

VILLE DE MONTRÉAL
COMMISSION D'ÉTUDE DES PROBLÈMES
DE LA CIRCULATION ET DU TRANSPORT

BOARD OF RESEARCH ON TRAFFIC
AND TRANSPORTATION PROBLEMS
CITY OF MONTRÉAL



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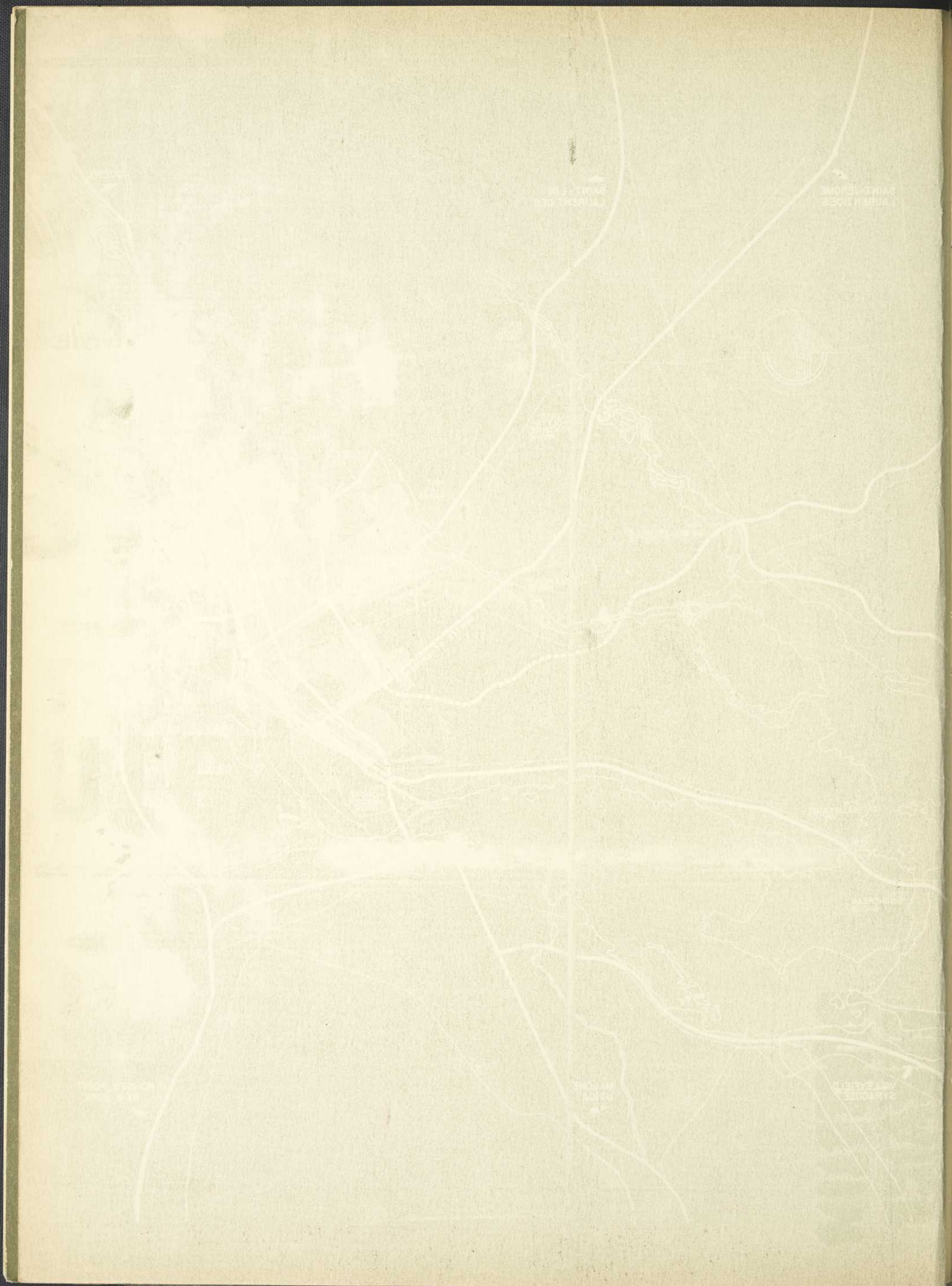
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MONTREAL
BOARD OF RESEARCH ON TRAFFIC
AND TRANSPORTATION PROBLEMS

REPORT
TO
THE CITY COUNCIL
1943

BOARD OF RESEARCH ON TRAFFIC AND TRANSPORTATION PROBLEMS

MONTREAL



Chairman

**MONTREAL
BOARD OF RESEARCH ON TRAFFIC
AND TRANSPORTATION PROBLEMS**

REPORT

TO

THE CITY COUNCIL

1949



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Co-director of the Montreal Economic
and Touristic Development Bureau

HÔTEL DE VILLE,
CITY HALL,

November 25th, 1949.

To the Councillors of the
City of Montréal,
City Hall,
Montréal.

Gentlemen:

The Board of Research on Traffic and Transportation Problems has the honour to report to the City Council, as required by Article 12 of By-law No. 1925, on the responsibilities entrusted to it. It has carried out these responsibilities with diligence and application and with a full awareness of the importance which the Council and the public will attach to its findings.

The origin of the Board followed the sanction given by the Provincial Legislature in March 1949, to the Act 13, George VI, Chapter 73; and to the subsequent action of the City Council which, on the 25th of May 1949, adopted By-law No. 1925 creating the Board of Research on Traffic and Transportation Problems. On July the 8th, 1949, the Members of the Board were appointed by the City Council.

According to the By-law, the duty of such Board is to study traffic and public transportation problems of all kinds affecting the City of Montréal, to seek their solutions, and to report its findings and recommendations to the City Council.

The Board held its first meeting on the 20th of July, 1949. Its initial activity was devoted to setting up its organization and procedure and a preliminary examination of the scope and nature of the responsibilities entrusted to it.

From the outset, the Board recognized that it could best fulfil its functions by dividing its work into specific areas of study and, thereafter, to delegate to committees the responsibility for examining and reporting upon these matters. To this end, and in conformity with Article 8 of By-law No. 1925, three committees were appointed, namely:

1. Committee on Traffic;
2. Committee on Mass Transportation;
3. Committee on Finance.

The Traffic Committee was charged with the responsibility of studying the advisability of establishing expressways and parking spaces, of widening existing traffic arteries, of opening new traffic arteries, and of improving traffic conditions in existing streets by the construction of autobus and truck terminals or by the installation of parking meters or such other traffic control measures as may be of general interest.

The Mass Transportation Committee was charged with the responsibility of studying the possibility of establishing a subway or other means of mass transportation and also of modifying the layout and the operation of the existing networks of the various means of mass transportation.

The Finance Committee was charged with the responsibility of studying the following matters:

- a. Paragraph 7 of Section 28 of Chapter 60 of the Act 7 George V concerning the right which was given to the City of Montréal to appropriate

for itself under certain conditions, in 1953 or at the end of any subsequent five-year period, the tracks, immoveables, dependencies, plant and rolling stock belonging to the Montreal Tramways Company;

- b. the conclusions of the report deposited by the Provincial Commission entrusted with the settlement of the Montreal Tramways Company demand for a fare increase; and also the conclusions of the second report that may be deposited eventually by the same Provincial Commission on the management of the Montreal Tramways Company affairs since its inception;
- c. the financial and legal aspects of any project studied by the Board.

In pursuance of their separate responsibilities, the Committees of the Board first took into consideration those plans and studies bearing upon their work which had already been made in these fields by the City Departments and by the several Committees and Commissions, as well as individuals and public bodies which, in the past, have undertaken studies pertaining to these matters.

The Board held seven meetings, the Traffic Committee eight meetings, the Mass Transportation Committee nine meetings, and the Committee on Finance six meetings; or a total of thirty meetings, inclusive, for the Board and its Committees.

The work accomplished by the Board and its Committees during the course of these meetings is described in the three chapters of the present report under the following titles: Traffic, Mass Transportation and Ways and Means. These chapters summarize the findings of the Board of Research, outline what, in the opinion of the Board, are sound solutions, and put forward the justification for the recommendations which the Board has made.

The Board did not await the conclusion of its studies before presenting certain specific recommendations to the Municipal Authorities. Rather, as soon as a definite recommendation emerged as a result of the study of one or the other of its Committees, the Board reviewed the recommendation and, if it was of the sort that, in the Board's opinion, met a current need without conflicting

with any other or over-all solution, it was immediately transmitted to the Municipal Authorities with the strong recommendation that steps be taken to implement the proposal with a minimum of delay. The Board has noted with appreciation that, in every instance, the Municipal Authorities have issued the necessary instructions to the appropriate City department to proceed with the preparation of the plans and such other preliminary work which the execution of these projects would call for.

Article 1 of By-law No. 1925 stipulates that the Board shall, among other things, draw up sketches which shall be used by the City as a basis for the preparation of homologation and expropriation plans required to realize its recommendations; make an estimate of the cost of the recommended work; and finally show how the work recommended could be financed.

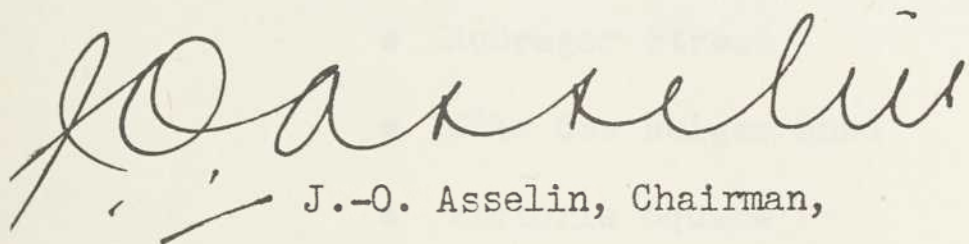
To this end, the Board has studied and made recommendations with appropriate sketches with respect to the most important matters which fell within its terms of reference. Some of its recommendations are definitive; but, for the most part, they are solutions of principle. The Board is confident, however, that definitive solutions can be speedily formulated for all the matters which it has had under study once the required basic data and preliminary plans are made available by the municipal departments concerned. It is pleased to note that these data and plans are being rapidly completed.

Because of the limitations of time, the Board has been unable to study, as thoroughly as it would have liked, certain important but less urgent matters falling within its general terms of reference. Until these matters have been more carefully examined, evaluated and integrated with other aspects of the Board's program of studies, for which, as stated, data is now being prepared by the City Departments, the Board is unable to establish an order of priority for the recommendations it has made. For the same reason it is unable to fully co-ordinate the ensemble of its conclusions into what might be described as a Master Traffic and Transit Plan. The elements of such a plan are incorporated in the Board's recommendations but there are details yet to be filled in. The Board desires to emphasize the necessity of bringing all these matters to a full stage of accomplishment.

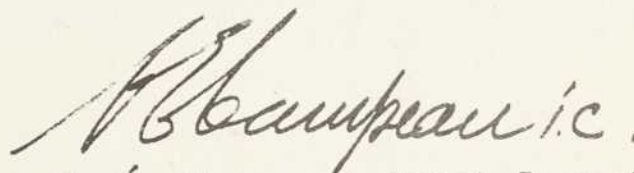
The Board wishes to record its appreciation for the helpful cooperation it has received from the Municipal Departments, Public Utility Companies and other public bodies. The task of preparing the preliminary route plans and of estimating the

construction costs of the proposed initial subway system, undertaken by the Public Works Department, was an undertaking of large proportions; as was the preparation of the graphs, sketches, maps and plans which appear throughout the report and which are the work of the expert team of draftsmen of the City Planning Department, directed by the architect, Mr. Roland Gariépy. To the staff of the City Planning Department is also due much of the credit for the printing and assembling of the Board's report. Finally, the Board wishes to acknowledge with sincere appreciation the services rendered and the spirit of devotion shown, since the Board's inception, by Miss Carmel Dussault, stenographer-secretary, and Mr. François Bertrand, technician.

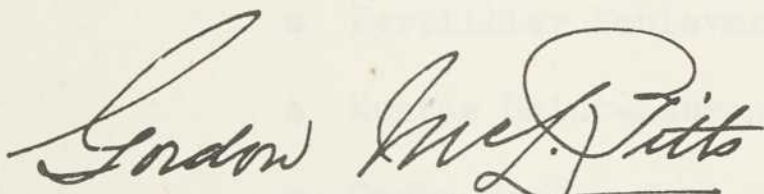
The Board of Research on Traffic and Transportation Problems, in transmitting this report to the City Council, trusts that, as a result of the work accomplished by the Board, the Council will take the necessary measures to bring to completion the studies which have been initiated and to implement the recommendations which have been made.



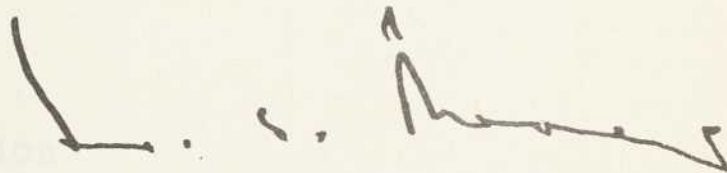
J.-O. Asselin, Chairman,



C.-É. Campeau, Joint Secretary,



Gordon MacL. Pitts, Vice-Chairman.



George S. Mooney, Joint Secretary.

PRINCIPAL RECOMMENDATIONS

- CREATION OF A TRANSPORTATION AUTHORITY.
- CONSTRUCTION OF AN EAST-WEST EXPRESSWAY.
- CONSTRUCTION OF A SUBWAY NETWORK.
- CONSTRUCTION OF THREE PARKING GARAGES.
- STREET WIDENINGS AND OTHER IMPROVEMENTS TO THE TRAFFIC NETWORK:
 - Burnside Street
 - Sherbrooke Street
 - McGregor Street
 - Côte des Neiges Road
 - Victoria Square
 - Persillier Boulevard
 - Montée Saint-Laurent extension
 - Gouin Boulevard
 - Perras Boulevard and Kelly Street
 - Metropolitan Boulevard
 - Cartierville Bridge Approach
 - Saint-Jacques and Notre-Dame Streets Junction
 - Dominion Square



● TRAFFIC

The Board of Research on Traffic and Transportation Problems was charged, insofar as traffic matters were concerned, with studying in a special manner the following:

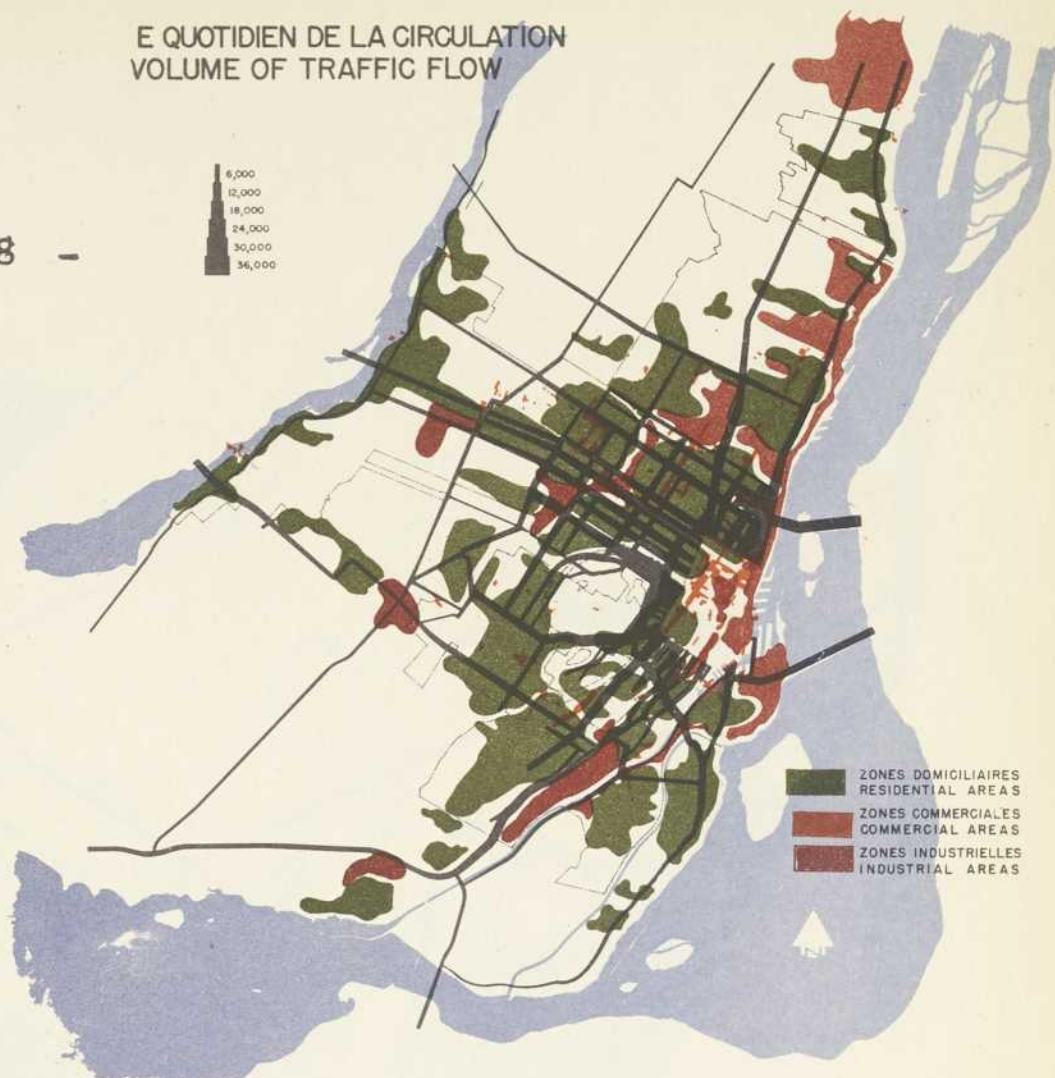
- o opening of new traffic arteries and widening of existing traffic arteries;
- o establishment of expressways;
- o such traffic control measures as may be of general interest;
- o parking.

● NETWORK OF MAIN ARTERIES

Preliminary to its study of specific problems, the Board deemed it necessary, in the first instance, to familiarize itself with general conditions of traffic so as to locate and isolate each problem in relationship to the Master Plan of Main Arteries.

A study and analysis of traffic counts made by the City Planning Department over the period 1945-1948 led the Board to the following conclusions:

- o traffic in the central area of the city has reached saturation point - the main arteries are utilized beyond normal capacity and bottlenecks are increasing at the main intersections;
- o the requirements of industry throughout the metropolitan area has resulted in a heavy street traffic of trucks besides involving a daily mass displacement of a large portion of the population;
- o access to the central area is becoming more and more difficult. Vehicles travelling toward the central area, in the interests of safety and to save time, are forced, in many cases, to leave main arteries and complete their journey by complicated detours.



RÉSEAU DES VOIES DE CIRCULATION NETWORK OF TRAFFICWAYS

LÉGENDE LEGEND

EXISTANTES
EXISTING

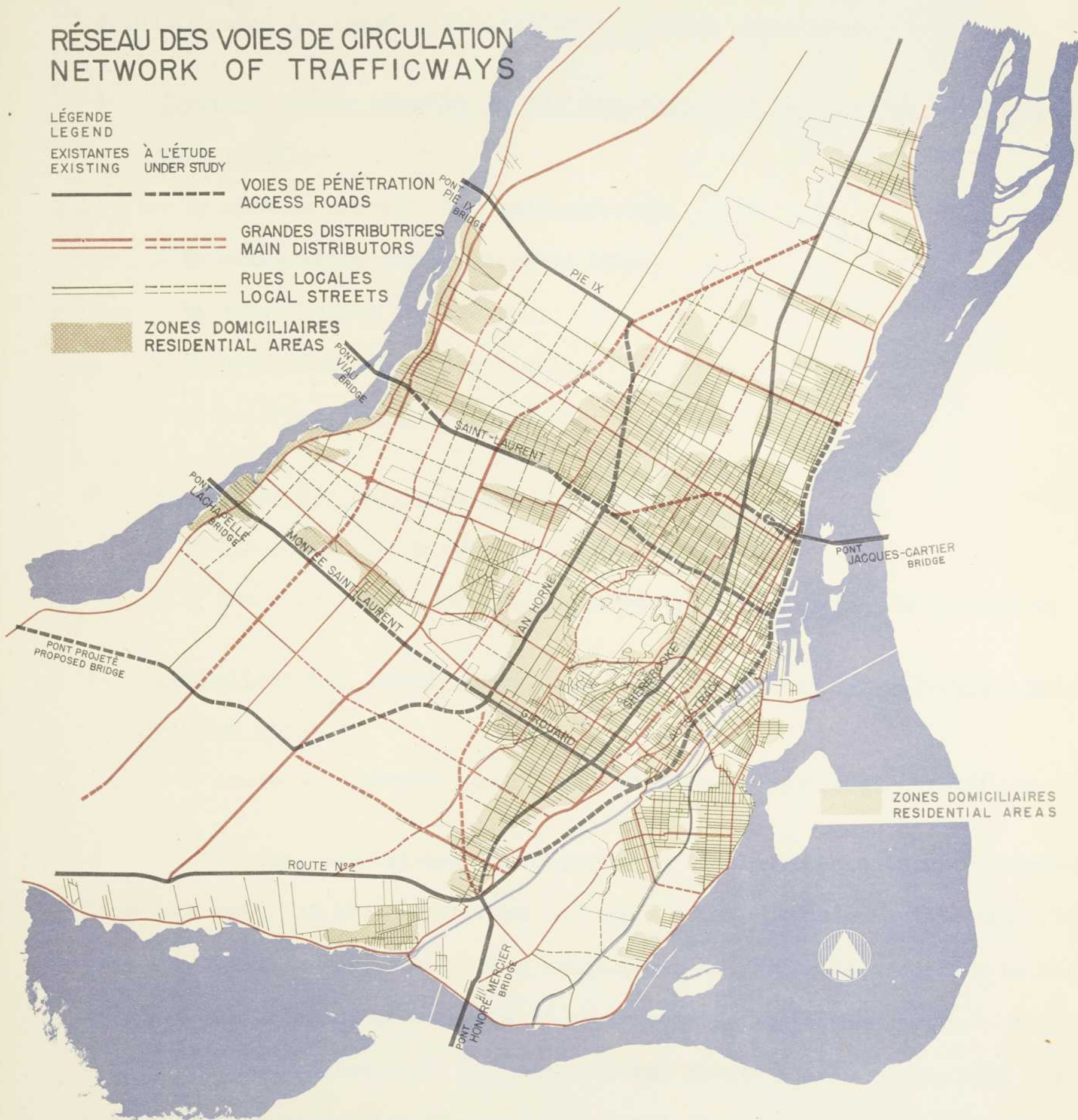
À L'ÉTUDE
UNDER STUDY

VOIES DE PÉNÉTRATION
ACCESS ROADS

GRANDES DISTRIBUTRICES
MAIN DISTRIBUTORS

RUES LOCALES
LOCAL STREETS

ZONES DOMICILIAIRES
RESIDENTIAL AREAS



The program of improvements necessary to remedy the foregoing situation must be based on the following general objectives:

A. Increase in the capacity of the down-town section in order to absorb more traffic:

- by opening and widening main arteries;
- by eliminating surface tramway lines;
- by establishing expressways;
- by providing off-street parking;
- by traffic control measures.

B. Facilitate the access to the Central Area:

- by the construction of expressways;
- by the construction of grade separations at congested intersections.

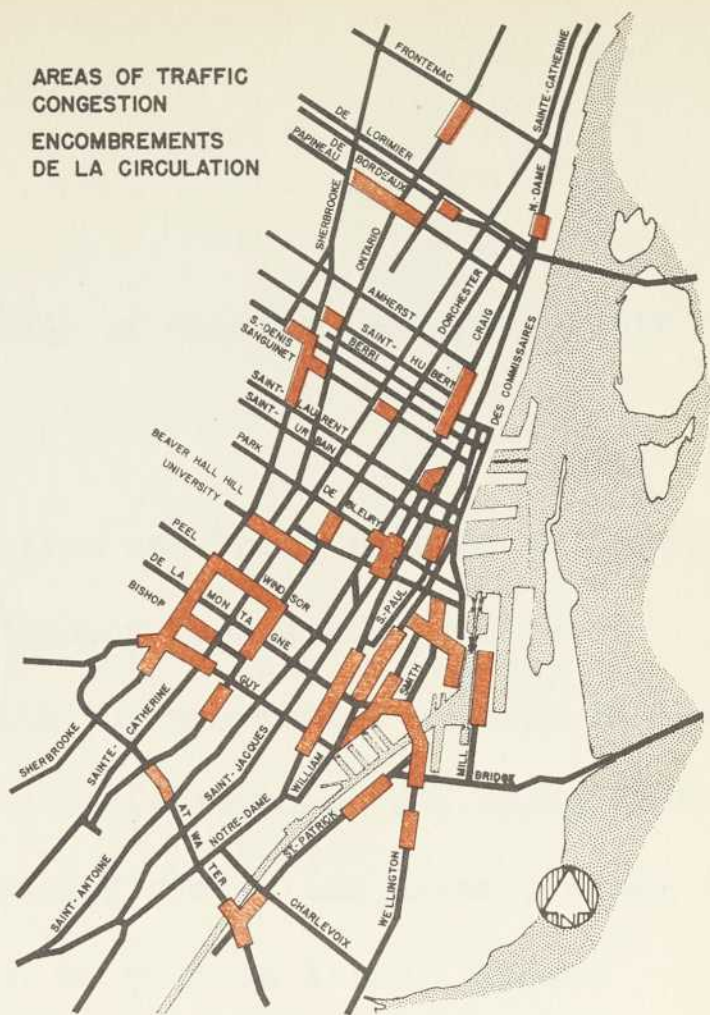
C. Channellize the traffic created by large industries throughout the metropolitan area:

- by creating concentric and other arteries to facilitate distribution.

Having established its objectives, the Board then turned its attention to a study of the Master Plan of Main Arteries prepared by the City Planning Department. This Master Plan establishes all arteries according to their specific junction and with regard to their role in the entire network of traffic intercommunication. It describes and shows: access roads, main distributors, secondary distributors, main local streets and implemented, will satisfy the objectives which the Board has set as the goal to be achieved.

The Board, moreover, notes with satisfaction that most of the homologations required for the development of the plan have now been made and that a number of expropriations for implementing the plan have already been authorized by the City Council.

(Dorchester, University, Lajeunesse, Mount Royal, Saint-Joseph Boulevard, Jean-Talon, Snowdon, etc.)



● EXPRESSWAYS

After a careful study of the over-all traffic needs, the Board recommends the construction of an east-west expressway based on the route proposed by the City Planning Department. The Board regards this project as among the principal ameliorations needed to complete the traffic artery network serving the city and the island of Montréal.

Modern limited access highways of this sort have become an economic necessity wherever heavy concentrations of motor vehicular traffic have to be handled. There can be no question that a cross-city expressway

is among the foremost traffic needs of the City of Montréal and its adjoining area.

The Board believes that the conception and route plan of an east-west expressway, as envisaged by the City Planning Department, will meet this need. This expressway would connect with the provincial highway in the western limits of the city and would follow a route south of the Upper Lachine Road escarpment through the west-end industrial district and thence, along the harbour front to Viau Street, or, eventually, to Bout de l'Ile. Access Interchanges on the proposed East-West Expressway are provided with the surface street network at the following locations: Viau street; Pie IX Boulevard; Dézéry Street; Iberville Street; Jacques-Cartier Bridge; Berri Street; Saint-Laurent Boulevard; Place Royale; McGill Street; Atwater Avenue; Saint-Remi Street; Girouard Avenue; Cavendish Boulevard and at Toronto Provincial Highway and Westminster Avenue.

The total length of the expressway and the various interchanges is approximately 13 miles.

The Board has studied the possibility of the use of other routes for the expressway namely:

Upper Lachine Road, between the provincial highway and Girouard Avenue; Notre-Dame Street and Saint-Jacques Street, between Girouard and Atwater Avenue; William Street and Place d'Youville, between Guy Street and Place Royale; Burnside Street, Ontario Street and De Montigny Street, between Atwater Avenue and d'Iberville Street.

After a careful examination of these suggestions, the Board reached the conclusion that, for many reasons, the route proposed by the City Planning Department remains the best one if engineering, city planning and other requirements are taken into consideration. As important related aspects of this project the Board believes that it will be necessary to widen Saint-Remi Street northwards from the expressway to Upper Lachine Road and that Upper Lachine Road be redesigned between Décarie Boulevard and Girouard Avenue. This measure is required in order that Décarie Boulevard may be used as an additional access route to the expressway. East of Viau Street, the widening of Notre-Dame Street must be provided for as soon as possible so that an appropriate right of way will be available in due time for the expressway.

The Board recognizes that the access route leading from the expressway to Jacques-Cartier Bridge will be costly. However, this connection will provide much needed access facilities in the eastern part of the City. In this connection the Board suggests that advantage be taken, if possible, of the contract agreed upon between the City of Montréal and the Federal Government in regard to the construction of the Jacques-Cartier bridge. One of the clauses of this contract called for the building by the Federal Authorities of a ramp leading from the west side of the bridge between Notre-Dame and Craig Streets, conditional upon the City of Montréal providing the necessary right of way.

The East-West Expressway forms an integral part of the main arterial network. It will facilitate traffic movement to and from the centre of Montréal from all parts of the city, especially from the east end and west end. More particularly, it will serve the industrial zones along the Lachine Canal and the river as well as the warehouses of the central city area and the harbour. By so doing, it will facilitate industrial and commercial transportation which is essential to the economy of Montréal.

Moreover, it will provide a new major artery for rapid mass transportation by express autobuses to and from the suburban areas at its east and west end extremities and, also, at intermediate points. In addition, its surface substructure lends itself for off-street parking purposes as well as for other revenue producing features. Finally, this projected expressway, once built, will provide unhampered circulation of through-traffic crossing the central city area and will relieve the local streets of much of the through-traffic and trucking which they are now carrying, thus eliminating a principal cause of traffic congestion and delay.

The cost of this project has been established by the City Planning Department at approximately \$60 millions of which \$20 millions would be required for acquiring the immovables affected and \$40 millions for the costs of construction.

For the reasons stated, the Board recommends that the East-West Expressway project of the City Planning Department be approved, and urges that all measures required for the furtherance of this important undertaking be proceeded with without delay. The Board is persuaded that this project constitutes perhaps the most important element of the highway network of the whole metropolitan district.

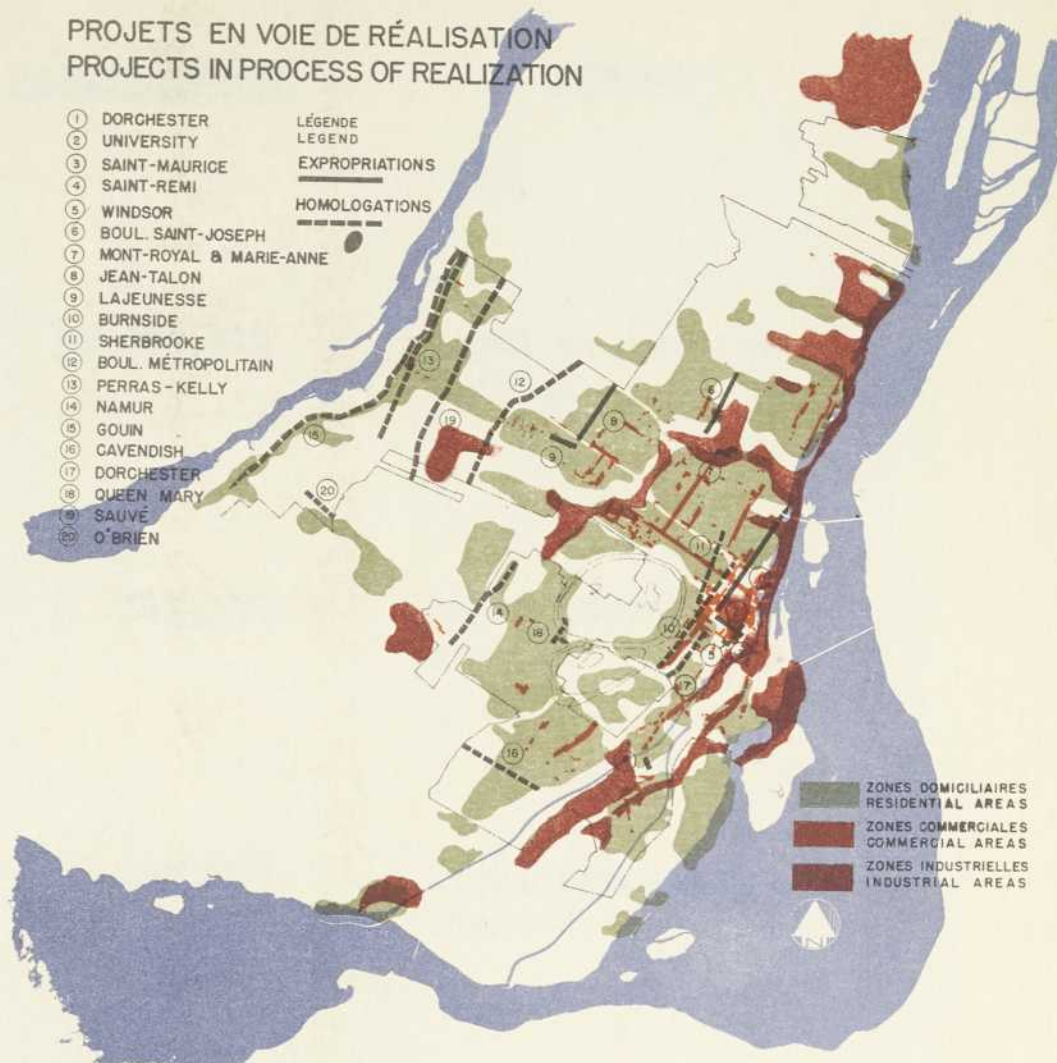
The Board has also considered the desirability of north-south expressways. The Board believes, however, that the construction of the east-west expressway is demonstrably more urgently needed and feels, therefore, that it is not opportune to make any recommendation with regard to north-south expressways save to say it is a project which will have to engage the attention of the City at some future time. Meanwhile, the Board is of the opinion that further study of north-south expressways should be deferred until the effect of the construction of subways on traffic has become apparent. Indeed, the construction of the proposed north-south subway lines may have the effect of freeing most of the main north-south arteries from surface tram tracks. Under these conditions, perhaps for many years to come, the opening up of wider boulevards, with grade separation at a limited number of intersections, may meet the needs adequately.

In its study of projects involving modifications of the existing street network, the Board took the position that it was preferable not to follow any particular order of approach but rather to study and report upon those projects which were of an urgent nature and which required immediate application.

In this phase of its study, the Board took cognizance of the street-widening and improvements program recently authorized by the civic authorities and now in process of implementation. The program and the status, to-date, of the most important projects for which authority has been granted, is as follows.

With respect to the foregoing, the Board has noted that the only item of this program not yet approved by the City Council was the project calling for the widening of Sherbrooke Street between Union Avenue and Amherst Street.

The Board strongly recommends that this project with appropriate underpasses at certain main crossing streets, be proceeded with as soon as possible.



<u>Projects</u>	<u>Amounts Voted</u>	<u>Status</u>
1. <u>Dorchester</u> Guy to Windsor and Beaver Hall to De Lorimier	\$5,099,510	legal procedures started
2. <u>Jean-Talon</u> Saint-André to eastern limits	\$ 162,470	legal procedures started
3. <u>Lajeunesse</u> Jean-Talon to Villeray	\$ 168,160	legal procedures started
4. <u>Saint-Joseph</u> d'Iberville to Pie IX	\$ 142,064	legal procedures started
5. <u>University</u> Dorchester to Saint-Paul	\$1,020,000	immovables acquired
6. <u>Saint-Maurice</u> Chaboillez Square to McGill	\$ 246,000	legal procedures almost completed
7. <u>Mont-Royal</u> d'Iberville to Rachel	\$ 85,200	legal procedures under way
8. <u>Snowdon Junction</u>	\$ 19,000	legal procedures under way
9. <u>Christophe-Colomb</u> Tunnel at C.P.R.	\$ 95,370	legal procedures started



1 - Burnside Street



In addition to the foregoing projects for which authority has already been granted, another project which, in the opinion of the Board calls for immediate solution is that of Burnside Street.



The proposed Burnside Street extension, with the necessary grade separations, would create a continuous east-west artery from the western limits of the city to Viau Street by using Western Avenue, Saint-Luc, Burnside, Ontario, De Montigny and Sainte-Catherine Streets.



An artery of this sort, crossing the centre of the city, would give a much needed additional traffic-way in a section of the city where, because of topographical conditions, there are only a few east-west streets. Moreover,

most of those which exist lack continuity or are narrow in the greatest part of their extent. In addition, the Burnside Street extension, being located immediately south of the Sherbrooke Street terrace would facilitate the movement of local traffic in this important business area. Finally, the proposed artery would run at the rear of many large retail establishments along Sainte-Catherine Street and would thus relieve Sainte-Catherine Street of a great part of the trucking now serving these stores.

The Board is of the opinion that this project, inevitable in the long run, is desirable in the short run. Its need and importance are both well established.

The Board recognizes that the programme of expropriations and improvements already authorized by the civic authorities includes measures which cannot be delayed, for example the Dorchester Street widening, a project which, in the opinion of the Board, takes precedence over any other. The Board, nevertheless, places the proposed Burnside Street extension high on the list of projects thereafter to be undertaken.

The Board, moreover, is of the opinion that if it is not possible now to proceed with the project in its entirety, then it can be advanced by stages, with the more urgent parts of the improvement being proceeded with as a first step. This would enable traffic to utilize the additional trafficway thus to be provided, even if it is but a temporary or first stage development in a larger project to be completed at some future time.

As it is, Burnside Street is a complete bottleneck due to the obstruction of blocking buildings which prevent the street going through between Guy and Stanley Streets and because of its narrowness along that part of it which is opened up.

In the opinion of the Board, the more important and urgent phase of this project is the opening of the built-up homologated section. If this section was opened it would provide an additional throughway whereas, at the moment, it offers conditions worse than those of a cul-de-sac. The most serious problem lays between Stanley and Guy Streets where the municipal valuation costs of the buildings to be acquired aggregate approximately \$1,900,000., including the Drummond Court Apartment which has been assessed at \$851,493.

Because of the considerations mentioned, the Board strongly recommends that the opening of Burnside Street between Drummond and Guy Streets, with a temporary connecting road between Stanley and Drummond Streets, be proceeded with as soon as possible.

2 - McGregor Street

This project consists of the prolongation of McGregor Street, east of Simpson Street to the junction with Carleton Road at McTavish Street.



This project is called for because of heavy traffic in this district. The extension of McGregor Street will reduce the congestion of traffic on Pine Avenue, Côte des Neiges Road and Sherbrooke Street and will have the affect of considerably reducing the volume of traffic at the intersection of Guy and Sherbrooke Streets, the most frequented intersection in the central area. Besides that, it will facilitate the distribution of traffic on north-south arteries in the central area and thus provide a much needed traffic relief throughout this district. Its junction with Carleton Road will provide a parallel and alternate route to Pine Avenue for a distance of approximately one mile. One further result of this improvement will be that it will make possible the re-zoning of the area. It has long been apparent that this section of the city has reached the stage where its present zoning regulations are unrealistic taking into consideration the trend of demand that apartment houses be permitted in this section. The extension of McGregor Street will overcome the principal deterrent which, hitherto, has prevented the building of apartment houses in the area.

As a related matter, the Board has also studied a project for improving Côte des Neiges Road from Cedar Avenue to McGregor Street, a proposal of the Traffic Advisory Committee of the Police Department. This project consists of widening Côte des Neiges Road, on its west and east sides, southward between Cedar Avenue and McGregor Street so that a free traffic lane will be left on both sides of the tramway tracks. The extension of McGregor Street, east of Simpson Street, will complete this project.

After examining the possible alternative routes for the extension of McGregor Street, the Board has come to the conclusion that the most appropriate one is that which would follow the most direct line between the junction of Simpson and McGregor Streets on the west and McTavish Street and Carleton Road on the east. The Board recommends that measures be taken for the execution of this project.

3 - Victoria Square

Because of difficult traffic conditions occurring at the intersection of Saint-Jacques and McGill Streets, the Board has given special attention to this problem.

Saint-Jacques Street is a one-way street with traffic moving towards the west from the junction of Notre-Dame Street up to McGill Street. At this point Saint-Jacques Street is wider and traffic moves in both directions. A large volume of traffic turns from the west towards the south on Saint-Jacques Street to connect with



Notre-Dame Street which is a one-way street towards the east, east of McGill Street. A number of tram routes travelling on Saint-Jacques Street turn south at McGill Street to connect with Notre-Dame Street. Automobiles coming east on Saint-Jacques Street, and going west on the same street, cross with difficulty the heavy traffic flow of tramways and automobiles turning south on McGill Street. As a consequence, numerous and frequent traffic tie-ups occur at this junction.

In its study of this problem, the Board, in the first instance, examined a project for the widening of Gauvin Lane, a narrow passage-way located west of Victoria Square, between Saint-Jacques and Notre-Dame Streets. The Board is pleased to note that the City Council has already authorized the expropriations required for this improvement. There will thus be provided an additional traffic street between Notre-Dame and Saint-Jacques Streets.

Beyond that, the Board believes it necessary to re-align and re-arrange Victoria Square so as to permit the widening of the roadway on its east side between Saint-Jacques and Vitré Streets and to provide a diagonal connection with Beaver Hall Hill.

Meanwhile, the Board has requested the Traffic Advisory Committee of the Police Department to study the possibility of utilizing as a one-way traffic circle that section of Victoria Square between Craig and Saint-Jacques Streets.

It will be necessary, however, before proceeding with the above mentioned Victoria Square improvements, to study the effect which the construction of a subway network and the possible removal of tramway lines in this section of the city may have on the vehicular traffic movements in this area.

4 - Persillier Boulevard

Persillier Boulevard is one of the important north-south arteries and is the only one linking the territory between Saint-Laurent and Lachapelle Boulevards. It also connects Gouin Boulevard to Côte Sainte-Catherine Road by utilizing Rockland Avenue, the latter being its continuation. This artery is indispensable for the development of the Bordeaux district as well as being an important artery for traffic in general. If it were available for through traffic purposes it would help relieve traffic congestion on Gouin Boulevard and Montée Saint-Laurent. The entire route of Persillier Boulevard is a city-owned right of way.

At the present time, its pavement is in a very bad state of repair owing to lack of drainage and consequent flooding, particularly in the spring of the year. The Board recommends, therefore, that measures be taken to open up and maintain this boulevard as a year-round traffic thoroughfare and thus make it available as an additional main traffic artery.



5 - Extension of Montée Saint-Laurent

In connection with its study of the proposed east-west expressway, the Board took note of a proposed extension of Montée Saint-Laurent. This proposed new artery would start at Cartierville bridge, thence via the north-south section of Montée Saint-Laurent, it would extend southward through the towns of Saint-Laurent and Mount-Royal joining MacDonald and Clapranald Avenues in Notre-Dame-de-Grâce. At this point, it would, by utilizing both those streets, become two one-way streets as far as the Girouard connection to the expressway, where it would connect up with Church Street and thence on to LaSalle Boulevard in Verdun.

It would thus become a trans-island north-south artery linking together all the main east-west provincial routes and main local arteries. It would, moreover, relieve Décarie Boulevard from its present heavy through traffic utilization and permit it to become the main local distributor for commercial traffic movements created by the expanding business and industrial activity which has been developing during recent years along its entire length.

6 - Gouin Boulevard and a Proposed Traffic Artery South of Boulevard Gouin

The Board has taken note of the proposed widening of Gouin Boulevard to a width of 66 feet and related improvements including the removal of dangerous curves in sections of it. It notes with approval that it is the intention to maintain this Boulevard

as a riverside promenade and parkway and that its present residential character will be preserved.

The Board has also noted a related improvement which calls for a proposed new traffic artery south of Gouin Boulevard along the route of Boulevard Leduc, Perras and Kelly Streets, thus to provide a rapid traffic thoroughfare between Bout-de-l'Ile and Cartierville.

The Board believes that this new thoroughfare will have the affect of relieving Gouin Boulevard of commercial traffic and is pleased to know that both these undertakings are now in process of implementation.

7 - Metropolitan Boulevard

The Board has given its attention to a re-examination of the proposed route of the Metropolitan Boulevard. It believes and strongly recommends that this project should be pressed to completion; and that, in cooperation with the Federal and Provincial Governments, the Montréal Metropolitan Commission should be urged to take whatever steps may be necessary to proceed with the undertaking without delay.

It is a project needed to complete the arterial network of main roads on the Island of Montréal and, when completed, with proper grade separations, will be the principal trans-island by-pass road by which traffic moving east and west across the Island and not desiring to enter the central area of the City may do so. As such, it rightfully should be thought of as the Montréal link in the Trans-Canada Highway and a project, therefore, which should warrant the Federal and Provincial Governments' financial participation.

8 - Cartierville Bridge Approach

In regard to traffic conditions at bridges leading to the Island of Montréal, the traffic bottleneck and delay occurring at the approach to Cartierville Bridge, the main highway route to and from the Laurentians, has particularly engaged the attention of the Board. After studying the matter, the Board has recommended a solution involving the use of the triangular park between Lachapelle Street and Reed Street. By cutting a traffic by-pass through the triangle and making Lachapelle Boulevard a one-way street going north from Gouin Boulevard to the junction of Reed and Lachapelle, the Board believes that a quite adequate solution for this problem will be found, and a decided traffic improvement obtained at this point. The Board has also under study projects to improve traffic conditions at other bridge approaches, and particularly at Victoria and Jacques-Cartier Bridges.

9 - Saint-Jacques, Notre-Dame, Saint-Gabriel triangle

A major improvement to downtown traffic conditions should ensue if the triangle bordering Saint-Jacques, Notre-Dame and Saint-Gabriel Streets was cleared of its present buildings and made available for traffic re-orientation in this section of the city. The Board understands that these buildings are all the property of the Provincial Government and that, prior to the war, there was a plan to demolish them and to make the cleared area available for traffic amelioration.

The Board urges the civic authorities to re-open this matter with the Provincial Government with the hope that an early arrangement for proceeding with this desirable undertaking can be concluded.

10 - Dominion Square

The Board has studied suggested improvements for alleviating traffic conditions in the Dominion Square area.

This Square is located in a district which comprises churches,

theaters, hotels, railway stations
and bus terminal besides many
important office buildings.



It is also located in close proximity to the largest commercial center of the City on Sainte-Catherine Street. It is crossed by Dorchester Street which will, in the near future, become the most important artery in the central area.

In this section of the city, the City Authorities have already provided for the widening of Dorchester Street to a width of 104 feet west of Windsor Street; the widening of Windsor Street to a width of 80 feet, between Dorchester and Saint-Jacques Streets, and its connection to Colborne Street; a new thoroughfare across the site of Bonaventure Station; the connection of Osborne Street to de La Gauchetière Street; the widening of the latter to a width of 80 feet up to Beaver Hall Hill; and the widening of Beaver Hall between Dorchester Street and Vitré Street.

11 - Other projects under study: Mount Royal Parkway

The Board has under study a projected parkway across the mountain. The project consists mainly in transforming the tramway right-of-way now operating across Mount Royal between the intersections of Mount Royal and Park Avenues and of Côte des Neiges and Remembrance Road, into a parkway





for the use of automobiles only. A north-south branch would start at Pine Avenue in the vicinity of Drummond Street and run at the rear of Victoria Hospital to join with the tramway right-of-way near the intersection of Mount Royal Avenue and Côte Sainte-Catherine Road.

This parkway would cut along the fringe of the mountain but would in no way interface with the mountain as a park area. To the contrary, it would make the mountain more accessible to the mass public and would solve at the same time many major traffic problems, especially those encountered at the intersections of Park and Pine Avenues and of Park and Mount Royal Avenues. Beyond that, it would relieve Pine Avenue, Park Avenue and Côte des Neiges Road of a substantial portion of the traffic they are now carrying.

The study of these two intersections of Park and Pine Avenues and of Mount Royal and Park Avenues are thus interrelated with the project Mountain Parkway. The Board believes, however, that it is more timely to study the possibility of immediate improvements to the difficult traffic conditions existing at both of these intersections than to await what must necessarily be a longer period before the projected mountain parkway is proceeded with. The Board, therefore, has in mind a project which will, in its opinion considerably ameliorate existing conditions, particularly the problem of left hand turns, and which,

if approved, can be proceeded with at little cost and without affecting the larger project of the mountain parkway. The Board is pleased to note that the surveys required for this project are under way and that the technical studies are to be proceeded with as soon as the land surveys have been completed.

● TRAFFIC CONTROL

The Board has had under review the effectiveness of the methods used in Montréal for controlling and regulating traffic, particularly with regard to traffic lights. Regarding traffic regulations, the Board obtained information from the City Law Department on the laws and jurisprudence relating to traffic lights, speed limits, and right-of-way in special cases.

The Board also held a joint meeting with the Traffic Advisory Committee of the Police Department, on which occasion, the following matters were discussed: traffic light systems, speed limits, rights-of-way, school signs, taxi and pedestrian control, street parking and other traffic problems.

As a result of these studies and discussions, the Board has reached two principal conclusions: first, that certain amendments must be made to the present law regulating traffic;

second, that educating the automobilists becomes more and more an urgent necessity. With respect to traffic laws, the Board has initiated the preparation of a memorandum listing the additional powers which the City will require with a view to a more effective regulation of traffic within the city.

With regard to the matter of educating automobilists, the Board has reached the conclusion that a great number of accidents could be avoided, if automobile drivers were, in fact, aware of the traffic rules and regulations. In this connection, it is probable that most autoists have never read them. The Board, therefore, recommends that a booklet containing a resumé of the traffic laws and by-laws be published by the City, and that it be distributed to automobile drivers when they get their annual license.

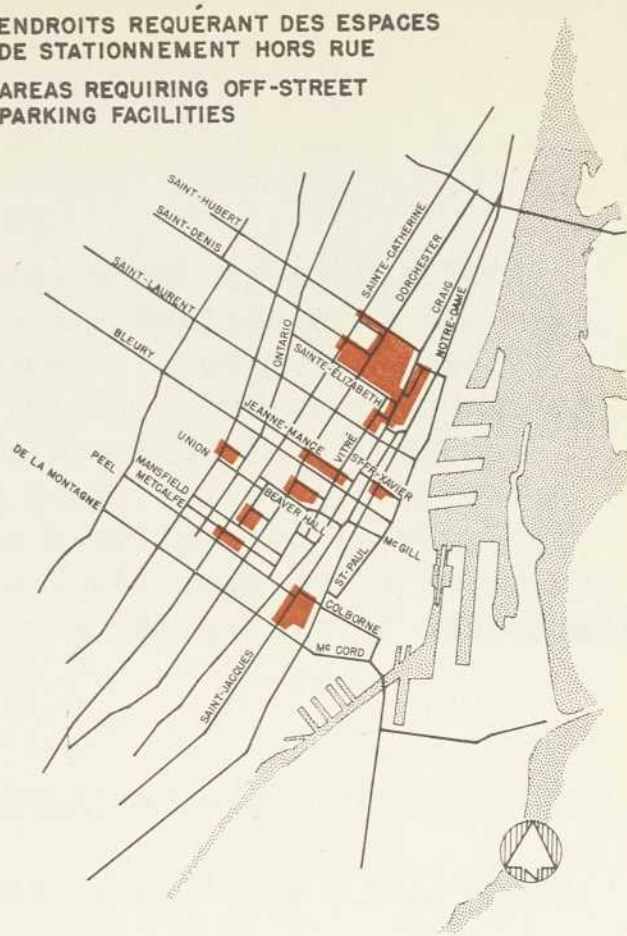
● PARKING

Curb parking facilities are constantly decreasing due to



of no-parking restrictions which have become necessary consequent upon the ever increasing street traffic congestion. Moreover, the supply of privately owned off-street parking facilities is constantly fluctuating while centrally located parking lots are gradually disappearing as new buildings take over their land use.

ENDROITS REQUÉRANT DES ESPACES
DE STATIONNEMENT HORS RUE
AREAS REQUIRING OFF-STREET
PARKING FACILITIES



Under these circumstances, it follows that in the planning of new trafficways, aimed at the acceleration of traffic movement, provision will have to be made for off-street parking. Otherwise, the purpose of the trafficways will be self-defeating by clogging them with stationary vehicles. For the same reason, all-day parking has to be eliminated from the streets so that the streets can be reclaimed for their primary use, namely the unhampered movement of traffic. In like manner, heavily used streets and most streets in congested areas must be cleared of parking in order to permit the free and unrestricted flow of traffic.

Through the parking surveys conducted, during 1946 and 1947, by the City Planning Department, the actual and future parking needs of the central area have now been established. The surveys reveal that,

in addition to the 3800 unit parking spaces normally available in off-street facilities and the 15000 units now available at the curb, some 2200 additional parking units are needed to meet the present demand. This total 21000 units, 6000 of which, based on the maximum curb space presently available, should be provided in off-street facilities. If, in addition, no-parking restrictions are extended throughout congested areas and to certain heavily used streets, it is estimated that 6000 curb parking units would thereby be taken out of use and would have to be replaced by an equal number of additional off-street units.

The future parking needs of the central area of the City have been estimated by the City Planning Department to call for 23000 units, 20000 of which should be off-street, leaving 3000 permitted units at the curb.

Despite the alarming and increasing diminishment of curb parking space, as revealed by the figures, it is the opinion of the Board that the City's responsibility, for the present, should be limited to providing only sufficient off-street units to replace the number removed from use at curb through parking prohibitions, not including those reserved for public services. Up to now, 5000 parking units have been removed from use at curb, in the central area. In the same area, the City is already providing more than 600 off-street units to the public besides 200 space to be made available at Chaboillez Square in the very near future. Off-street parking facilities to be provided should thus be limited, at any rate for the present, to about 4400 units, with 2200 of these being made available as soon as possible in order to make up the 2200 units which presently are lacking. At the same time, steps should be taken without delay to provide for the 6000 off-street units which will have to be taken out of curb use in the relatively near future.

The off-street facilities which will be needed to make up for existing deficiencies should, in principle, be located in such a way as to be widely diffused throughout the central uptown and downtown area, preferably in locations providing for approximately 400-car units each, and within a 500 to 1500-foot walking distance from the points to be served.

However, due to the large concentration of cars requiring parking accommodation in the downtown financial district, as well as in the hotel and retail commercial districts, there would appear to be justification for these two areas to be served by several even larger garages. In this connection, it so happens that there are three excellent sites, all strategically located, particularly in regard to the topography of the ground, which offer great possibilities for building underground garages, namely: Champ de Mars, Dominion Square and on Berri Street between De Montigny and Ontario. The success which such ventures have met with elsewhere warrants the expectation that they would meet with equal success in Montréal. The Board believes such will be the case.

For this reason, and to meet the needs stated, the Board recommends that the appropriate municipal departments be authorized by the municipal authorities to take all steps deemed necessary to expedite early construction and operation of these three underground garages.

As further measures aimed at progressively ameliorating the parking problem, the Board has initiated a study of the following matters:

- Modification of the provisions of the City Charter which limit the authority of the City to require off-street parking spaces only in building having ten stories or more.

- Adoption of a by-law to require that new commercial and industrial buildings provide off-street parking space for the loading and unloading of merchandise.
- Adoption of a by-law to authorize the granting of temporary permits to establish parking lots in any part of the City.
- Licensing of privately-owned and operated parking lots and the control of their operations.
- Installation of parking lots and the control of their operations.
- Installation of parking meters on certain streets.

● CONCLUSIONS

The work accomplished by the Board with respect to its study of the traffic problem has already enabled them to make important recommendations to the City Authorities, particularly in regard to the east-west expressway, the extension of McGregor Street, the re-design of Victoria Square, the opening of Burnside Street, the construction of uptown and downtown underground parking garages, the year-round maintenance of Persillier Boulevard as a main traffic artery, certain matters concerning traffic control, etc. The Board is pleased to note that the Civic Administration has given instructions to the departments concerned authorizing them to initiate the preliminary plans and works required for the execution

of these recommendations. For the most part, therefore, the more important matters referred to the Board, in so far as traffic is concerned, have now been examined and reported upon.

Beyond these matters, the Board has initiated an inquiry into other measures. Among these are the projected parkway on the mountain traffic ameliorations at the intersections of Pine and Park Avenues and of Park and Mount-Royal Avenues, traffic laws and regulations, parking, north-south expressways. In most cases, these studies cannot be completed until plans and information, now being prepared, have been completed by the municipal departments concerned; or before the effect of solutions applied to related problems have become apparent.

● MASS TRANSPORTATION

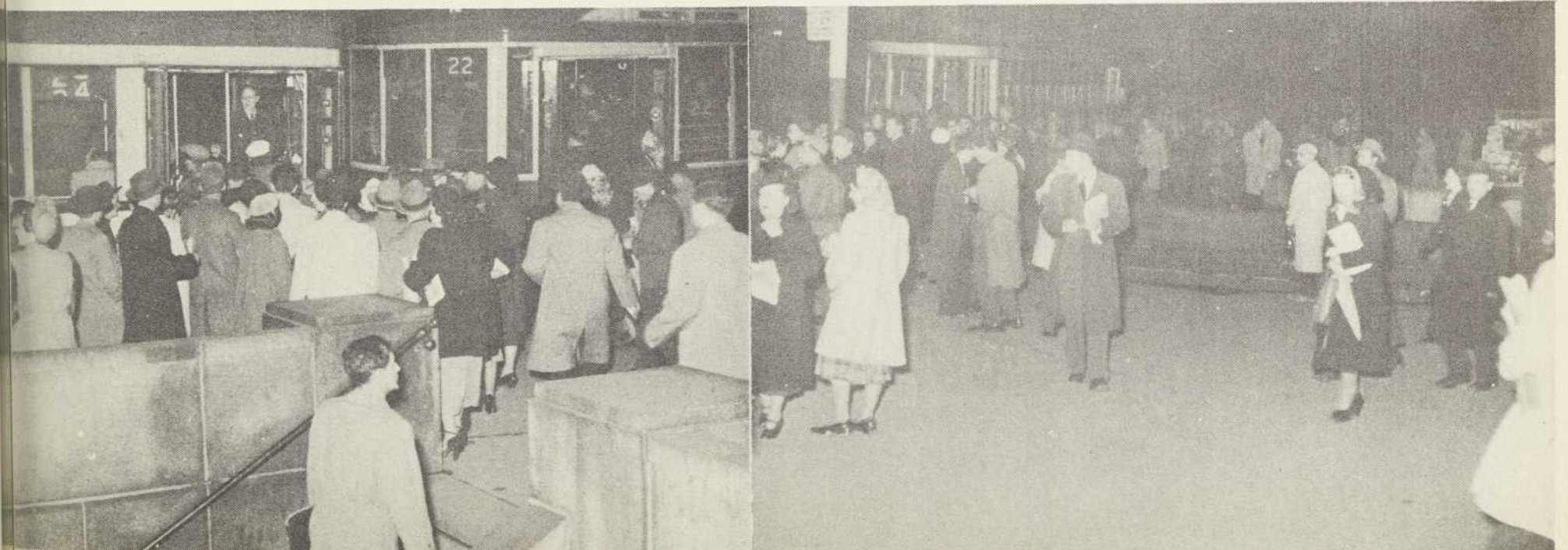
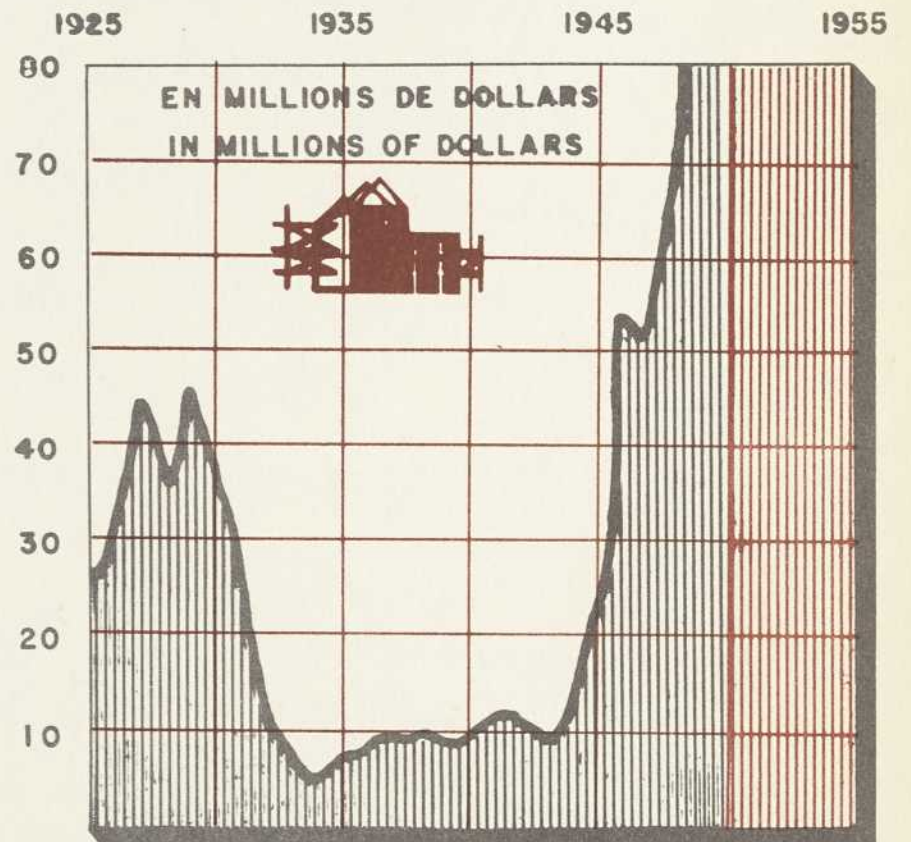
The Board of Research on Traffic and Transportation was entrusted with the study of the possibility or opportunity of establishing a subway or other means of mass transportation and of modifying the layout of mass transportation.

To this end, it submits the following pertinent data:

POPULATION DE L' ÎLE DE MONTRÉAL
POPULATION OF THE ISLAND OF MONTREAL



VALEUR DES NOUVEAUX BATIMENTS
VALUE OF NEW CONSTRUCTIONS



● THE MASS TRANSPORTATION PROBLEM

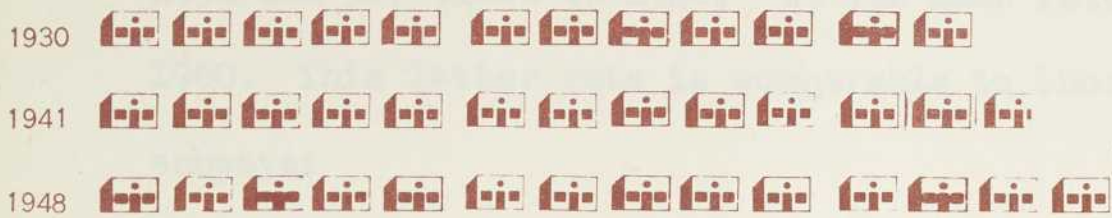
The Transportation Needs of the City:

The graphs which illustrate the text reveal the following facts:

- a. The population of the Montreal Region has increased very rapidly and still increasing at a fast rate.
- b. The commercial and industrial activities of the City have increased at a continuous and accelerated rate.
- c. Residential districts are being established in areas increasingly removed from the center of the City and from the principal centres of employment. Thus, residential development is rapidly taking place in the peripheric wards of the City such as Rosemont, Ahuntsic, Mont-Royal, Notre-Dame de Grâce and Mercier and in the surrounding suburban municipalities.
- d. The available means of mass transportation are transporting more and more people. The following statistics of the tram and bus services operating in the Montréal district are indicative of the growth in transportation demand.

PROGRES DU COMMERCE ET DE L'INDUSTRIE GROTH IN TRADE AND INDUSTRY

COMMERCE DE DÉTAIL -- RETAIL TRADE BUSINESS



CHAQUE SYMBOLE REPRÉSENTE 1000 ÉTABLISSEMENTS
EACH SYMBOL REPRESENTS 1000 ESTABLISHMENTS

CHAQUE SYMBOLE REPRÉSENTE 100 MILLIONS DE DOLLARS
EACH SYMBOL REPRESENTS 100 MILLION DOLLARS

COMMERCE DE GROS -- WHOLESALE TRADE BUSINESS



CHAQUE SYMBOLE REPRÉSENTE 1000 ÉTABLISSEMENTS
EACH SYMBOL REPRESENTS 1000 ESTABLISHMENTS

CHAQUE SYMBOLE REPRÉSENTE 100 MILLIONS DE DOLLARS
EACH SYMBOL REPRESENTS 100 MILLION DOLLARS

INDUSTRIE -- INDUSTRY



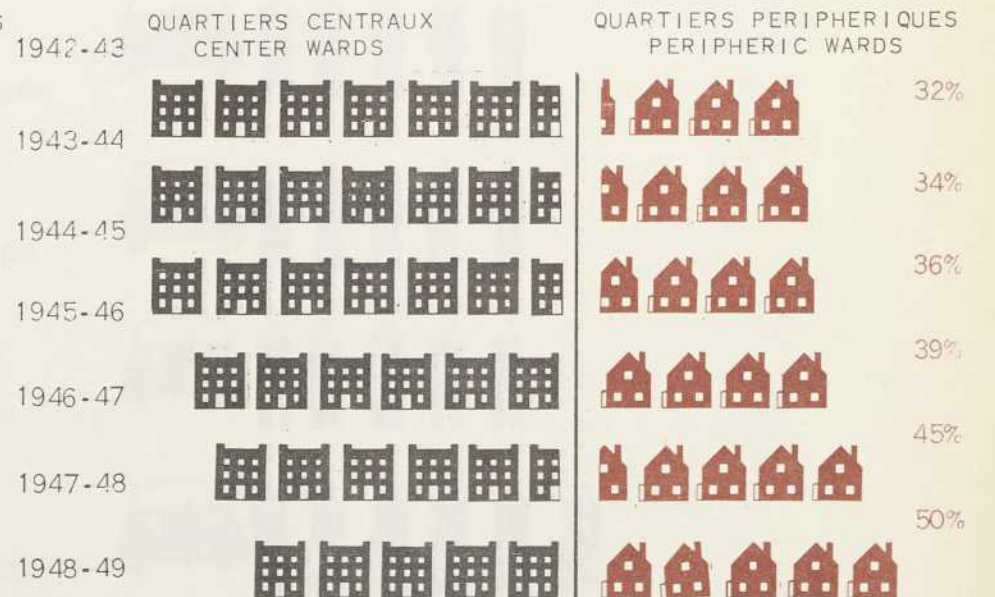
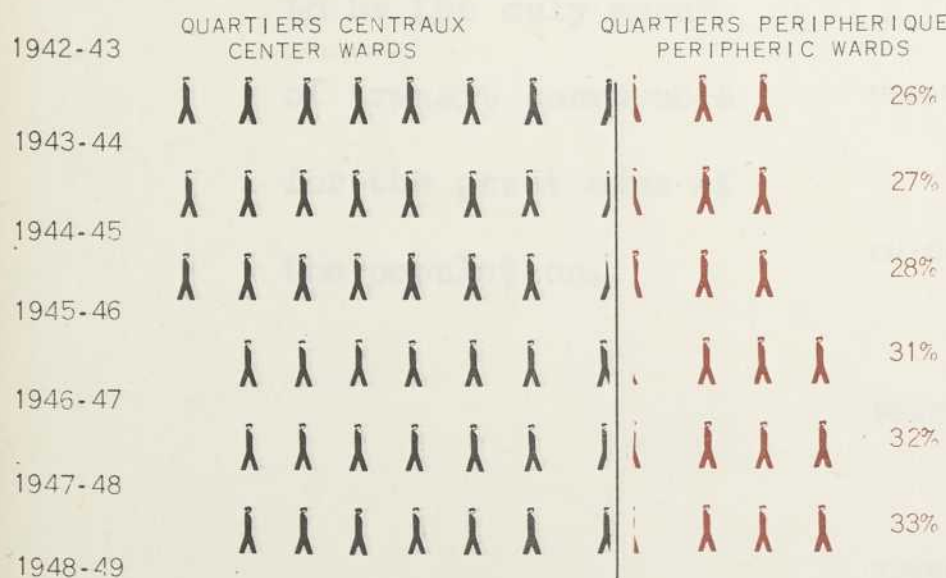
CHAQUE SYMBOLE REPRÉSENTE 1000 ÉTABLISSEMENTS
EACH SYMBOL REPRESENTS 1000 ESTABLISHMENTS

CHAQUE SYMBOLE REPRÉSENTE DE 100 MILLIONS DE DOLLARS (VALEUR BRUTE DE PRODUCTION)
EACH SYMBOL REPRESENTS 100 MILLION DOLLARS (GROSS VALUE OF REPRODUCTION)

LES ZONES DOMICILIAIRES S'ÉLOIGNENT DE PLUS EN PLUS DU CENTRE DE LA VILLE
RESIDENTIAL DISTRICTS ARE BEING ESTABLISHED IN AREAS INCREASINGLY REMOVED FROM THE CENTER OF THE CITY

ACCROÏSSEMENT ANNUEL DE LA POPULATION ANNUAL POPULATION INCREASE

AUGMENTATION ANNUELLE DE NOUVEAUX LOGEMENTS ANNUAL INCREASE OF NEW DWELLING UNITS



CHAQUE SYMBOLE REPRÉSENTE 10% D'AUGMENTATION DANS TOUTE LA VILLE
EACH SYMBOL REPRESENTS 10% OF THE TOTAL INCREASE FOR THE ENTIRE CITY

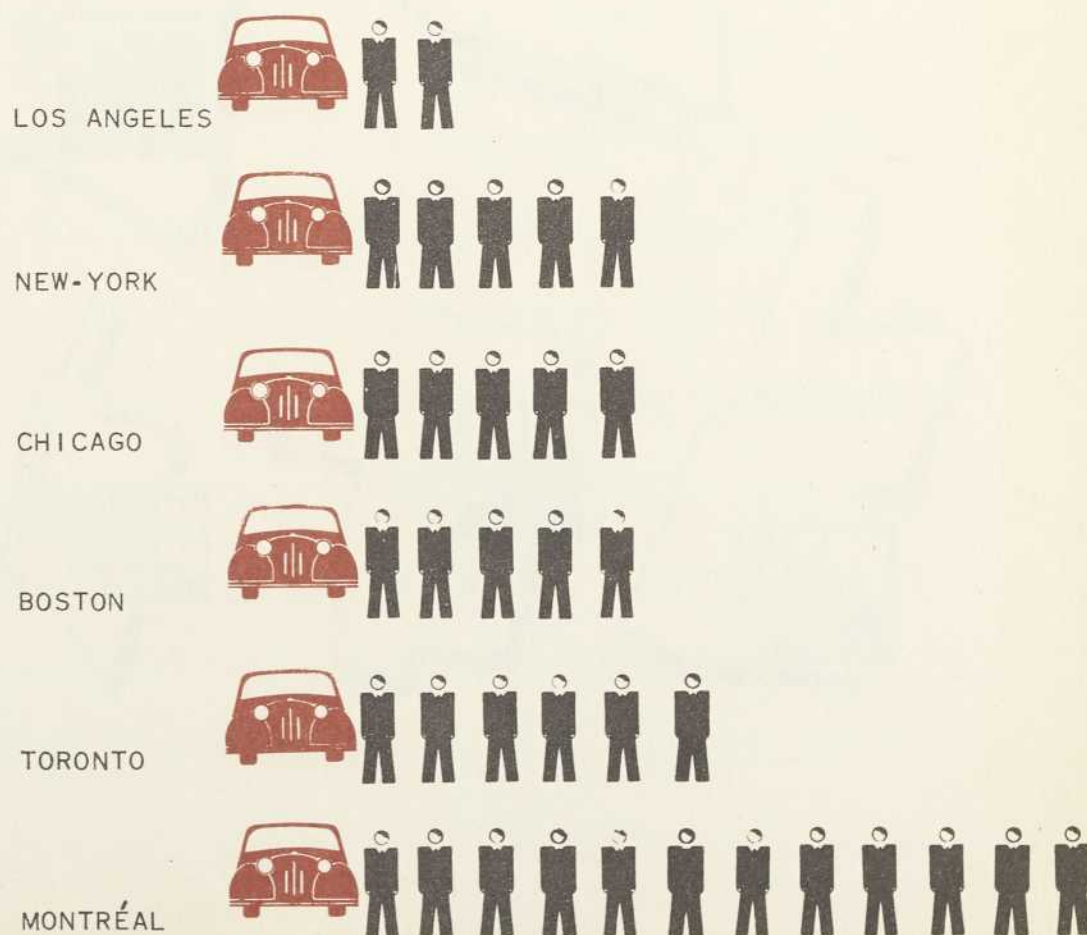
The frequency of travel per person per year amounted to 234 times in 1931 and 307 times in 1946. At the same rate it would be 322 in 1960. This latter rate is comparable to those of large cities having subways:

Paris,	400
Chicago,	438
NEW-York,	462
Londres,	500

- e. The number of automobiles per inhabitant in Montréal is very low.

This situation may be explained by the fact that, among other reasons, the topographic and climatic conditions of Montréal do not favor the use of automobiles to the same extend as elsewhere. It may be expected, therefore, that public mass transportation will continue to be the only means of transit conveyance for the great mass of the population.

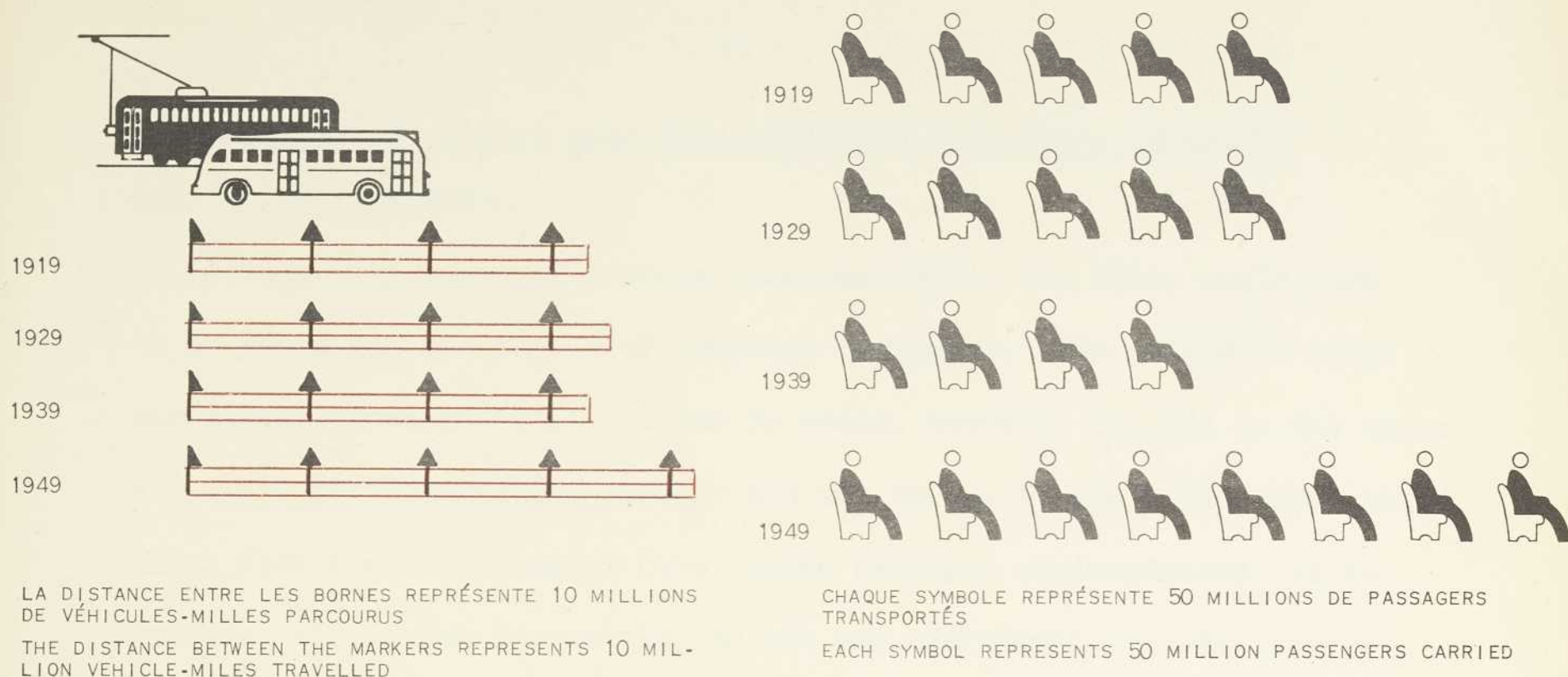
NUMBER OF PERSONS PER REGISTERED AUTOMOBILE
NOMBRE DE PERSONNES PAR AUTOMOBILE ENRÉGISTRÉE



ACCROISSEMENT DE LA POPULATION DANS LA BANLIEUE SUBURBAN POPULATION GROWTH



TRANSPORT EN COMMUN MASS TRANSPORTATION



Existing Mass Transportation Facilities:

a. Stability and capacity

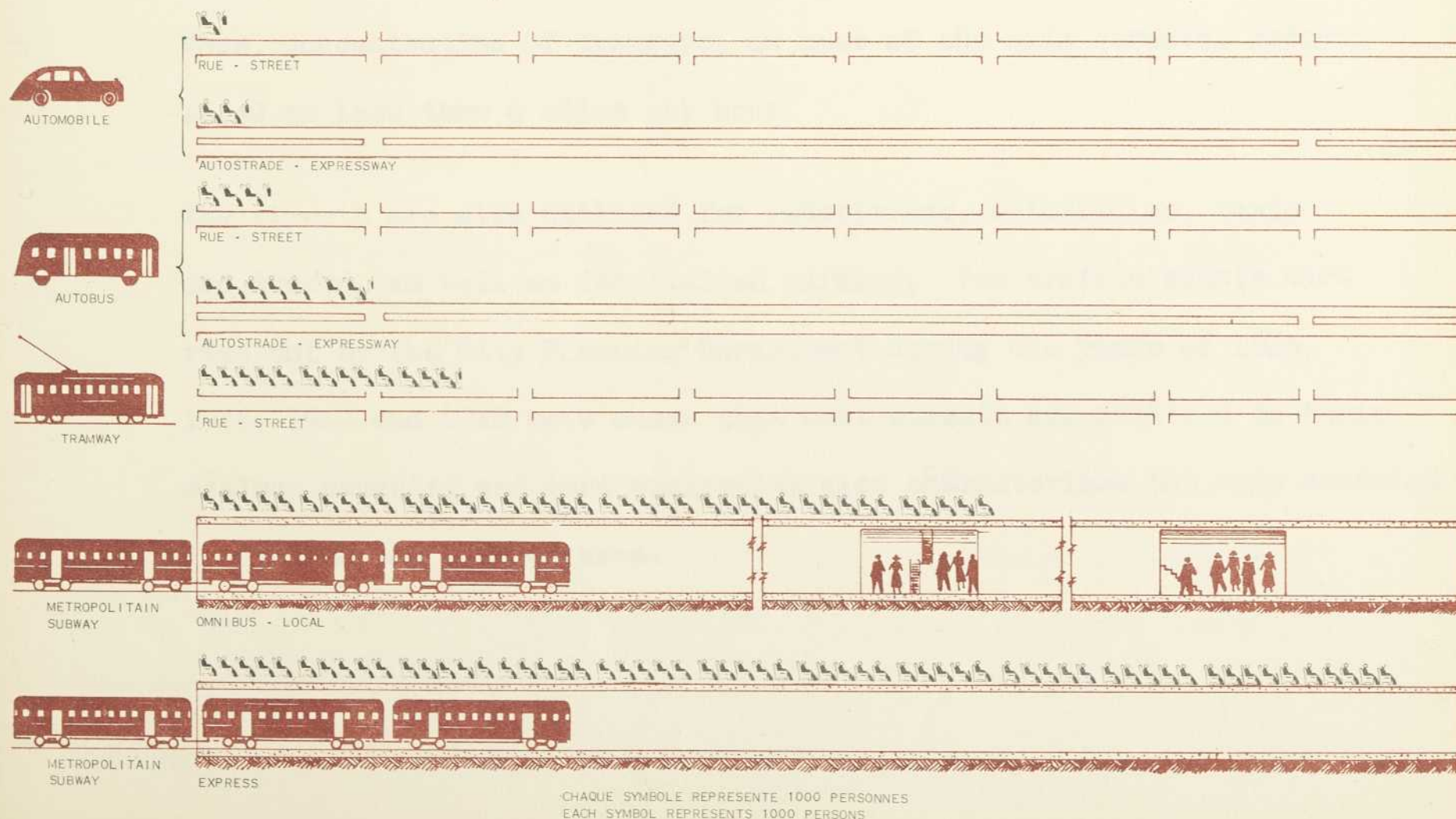
The existing surface network comprises 88 tramway lines, 34 bus lines, and 2 trolleybus lines utilizing approximately 75 streets and covering a distance of 246 miles for tramways and 95 miles for busses and trolleybusses or a grand total of 341 miles.

This network carries an average of 1,500,000 passengers per working day which represents 80% of all persons transported through the metropolitan area. Between 5.00 and 6.00 P.M., more than 75,000 passengers must be transported from the area bounded by Saint-Denis, Notre-Dame, Windsor and Sainte-Catherine Streets. In the west section of Sainte-Catherine Street, tramways at peak hours follow one another at an interval of 25 seconds and carry approximately 20,000 passengers. On the Park Avenue, Saint-Laurent Boulevard and Saint-Denis Street lines, taken together, an average of 30,000 passengers are carried between 5.00 P.M. and 6.00 P.M.

- b. The capacity of surface mass transportation facilities cannot be indefinitely expanded

To increase the means of surface transportation, new lines would have to be added and the number of tramways increased. The extent to which additional transit facilities can be added, however, depends on the number and width of the existing streets and the volume of other vehicular traffic which also must be provided for. Under existing circumstances, it is impractical, if not impossible, to add any additional transit vehicle equipment to transport the ever mounting transit load without further reducing the speed for all moving traffic, besides aggravating the density of congestion to the point of near immobility.

CAPACITE DE CHARGE DES DIVERS MOYENS DE TRANSPORT, PAR HEURE, PAR FILLES DE VOITURES
CARRYING CAPACITY OF DIVERSE TYPES OF TRANSPORTATION PER HOUR PER LANE OF TRAFFIC



It will be noted from the above that a number of tramway lines in Montréal have already reached the maximum carrying capacity which this means of transportation allows for.

- c. Montréal Streets are mostly narrow and overcrowded especially in the central area.

It is this fact which brought about an early and rapid saturation of the street carrying capacity of transit facilities in Montréal. Of necessity, the most important tramway lines converge toward the central area. Moreover, because of the confinement of the central area between the mountain and the river, the area has become densely built upon without adequate prior provision for arterial street connections. The streets, for the most part, are narrow and because of the topography, the existing access routes are relatively few. The tramway lines must necessarily follow the existing streets. Thus, concentration of tramways, on most of the main streets, reduces speed to less than 6 miles per hour.

The streets are also utilized for pedestrians, automobiles, taxis and trucks, as well as for limited parking. The traffic counts carried out by the City Planning Department during the years of 1945, 1946, 1947 and 1948 have shown that most streets are utilized to their maximum capacity and that congestion also characterizes the main arteries leading to the central area.

CONCLUSION

The means of surface transportation in Montreal are physically insufficient to carry, either in comfort or with efficiency, the volume of passengers requiring daily transit facilities; nor do the existing facilities satisfy an acceptable standard of mass rapid transit communication.

Thus, steps should be taken to progressively remedy the existing saturation and the growing insufficiency of mass surface transportation; to modernize and to improve the facilities and services; and to link more effectively the various districts of the city with more adequate means of rapid inter-communication.

● POSSIBLE AMELIORATIONS AND SOLUTIONS TO THE PROBLEM

Widening of Streets

The Board has taken note of the programme of street-widening and improvements proposed by the City Planning Department, certain parts of which are now in process of implementation.

These street widenings, so essential to the improvement of traffic conditions, will, however, bring only a measure of relief to the transit problem. Important as they are, their principal contribution will be to facilitate the movement of automobile vehicles, primarily privately-owned autos and trucks. While it

is true that taxis and transit busses would also benefit from any street widening program, it would be illusory to believe that any great improvement in the speeding up and carrying capacity of public transit facilities would result therefrom.

In this connection, traffic authorities have established that an additional traffic lane will accommodate at the most between 600 and 900 vehicles per hour, carrying an average of approximately 900 people, or a maximum of 1500. In contrast, a subway line will accommodate 40,000 passengers per hour in a single direction. Street widenings, so far as their effect on mass transit is concerned, are beneficial only to the extent that they make possible a larger number of transit vehicles carrying a greater capacity of passengers than previously was possible.

The fact to be remembered in connection with street widenings is that, no matter how wide they may be, it will still only be possible for them to carry no more than a double line of tram tracks. And, as we have already pointed out, tramway surface cars cannot carry more than 13,500 passengers per hour per track with normal speed on the existing or to be widened city streets.

It is therefore both impractical and uneconomic to expect that simply by widening streets or opening new ones that a solution will be found for the problem of mass transportation in Montréal. The sheer limitations of space in the central area and the completely prohibitive costs of the expropriations which would be involved rule this solution out. Street

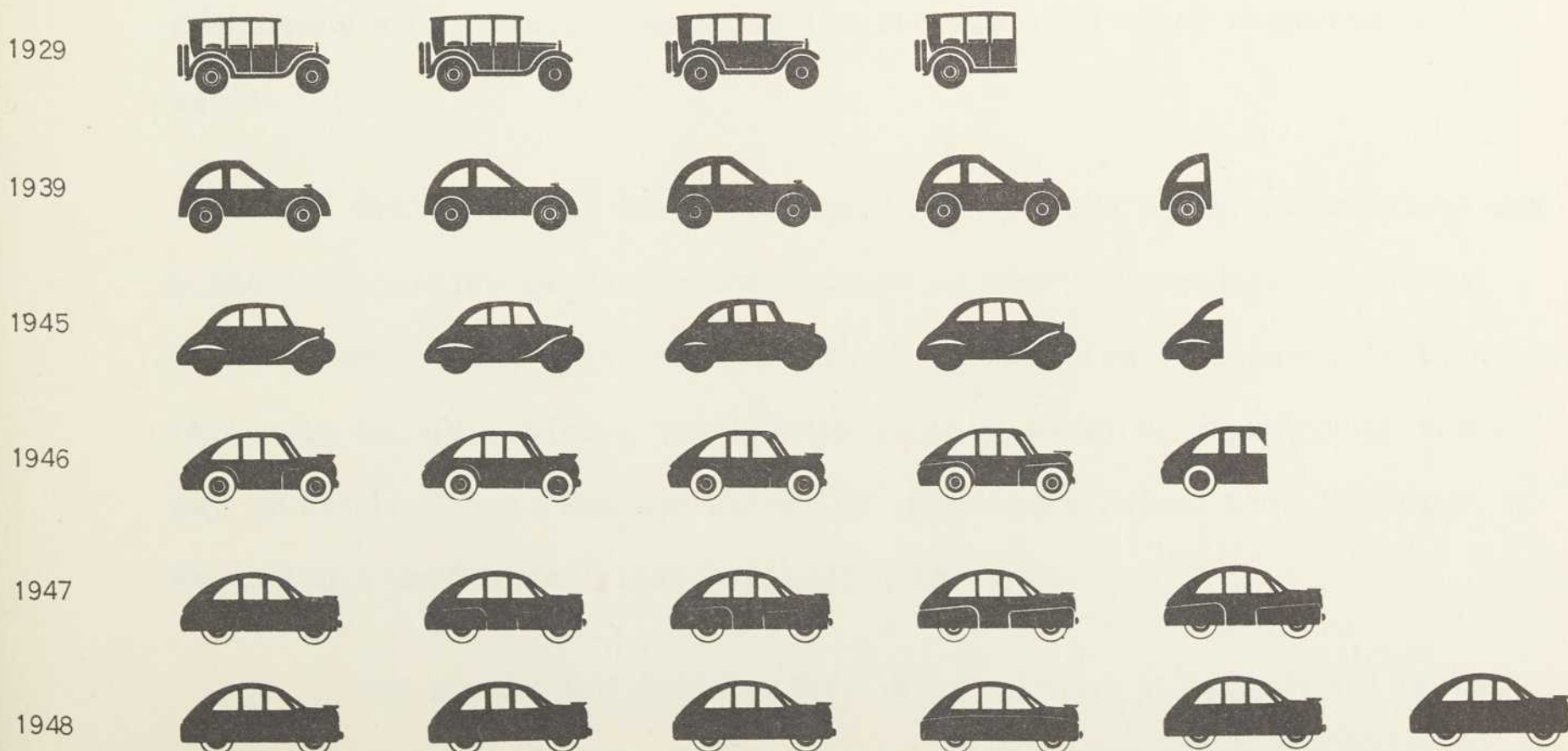
widening in Montreal offers promise of relief to the traffic problem.
It is no solution to the transit problem.

On this subject, three factors peculiar to Montréal should be taken into account:

- a. The fact that there exists a relatively few east-west arteries in the central area and that there are confined to the area between the mountain and the River;
- b. the existence of Mount Royal, the presence of which forces traffic to circle the mountain thereby creating congestion on neighbouring east-west and north-south arteries;
- c. the climatic conditions which, during winter, accentuate the traffic problem because of snow and ice.

Finally, one must anticipate that the number of motor vehicles will keep on increasing in Montréal. At the present time the per capita

AUTOS ENRÉGISSTRÉS DANS L' ÎLE DE MONTRÉAL
AUTOS REGISTERED ON THE ISLAND OF MONTREAL



CHAQUE SYMBOLE REPRÉSENTE 20,000 AUTOS
EACH SYMBOL REPRESENTS 20,000 CARS

ownership of automobiles is low compared with other comparable centres. There has however been a steady increase in ownership and we must expect that it will continue to grow.

Modification to the existing network and operation of surface transit facilities

The Board studied the possibility of changing the location of certain existing tram lines and also of modifying their operations. Consideration was given to the frequently heard suggestions that secondary streets parallel to large arteries be brought into use for transit purposes and that there be a reduction in transfer points.

On the matter of operating practices, the Board had before it such suggestions as the replacement of tramways by autobusses or trolleybusses; the utilization of two-decker busses; the suggestion that certain streets be used for express tramways and that autobusses be operated concurrently on parallel neighbouring streets; and other suggested measures.

While each of these proposals has its own merit, nonetheless and quite irrespective of what route changes or operating modifications may be resorted to, the fact remains that it is technically impossible to alter two basic considerations, namely: the limited physical capacity of tramway or autobus lines and the number of passengers beyond this capacity which the transit facilities are having to carry.

Nor should the fact be lost sight of that it requires 3 busses to replace 2 tramway cars. For instance, on Sainte-Catherine Street, at the

peak hour, 245 autobusses would be required to replace the 163 tramways now operating along this route. In addition, there would be an estimated 800 automobiles and trucks which, normally, utilize this artery at the same time. It is obvious, therefore, that merely by replacing tram cars by the number of busses required to transport the same number of people would not achieve the end of relieving traffic congestion on this busy traffic and transit thoroughfare.

Nor would the elimination of transfer points offer any substantial improvement. An increasing number of passengers would have to be picked up and let down at other transfer points; besides which, it would add to the inconvenience of congestion in the central area and accentuate passenger discomfort during inclement weather.

The congestion of traffic in the Central area, the limited number of east-west arteries, the narrowness of streets and their lack of continuity in most cases, eliminate the possibility of establishing express tramways. On this subject, it should be again emphasized that the mass transportation problem cannot be solved merely by increasing the speed of tramways. What is more important, and without which there can be no solution to Montréal's transit problem, is the absolute necessity to increase the load-carrying capacity both of the transit route and of the transit vehicle. In this connection, it should be remembered that the express tramway on an ordinary street is limited to a fixed rate of relatively low speed and the frequency of operation is conditioned by recurrent traffic congestion, seldom of its own causing.

With regard to two-decker busses the Board feels that they would not prove practical in Montréal. They are cumbersome and require a longer period of time for the loading and unloading of passengers. Moreover, Montréal street grades are not convenient for this type of vehicle, especially in winter.

The Board examined certain modifications to the existing means of surface transportation which might offer some possibilities for improving the present situation. It is convinced, however, that it is technically impossible to solve the mass transportation problem by such modifications alone. This conclusion is further justified bearing in mind the continuing increase in population, both of the city and the suburban districts, the effect of which is to make more and more people dependent on rapid transit facilities. Finally, with the ever increasing per capita ownership of automobiles, street traffic congestion compels and makes urgent the necessity to find a more rational solution to the transit problem than merely to crowd it on to street thoroughfares already carrying a maximum load of non-transit vehicles.

CONCLUSIONS

From the foregoing we can conclude that, with a view to: overcoming the present intolerable congestion of the existing surface means of mass transportation; providing the means for transporting an ever growing volume of transit users; speeding up the travel time of the mass transportation system; the only practical solution to the mass transportation problem in Montréal would be the establishment of an urban transit network independent from the city's streets.

Consideration of various means to establish an urban transit network independent of the city's streets.

The Board has given earnest study to the matter of ways and means to establish an urban transit network independent from the City's streets.

a. One way would be the utilization of the existing railroad lines

On this subject, the Board has noted the recommendation made in 1929 by Sir Frederick Palmer in a report entitled Railways Facilities at Montréal. It has also considered various suggestions put forward with regard to the utilization in part, of existing railway facilities. With regard to this matter, it should be remembered that the railways are already servicing many suburban districts and that they will continue doing so in the future.

The C.P.R. and C.N.R.

train service to

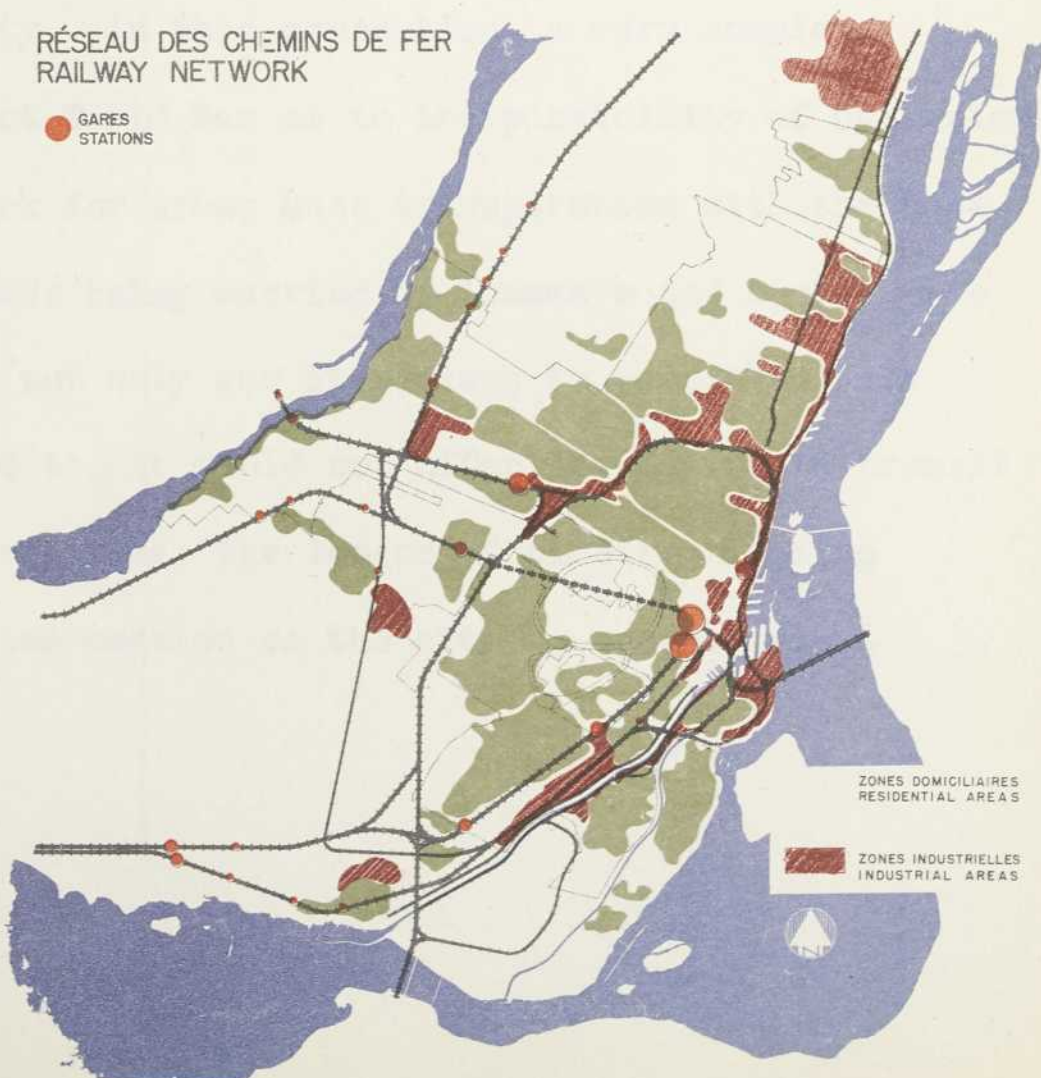
Lakeshore communi-

ties and the

C.N.R. tunnel line

RÉSEAU DES CHEMINS DE FER
RAILWAY NETWORK

● GARES
STATIONS



to Saint-Eustache and the new belt-line from the Central Station to the north-east and eastern sections of the Island, are all essentially local and suburban runs. As such, they are complementary to and part of the urban-suburban network of mass transportation.

The operation and facilities of a suburban railway service, however, require a quite different mode of operation and equipment than does a strictly urban transportation network. The latter requires equipment and operational facilities which permit almost continuous route operation and frequent stops and starts; while the latter requires less frequency and longer stops. The difference in characteristics necessitates a different type of rolling stock.

Apart from the difference in the type of rolling stock required for the two types of transportation, there is the further consideration that railroad stations are not planned to serve movements of mass transportation needs within the city. In this connection, a very complete survey was made during the last World War as to the possibility of utilizing portions of the railway network for urban mass transportation with the hope of relieving the excessive loads being carried by tramways and busses. The study disclosed the fact that not only was it useless to resort to this solution but that, if resorted to, it would not offer any saving in transit time. To the contrary, in most cases, the length of time required to travel on railway lines from one section of the city to another would

have been longer than by tramway or bus lines.

For these reasons the Board has concluded that the utilization of the existing suburban railway network would not be practical for rapid mass transportation within the urban territory. The Board recommends, however, that any subway system to be built should be located in such a way so that its stations and operation will take into account the existing railway network in order that each will be complementary to the other. The C.N.R. tunnel line passing under the mountain is an example of what the Board has in mind. There can be no question, for instance, that downtown subway station should be located in close proximity to Central Station (as well as to Windsor Station) and that, after passing through the tunnel, the surface system of urban transportation should be planned, in part, as a feeder system to the railway. In a sense, Montréal already has a north-south subway under Mount Royal. As the area north of the mountain becomes more built up and its population increases, the C.N.R. Tunnel service will increasingly become an important and major suburban link in the over-all urban network of mass transportation.

b. Utilization of the proposed expressway

Expressways with limited access may be so planned as to allow for the operation of express busses or its surface road-bed utilized for rapid transit trains provided that the surface roads are divided by a central mall of sufficient width.

Multiplicity of use, however, has its limitations. The required width which an expressway demands, as well as other features of its construction, will entail a relatively high cost of realization. Their route location and the necessity to provide access approaches where expropriations will be least costly, will therefore, not always coincide with the transportation requirements of the transit-using public.

Moreover, it should be borne in mind that there are physical limitations on the volume carrying capacity of an expressway. Traffic authorities have established that busses will carry only 7,200 passengers per hour and per lane of traffic on an expressway. By contrast, a subway, of the type that would be constructed in Montréal, could carry up to 40,000 persons per hour or per track. In the light of these principles, the Board considered the possibility of utilizing the proposed east-west expressway project which is being recommended as a major utility for ameliorating the traffic problem, as a means of transit communication as well. The Board believes that the projected expressway may permit the operation of express-busses in the Central area, i.e., between Atwater Avenue and de Lorimier Avenue and also provide for express-tramways using the central mall between roadways east of de Lorimier Avenue and west of Saint-Remi Street.

Apart from these possibilities, the route of the expressway, will be too distant from the commercial district to effectively serve its mass transportation needs. Transit users to and from the commercial district would be forced to travel around the whole lower part of the city before reaching their destination, the effect of which, apart from the time delay involved, would be to increase

the volume movements of mass transportation vehicles in the most congested part of the central area. Moreover, the east-west expressway would not lend itself to easy connections with north-south transit-lines. The latter, at the point where they meet up with the expressway, are relatively few and, necessarily, will be surface lines; so that transfer points would be few and inter-connecting access to them would be involved and difficult. For these reasons, the expressway, while lending itself to use as a transit artery, can hardly be thought of as an instrument to integrate the means of mass transportation.

Further, in this connection, due to the fact that the proposed north-south subway line would make possible the removal of surface tram lines on Saint-Laurent Boulevard and Saint-Denis Street, which would permit these arteries, as well as others, with proper grade separations, to adequately meet the traffic needs, the Board does consider it necessary, at this time, to study the possibility of utilizing a north-south expressway for mass transportation purposes.

Finally, it should be pointed out that building stations within the right-of-way of an expressway would be very difficult, especially in the central area. Moreover, it would be inconvenient to transfer from an elevated expressway to surface transportation, particularly in winter.

c. Elevated railway

The Board does not regard an elevated railway system as being practical for Montréal. Climatic conditions, as well as other considerations, have led the Board to conclude that an elevated transit system offers no solution to the problem of mass transportation within the urban area of the city.

Conclusion

One solution remains: The construction of a network of underground arteries for mass transportation vehicles, i.e., two-level streets, one surface, the other sub-surface, thus permitting the separation of high capacity transportation from all other traffic. In other words a subway.

THE SUBWAY - ITS ADVANTAGES

A subway system provides the advantages of carrying passengers in highspeed trains with high loading capacity travelling on their own separate level, free from weather conditions, severe grades, intersections, and other traffic and pedestrian hindrance.

It is the most efficient means of high capacity mass transportation which has been devised to date and is being utilized more and more in the larger cities of the world.

Among the cities already provided with subways are: Barcelone (1,130,000); Berlin (3,200,000); Boston (770,000); Budapest (1,070,000); Buenos Ayres (2,620,000); Chicago (4,000,000); Glasgow (1,110,000); Hamburg (1,410,000); Liverpool (770,000); London (8,250,000); Madrid (1,210,000); Moscow (4,135,000); Newark (430,000); New York (11,700,000); Osaka (3,250,000); Paris (2,725,000); Philadelphia (1,930,000); Sydney (1,290,000); Tokyo (6,778,000).

There can be no doubt that the trend in large cities is towards the construction of subways as the preferred and most efficient means of urban mass transportation. Indicative of this continuing trend is the recent or current construction of subways in the following cities: Rome, Stockholm, Rio de Janeiro, Caracas, Calcutta, Toronto, etc.

The advantages of a subway are numerous and well known. They may be summarized as follows:

- a. Regularity of service free from climatic conditions and traffic congestions;
- b. Comfort of passengers;
- c. Time saving considerations;

- d. Decongestion of street traffic due to the elimination of surface tramway lines and the consequent decrease in the number of pedestrians having to make surface transit connections;
- e. Increase of property values;
- f. Economic savings to commerce and industry by cutting down truck delivery time and by providing an easier customer and delivery access to their establishments;
- g. Decentralization of residential areas.

● THE LAYOUT OF THE SUBWAY NETWORK

Having established the necessity of subways, the Board then proceeded to a study of the appropriate routes of the network. As a first step, a set of basic principles for determining the location of the subway lines was formulated:

Basic principles concerning the layout of lines

- a. In establishing the subway routes, primary consideration should be given to the daily displacement of population brought about as a result of the specialized activity of the different sections of the city and its adjoining area.

In this connection, a study was made of the maps of the city showing the land use, the zoning regulations affecting the peripheral districts; the density of population for 1949, as well as the

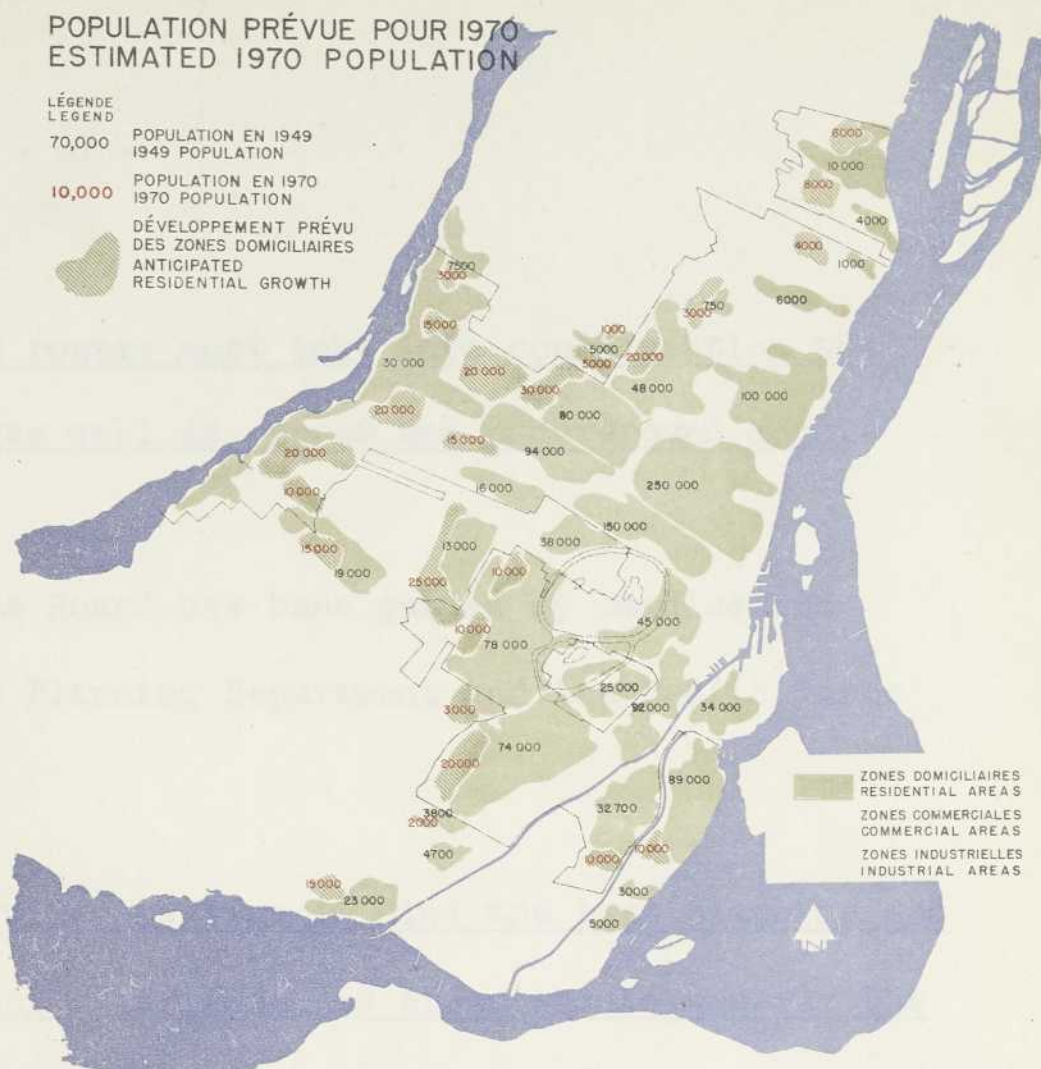
expected density for 1960; the traffic volumes throughout the metropolitan territory from 1945 to 1948, and, finally, a map showing the passenger loads carried by the tramways and autobusses.

In studying this matter, the Board considered not only the existing situation but also the discernible tendencies affecting the future development of the metropolitan territory. It is obvious, bearing in mind the long life of subways and their high cost of construction that it is absolutely essential to plan these routes with due regard to their future long-term utility and development.

POPULATION PRÉVUE POUR 1970 ESTIMATED 1970 POPULATION

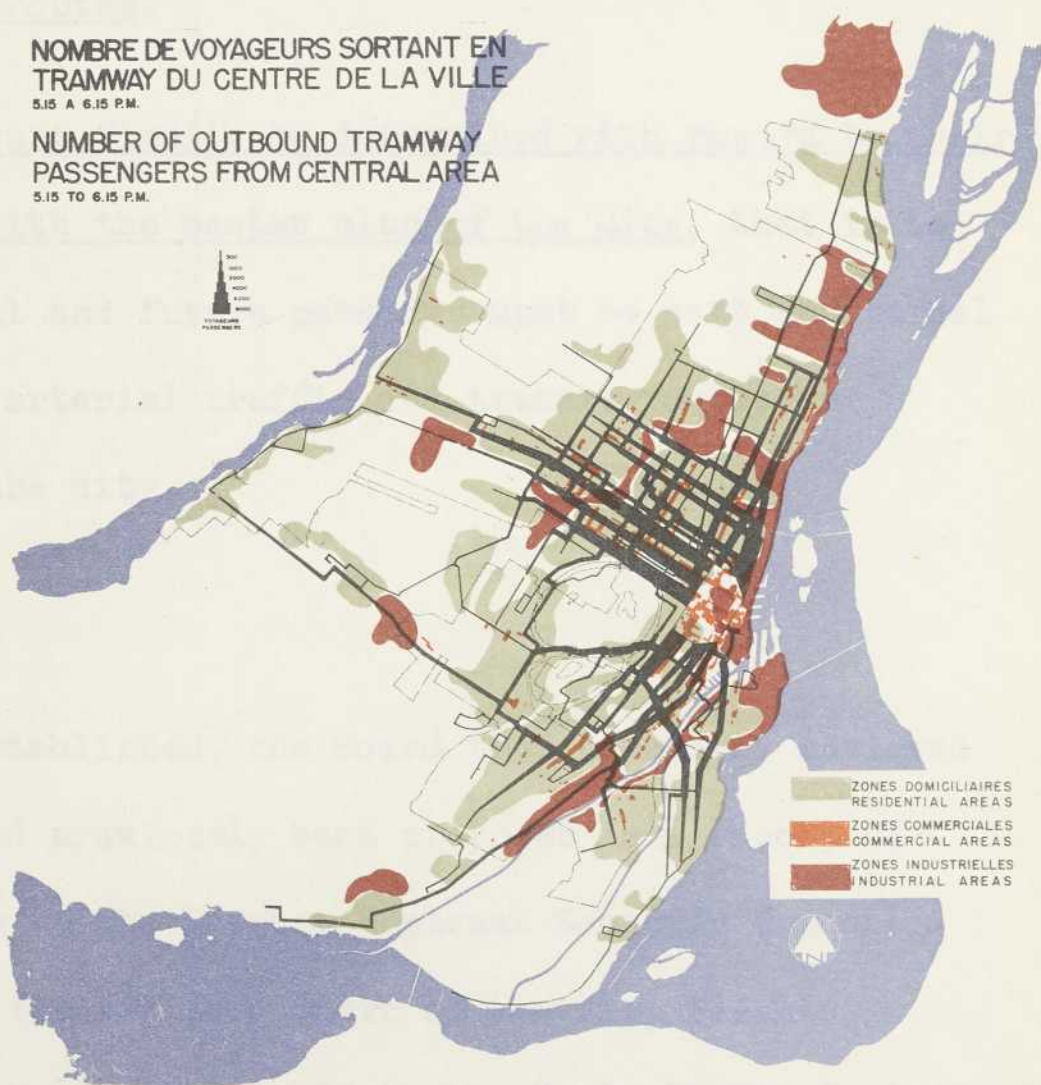
LÉGENDE
LEGEND

70,000 POPULATION EN 1949
1949 POPULATION
10,000 POPULATION EN 1970
1970 POPULATION
DÉVELOPPEMENT PRÉVU
DES ZONES DOMICILIAIRES
ANTICIPATED
RESIDENTIAL GROWTH



NOMBRE DE VOYAGEURS SORTANT EN TRAMWAY DU CENTRE DE LA VILLE 5.15 A 6.15 P.M.

NUMBER OF OUTBOUND TRAMWAY
PASSENGERS FROM CENTRAL AREA
5.15 TO 6.15 P.M.



- b. The determination of the routes must take into consideration the existing street layout, as well as ground and underground conditions.

On this subject, the Board has been guided by studies and reports made by the City Planning Department and the Public Works Department.

- c. The routes must be determined bearing in mind the best planning and operating principles which experience has shown should underly the establishment of subway routes.
- d. The routes and network must finally be determined with regard to their practical relationship with the master plan of the City, that is to say, the proposed initial and future networks must be part and parcel of the whole network of arterial traffic and transit routes and future general plan of the city.

Route layout

With these principles established, the Board then carefully reviewed the suggested routes which had previously been proposed in a report of the Montreal Tramways Company to the Greater Montreal Economic Council and subsequently endorsed by the Advisory Board of the City Planning Department; as well as a proposal put forward by the Paris Subway Company.

a. General layout

The Board reached the conclusion that, for present and future needs, insofar as it is possible so to provide, a subway network in Montréal should embrace:

- a) A line extending North from Sainte-Catherine Street under Saint-Denis Street.
- b) A line extending East from Saint-Denis Street under Sainte-Catherine - Ontario Streets.
- c) A line extending South from Sainte-Catherine Street under Saint-Denis Street and forming a loop via Craig Street to joint the East-West line at Peel and Sainte-Catherine Streets.
- d) A line extending West from Saint-Denis Street under Sainte-Catherine - Sherbrooke Streets.
- e) A line extending North from Ontario Street in the vicinity of d'Iberville Street.
- f) A half-circle line extending North and West of the mountain to join the lines described in (a) and (d) above.

The Board thought it unwise to project possible future extensions beyond those indicated because of the numerous modifications which could occur in land use and in the distribution of population throughout the territory, prior even to the completion of the proposed initial network. Modifications of the sort indicated might, or might not, necessitate additional routes.

The general route layout recommended for the initial subway network is, therefore, the result of studies based on various suggestions already made and the careful evaluation of the various factors which should regulate and determine the establishment of subway routes.

i. Saint-Denis North Route

In regard to the initial north-south route, the Board examined the advantages respectively of Bleury Street and Park Avenue, Saint-Laurent Boulevard and Saint-Denis Street, as possible locations. De Lorimier Avenue and Iberville Street were also considered. After carefully weighing the merits of these alternative route locations, Saint-Denis Street was decided upon for the following basic reason:

An analysis of the population density now residing in the one half-mile of territory on both sides of Saint-Denis Street and Saint-Laurent Boulevard, shows that a larger concentration of population exists in the territory adjoining Saint-Denis Street than in the similar territory adjoining Saint-Laurent Boulevard. Similarly, the expected population in these two areas by 1960, as indicated by the following figures, shows Saint-Denis as a much higher area of concentration:

Saint-Denis	328,534
Saint-Laurent	272,027

In addition, it is probable that the costs involved in subway construction will be lower on Saint-Denis Street than on Saint-Laurent Boulevard due to the existence of city-owned park lands along parts of its route.

ii. Route from Saint-Denis East and West

The Board considered the relative advantages and disadvantages which would accrue to Sainte-Catherine, Dorchester and Burnside Streets if, instead of a subway, an expressway was constructed through the central area.

The Board does not believe that an expressway would offer the solution necessary for the transportation problem of the central area. Nor does it believe that a subway under Burnside Street would effectively meet the needs of the district south of Sainte-Catherine Street. As for Dorchester Street, it would be even less convenient to the Sainte-Catherine Street commercial district and too far away from Sherbrooke Street.

A subway under Sainte-Catherine Street was decided upon because of its location in the center of the commercial district and its continuity from one end to the other. In like manner, Ontario Street, in the east end, is well located to serve effectively the transit needs of the population residing between Sherbrooke and Notre-Dame Streets. In the west-end, Sherbrooke Street offers the advantage of serving effectively the populated residential district of Notre-Dame-de-Grâce. The reasons militating in favour of a subway under Sainte-Catherine Street are, therefore, as follows: establishing a subway in the heart of a wide commercial development of the city will stabilize and strengthen its business activity; a minimum of expropriations will be required; it will bring closer the center of traffic gravity to the center of commercial activity;

it will effectively serve the district comprising hotels, railway stations, office buildings, and commercial establishments south of Sainte-Catherine Street.

iii. Down-Town Loop

The route of the proposed downtown centre-of-the-city loop from Saint-Denis and Sainte-Catherine Streets southward to Craig Street and then via Craig Street to Peel and Sainte-Catherine Streets, requires little explanation. It passes through the heaviest transit district of the city and serves the financial, legal, governmental and other business, including the port and canal facilities of the water-front, which are centred in this section of the city. If experience elsewhere is an indicator, it will not only conserve and probably increase property values but, what is equally important, it will tend to rehabilitate the whole area.

iv. Future north-south route

The location of the initial north-south route under Saint-Denis Street was of considerable importance in the Board's recommendation with respect to the location of a possible future second north-south route. Factors affecting the future land use in the area, led to the recommendation of Iberville Street as a possible location for this future extension of the subway network. For instance, the quarries located on the east side of Iberville Street are being rapidly filled in and will soon become park and playground space as well as being available for residential construction. It is also probable that the abbatoirs bordering Iberville Street will ultimately disappear. Under these circumstances, Iberville Street and its adjoining territory will probably develop as a highly populated residential section having a high transit

demand. Moreover, an Iberville Street route would bring the subway system within access of the highly populated and growing Rosemount district.

v. Future round-the-mountain extension

Finally, the Board believes that, ultimately, there should be constructed a circular subway route around the west flank of the mountain to join up with both the east-west and north-south routes. This route will answer to the needs of the growing and increasingly important commercial center in the vicinity of Snowdon Junction and the industries that have developed bordering Décarie Boulevard, as well as the needs of the large residential districts which are fast developing in Notre-Dame-de-Grâce and Mont-Royal wards.

vi. Other suggested routes examined by the Board

Among other suggested routes considered was one calling for a subway under Côte des Neiges Road connecting the Sainte-Catherine Street route with Snowdon Junction. The Board discarded this suggestion for the reason that the route would, of necessity, have to pass through an extended zone of very low density on the west flank of Mount Royal and, for a considerable distance, on the east flank of Westmount Mountain. Moreover, the Board believes that such a route would not be as effective as a possible future west-end route under Girouard Avenue.

Neither does the proposed subway route crossing the City of Verdun seem to be justifiable. The built-up area of Verdun has not developed practically to its full land-use capacity and, with the present Wellington Street Tunnel and that under construction at Saint-Remi Street and that planned for at Atwater, under the Lachine Canal, it is the opinion

of the Board that the transit needs of this section of the metropolitan area can be effectively met by means of surface system.

The Board has also taken into consideration the fact that the population of the south shore municipalities is increasing very rapidly, particularly in the bridge-head communities located adjacent to Victoria and Jacques-Cartier bridges. The Board believes that, for the present at least, surface transportation will meet the growing transit requirements of this area. The east-west expressway will be linked with Jacques-Cartier Bridge and the east-west subway route will be within easy access with a proposed station at De Lorimier Avenue and Ontario Street. For these reasons, the Board reached the decision that, for some years to come, surface transportation would prove fully adequate for the transit requirements of all South-shore communities.

b. The Initial Network

To meet the immediate needs of rapid mass transportation in the Montréal area, the Board believes that the initial subway network should consist of and include the following routes:

- a) A line extending North from Sainte-Catherine Street under Saint-Denis Street.
- b) A line extending East from Saint-Denis Street under Sainte-Catherine - Ontario Streets.
- c) A line extending South from Sainte-Catherine Street under Saint-Denis Street and forming a loop via Craig Street to join the East-West line at Peel and Sainte-Catherine Streets.
- d) A line extending West from Saint-Denis Street under Sainte-Catherine - Sherbrooke Streets.

● CONSTRUCTION AND OPERATION OF THE SUBWAY NETWORK

The Board has gone as far in its study and recommendation as the data and information now available makes possible. The exact location of the routes and of the stations along the routes, as well as the manner in which the undertaking will be constructed and other engineering aspects of the project, will require further surveys and specialized technical studies. These studies are already well advanced, and, when completed, will facilitate the completion of the engineering and other plans as well as to make possible a revised estimate of construction costs.

Meanwhile, the Committee has considered the work already done by the Public Works Department with regard to the preparation of preliminary plans and profiles, soil boring operations, soil analysis, and street surveys in relation to the proposed subway.

The routes studied by the Public Works Department represent a total length of 80,470 feet or 15.25 miles. Reference plans have been prepared to show, for each proposed subway line, in plan and profile, the location of sewers and water mains, gas mains and telephone conduits, and all other underground electrical conduits. To tabulate and organize this data has required reference to more than 1,000 plans. On Key Index Plans there has been indicated the source of the information shown on the reference plans, and also the progress of street surveying, plotting and soil boring operations. The street surveys involved in this quite extensive undertaking are being rapidly completed.

The soil test borings which began on August 18th, 1949, are nearly completed. When completed, sixty-six test borings will have been drilled, varying from 25 to 60 feet or over, and having a total length of 2,600 lineal feet. Soil and rock core samples of the boreholes have been analysed. One hundred and fifty-five other test borings will also be drilled, varying in depth from 30 to 80 feet or over, and having a total of 7,700 lineal feet, of which 1800 feet will probably be in rock. By these boring samples and tests, it will be possible to devise methods of construction and designs as regards the proposed subways, and to estimate to what extent the foundations of the bordering buildings may be affected by the subway excavation.

The Public Works Department has prepared four plans relative to the proposed initial subway network as follows:

1. A Preliminary Key Plan of the Proposed Rapid Transit Subway;
2. A Preliminary Plan and Profile, showing a line running north from Sainte-Catherine Street to Crémazie Boulevard under Saint-Denis Street and a line running south from Sainte-Catherine Street to Craig Street under Saint-Denis Street, thence from Saint-Denis Street to Sainte-Cécile Street under Craig and Saint-Antoine Streets, thence north to form a loop to join the east-west line at Sainte-Catherine and Peel Streets.

3. A Preliminary Plan and Profile, showing a line running east from Saint-Denis Street to Maisonneuve Street under Sainte-Catherine Street, curving to reach Ontario Street at de Lorimier Avenue thence under Ontario Street to Vimont Street. Also a line running west under Sainte-Catherine Street from Saint-Denis Street to Atwater Avenue curving to reach Sherbrooke Street at Greene Avenue, thence under Sherbrooke Street to Girouard Avenue.
4. A Preliminary Plan and Profile, showing an extension from Crémazie Boulevard to the Youville Yards of the line running north from Sainte-Catherine Street under Saint-Denis Street.

Based on this preliminary data, the Public Works Department has estimated the cost of construction of the full initial trunk subway network, as well as the cost of the necessary rolling stock and fixed equipment. On this basis, the cost of constructing the initial system, consisting of 14,268 has been estimated at approximately \$140 millions. The cost of the rolling stock and fixed equipment would involve an additional \$40 millions. The network would be built section by section. The cost of each section is included in the aggregate of the total costs, namely \$180 millions, the amount required for completing the full initial subway network.

With respect to the ultimate operating phase of the subway project, the Board has reached the following conclusions:

1. Considering the loads now carried and the probable increase in the loads to be carried on the Sainte-Catherine Street Line, the operation of the initial and future subway network, including the east-west line, must be

undertaken with standard subway trains, not with rapid transit tram cars.

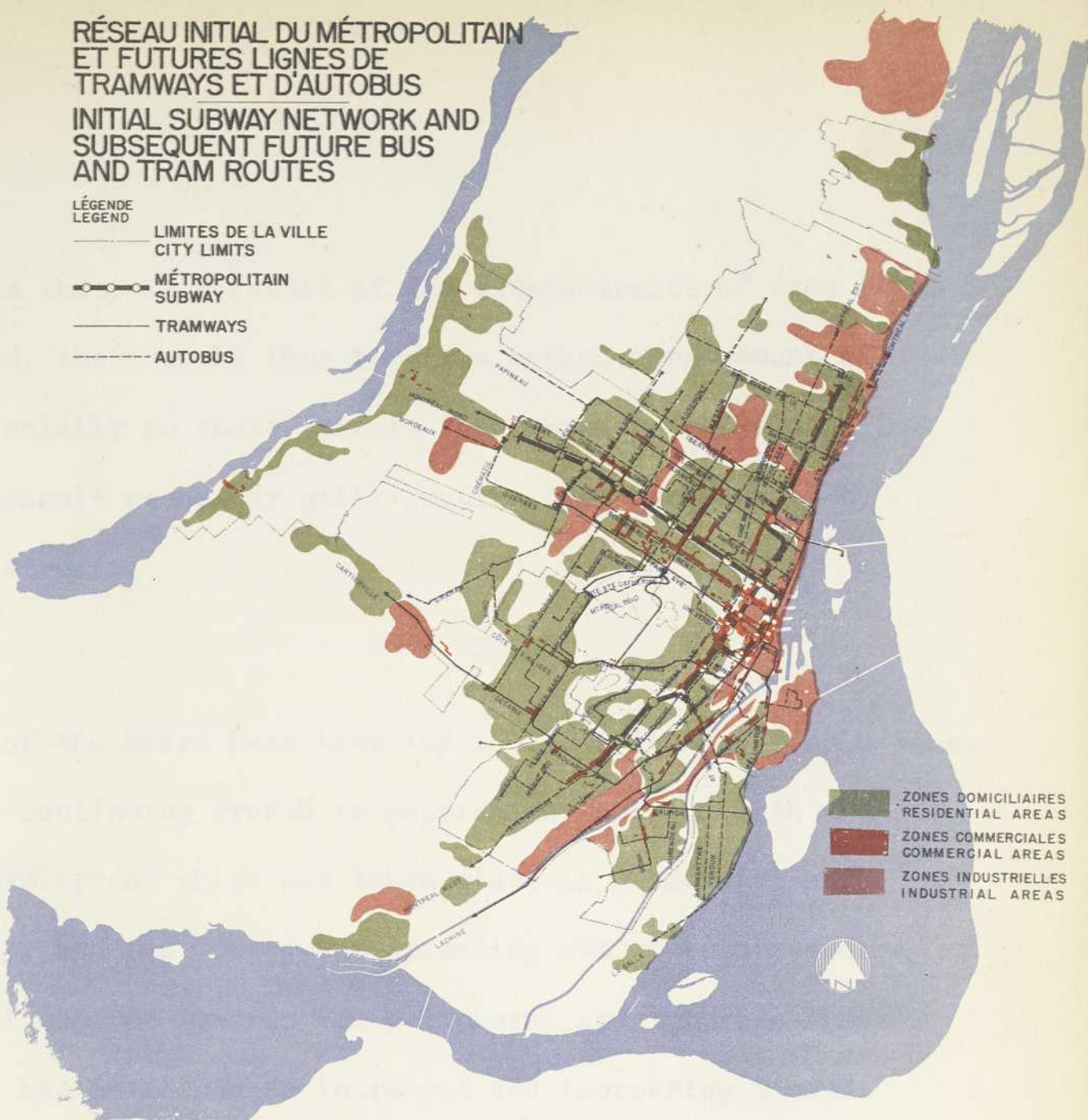
2. To be effective, the operation of the subway network must be integrated to the surface network of mass transportation. This principle requires the modification and the re-arrangement of surface routes in such a way that these routes will act as feeders to the subway. The location of the new surface routes thus becomes an important factor in determining the final location of subway stations.

On this matter, the Board has prepared a map showing the possible effect and probable modifications to the existing surface system following the construction of the initial subway network. This map, which is but a preliminary study to be completed at a later date, shows where tramway lines may be eliminated and how the remaining surface network of trams and auto busses will act, once the subway system comes into operation, as a feeder system to and from the subway network. It also shows the surface transit services which will then be available in those districts of the city and its adjoining area which will be some distance removed from subway lines. This map represents, in effect, the completion of a preliminary master plan for mass transportation in the Montréal area.

It is interesting to note that the plan envisages that, as a direct result of the construction of the proposed initial subway project, 110 miles of existing tram routes will disappear. The plan retains 136 miles or 55% of the existing tram mileage. In addition, for reasons not related to the construction of subways, it is expected that other tram lines may also disappear.

RÉSEAU INITIAL DU MÉTROPOLITAIN ET FUTURES LIGNES DE TRAMWAYS ET D'AUTOBUS INITIAL SUBWAY NETWORK AND SUBSEQUENT FUTURE BUS AND TRAM ROUTES

- LÉGENDE
 LEGEND
 ——— LIMITES DE LA VILLE
 CITY LIMITS
 —●— MÉTROPOLITAIN
 SUBWAY
 ——— TRAMWAYS
 - - - - - AUTOBUS



- ZONES DOMICILIAIRES
 RESIDENTIAL AREAS
 ZONES COMMERCIALES
 COMMERCIAL AREAS
 ZONES INDUSTRIELLES
 INDUSTRIAL AREAS

LIGNES EXISTANTES DE TRAMWAYS ET D'AUTOBUS EXISTING TRAM AND BUS ROUTES

- LÉGENDE
 LEGEND
 ——— TRAMWAYS
 - - - - - AUTOBUS
 ——— LIMITES DE LA VILLE
 CITY LIMITS



- ZONES DOMICILIAIRES
 RESIDENTIAL AREAS
 ZONES COMMERCIALES
 COMMERCIAL AREAS
 ZONES INDUSTRIELLES
 INDUSTRIAL AREAS

It is obvious that, as a result of the disappearance of tram lines to the extent indicated, there would thus result a marked improvement of traffic conditions especially on those streets from which tramways will be eliminated; even if transit needs may still require tram replacement by autobusses on certain streets.

● CONCLUSIONS

The studies of the Board have thus led to the following conclusions:

1. As a result of the continuing growth in population, coupled with the substantial new development which has taken place in commercial and industrial activity, and the consequent spreading out of both residential and industrial centres towards the peripheral and suburban areas of the city, there has developed an increased and increasing demand for mass transportation facilities throughout the metropolitan area.
2. Due to the fact that great mass of the built-up area of Montréal is situated between Mount Royal and the St. Lawrence River, where most of the existing streets, being narrow thoroughfares, are already heavily congested with automotive traffic, - and this, despite the fact that the per capita ownership of automobiles is much less in Montréal than in other comparable Canadian and American cities - the present surface transit system in Montréal has become wholly inadequate to satisfactorily meet the present, let alone the mounting future needs of the vast majority of the population, dependent as they are, to an unusual extent, on the facilities provided by public transportation facilities.
3. To relieve the progressive sturation which has been developing over the network movement of the existing surface transit facilities, particularly in the central parts of the city, and to make up for its consequent

insufficiency and to provide a more adequate inter-transit connection between the various parts of the metropolitan area, the inescapable conclusion is that a supplementary network of public transit facilities has become imperatively necessary.

4. Because of the particular climatic and topographical conditions affecting the operations and physical adequacy of surface mass transportation facilities in Montréal, the only way by which these difficulties can be satisfactorily overcome and adequate transit means provided, independent of the existing surface thoroughfares, is by the construction of underground transit arteries, that is to say, an underground subway network.
5. It is essential that standard subway trains be utilized in the operation of the whole underground network. It will be necessary, however, to coordinate the subway system with the surface transit system, thus requiring that the existing surface routes be modified so that they will serve supplementary to and act as a feeder system to the subways.
6. Inasmuch as more than 1,500,000 persons, or approximately 80% of the total travelling public, are transported daily over the public transit system, and since the public transit system, due to the relatively small per capita ownership of automobiles, will, for a long time to come, continue to be the sole means of transit for the vast majority of the population; the provision of subways must be considered, therefore, as being a primary and urgent necessity as a means for solving the general urban mass transportation needs of Montréal.

Moreover, because of the many advantages it would bring not only to the transit travelling public, but equally to car owners in general, the construction of a subway system will prove to be one of the major steps in effectively relieving street traffic congestion.

While recognizing that other proposed improvements are indispensable to the economic progress of the city, the Board believes, however, that because subways offer more urgent and more important facilities to a larger number of people than any other single public improvement, they should be considered, therefore, as having ranking priority over other major improvements being proposed.

7. Because of the increasing acuteness of the mass transportation problem, the construction of a subway network is becoming more necessary and more urgent. It is imperative therefore, that the construction of the initial network be commenced without delay. To this end, it is both expedient and necessary to proceed as quickly as possible with the initial route survey and such other technical studies as may be required in order that the preliminary plan can be completed and, thereafter, the preparation of the detailed engineering and other plans necessary for the construction of the subway proper can be proceeded with.

The Board, therefore, recommends that there be constructed an initial network. It desires to express its appreciation to the Civic Authorities for the manner in which they have already initiated certain necessary studies having to do with a subway development. Finally, the Board urges the Civic Authorities to take such other steps as may be necessary for the implementation of this important undertaking with a minimum of delay.

The Board have brought to the problems, the study of which was entrusted to them, a solution of principle. Beyond that, there now remains to be determined the implementation of the necessary engineering and other studies which its proposals call for.

BORROWING CAPACITY OF THE CITY

● WAYS AND MEANS

The Board of Research on Traffic and Transportation Problems was asked to show how the work recommended could be financed and implemented.

● BORROWING CAPACITY OF THE CITY

In this connection, the Board made an analysis of the capacity of the City of Montréal to finance the costs of its program of traffic and transit improvements which it has recommended to the civic authorities. In its analysis, the following loan by-laws covering expenditures for capital works and related matters, over the period June 1947 to April 1949, were taken into consideration:

By-law No	Purposes	Proprietor's share	City's Share	Total
1840 (June 1947)	Sewers, pavings sidewalks	\$1,400,000	\$ 600,000	\$ 2,000,000
1842 (June 1947)	Street widenings	4,000,000	6,000,000	10,000,000
1854* (June 1948)	Sewers, pavings sidewalks	-	-	-
1867 (April 1948)	Sewers, pavings sidewalks	1,750,000	750,000	2,500,000
1898 (November 1948)	Public Works	-	10,000,000	10,000,000
1907 (March 1948)	Sewers, pavings, sidewalks	3,500,000	1,500,000	5,000,000
1923 (April 1949)	Varied Public Works, Traffic signals, Viaducs, street widenings, municipal buildings, etc.	-	16,000,000	16,000,000
		\$10,650,000	\$34,850,000	\$45,500,000

*Amendment to by-law No. 1840

Also, By-law No. 1735 providing for the financial reorganization of the City of Montréal and By-laws Nos. 1809, 1818 and 1819 providing for the refunding of the City debt, were duly examined by the Board.

Following a careful examination of the situation, the Board has reached the conclusion that, while the present revenue of the City and

that anticipated in the immediate period ahead, is sufficient to meet the requirements of the present debt service and that involved in the carrying out of public improvements for which commitments have already been made, it is improbable that any additional major program of improvements can be undertaken by the city out of its current revenues without a substantial increase of same not now foreseen.

To the extent that any proposed improvement is self-liquidating, by virtue of it being a revenue producing facility in its own right, the capital financing of it is, of course, not dependent on the normal civic revenue; but to the extent that any major project is dependent on the normal capacity of civic revenue to support additional borrowing of capital funds, the present civic revenue is insufficient to support any large additional borrowing involving capital expenditures for public improvements.

In a general way, and, for the most part, the financing of any major program of transit and traffic developments, save those of a self-liquidating nature, can be undertaken only by means of increased municipal revenues or by financial assistance on the part of the provincial and/or the federal governments.

In this latter respect, the Board desires to point out that the City itself receives no direct return for the expenditures it is called upon to make for street traffic improvements,

the benefits of which, accrue primarily to the private automobile owner, both city owners and those from outside points. In addition to which, there are many motor vehicles owned by Montréal citizens and corporations which seldom leave the precincts of the city. In this connection, therefore, there would appear to be ample reason for expecting the Provincial Government to share with the city the tax or license fees imposed on automotive vehicles in the Province of Quebec, namely the provincial car and driver license fee, and the tax on gasoline.

● CONTRACT OF THE MONTREAL TRAMWAYS COMPANY

The Board has studied the implication of the contract between the City and the Montreal Tramways Company and, more especially, Paragraph 7 of Section 28 of Chapter 60 of the Act 7 George V, concerning the right which was given to the City of Montréal to appropriate for itself under certain conditions, in 1953 or at the end of any subsequent five-year period, the tracks, immoveables, dependencies, plant and rolling stock belonging to the Company. The paragraph in question reads as follows:

"The contract drawn up by the Commission shall come into force after having been signed by the Commission or by the majority of its Members, on the day it shall be signed by the President and the Secretary of the Montreal Tramways Company duly authorized

by resolution of the Board of Directors of the said Company, and shall bind such Company and the City of Montréal for a period of thirty-six years counting from its coming into force, saving the derogations and alterations which may be made to it from time to time by mutual consent of the City and the said Company.

From and after the same date, (January 28th 1918) the said contract shall cancel and replace all other contracts between the said City and the said Company for similar objects relating to the same territory.

At the expiration of the said period of thirty-six years, and at the expiration of every subsequent five-years' period, the City of Montréal shall have the right after six months' notice given to the Montreal Tramways Company within the twelve months immediately preceding the expiration of the said thirty-six years, and also after a similar notice of six months and on the same conditions at the end of each subsequent five-years' period, to appropriate for itself the railway of the said Company as well as the immoveables and dependencies, plant and cars belonging to it and necessary for the operation of the said railway, by paying the value thereof to be fixed by Arbitrators and ten per cent over and above the estimate. Such Arbitrators shall be appointed as follows: one by the City of Montréal, one by the Montreal Tramways Company, and the third by a Judge of the Superior Court sitting in and for the District of Montréal".

● WAYS AND MEANS

The Board, after having carefully examined the contract of the Montreal Tramways Company with the City of Montreal and after considering the legal and financial aspects involved in the implementation of his recommendations reports as follows:

a) Subway and Surface Transit System

The Board believes that any subway system to be built should be operated, administered, integrated with and be made an integral part of whatever surface transit system may remain consequent upon the construction of subways.

In other words, the Board believes and recommends that there should be created a single Transportation Authority with responsibility for the acquisition, owning, construction, operation and management of all existing and future revenue producing traffic and transit facilities serving Montréal and its contiguous area, with the exception of taxi cabs and horse drawn vehicles.

b) Revenue Producing Traffic Facilities

The Board is likewise of the opinion that such traffic projects as the proposed East-West Expressway, as well as other traffic utilities which could be revenue producing facilities, should, for purposes of construction, operation and administration, be integrated within the management of the forementioned transportation authority.

c) Nature of the Proposed Transportation Authority

In view of the well recognized need for the early construction of a subway system; and by virtue of the fact that transit authorities both in Montréal and abroad are universally in accord that a subway system should be integrated with the surface transit system and that both should be operated and administered under the same management; and because certain revenue producing facilities lend themselves to construction and management integration under a transportation authority; and inasmuch as the Montreal Tramways Company have declared that they (or other private interest) would be unable to finance the costs of constructing a subway system; the Board believes and recommends that the desire and early interest of the public can best be served by the establishment of a publicly created Transportation Authority, totally independent in its functioning, except only insofar as, once created, it may require changes in its constitution, or insofar as it may require to issue bonds not entirely guaranteed by its own assets.

d) Legislation Required

To this end the Board recommends that at the forthcoming session of the Provincial Legislature authority be sought for the creating of a Transportation Authority, in order that it might start to function as such and in the manner indicated within the shortest possible delay. The Board has had under study a draft law for the setting up of such an Authority. However in the opinion of the Board, this draft measure requires further critical study. It could be available for the consideration of the City Council early in January.

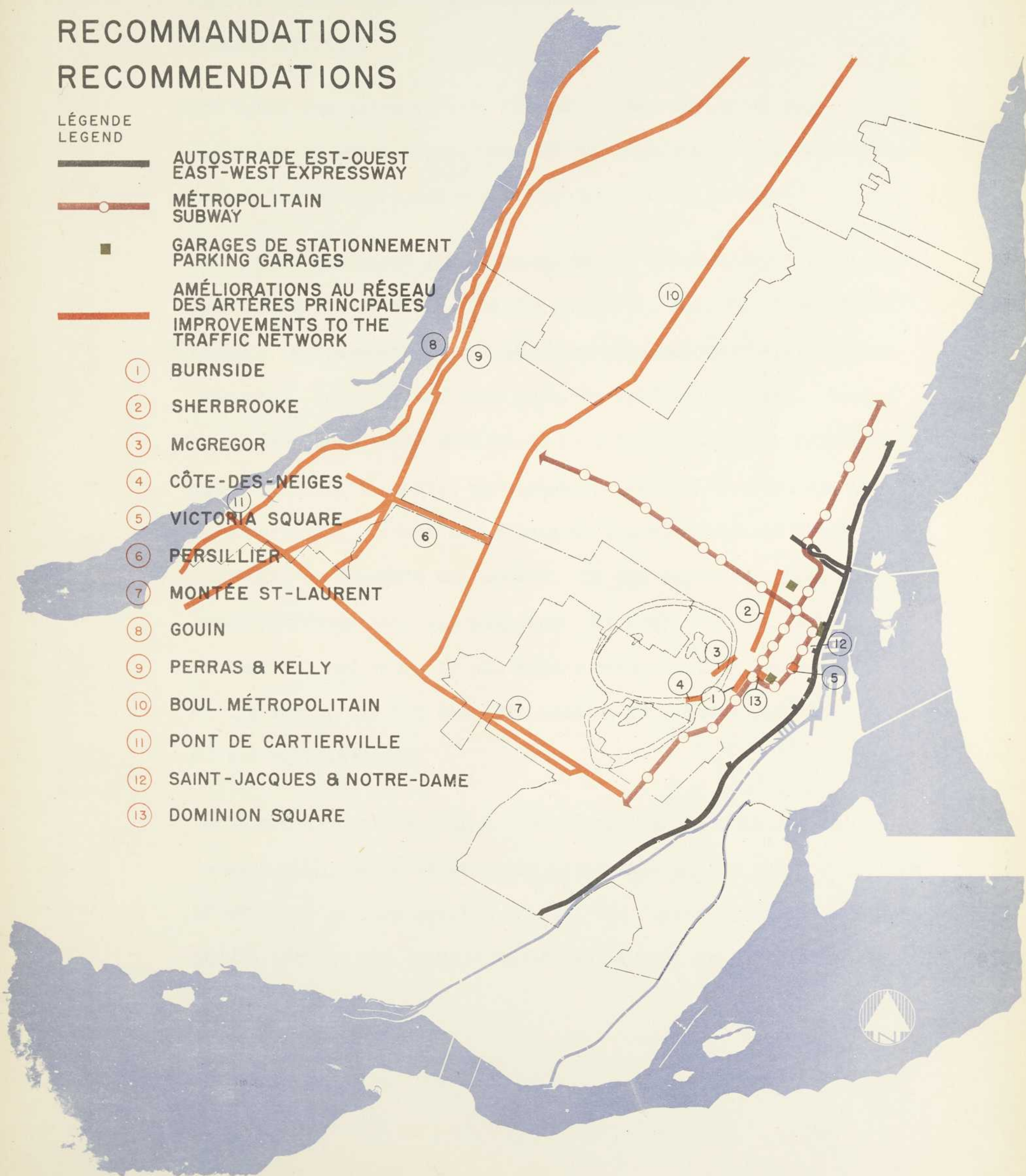
The principal features of the proposed law which the Board has in mind are as follows:

1. The City would be authorized to create a Transportation Authority for the exclusive privilege and purpose of acquiring, owning, constructing, maintaining and operating a unified transportation system in Montréal and vicinity.
2. The Authority would be totally independent in its functioning, save only with respect to the amendment of its constitution or insofar as it may require to issue bonds not entirely guaranteed by its own assets.
3. The Authority would be required, insofar as the construction phase of the recommended programme of traffic and transit improvements are concerned, to obtain the prior consent of the civic authorities for any major change or deviation in the initial plans as recommended by the Board.
4. The precise relations of the Transportation Authority with the City, the number and method of appointing its members, and their term of office, the matter of transferring the City's rights to it, of procedures regarding the engaging of staff, methods or work, of financing, etc., are questions which could be reported upon, as intimated, early in January.

RECOMMANDATIONS RECOMMENDATIONS

LÉGENDE LEGEND

-  AUTOSTRADA EST-OUEST
EAST-WEST EXPRESSWAY
-  MÉTROPOLITAIN
SUBWAY
-  GARAGES DE STATIONNEMENT
PARKING GARAGES
-  AMÉLIORATIONS AU RÉSEAU
DES ARTERES PRINCIPALES
IMPROVEMENTS TO THE
TRAFFIC NETWORK
- ① BURNSIDE
- ② SHERBROOKE
- ③ MCGREGOR
- ④ CÔTE-DES-NEIGES
- ⑤ VICTORIA SQUARE
- ⑥ PERSILLIER
- ⑦ MONTÉE ST-LAURENT
- ⑧ GOUIN
- ⑨ PERRAS & KELLY
- ⑩ BOUL. MÉTROPOLITAIN
- ⑪ PONT DE CARTIERVILLE
- ⑫ SAINT-JACQUES & NOTRE-DAME
- ⑬ DOMINION SQUARE



e) Financing of Subways and Related Traffic and Transit Projects

The Board has given earnest thought to the matter of ways and means by which a programme of construction of the proportions called for by its recommendations can be carried out.

Here, too, the Board is not ready to put forward any firm recommendation. It is of the opinion, however, that the transit and traffic improvements which have been recommended, being revenue producing, can, for the most part, be self-liquidating. Beyond that, the Board feels that there is a solid basis for Federal and Provincial financial participation, as well as municipal, in an undertaking of such importance to the economic and future wellbeing of Canada's metropolis. In one way or another, the Federal, Provincial, and municipal governments of the Island of Montréal and vicinity all have a stake in this enterprise. In one way or another they can help to facilitate the financing of the cost involved.

The Board is confident that the principles which it has put forward with regard to ways and means will enable the formulation of the more precise methods whereby the financing of these much needed traffic and transit ameliorations can be systematically proceeded with.

A P P R O V A L

The foregoing report of the Board of Research on Traffic and Transportation problems was approved at a meeting of the Board, held on November 17th, 1949, and the members of the Board have signed as follows:

J. O. Asselin
J.-O. Asselin

Gordon MacL. Piets
Gordon MacL. Piets

René Gravel
René Gravel

Walter C. Hyde
Walter C. Hyde

R. Moore
Rodrigue Moore

Jules Archambault
Jules Archambault

Ignace Brouillet
Ignace Brouillet

Raymond Dupuis
Raymond Dupuis

J.-E. Gibault
J.-E. Gibault

Henry W. Morgan
Henry W. Morgan

Aime Cousineau
Aime Cousineau

C.-E. Campeau
C.-E. Campeau

Camillien Houde
Camillien Houde

Emile Gauthier
Emile Gauthier

J. Cecil McDougall
J. Cecil McDougall

John P. Rowat
John P. Rowat

John E. Armstrong
John E. Armstrong

Ernest Cormier
Ernest Cormier

Roy H. Foss
Roy H. Foss

Huet Massue
Huet Massue

Louis A. Lapointe
Louis A. Lapointe

Henri Gibeau
Henri Gibeau

George S. Mooney
George S. Mooney

