

both elevated and subway systems. Complete grade separation by elevation or depression. Suburban steam railway service. Its adoption is usually indicated by the population of the city and its environs, the physical and economic features of the situation, and the riding habit of the people. Rapid transit service, in the true sense of the term, has never been provided in cities of less than 1,000,000 population, mainly for the reason that the initial cost is so excessive that the average riding habit is insufficient at a 5c. fare to produce the revenue necessary to recoup the investor.

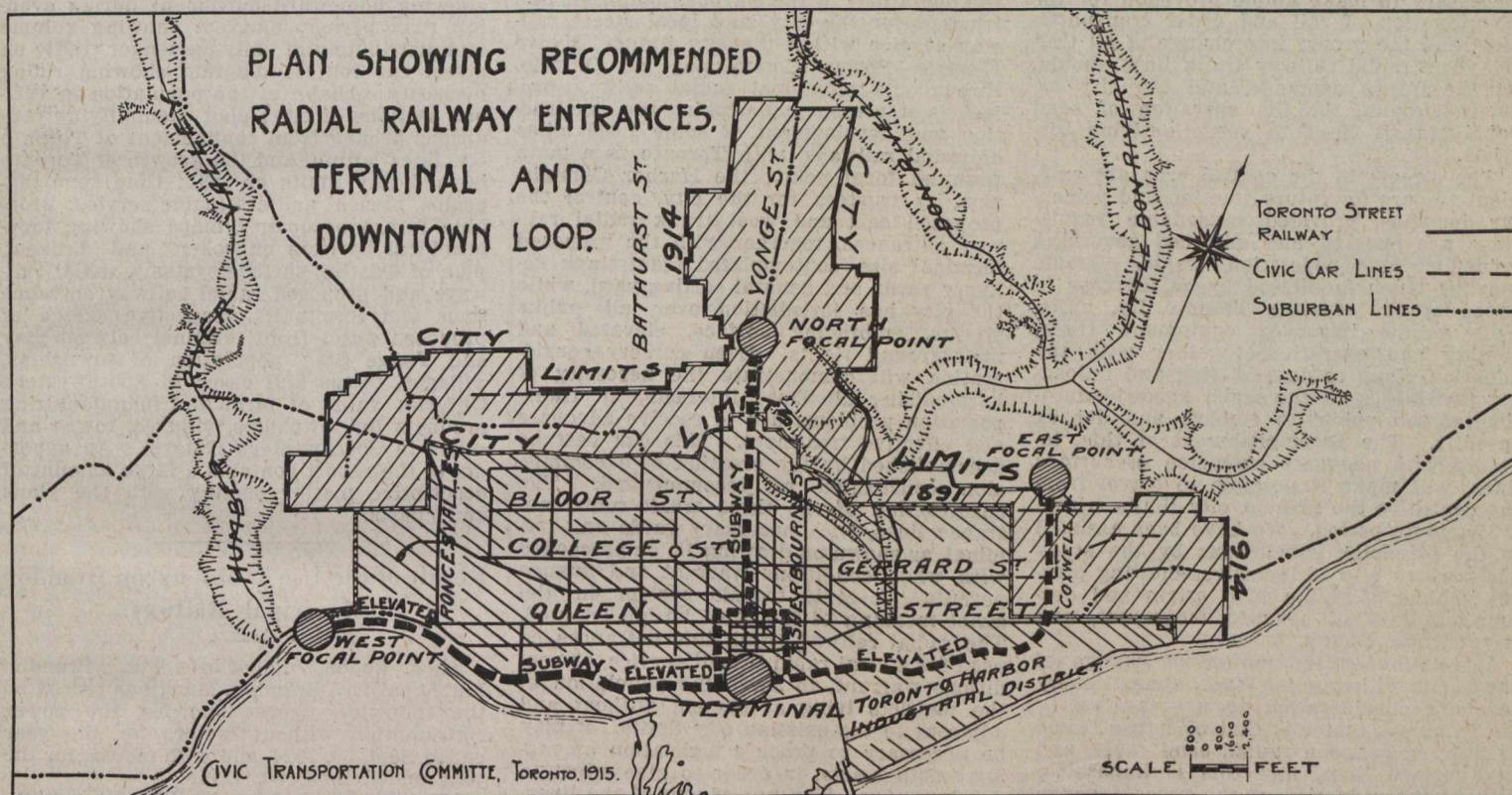
Toronto is not in a position to construct a rapid transit system in the strict sense of the term, but may, when conditions demand, institute a semi rapid transit service, by using the radial railway entrance lines. We have developed the radial entrance plan so as to permit of such joint use. By so doing, adequate and rapid service may be furnished that portion of the population living outside of what we have termed the 35 minute zone. We assume that persons who can

of present city streets. Is the present street railway system being operated at maximum capacity? The economics of the whole situation.

The problem resolves itself into three main phases, viz.: Can the immediate future transportation demands be best met by: The extension and more efficient operation of the existing street railway system? A separate rapid transit service without attempt to improve the present system? A combination of rapid transit and surface feeder system, i.e., surface feeders in the areas beyond the limits of 1891, and rapid transit by means of subways within the limits of 1891? Out of the foregoing arise the following: Are the streets in the central area capable of handling future traction and vehicular demands, or will other rights of way be required to relieve them? Analysis of the present speed schedules. Possible improvement in time travel, either by more efficient operation, better routing, improved track and equipment, or a combination of all. Present volume of traffic,

Toronto Ry., if provided with improved equipment, and operated at higher service efficiency, can be made to adequately serve the city within the limits of 1891. As traffic officers become more efficient in direction, and citizens better appreciate the functions of such officials, the movement of rail, vehicular and pedestrian traffic will be greatly facilitated, with consequent saving of time and added safety to all. If a sufficient number of cars of modern type were provided, thereby minimizing overcrowding, and the public educated to embark and debark with reasonable speed, it would result in more rapid operation of the railway system, and the facilitation of other classes of traffic. There is comparatively little congestion in Toronto streets. This may be further minimized by regulation of standing vehicles on, and diversion of slow moving, heavily laden traffic from main heavily trafficked thoroughfares in the central area.

That the following railways entering the outlying portions of Toronto viz.: The Toronto & York Radial Ry., embracing the



travel from the central area to their abode, or vice versa, in 35 minutes, do not require more rapid transport. We shall show in this report that, within the limits of the city as at present constituted, adequate extension of the existing street railway lines, coupled with improved rolling stock and efficient operation, would bring the extreme outlying portions of Toronto within the 35 minute zone, wherein the necessity for other than surface transportation, as aforesaid, is not indicated. The study of this section involved detailed consideration of the following, viz.: Existing street railway situation and preparation of time zone maps. Do existing conditions warrant rapid transit service? Distribution of present population, general business and industries. Past growth of the city as applied to population, heavy and light manufacturing, wholesale and general business distribution. Probable future growth of the city as applied to the preceding sentence with resultant distribution. Past and existing topographical and other barriers to proper growth and distribution. Capacity and use

with origin and destination. Counts of passenger traffic to determine lines of heaviest movement, and points between which the public require other than direct movement to or from the central area. Street traffic counts to ascertain the degree of congestion in the portion of main thoroughfares lying within the central area. Determination of advisability of changing gauge of present system from 4 ft. 10 7/8 ins. to standard gauge of 4 ft. 8 1/2 ins.

Conclusions.—After detailed consideration of the various factors entering into and affecting the problem as hereinbefore recited, we have concluded that: Additional civic car lines laid between now and 1921 without the limits of 1891, but within the limits of 1915, will, after acquisition of the Toronto Ry. by the city, in 1921, adequately serve all sections within the present city limits; the maximum time necessary to reach extreme destination being 35 minutes. The existing surface system of the

Metropolitan, running north on Yonge St., and the Kingston Road line from the Woodbine; the Port Credit line from Sunnyside; the Toronto Suburban to Lambton, Weston and Woodbridge, from Keele and Dundas Sts., cannot be considered rapid transit interurban lines, as in all cases they operate mainly on the highway at low speeds. The people of Toronto and the province have not had the advantages of modern rapid interurban service, such as is operated in many parts of the United States. When the hydro radial railways project becomes an accomplished fact, the system of which the section operating between London and Port Stanley is a happy augury, the entire population of the province will derive therefrom tangible benefits, which result to a community from a modern, high speed, properly equipped and efficiently operated system.

That the most feasible entrances from the east and west lie along the waterfront route. The entrance from the north may be readily effected by subway construction. The foregoing conclusions were arrived at