a central park, a town center and a district recreation area.

The site was planned to take as great an advantage of the existing tree belt as possible. The five neighborhoods are planned to be located on the perimeter of the park and between the outer arterial roads. Parkways connecting the neighborhoods have been planned to run through the park in as natural surroundings as possible. To enable the Town's population to make use of the park, pedestrian paths and underpasses would enable safe movement for children and adults between neighborhoods, the town center and the park areas. To encourage those travelling by auto to make use of the park, curving drives have been established in the northern portion of the park. All of the major arterial routes are boulevarded, to separate traffic, and have as few intersections as possible to facilitate traffic flow. In addition, no property would have frontage on the arterial routes; thus they would act only as traffic routes and dividers between the various constituent parts of the Town.

The Satellite Town as illustrated in a drawing accompanying this chapter, is planned to have a population of 20,000 people with a gross density of about 40 persons to the acre. As the neighborhoods are varied in size, the two neighborhoods to the east of the Park and adjacent to the Industrial Zone and Town Center, have a higher density of population than the three neighborhoods to the west of the Park. To achieve this density without a high ratio of building area to site area, row housing and apartment blocks of various types predominate; to allow for a varied accommodation some single family dwellings are included. The three neighborhoods to the west of the Park would be predominantly single family dwellings with some row housing and apartment blocks to give more variety in accommodation and a less monotonous street scene.

Ordinarily, the detailed design of a neighborhood is prepared by a site planner; in this thesis two of the neighborhoods have been developed in some detail to show desirable neighborhood standards. These two neighborhoods, presented in a schematic manner only, suggest the use of a version of the "superblock" with row housing and apartment blocks predominating as the dwelling types. The dwellings have been sited to form pleasing and intimate enclosures and housing groups, with good views both outwards to the ring road and inwards to the pedestrian paths, park belt, playgrounds and schools. In order that no pedestrian would have to cross a major

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neighborhood road on the way to the school, shopping center or park, pedestrian underpasses have been used in the design.

The Town Center has been planned with the pedestrian in mind. All buildings face onto plazas of one type or another, excluding all auto traffic from the interior of the Center. For those who come to the Center by auto, either to work or to shop, car parks have been provided on the perimeter of the Center.

As in the neighborhoods the plan presented is only schematic, intended to indicate the major areas of the Town Center; the actual design of the area would be left to the architect and site planner. The largest, tallest and most impressive buildings and a feeling of "urbanity" are the features of the Town Center. This area would, therefore, act as the focus for the Town, both culturally and physically.

The Business Center of the Town is located between the Transportation Center and the Civic Center. In this position it is in the center of activity and acts as a visual link between the two. The Transportation Center has been envisaged as being the hub of the arterial road and rail systems which subdivide the Town. Here are located the local railroad station for commuters to and from Winnipeg, the local Bus Terminal from which buses would serve the Town and which would be a Terminal for buses from the rest of Metropolitan Winnipeg; here also would be located various service garages, the fire

hall, police station and any other services necessary. The railroad station would also act as the depot for shipping and receiving goods necessary for proper functioning of the Town. This would not include goods produced in the Industrial Zone where most of the factories and warehouses would have their own shipping facilities.

The Light Industrial and Warehousing Zone is large enough to eventually provide employment for some 26,000 people, an average of 20 people per gross acre of the industrial site. At the start, however, it would be developed to support only those living in the Satellite Town. As the demand for industry grew within Metropolitan Winnipeg and as the Industrial Site would be further developed, the supply of labor from the Satellite Town would reach a limit and workers would be drawn from the surrounding suburbs until the Industrial Zone would be completely developed.

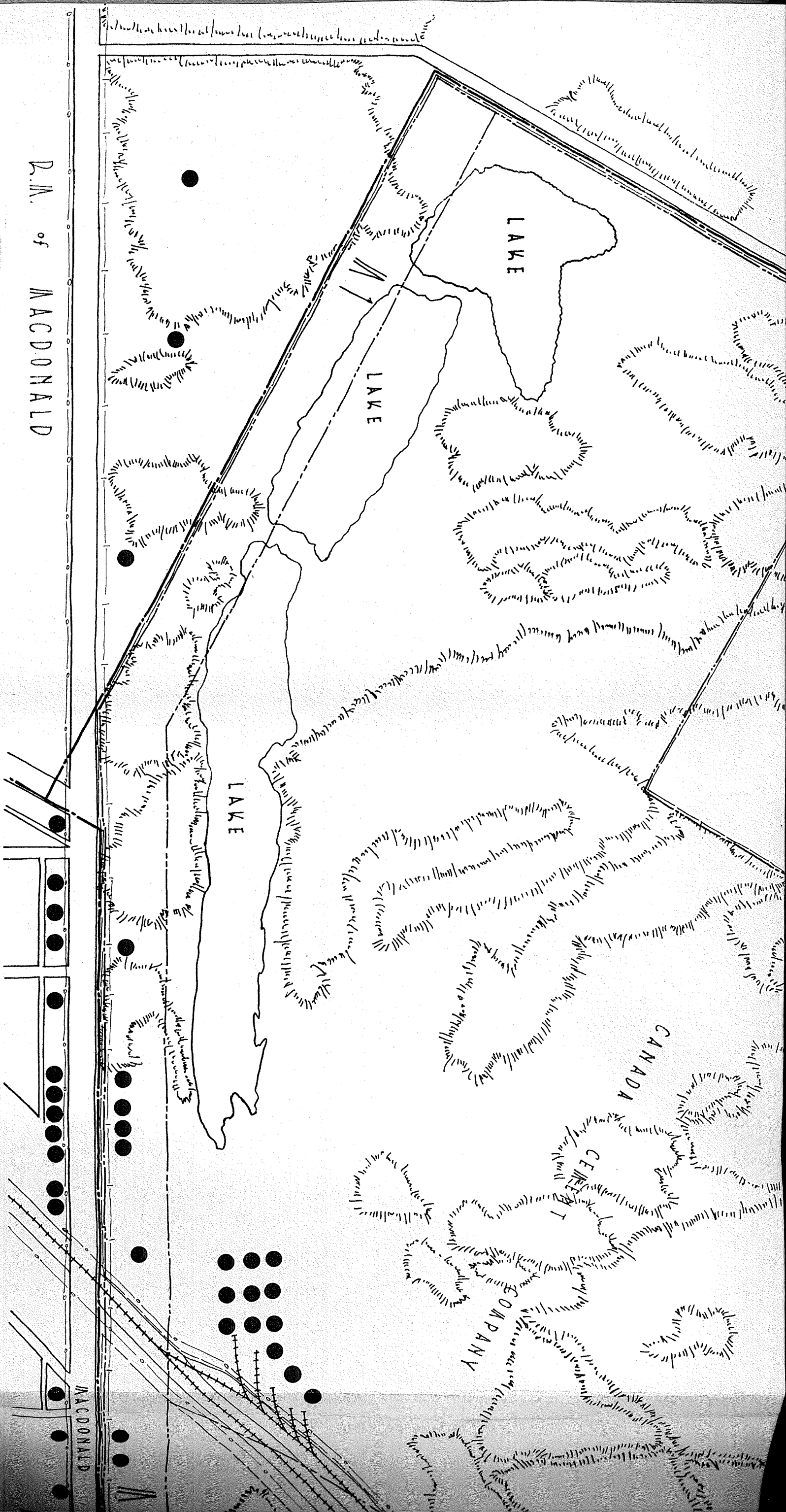
The proposed Industrial development, as shown in the drawing accompanying this chapter, is planned as being subdivided into large plots of land with only the arterial roads and major streets shown. Each large block of land could be bought in any breadth desired but the depth of the property would be set by the road and rail pattern. Individual blocks of land vary in depth from 250 feet to 400 feet, thus providing a large variation in size of lots.

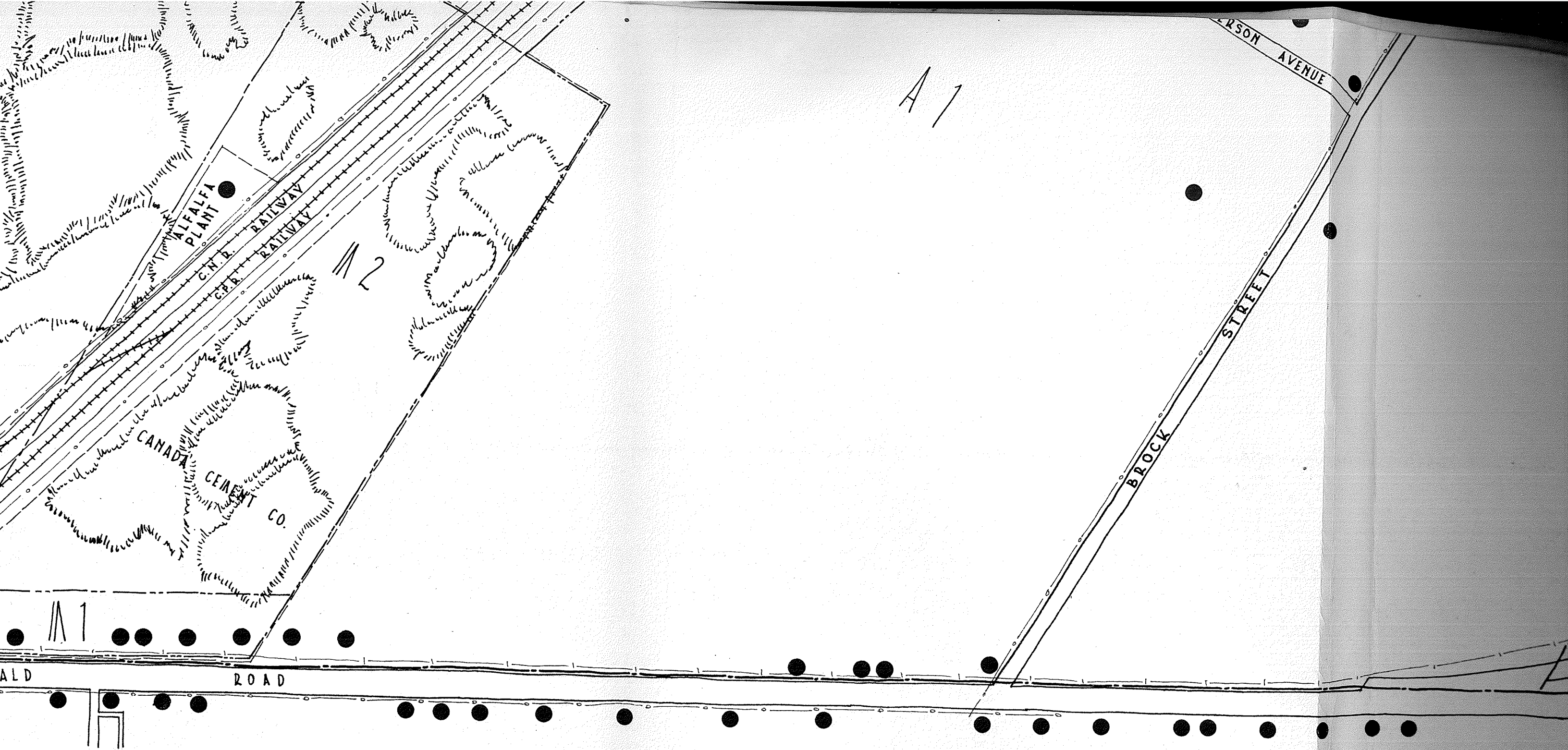
As it is necessary to provide a great variety of sizes of lots

that can be easily serviced, two different types of industrial sites have been included in the plan. One type is serviced only by road transport, while the other is serviced by both road and rail transportation. It is believed that this will provide sites for firms such as those of the Needlecraft Industry in Winnipeg who can get along with trucking service only. The two areas reserved for road transportation have been located in close relation to the Town Center as it is thought that they would draw some business from the Town, and would also be located in close proximity to the Transportation Center with all its service facilities.

In order that the Industrial Zone does not become too large an area and prove, therefore, monotonous or overpowering in its effect on the workers, interior parks and buffer strips along the external arterial routes have been provided. The parks will provide areas for noon hour recreation and rest away from the noise and activity of the industrial plants and warehouses, as well as helping to break up the total industrial site into smaller areas. The buffer strips will serve to isolate the industrial site from the arterial routes on the perimeter of the site and will help enhance the appearance of the Satellite Town. Discussion about other types of land use may be found in previous chapters of this treatise.

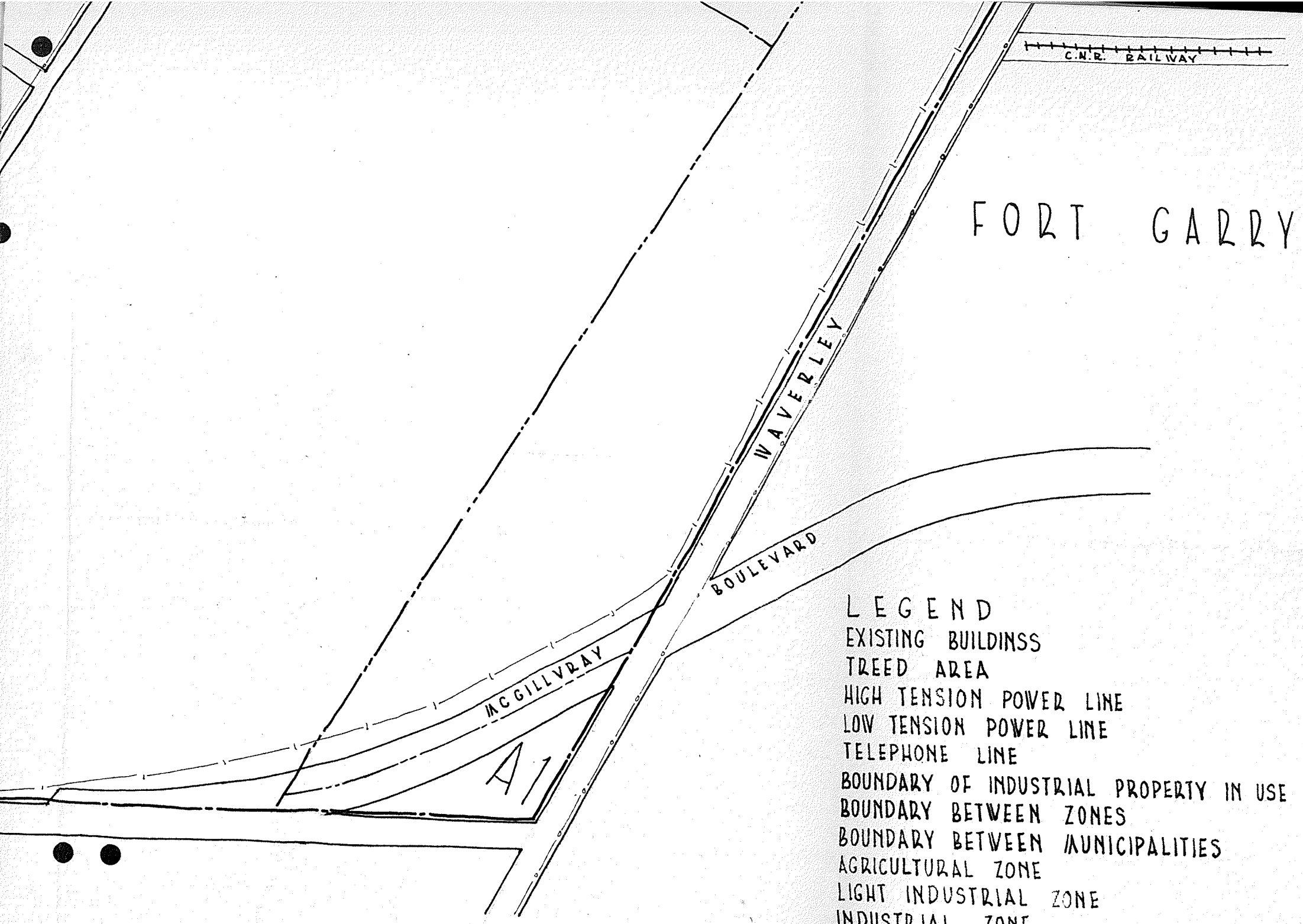
A SATELLITE TOWN FOR WINNIPEG





WINNIPEG

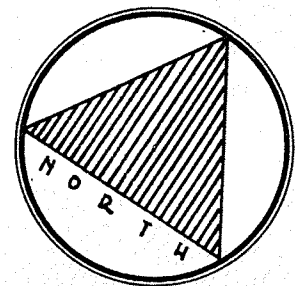
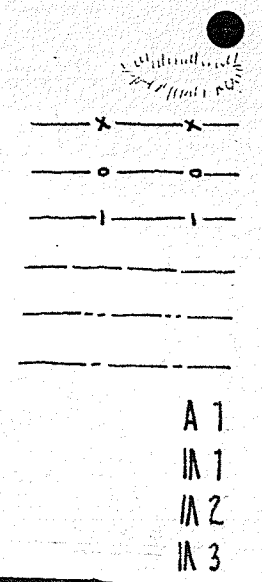
THE EXISTING SITE



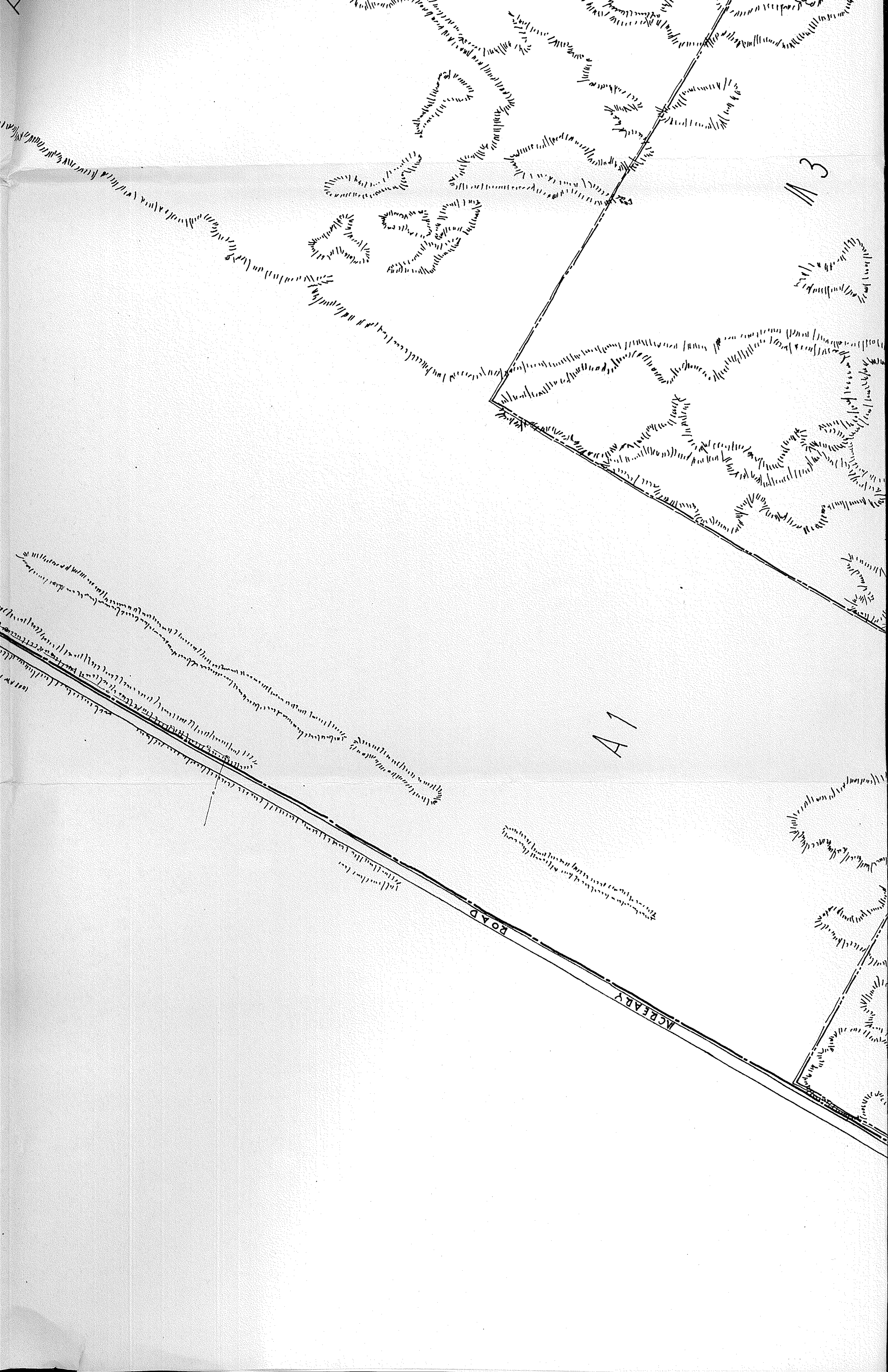
FORT GARRY

LEGEND

- EXISTING BUILDINGS
- TREED AREA
- HIGH TENSION POWER LINE
- LOW TENSION POWER LINE
- TELEPHONE LINE
- BOUNDARY OF INDUSTRIAL PROPERTY IN USE
- BOUNDARY BETWEEN ZONES
- BOUNDARY BETWEEN MUNICIPALITIES
- AGRICULTURAL ZONE
- LIGHT INDUSTRIAL ZONE
- INDUSTRIAL ZONE
- HEAVY INDUSTRIAL ZONE



THE UNIVERSITY OF MANITOBA
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 MASTER OF ARCHITECTURE (C.P.) THESIS
 NORMAN J. METZ - MAY 1958 - SCALE - 1"=400'





PET

PART

C.P. RAILWAY

S.N.P. RAILWAY

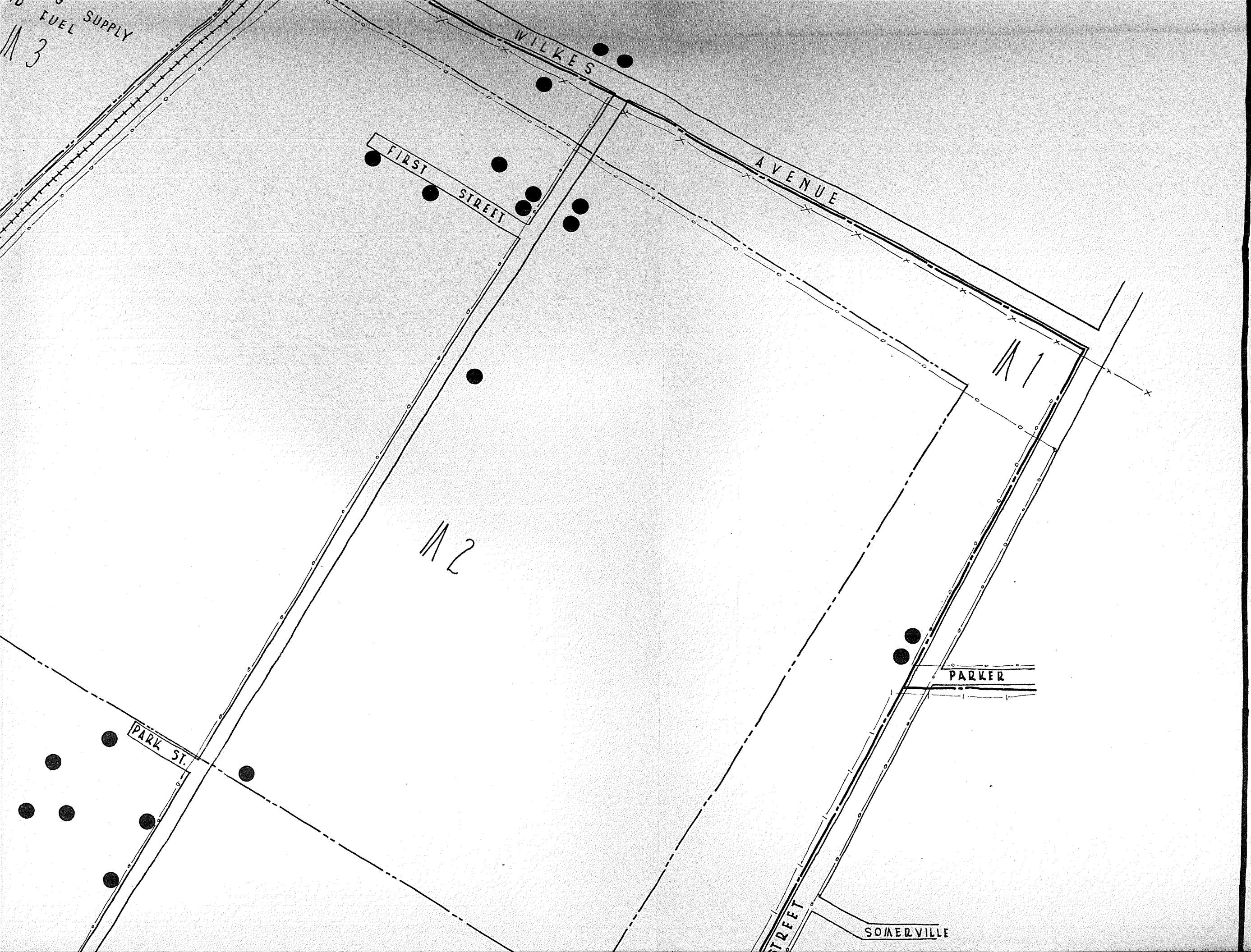
FUEL SUPPLY

3

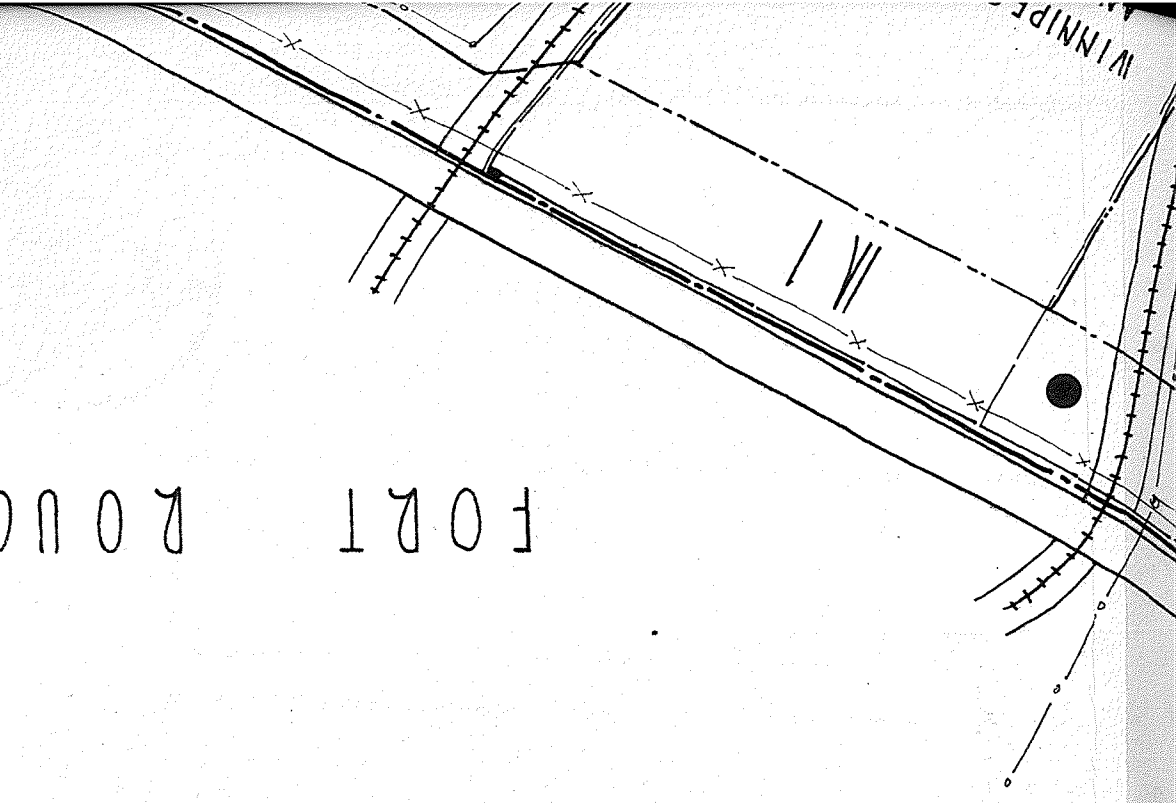
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FUEL SUPPLY
M3



FORT ROUGE



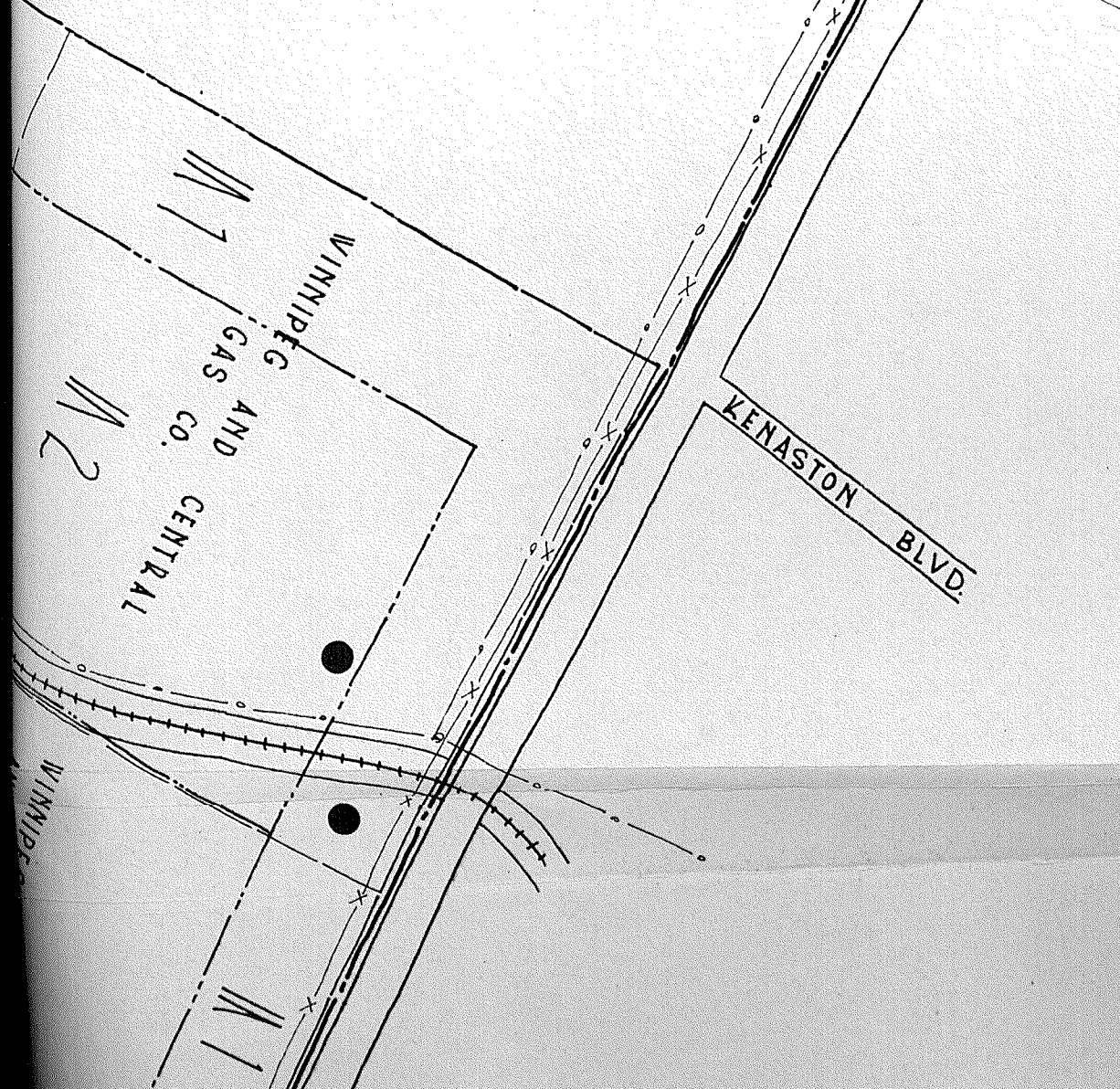
TUXEDO

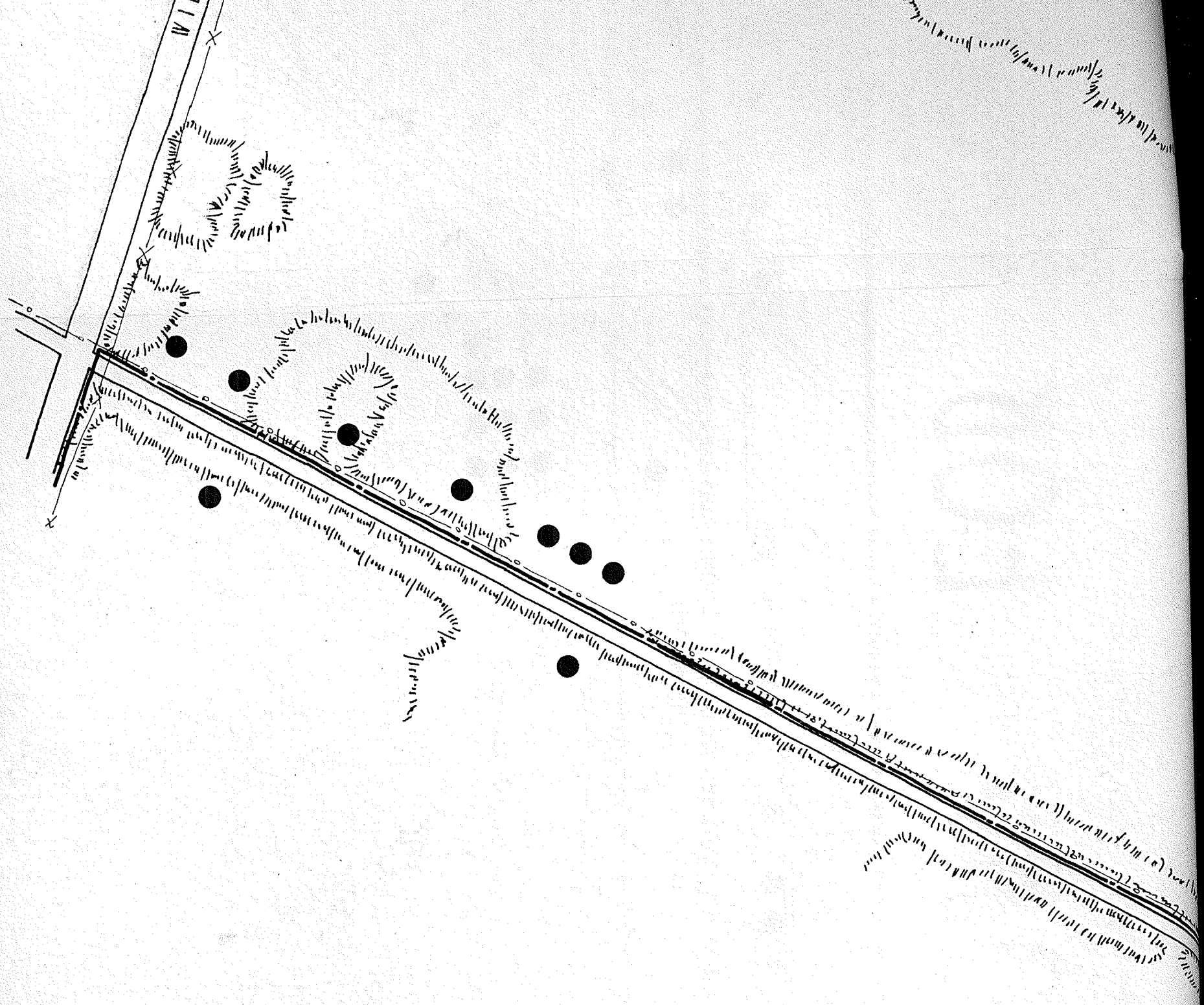
WILKES

AVENUE

KENASTON BLVD

WINNIPIC
GAS AND
CO. CENTRAL





R.N. of CHARLESWOOD

BIBLIOGRAPHY

B I B L I O G R A P H Y

1. National Industrial Zoning Committee, "PRINCIPLES OF INDUSTRIAL ZONING", Columbus, Ohio, 1951.
2. Hulten, B., "BUILDING MODERN SWEDEN", Penguin Books, Harmondsworth, 1951.
3. The National Association of Swedish Architects, "SWEDISH HOUSING OF THE 'FORTIES' ", The National Association of Swedish Architects, Stockholm, 1950.
4. Hoover, R. C., Perry, E. L., "CHURCH AND CITY PLANNING", Survey Guide No. 2, Bureau of Research and Survey, National Council of Churches of Christ in the U.S.A., New York, 1956.
5. Gibberd, F., "TOWN DESIGN", The Architectural Press, London, 1953.
6. Kostka, V. J., "NEIGHBORHOOD PLANNING", published by the author, The University of Manitoba, Winnipeg, 1957.
7. Kostka, V. J., "PLANNING RESIDENTIAL SUBDIVISIONS", published by the author, The University of Manitoba, Winnipeg, 1954.
8. Ministry of Housing and Local Government, "THE DENSITY OF RESIDENTIAL AREAS", Her Majesty's Stationery Office, London, 1952.
9. Ministry of Housing and Local Government, "DESIGN IN TOWN AND VILLAGE", Her Majesty's Stationery Office, London, 1953.

10. Zietzschmann, E. David, "HOMES AND HOUSING", Verlag
Fur Architektur Erlenbach, Zurich, 1949.
11. Spence-Sales, H., "HOW TO SUBDIVIDE", Community
Planning Association of Canada, Ottawa,
1950.
12. Canadian Pacific Railway Company, Department of
Industrial Development, "PLANNING INDUSTRIAL
AREAS".
13. Klaber, E. H., "HOUSING DESIGN", Reinhold Publishing
Corporation, New York, 1954.
14. Rodwin, Lloyd, "THE BRITISH NEW TOWNS POLICY", Harvard
University Press, Cambridge, 1956.
15. United States Savings and Loan League, "LAND PLANNING",
1956.
16. Moriyama, R., "URBAN RENEWAL", Journal, The Royal
Architectural Institute of Canada, January
1958, J. F. Sullivan, Toronto.
17. Central Mortgage and Housing Corporation, "HOUSING
DESIGN", Part One, Ottawa, 1953.
18. Central Mortgage and Housing Corporation, "HOUSING
DESIGN", Part Two, Ottawa, 1953.
19. Bakun, Z., THE DESIGN OF AN AREA FOR LIGHT INDUSTRY IN
THE CITY OF WINNIPEG, Graduate Studies,
The University of Manitoba, 1957.
20. Dolhun, E., "NEIGHBORHOOD PLANNING FOR ESTEVAN
SASKATCHEWAN", Graduate Studies, The
University of Manitoba, 1957.

21. Jamieson, R. K., "A RESIDENTIAL SUBDIVISION IN SHUNIAH, ONTARIO", Graduate Studies, The University of Manitoba, 1957.