

REPORT ON

TRANSIT MODERNIZATION

AND

TRAFFIC IMPROVEMENTS

PORTLAND, OREGON

DECEMBER, 1947

DE LEUW, CATHER & COMPANY
ENGINEERS
TWENTY NORTH WACKER DRIVE
CHICAGO 6

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CENTRAL 3302

December 31, 1947

Mayor and City Council
City Hall
Portland, Oregon

Gentlemen:

Pursuant to the agreement with you on July 1, 1947, we have made investigations and analyses pertinent to transit and traffic requirements of the City of Portland.

There is submitted herewith a report covering our studies, analyses and recommendations for modernizing the transit system and for traffic improvements.

The agreement also covered our review and recommendations of on and off street parking. This will be dealt with in a future report after completion of the parking study now being summarized by the Oregon State Highway Department.

Respectfully submitted,

DE LEUW, CATHER & COMPANY



Charles E. De Leuw

REPORT ON
TRANSIT MODERNIZATION AND TRAFFIC IMPROVEMENTS
PORTLAND, OREGON

GENERAL

Purpose and Scope of Report

The purpose of this report is two-fold: first, to make recommendations resulting from studies in connection with the transit system; second, to make recommendations in regard to existing and proposed traffic regulations and practices. The transit studies covered by this report include operational methods, modernization of equipment and adjustment of routes of the Portland Traction Company.

The section of this report in connection with traffic regulations and practices includes review of one-way street plans, signalization, and transit loading and unloading practices. The problem of parking will be dealt with in a future report after completion of the parking study now being summarized by the Oregon State Highway Department.

General Description of Portland

The City of Portland, Oregon is located on the Columbia and Willamette Rivers just south of their junction. Portland grew only 1.2 per cent between 1930 and 1940, but with the advent of World War II the rapid expansion of shipyards and other war industries caused a considerable increase in population. The population of the city proper was 305,394 in 1940 and of the Portland Metropolitan District, 406,406. A study by the Bureau of the Census in April, 1947 indicates

that the population at that time in metropolitan Portland was 534,000 persons, an increase of 31 per cent since 1940. Figures for the population of Portland alone for April, 1947 have not been made available. While the major portion of metropolitan Portland's growth was induced by war-created and supported industries, it is believed that a considerable portion of the new residents will remain and that Portland can look forward to a continuing growth. This will be due in part to Portland's mild year-round weather coupled with its importance in the lumber, lumber products, shipping and wool industries, and its key position as an agricultural center. This assumption of continuing growth is also substantiated by the increasing number of branch plants of diverse industries being located in Portland. These plants have already absorbed a considerable portion of the labor made available by reduction in ship building and other war-created industries.

Portland has a number of fine residential areas ranging from lower and medium priced homes to exceptionally high class residential neighborhoods. With but few exceptions, the individual homes are well maintained and enhanced by excellent landscaping. During the war a total of over 13,500 temporary and permanent housing units were constructed. A number of the temporary units have since been removed but construction of new private housing has taken their place.

The topography of Portland ranges from Elevation 30 in the West Side business district to Elevation 1,073 at the crest of Mt. Adams. This variation in elevation has made necessary the construction of

roads on considerable grades. Many streets are too steep for the practicable operation of transit vehicles.

BASIC STUDIES AND INVESTIGATIONS

Surveys

The Oregon State Highway Department, in cooperation with the Public Roads Administration, Federal Works Agency, recently completed an origin-destination survey (the City of Portland collaborated in the study). This survey of trips by automobile, truck and taxi, as well as by transit passengers, was made by home interviews at approximately five per cent of all residences within Metropolitan Portland. This method has been used in more than 60 cities in recent years, and is remarkably accurate.

The inclusion of all modes of travel in this survey was especially valuable in our studies of transit routing. For example, data from the transit portion of the survey indicated present travel habits which are influenced, of course, by the pattern of existing transit routes. By supplementing the transit data with that from the vehicular portion of the survey, we were able to determine many of the potential transit movements which are now made by auto due to shortcomings of the present transit system.

Metropolitan Portland was divided into a number of zones and sub-zones for the purpose of the origin-destination surveys. Exhibits 1 and 2 are desire line maps indicating present riding habits from each of these zones to the West Side business district. These two exhibits

are complementary, the data being divided into two exhibits of inner and outer regions for clarity only.

An 18-hour (6:00 A.M. to midnight) cordon count of all private and commercial vehicles, transit vehicles and transit passengers entering the West Side business district was made in conjunction with the origin-destination survey. The number of outbound transit passengers crossing the cordon at each of the counting stations is shown in the following table:

<u>Location of Counting Station</u>	<u>Number of Transit Passengers</u>
Broadway Bridge	27,106
Steel Bridge	15,133
Burnside Bridge	15,351
Morrison Bridge	9,433
Hawthorne Bridge	24,014
SW 3rd Ave. - South of SW Market St.	4,290
SW 4th Ave. - South of SW Market St.	1,678
SW 5th Ave. - South of SW Market St.	2,788
SW 6th Ave. - South of SW Market St.	4,421
SW Broadway - South of SW Market St.	5,102
SW 11th Ave. - South of SW Jefferson St.	1,291
SW 14th Ave. - South of SW Jefferson St.	1,713
SW 18th Ave. - South of SW Jefferson St.	102
SW Jefferson - West of SW 18th St.	1,356
W Burnside - West of 18th St.	8,843
NW Glisan - West of NW 14th St.	4,446
NW 19th Ave. - North of E Burnside St.	4,131
Union Depot	<u>1,945</u>
	133,143

The Portland Traction Company furnished us peak load point data for all major routes. The data furnished covered, in general, the A.M. and P.M. rush periods and several off-peak hours. We were also furnished complete winter and summer schedules for each route.

Analyses

Careful analyses and integration of the desire line, cordon count and peak load data enabled us to determine the pattern of routes necessary to provide adequate transit service to the West Side business district from all points in Metropolitan Portland. The origin-destination data were also analyzed in connection with thru routing.

Exhibit 6 and other exhibits of the downtown area indicate to the nearest hundred the number of transit trips originating in and destined for each block.

Exhibit 3 is a desire line map which indicates by width of bands, the number of transit trips from zones within the limits of the origin-destination survey to zones other than the West Side business district. In order to recommend new crosstown routes it is essential to know the present movement of people between all points on such routes regardless of present mode of transportation or route followed now. We were fortunate in having the vehicular origin-destination survey data and desire line map (prepared by Oregon State Highway Department) to supplement the information on transit trips. Analyses of Exhibit 3 and the vehicular desire line map, together with the basic data, has enabled us to determine the location of transit facilities necessary to adequately serve persons desiring to make trips other than to the downtown area.

Exhibit 4 shows the relationship between population and the number of transit riders in each zone. Analysis of this exhibit indicates the areas which may require additional transit service. Reconnaissance

surveys of these areas have either substantiated the need for additional service or have shown why the ratio of transit riders to population is lower than average. These reconnaissance surveys covered all sections of Portland and outlying areas and enabled us to determine the type of development -- residential, commercial or industrial -- and whether the various areas are deteriorating or are developing. A survey of this type with studies of population and their trends is of considerable value in determining where additional service might generate new riding and also aid in the development of the area served.

Population Distribution

The population data shown in sepia on Exhibit 5 and other exhibits was prepared in connection with the recent origin-destination survey. While the map actually shows the location of the houses at which interviews were made in connection with the survey, the manner in which the sample was selected makes it an excellent device for showing population distribution. Other factors developed by the survey indicate that each dot on the map represents an average of approximately 53 persons within Portland and 58 persons in adjoining areas.

The rather sparse population over large areas, as is the case in Portland, makes it difficult to provide both close spacing of transit routes and short headways. The recommended spacing of routes has been designed to balance walking time against waiting time. Nearly every point within the city will be within a quarter mile of a transit route, with the exception of small, thinly settled areas.

Street Pattern

Another factor which makes it difficult to provide all the desirable aspects of a good transit system in Portland is the extremely short blocks in the major business districts and some of the residential areas. In these places approximately 45 per cent of the area is devoted to street right-of-way. Such generous dedication of land to street purposes could have provided facilities for the rapid movements of transit and other vehicles. This is not the case in Portland, however, as the gross area is divided into numerous narrow streets with frequent intersections. The large proportion of area devoted to street purposes also contributes to the light density of population in the residential area, as does some of the topographical features which make certain large areas within the city attractive as parks, but not for homesites. These rugged areas also interrupt the continuity of the street pattern, or result in streets with grades too steep for operation of transit vehicles.

Expressways

There are several expressways under consideration in Portland. These facilities may some day provide means for rapid transit service. They are believed to be too far in the future for our consideration in connection with current transit route studies, however. Harbor Drive, which skirts the West Side business district, functions admirably for its intended purpose as a collector and distributor route for automotive traffic, but it is not appropriately located for either local or express bus service. There is no doubt that some of the proposed ramps

serving the bridges in connection with the Harbor Drive development will be of considerable value. The drive itself, when completed, will relieve much of the congestion in the downtown area by attracting vehicular traffic away from streets used by transit vehicles.

EXISTING TRANSIT SYSTEM

All local mass transportation facilities are operated by the Portland Traction Company with one minor exception. In addition to these local services, the Portland Traction Company also provides service between Portland and Vanport, Parkrose and other areas lying immediately outside the city limits, and interurban service between Oregon City and Portland, a distance of 13 miles.

In addition, limited service to and from Portland is operated by a number of interurban transit companies. Inasmuch as this report is confined to transportation within the city, we will not discuss the services offered by these other transit companies. However, we have taken full cognizance of these routes and their effect on existing and proposed routes of the Portland Traction Company.

Despite a modernization program started in 1936, there are still 124 street cars in Portland. Most of these are over 35 years old and some are over 40 years old. All street cars are of narrow gage and due to the probability of their being abandoned, neither cars nor tracks have been properly maintained. The inflexibility of track-tied vehicles has not permitted adjustments in routes to keep pace with the growth and evolution of the city.

The transit equipment includes 141 trolley coaches which were delivered in 1936. These trolley coaches were soundly built and have been well maintained, considering the difficulties of the war and post-war years.

As of August, 1947 220 motor coaches were owned. All but one of these were built in 1936 or later, the weighted average age being about six and one-half years. Many are of a type and design as to be unattractive to transit passengers, however.

Motor coach routes have been located in the past in an attempt to compensate for the shortcomings of street car routes. In some instances coaches follow the streets formerly served by street cars, and routes have been extended on a piece-meal basis as new residential areas developed. For these reasons, and also because of topography, the present transit routes lack the regularity of pattern desirable in urban transit systems.

Present Routes

The existing transit system is composed of 37 routes of which 26 operate to or thru the West Side business district. Seven of these are thru routes, some with a single route name, others with a separate name for each leg. Hence, the West Side business district is served by 31 distinct routes or legs of thru routes. Exhibit 5 shows the present city-wide transit routes and Exhibit 6 their routing thru the downtown area. One of these thru routes is the Williams Avenue line which provides service in the northeast section of Portland along N Williams Avenue,

N. Vancouver Avenue and NE Dekum Street, thru the business district, and along SW Corbett and SW Virginia Streets in the southern section of Portland. The Sellwood route provides service from the southeast section along SE Milwaukie, SE Woodward and SE Grand Avenues thru the East Side and West Side business districts and thence serves the northwest section by operation over NW 16th Avenue and NW Thurman Avenue to NW 24th Avenue and NW Nicolai Street. The Beaumont route runs from the northeast section thru the business district to the southeast section of the city. The 33rd Avenue route also provides service from the northeast section thru the business district to the southeast section. The portion of the 33rd Avenue and Beaumont routes serving the southeast areas are identical. The Mt. Tabor route provides service from the area east of the business district along SE Belmont and SE Morrison Streets thru the West Side business district to the area immediately west. The Irvington-Jefferson route operates from the northeast section along NE 26th Avenue thru downtown Portland to the area immediately to the west.

The existing transit system includes seven shuttle routes which provide service to the downtown area only by means of transfer to other routes. In most instances, these shuttle lines run from outlying areas to transfer points located in secondary business districts.

The existing system includes three crosstown routes--the Killingsworth, 39th Avenue and Bridge Transfer routes. The Killingsworth route provides service from the north section of the city along N Willamette and N Portland Boulevards, N Detroit Avenue, N and NE Killingsworth Street and NE 42nd Avenue to a terminal at NE 42nd Avenue and NE Siskiyou

Street and crosses nine other routes of which all but one provide service to the business district. The 39th Avenue crosstown route operates over SE 39th Avenue and NE 37th Avenue from a terminal at SE Gladstone Street to NE and N Knott Street and thence over N Vancouver Avenue to a terminal at N Shaver Street and N Castle Avenue. This route crosses seventeen other routes which provide direct service from the north, northeast and southeast sections to the business district. The Bridge Transfer route provides transfer service between any route serving the West Side business district from the north, northeast and southeast sections of the city without the rider having to cross the Willamette River. This line also serves the important East Side business district. The route operates from a terminal at N Broadway and N Interstate Avenue along N Interstate Avenue, N Holladay Street, and thence along NE and SE Grand Avenue to a terminal at SE Grand Avenue and SE Hawthorne Boulevard.

The Portland Traction Company also operates an interurban service from the West Side business district to Oregon City about twelve miles to the southeast. The route followed through the West Side business district is shown on Exhibit 6.

Present Express Service

At the present time, express service is provided outbound only during the P.M. rush periods on the Sandy Boulevard route serving the northeast section, the Williams Avenue route north of the business district, the Halsey route serving an area northeast of the business district, and the Fessenden route serving the western section of the city north of the

Willamette River. These express services do not make any stops to discharge passengers, even at transfer points, between the West Side business district and a designated point. Stops are made for passengers to board, however, if buses are not fully loaded and passengers may alight at such unscheduled stops. Inasmuch as these express services are intended to reserve buses for people living in a certain area, no transfers are issued.

Limited-stop service is provided outbound during the P.M. rush period on the Foster route serving the area east of the central business district, the Beaumont thru route serving the northeast and southeast sections of the city, and the 33rd Avenue route serving the northeast section. These Limited-stop services do not make any stops to discharge passengers between the West Side business district and a designated point except at transfer points. Transfers are issued.

Inadequacies of Existing Transit System

Many of the present circuitous transit routes are not conducive to good patronage due to the excessive time required to go from point to point. In many instances the routes overlap which results in more service in certain locations than is justified. Equitable distribution of routes and of service could provide a much more satisfactory transit system. In some instances, the circuitous routes are apparently due to successive extensions to provide service as areas developed.

The present transit routes in and thru the downtown area are shown on Exhibit 6. It will be noted that this exhibit also shows the number

of transit trips originating and destined for each block. Exhibit 7 is a transit vehicle flow map of the existing downtown transit routes. This exhibit shows that much of the transit operation is concentrated on a few streets and that there are many turning movements which aggravate the already congested conditions.

A review of Exhibit 6 clearly shows the poor delivery and loading conditions now existing in the West Side business district. Many of the routes turn back several blocks short of the point of highest transit rider concentration. The practice of turning back in this manner not only gives poor delivery and pick-up service, but causes sidewalk congestion due to large numbers of passengers being loaded or discharged at one or two points rather than at a number of points. These short turn back routings are also a nuisance to transfer passengers, as double transfers or long walks are required.

Present downtown routings require many right and left turning movements by transit vehicles. In congested areas, especially where there are large volumes of pedestrian traffic, turning movements are a primary cause of delay and congestion.

RECOMMENDED TRANSIT MODERNIZATION PLAN

Proposed Routes

We have made detailed studies of the existing transit system and of the Portland Traction Company modernization plans. Our studies indicate that the existing system can be revamped to provide adequate and equitable

service to all sections of the city. The transit system routing we recommend includes 36 routes of which 26 provide direct service to the West Side business district. Of these 26 routes, five are thru routes and eight others are paired to provide thru service. In effect there will be 30 routes furnishing direct service to the West Side business district.

The various sections of the city connected by thru routes and their designations are as follows:

Beaumont (BM)
Northeast section with southeast section.

Alberta and Broadway-Powell (AB & BP)
Northeast section with southeast section.

Interstate and East Moreland (IN & EM)
North section with southeast section.

Mississippi and Hawthorne (MA & HA)
North section with southeast section.

St. Johns and Foster (SJ & FR)
North section with southeast section.

Sellwood-Williams (SW)
North section with southeast section.

Irvington (IV)
Northeast section with area immediately west
of West Side business district.

Mt. Tabor (MT)
Southeast section with area immediately west of
West Side business district.

33rd (33)
Northeast section with southeast section.

Our proposed transit routing includes six shuttle routes which provide service to the downtown area only by means of transfer to

other routes. In most instances, these shuttle routes run from out-lying areas to transfer points located in secondary business districts, so that many riders will reach their destination without transferring.

There are four crosstown routes in the proposed system. These routes are the Killingsworth (KW), Bridge Transfer (BT), 39th Avenue (39) and 82nd Avenue (82).

Exhibit 8 shows our recommended city-wide transit system, and Exhibit 10, our proposed downtown routing. This system embodies the desirable features of the existing system and much of the re-routing contemplated by the Portland Traction Company in their modernization plan. It is believed that the re-routing of the present transit system in the manner shown on these Exhibits, and the placing in operation of new equipment now on order, will provide Portland with a transit system which will adequately serve its needs and which will attract additional riders.

The layout of routes shown is subject to refinement as the plan is put into effect. Condition of pavement or other physical factors may make it desirable to substitute adjacent streets in some instances. This is especially true at terminals.

We have reviewed the West Side business district one-way street plan, prepared by the Bureau of Traffic Engineering, Department of Public Works of the City of Portland, and recommend its adoption with minor revisions. (See Exhibit 9). The routings within the West Side business district, Exhibit 10, are based on the adoption of the complete one-way street plan. In our review of the one-way plan, we have

given consideration to both transit and private vehicle movements and to pedestrians. We believe the advantages of the one-way street plan more than offset any disadvantages. Traffic will move more freely, pedestrian safety will be enhanced, and transit passengers will save substantial amounts of time.

We have also made detailed studies of both transit and private vehicular movements based on continuing all two-way operation (with a few exceptions) and on a partial one-way plan, but find advantages of all one-way operation so great that in our opinion the other plans should not be given further consideration. In the partial one-way street plan scheme, the east-and-west streets would be one-way and the north-and-south streets would continue to be two-way but would have the center line offset to provide an additional lane on one side primarily for transit vehicle use. Under this plan, the transit vehicles would operate thruout the entire West Side business district as though a one-way plan were in effect. We believe that if the adoption of an all one-way street plan cannot be accomplished, that the use of a partial one-way street plan and the offset center lines would be practicable. If desired, exhibits showing routings with all two-way and partial one-way street plans are available.

Exhibit 11 is a transit vehicle flow map of our proposed transit system in and adjacent to the West Side business district, based on adoption of the one-way street plan.

A complete route description, by streets, together with our reasons for the proposed routing and comparison of service with existing routes serving the same area, is set forth in the Appendix.

Location of Bus Stops

Studies have been made on an industry-wide basis of the relative merits of near-side and far-side bus stops. Members of our organization participated in those studies. The conclusion was reached that neither type of stop has compelling advantages over the other for general use, but that special conditions may make one or the other preferable for a specific application. A change to far-side stops in Portland would cause public inconvenience, in our opinion, without sufficient compensating benefits to warrant the change.

A type of bus stop has been devised for the West Side business district which will combine the merits of both near-side and far-side stops during the afternoon rush hours. Because of the short blocks, it is recommended that buses stop in alternate blocks as shown by Exhibit 10. No parking should be permitted along the right-hand curb in the blocks in which bus stops are located, but truck loading zones may be established in such blocks beyond the ends of the bus stops. The space reserved for buses should be 120 feet long for two-berth stops, and 160 feet long for three-berth stops.

Use of the truck loading zones, and the stopping of automobiles and taxis, should be prohibited from 4:00 P.M. to 6:00 P.M. along the right-hand curb in the blocks in which bus stops are located.

Stopping places should be clearly indicated for the benefit of patrons, and the names and symbols of the routes using each stop should be listed on an appropriate sign.

Traffic Treatment of Bus Routes

Most of the streets now used or herein recommended for transit routes are major thorofares and are properly protected by STOP signs on all cross streets. The balance of the streets to be used by buses should also be given this treatment in order to expedite the trips of transit patrons. This policy should be carried even to the minor residential streets which have been utilized in some instances to place service within convenient distance of every neighborhood.

Express Service

The origin-destination data were analyzed to reveal opportunities for express bus service. No areas were found which generated sufficient riding to any other single area to justify true non-stop express service. It is recommended, therefore, that the Portland Traction Company continue to operate limited-stop service of the type described in the section on the present system. The extent of this service can best be determined by experimentation.

Equipment

There are eight street car lines remaining in Portland. The passenger traffic on none of these routes is heavy enough to justify the retention of street cars. In addition, interference of street cars with general street traffic is a strong factor against the retention of any rail operation in the city. The heavy expense for the rehabilitation of car tracks if any were to remain in service would not be justified from any viewpoint.

The relative merits of trolley coaches and motor coaches have been debated frequently. The answer is that each type of vehicle has a function for which it is best suited. Many factors must be considered in choosing a type of vehicle for each specific route since the decision must be made not alone on investment or on operating costs, but also on the basis of public acceptance, flexibility, possibility of future changes and other important factors. The following discussion summarizes the advantages and disadvantages of each type of vehicle:

The bodies of both trolley coaches and motor coaches are now essentially the same in respect to structure, arrangement of seats and height of floors above pavement. Motor coaches are limited to 96 inches in width, however, whereas many states permit trolley coaches as wide as 104 inches. This is an important advantage of the trolley coach in that the additional width can be allocated to the aisle, thereby improving the circulation of the passenger load. This gives the trolley coach more ability to absorb fluctuations in passenger load and still adhere closely to schedule.

Trolley coaches are usually of 40-seat capacity or larger, whereas motor coaches are made in many sizes. This permits the selection of motor coaches to suit the characteristics of the route so that headways do not become excessively wide on the lighter routes.

Trolley coaches have the ability to maintain considerably higher schedule speeds than most motor coaches, largely because of higher rates of acceleration possible with the electric vehicles. Post-war motor coaches are available which largely overcome this former

disadvantage in their use. It should not be taken for granted, however, that all post-war motor coaches have the same operating characteristics.

Similarly, makers of motor coaches have made some progress in overcoming the objectionable features of noise and fumes which have put them at a disadvantage in comparison with trolley coaches. Bus manufacturers have not been very successful in these efforts, however, and trolley coaches still have the distinct advantage of quietness and absence of odor throughout their life, whereas, even the best motor coach with improper maintenance, or in the later years of its economic life, can become extremely annoying by its noise and its odor.

The trolley coach formerly had the advantage of being a smoother starting vehicle but the torque converters now available for motor coaches offset this factor. Likewise, trolley coaches were formerly much better lighted for the comfort of passengers because of the almost unlimited electric power available, but motor coach manufacturers have striven successfully to provide more adequate illumination.

The operating costs for trolley coaches are lower than those for motor coaches of comparable size. This is principally due to the lower maintenance cost of the electric motor as compared with an internal combustion engine and the freedom of the trolley coach from clutches and other parts subject to heavy wear. The cost of power is also a major consideration favoring the trolley coach. This factor is likely to become much more important as the present high rate of use of petroleum products exhausts the supply of gasoline within

reasonable distances of Portland. On the other hand, the city is in an area blessed with vast resources for the development of low cost hydro-electric power.

The trolley coach is more expensive than a motor coach of the same size but since the electric vehicle has a longer life, depreciation costs are equalized. The trolley coach cannot operate, however, without an overhead electrical distribution system. The cost of this structure has increased sharply since the end of the War because of increases both in the cost of labor and materials. The high cost of electrical distribution equipment precludes the use of trolley coaches on any except the more important transit routes.

The outstanding advantage of the motor coach is its great flexibility. Extensions and other changes can be made inexpensively to adjust motor coach routes to the development of a growing city. Emergency routings in case of fires, street repair work or other similar irregularities are minor matters with motor coach operation. Motor coaches are also readily adaptable to the operation of express service of various types. Such service can also be operated with trolley coaches, however, as is presently done on the Sandy Boulevard route. Trolley coaches, on the other hand, by the very fact of their inflexibility assure the public that there will be transportation on established routes without long periods during which buses are detoured for street improvements or perhaps re-routed permanently.

Recommendations - Equipment

The requirements of the individual routes of the modernized system recommended herein are such that delivery should be accepted of the 50 trolley coaches now on order. The 141 trolley coaches now in service should be retained and kept in first class operating condition. The balance of the system should be equipped with modern motor coaches of various sizes appropriate to the requirements of the routes on which they will be operated. As both trolley coaches and motor coaches reach the end of their useful life, detailed studies should be made of the advisability of changing the type of vehicle on each specific route being re-equipped.

We recommend the establishment by the Portland Traction Company of a financial plan that will make the following schedule of replacements possible:

EQUIPMENT OF PORTLAND TRACTION COMPANY
AS OF AUGUST 7, 1947
AND RECOMMENDED DATE OF REPLACEMENT

<u>Number</u>	<u>Seating Capacity</u>	<u>Date Delivered</u>	<u>Recommended Date of Replacement</u>
<u>Street Cars</u>			
9	40	1904	Discard--1948
29	40	1907	Discard--1948
20	32	1908	Discard--1948
51	32	1912	Discard--1948
15	40	1932	Discard--1948
<u>Trolley Coaches</u>			
141	40	1936	1951
50	44	On Order	1963
<u>Motor Coaches</u>			
1	40	1930	Overdue
15	29	1936	Overdue
28	31	1936	Overdue
19	31	1937	1948
10	21	1937	Overdue
4	21	1939	Overdue
19	31	1940	1950
7	31	1940	1950
17	31	1950	1950
15	31	1941	1951
65	33	1943	1953
20	45	1947	1957
80	45	On Order	1958

Conclusion

We believe that the adoption of transit routes as shown on our Exhibits 8 and 10 and the equipment recommendations set forth will provide adequate service for all sections of Portland. Complete one-way street operation in the West Side business district will allow considerable increase in speed thru the elimination of many turning movements. In this connection, we have determined the number of turning movements during the maximum P.M. hour within the most congested area of the West Side business district as defined in our Exhibits 6 and 10. There are 422 turning movements now required but after the adoption of our downtown routing over one-way streets only 260 will be required, a reduction of over 38 per cent in total number of turning movements.

The downtown routing of our proposed system provides better delivery than at present and will eliminate much of the loading and unloading congestion now caused by buses turning back short of the point of maximum rider concentration.

We have also made a study of the number of vehicle-miles now operated and to be operated under our plan within the area shown on Exhibits 6 and 10 and find that even though we provide better delivery, the number of vehicle-miles during the maximum P.M. hour will be reduced from 129 to 125.

Many of the advantages of our proposed system, over the existing system, are due to the increased use of thru routes.

We urge that the recommended changes be made with all possible speed so that the people of Portland can enjoy the benefits of a completely modernized transit system within the next few months.

It should be noted that we have tried to maintain the descriptive title now used for each route or used by the Portland Traction Company in their modernization plan so as to cause as little confusion as possible to anyone studying this report. It is our recommendation that before any comprehensive plan of re-routing be inaugurated that a detailed review of all route names and designations be made so as to identify each route more properly. Due to the straightening of many of the routes, such a re-naming program should be quite simple.

APPENDIX

DESCRIPTION OF PROPOSED ROUTES

ROUTES PROVIDING DIRECT SERVICE TO WEST SIDE BUSINESS DISTRICT

Alberta-Broadway-Powell Route (AB-BP)

The proposed Alberta route will provide direct service from the northeast section of Portland thru the central business district and is proposed to be thru routed with the Broadway-Powell (BP) route which will serve the southeast section of Portland.

The north portion of this thru route will provide service for portions of the areas served by the Alberta and Broadway routes. The portion of this route southeast of the business district is identical with the existing Broadway route. The adoption of this proposed route, in addition to providing service for portions of the areas served by the Alberta and Broadway routes, will provide new service in the area north of NE Killingsworth Street and west of NE 33rd Avenue. This route, together with the proposed Irvington and Union Avenue routes, will allow the existing Alberta Street car route to be eliminated. It is felt that this elimination will cause no hardship since a major portion of the existing route will be served by the new Union Avenue route and the balance will be satisfactorily served by the proposed Irvington and Alberta routes.

It is proposed that this route be operated by motor coaches.

The Alberta route will start from a terminal at NE 27th Ave. and NE Dekum St., and operates via NE 27th Ave., NE Bryce St., NE 29th Ave., NE Regents Drive, NE 24th Ave., NE Broadway, N. Broadway, Broadway Bridge, NW Broadway, SW Broadway, SW 6th Ave., SW Sheridan St., SW 3rd Ave., SW Arthur St., SW Kelly Ave., SW Corbett Ave., Ross Island Bridge, SE Powell Blvd. to SE 82nd Ave.

The return trip will follow the same streets except in the West Side business district where it will operate over SW 6th Ave. and NW 6th Ave. between SW Columbia St. and NW Couch St.

Barbur Boulevard (BB)

The proposed Barbur Boulevard route will provide direct service from the West Side business district to the section of Portland south thereof.

The proposed Barbur Boulevard route will provide substantially the same service as the existing Barbur Boulevard route. However, a few minor changes in routing have been proposed so as to allow the elimination of the existing south leg of the Williams Avenue route. This is felt necessary due to the extremely close spacing of the existing Macadam, Williams Avenue and Barbur Boulevard routes and the additional service needed in other sections.

It is proposed to operate the Barbur Boulevard route with motor coaches.

This route will operate from a terminal at SW Pacific Hwy. and SW Spring Garden Rd. via West Side Pacific Hwy., SW 19th St., SW Spring Garden Rd., SW Taylor's Ferry Rd., SW Terwilliger Blvd., SW Barbur Blvd., SW Hamilton St., SW Corbett Ave., SW Grover St., SW First Ave., SW Grant St., SW 3rd Ave., SW Clay St., SW 4th Ave. to SW Alder St.

The return trip will be from SW 4th Ave. and SW Alder St. via SW Alder St., SW 3rd Ave. to SW Clay St. and thence will follow the inbound route.

Beaumont (BM) Route

The proposed Beaumont route is a thru route which will operate from the northeast section of Portland thru the West Side business district to the Southeast section of Portland.

The proposed Beaumont route will follow substantially the same streets as the existing route except thru the West Side business district and in the vicinity of NE Siskiyou Street and NE Fremont Street. The re-routing of the existing NE Fremont Street portion of this route over NE Siskiyou Street will provide a more direct route.

It is proposed to use motor coaches on this route.

This route will operate from a terminal at NE 60th Ave. and NE Cully Blvd., NE 60th Ave., NE Killingsworth St., NE Cully Blvd., NE 57th Ave., NE Siskiyou St., NE 41st Ave., NE Wisteria Dr., NE 42nd Ave., NE Sandy Blvd., E Burnside St., Burnside Bridge, NW 2nd Ave., NW Couch St., NW 3rd Ave., SW 3rd Ave., SW Madison St., Hawthorne Bridge, SE Hawthorne Blvd., SE Ladd Ave., SE Harrison St., SE 32nd Ave., SE Division St., SE 52nd Ave., SE Flavel St., SE 72nd Ave., SE Duke St. to SE 52nd Ave.

The return route will be identical except thru the West Side business district where the route will go via the Hawthorne Bridge, SW Second Ave., SW Main St., SW 4th Ave. and West Burnside St. to the Burnside Bridge.

Additional direct downtown service will be provided by a split of the Beaumont route from NE 41st Ave. and NE Siskiyou St. via NE 41st Ave., NE Fremont St. and NE 42nd Ave. to a terminal at NE Homan St.

Broadway-Powell (BP) Route

The Broadway-Powell route is proposed to be thru routed with the Alberta route and has been discussed in detail under that section.

Council Crest (CC) Route

The proposed Council Crest route will provide service to the same areas served by the existing Council Crest street car route. However, our recommended use of motor coach equipment in place of street cars required the selection of a new route to take the place of the private right-of-way followed by the existing route from SW Ravensview Drive and SW Patton Road. We understand that the city proposes to construct new roads in this area to eliminate some of the steep grades and sharp turns now necessary to reach Council Crest Park. In the interim, we have developed a route following existing streets in the area south of SW Patton Road and SW Ravensview Drive.

The proposed Council Crest route will operate from a terminal at SW Chehalem Ave. and SW Council Crest Dr. via SW Chehalem Ave., SW Mt. Adams Dr., SW Fairmount Blvd., SW Talbot Rd., SW Ravensview Dr., SW Terrace Dr., SW Elizabeth St., SW 18th Ave., SW Spring St., SW Vista Ave., SW Main St., SW King Ave., SW Salmon St. and SW 4th Ave. to SW Morrison St.

The return route from SW Morrison St. and SW 4th Ave. will be via SW Morrison St., SW 11th Ave., SW Taylor St., SW 14th Ave. and thence will follow the inbound route to SW Vista Ave. and SW Spring St. from which point it will operate over SW Patton Rd., SW Talbot Rd., SW Fairmount Blvd. and SW Mt. Adams Dr. to the terminal at SW Chehalem Ave. and SW Council Crest Dr.

East Burnside (EB) Route

The proposed East Burnside route is a new route which will serve an area now inadequately served due to the wide spacing of the existing Montavilla and Mt. Tabor street car routes. This new route will also provide service by the Portland Traction Company for a considerable number of riders who now, by sufferance, make trips wholly within the city limits on the buses of an inter-city carrier. The Portland Traction Company

has been unable to provide this service due to lack of equipment.

In addition to providing more direct downtown service for the area east of the business district, the new route will provide service to the newly developed residential area west of SE 88th Avenue in the vicinity of SW Stark Street.

It is proposed that this route be operated with motor coaches.

The route will operate from a terminal at SE 90th Ave. and SE Yamhill St. via SE 90th Ave., SE Stark St., SE 78th Ave., E Burnside St., SE 20th Ave., SE Stark St., SE Sandy Blvd., SE 7th Ave., SE Morrison St., Morrison Bridge, SW Morrison St. and SW 5th Ave. to SW Yamhill St.

The return route from SW Yamhill St. and SW 5th Ave. will be via SW Yamhill St., SW Front Ave., Morrison Bridge and thence over the same route as in the inbound direction.

Eastmoreland (EM) Route

The proposed Eastmoreland route is identical with the existing Eastmoreland route through the southeast section of Portland except that portion of the route southwest of SE Woodstock Boulevard and SE 41st Avenue has been eliminated from the Eastmoreland route and made an extension of the proposed Sellwood route. This change will provide a more direct service to the downtown area for passengers using this section of the existing Eastmoreland route. We have thru routed the Eastmoreland route with the Interstate route. The origin-destination survey indicates that this thru routing will provide direct service for approximately 100 daily trips. A study of the vehicular origin-destination survey indicates that approximately 450 people now making a comparable trip by automobile on a typical weekday will be given direct service if they so desire.

In addition to giving direct service to a limited number of existing transit passengers and the possibility of inducing substantial new patronage from present automobile users, the thru routing will correct the poor delivery on these two routes which now turn back short of the point of highest transit rider concentration. In addition, a considerable number of transit vehicle turns within the congested West Side business district will be eliminated.

It is proposed to continue the use of trolley coaches on the Eastmoreland route.

The Eastmoreland route will operate from a terminal at SE Woodstock Blvd. and SE 41st Ave. via SE 41st Ave., Private Right-of-Way, SE 42nd Ave., SE Gladstone St., SE 26th Ave., SE Clinton St., SE 12th Ave., SE Hawthorne Blvd., Hawthorne Bridge, SW Madison St., SW 2nd Ave., SW Main St., SW 6th Ave., NW 6th Ave., NW Glisan St., NW Broadway, Broadway Bridge, N Broadway, N Interstate Ave., N Lombard St., N Denver Ave. to N McClellan St.

The return route is identical except through the downtown area where it will be operated from the Broadway Bridge over NW Broadway, SW Broadway, SW Madison St., Hawthorne Bridge, SE Hawthorne Blvd., SE 11th Ave., SE Division St. and SE 13th Ave. to SE Clinton St.

Foster Road (FR) Route

The proposed Foster Road route will follow the same streets thru the Southeast section of Portland as the existing Foster Road route. However, we propose that it be thru routed with the existing St. John's route which serves the north section of Portland. Our analysis of the origin-destination survey indicates that approximately 200 present transit patrons would be benefited by this thru routing. The vehicular origin-destination survey indicates that an additional 500 or more passengers would benefit by this thru routing if they were to use the transit system

rather than automobiles.

In addition to providing better service for a number of present and potential transit passengers desiring to go from one side of the city to another, the thru routing will eliminate many bus turning movements in the congested downtown area and, due to both routes extending entirely thru the West Side business district, will provide better delivery, loading, and transfer facilities.

The continued operation of trolley coaches over the Foster and St. John's routes is proposed.

The Foster route will operate from a terminal at SE Foster Rd. and SE 103rd Ave. via SE Foster Rd., SE Harold St., SE 72nd Ave., SE Foster Rd., SE 50th Ave., SE Hawthorne Blvd., Hawthorne Bridge, SW Madison St., SW 2nd Ave., SW Main St., SW 6th Ave., NW 6th Ave., NW Glisan St., NW Broadway, Broadway Bridge, N Broadway, N Interstate Ave., N Greeley Ave., N Lombard St., N Columbia Blvd., N Jersey St., N St. Louis Ave., N Ivanhoe St. and N Chicago Ave. to N Jersey St.

The return route will be identical except thru the West Side business district where it will operate over NW Broadway, SW Broadway and SW Madison St. to the Hawthorne Bridge.

Glisan (GL) Route

The proposed Glisan route follows substantially the same streets as the existing Montavilla route. The route will be extended, however, from NE 90th Avenue to NE 92nd Avenue to provide better service for a developing area.

It is proposed to operate this route with motor coaches.

The Glisan route will operate from a terminal at NE Glisan St. and NE 92nd Ave. via NE Glisan St., NE Sandy Blvd., E Burnside St., Burnside Bridge, NW 2nd Ave., NW Couch St., NW 5th Ave. and SW 5th Ave. to SW Stark St.

The route will return from this point via SW Stark St., SW 2nd Ave. to the Burnside Bridge and then will follow the same streets as the inbound route.

Halsey (HS) Route

The proposed Halsey route thru the northeast section of Portland is identical with the existing route except that the service on NE 82nd Avenue is eliminated and the route is extended along Halsey Street to NE 92nd Avenue and thence to NE Thompson Street. The elimination of the short section of the Halsey route now operating over NE 82nd Avenue will not be serious as a new crosstown route is proposed for NE and SE 82nd Avenue. The extension along NE Halsey Street to NE 92nd Avenue and thence to NE Thompson Street will provide service to a newly developed residential area.

It is proposed to continue the use of motor coaches on this route.

The proposed Halsey route will operate from a terminal at NE Thompson St. and NE 92nd Ave. via NE 92nd Ave., NE Halsey St., NE 42nd Ave., NE Broadway, NE Sandy Blvd., E Burnside St., Burnside Bridge, NW 2nd Ave., NW Couch St., NW 5th Ave., SW 5th Ave., SW Stark St., SW 2nd Ave. to the Burnside Bridge and will then operate over the same streets as the inbound route.

Hawthorne (HA) Route

The Hawthorne route, which provides direct service to the downtown business district, will continue to operate over the same streets in the southeast section of Portland as the existing Hawthorne route. However, in order to eliminate transit vehicle turning movements in the congested business district and in order to provide better delivery, loading and transfer facilities in the West Side business district, we have thru routed the Hawthorne route with the proposed Mississippi route which serves the north section of Portland.

A study of the origin-destination survey indicates that approximately

100 transit trips per day would be benefited by this thru routing. In addition, direct service would be provided for over 400 present automobile passengers if they were to use the transit facilities.

It is proposed to continue the use of trolley coaches on the Hawthorne portion of this route and to change from motor coach to trolley coach operation on the Mississippi portion of the route.

The proposed Hawthorne route will operate from a terminal at SE Division St. and SE 80th Ave. via SE Division St., SE 60th Ave., SE Lincoln St., SE 54th Ave., SE Hawthorne Blvd., Hawthorne Bridge, SW Madison St., SW 2nd Ave., SW Main St., SW 6th Ave., NW 6th Ave., NW Glisan St., NW Broadway, Broadway Bridge, N Broadway, N Interstate Ave., N Mississippi Ave. and N Albina Ave. to a terminal at N Watts St.

Interstate Route (IN)

The proposed Interstate route serving an area north of the downtown business district will be substantially the same as the existing Interstate route except that it has been thru routed with the Eastmoreland route. Details of these two routes will be found under the section on the Eastmoreland route.

Irvington(IV) Route

The proposed Irvington route will take the place of the existing Irvington-Jefferson route and will be extended to provide service for a portion of the Alberta route which is to be eliminated and the Williams route which is to be re-routed. In addition, new direct downtown service will be provided residents in the area north of NE Killingsworth Street along NE 15th Avenue.

It is proposed to continue the use of motor coach operation on this route.

The proposed Irvington route will operate from a terminal at NE Madrona St. and NE Dekum St. via NE Madrona St., NE Durham St., NE Dekum St., NE 15th Ave., NE Multnomah St., NE Grand Ave., NE Oregon St., Steel Bridge, NW Glisan St., NW 5th Ave., SW 5th Ave., SW Jefferson St., SW 11th Ave., SW Hall St. to SW 13th Ave. The return route from this point will be via SW 13th Ave., SW Montgomery St., SW 11th Ave., SW Columbia St., SW 6th Ave. and NW 6th Ave. to NW Everett St., thence over the proposed eastbound ramp of the Steel Bridge and across the Bridge and will then follow the inbound route.

Linnton (LT) Route

It is proposed to combine the existing Linnton, Guild Court and the north leg of the Sellwood route by eliminating a portion of the Linnton route over NW St. Helens Road, between NW 44th Avenue and NW 29th Avenue, and by operating over the existing Guild Court route from NW 44th Avenue to NW St. Helens Road and NW 29th Avenue. A Linnton short line service will be provided on NW 22nd Avenue and NW Nicolai Street. The combination of these two existing routes will save considerable dead mileage on St. Helens Road and will afford better service along the existing Guild Court route than would be possible with the present dwindling demand for the Guild Court route due to the removal of temporary housing.

The routing of the Linnton route to the downtown section over substantially the same streets as now traversed by the existing Sellwood line will enable the abandonment of the north leg of this route and the avoiding of duplication of service.

We have been advised that there have been requests for service across the St. John's Bridge to connect the Linnton route on one side with the Killingsworth and St. John's routes on the other, and which would serve an industrial district in the vicinity of N Ivanhoe Street and N Philadelphia Avenue. We have checked the origin-destination survey of present automo-

bile trips and do not find any justification for providing this service. The lack of need for this service is substantiated by the fact that both the original operator of the Linnton route and the Portland Traction Company have provided trial services in this location and have not found them feasible.

The Linnton and Linnton short line routes are proposed to be operated with motor coaches.

The proposed Linnton route will operate from a terminal at NW St. Helens Rd., approximately 2100 feet northwest of the intersection of NW 114th Ave. projected westerly, via NW St. Helens Rd., NW Yeon Ave., NW 35th Ave., NW Guam St., NW Guild St., NW 29th Ave., NW Upshur St., NW 27th Ave., NW Thurman St., NW 16th Ave., NW Everett St., NW Broadway, SW Broadway and SW Alder St. to SW 4th Ave.

The return route is via NW 4th Ave. and NW Glisan St. to NW 16th Ave. where the route will then operate over the same streets as the inbound route.

The Linnton short line will operate over the same streets as the Linnton route from NW 22nd Ave. and NW Thurman St. to the West Side business district. The short line route will thence operate over NW 22nd Ave. and NW Nicolai St. to NW 29th Ave.

Macadam (MC) Route

The proposed Macadam route will traverse the area south of the West Side business district and along substantially the same streets as the existing Macadam route.

It is proposed to continue the use of motor coaches on this route.

The proposed Macadam route will operate from a terminal at SE McLoughlin Blvd. and SE Moores Ave. via SE Moores Ave., SE Ochoco St., SE 17th Ave., SE Tacoma St., Sellwood Bridge, SW Macadam Ave., SW Nevada St., SW Virginia Ave., SW Carolina St., SW Hood Ave., SW Sweeney St., SW Macadam Ave., SW Grover St., SW Hood Ave., SW Water Ave., SW Harbor Dr., SW Clay St., SW 4th Ave. and SW Alder St. to SW 3rd Ave.

The return route from this point will be via SW 3rd Ave. and

SW Columbia St. to SW Harbor Dr. and thence will follow the inbound route to SE Tacoma St. and thence to SE McLoughlin Blvd. and SE Moores Ave. via SE Tacoma St. and SE McLoughlin Blvd.

Mississippi (MA) Route

The proposed Mississippi route will substantially follow the existing Mississippi route except that it will be thru routed with the Hawthorne route. Details of these routes have been set forth under the section on the Hawthorne route.

Mt. Tabor (MT) Route

The proposed Mt. Tabor route serving an area directly east of the downtown business area will follow substantially the same route traversed by the existing Mt. Tabor street cars.

It is proposed to operate the Mt. Tabor route with motor coaches.

The proposed route will start from a terminal at SE Yamhill St. and SE 84th Ave. and will operate via SE Yamhill St., SE 80th Ave., SE Yamhill St., SE 76th Ave., SE Yamhill St., SE 71st Ave., SE Yamhill St., SE 69th Ave., SE Belmont St., SE 19th Ave., SE Morrison St., Morrison Bridge, SW Morrison St., SW 14th Ave., SW Clay St., SW 18th Ave. to SW Mill St.

The return route will be via SW Mill St., SW 14th Ave., SW Yamhill St., SW Front Ave. to the Morrison Bridge and thence over the same streets as the inbound route.

Sam Jackson Park (JP) Route

The proposed Sam Jackson Park route will follow the same streets thru the area south of the West Side business district as the existing Sam Jackson Route.

It is proposed to continue operation of this route with motor coaches.

The proposed Sam Jackson Park route will operate from a terminal at the Veterans Hospital via SW Marquam Rd., SW Gaines St., SW 11th Ave., SW Gibbs St., SW Marquam Rd., SW Terwilliger Blvd. and SW 6th Ave. to SW Yamhill St.

The return route is via SW Yamhill St., SW 5th Ave. and SW Sherman St. to SW 6th Ave. and will then follow the same streets as the inbound route.

Sandy Boulevard (SB) Route

The proposed Sandy Boulevard route will follow the same streets as at present thru the northeast section of Portland. The routing has been changed in the downtown area to provide better delivery, loading and transfer facilities.

We propose the continuation of trolley bus service on this route.

The proposed Sandy Boulevard route will operate from a terminal at NE 81st Ave. and NE Sandy Blvd., via NE Sandy Blvd., E Burnside St., Burnside Bridge, NW 2nd Ave., NW Couch St., NW 5th Ave. and SW 5th Ave. to SW Yamhill St. The outbound route from this point will be via SW Yamhill St., SW 4th Ave. and W Burnside St. to the Burnside Bridge from which point it will follow the same streets as the inbound route to NE 81st Ave. and NE Sandy Blvd. where it will loop around NE Sandy Blvd., NE Mason St. and NE 81st Ave.

Sellwood-Williams (SW) Route

The proposed Sellwood-Williams route is a thru route providing direct service from the north section of Portland thru the West Side business district to the southeast section of Portland. The proposed route will follow substantially the same streets as the existing north leg of the Williams Avenue route and the southeast leg of the Sellwood route, except at the extreme ends of the line. The north end of the route will continue north on N Vancouver Avenue to N Baldwin Street, instead of operating over N and NE Dekum Street to NE 18th Avenue. Service presently

provided by the NE Dekum Street portion of the Williams Avenue route is provided by the proposed Union Avenue and Irvington routes. The south leg of the proposed Sellwood-Williams route will be split, providing service over the portion of the existing Eastmoreland route west of SE Woodstock Boulevard and SE 41st Avenue, and along SE 14th Avenue to SE Tacoma Street. The re-routing of this section of the existing Eastmoreland route will provide a more direct service to the downtown business district.

It is proposed to continue the use of trolley coaches on this route.

The proposed Sellwood-Williams route will operate from a terminal at N Baldwin St. and N Vancouver Ave. via N Vancouver Ave., N Killingsworth St., N Williams Ave., Steel Bridge, NW Glisan St. NW 3rd Ave., SW 3rd Ave., SW Madison St., Hawthorne Bridge, SE Hawthorne Blvd., SE Grand Ave., SE Division Pl., SE 6th Ave., SE Woodward St. and SE Milwaukie Ave. to a split operating east along SE Bybee St., SE 28th Ave., SE Rex St., SE 32nd Ave. and SE Woodstock Blvd. to SE 41st Ave. The other leg will operate west on SE Bybee St. from SE Milwaukie Ave. to SE 13th Ave. and thence to SE Spokane St.

The return route of the Sellwood line will be over the same streets except for loops at each end of the southeast split of the route and thru the West Side business district where it will go from the Hawthorne Bridge via SW 2nd Ave., SW Main St., SW 4th Ave., NW 4th Ave., NW Everett St. across the proposed eastbound ramp of the Steel Bridge and thence resume the same route.

There appears to be a possibility that the operation of trolley coaches over the proposed eastbound ramp of the Steel Bridge will be prevented by inadequate head room. If this be the case, it is proposed to operate the route over the Broadway Bridge via NW 4th Ave., NW Glisan St., NW Broadway, Broadway Bridge and N Broadway to N Williams Ave. and thence along the same route as previously described.

St. John's (SJ) Route

The proposed St. John's route which will serve the area along the north side of the Willamette River will follow substantially the same streets in this area as the existing St. John's route. However, it is proposed to thru route it with the Foster Road route. Details of these two routes have been covered under the section on the Foster Road route.

33rd (33) Route

The proposed 33rd route is a thru route connecting the northeast section of Portland with the West Side business district and extending to the southeast section of the city. While there are a number of changes in the proposed routing, it follows substantially the same streets as the existing route. The north terminal stops approximately one mile short of the existing terminal. However, this section is adequately served by one leg of the proposed Beaumont route. The other end of the route is also cut short by terminating at SE Woodstock Boulevard and SE 52nd Avenue, rather than going around the SE Flavel Street, SE 72nd Avenue and SE Duke Street loop.

Service to the airport will be made available by an extension of this route. The extension and operation of the route will continue as it now prevails.

It is proposed to continue the operation of motor coaches on this route.

The proposed 33rd route will operate from a terminal at NE Columbia Blvd. and NE 36th Ave. via NE Columbia Blvd., NE 33rd Ave., NE Broadway, NE 21st Ave., NE 20th Ave., NE Sandy Blvd., E Burnside St., Burnside Bridge, NW 2nd Ave., NW Couch St., NW 3rd Ave., SW 3rd Ave., SW Madison St., Hawthorne Bridge, SE Hawthorne Blvd., SE Ladd Ave., SE Harrison St., SE Lincoln St., SE 32nd Ave., SE Division St., SE 52nd Ave., SE Knight St., SE 51st Ave. and SE Woodstock Blvd. to SE 52nd Ave.

The return route will follow the same streets, except thru the West Side business district where it will operate from the Hawthorne Bridge via SW 2nd Ave., SW Main St., SW 4th Ave. and W Burnside St., Burnside Bridge, E Burnside St. and NE 20th Ave. to NE Sandy Blvd. and thence along the same streets as the inbound route.

23rd (23) Route

The proposed 23rd route follows substantially the existing 23rd route in the northwest section of Portland, except that the north terminal has been cut short to eliminate an over-lapping of service with the Willamette Heights route.

The use of street cars on this route will be abandoned and motor coaches operated in their place.

The proposed route will operate from a terminal at NW 23rd Ave. and NW Northrup St. via NW 23rd Ave., W Burnside St., SW Alder St. and SW 2nd Ave. to SW Washington St.

The return route from this point is via SW Washington St., W Burnside St., NW 23rd Ave., NW Overton St., NW 24th Ave. and NW Northrup St. to NW 23rd Ave.

Union Avenue (UA) Route

The proposed Union Avenue route will provide direct service to the West Side business district to those now using the existing Union Avenue shuttle and will replace the major portion of the existing Alberta street car route.

It is proposed to operate this route with trolley coaches.

The Union Avenue route will operate from a terminal at NE Union Ave. and NE Columbia Blvd. via NE Union Ave., NE Oregon St., Steel Bridge, NW Glisan St., NW 3rd Ave., SW 3rd Ave. and SW Alder St. to SW 2nd Ave.

The return route from this point will be via SW 2nd Ave. and NW 2nd Ave. to a new ramp proposed as the eastbound approach to the Steel Bridge from which point the route will follow the same streets as it does inbound.

Vanport (VP) Route

The existing Vanport route provides service to Vanport, Oregon. Transfers are not issued, and pickup and discharge within the limits of

Portland are not allowed. It is expected that with the anticipated decrease in population in the City of Vanport that the Vanport route will become a shuttle route operating between the City of Vanport and the terminal of the proposed Interstate route.

This route will continue to be operated with motor coaches.

Inasmuch as the service within the City of Vanport is subject to considerable change of routing, this route description covers only the section within the City of Portland. The proposed route within Portland will operate from the city limits via N Interstate Ave., N Broadway, Broadway Bridge, NW Lovejoy St., NW 10th Ave. and SW 10th Ave. to a terminal on SW Stark St.

The return route from this point will be via SW Stark St., SW Park Ave., SW Oak St. to SW 10th Ave. and thence along the same streets as the inbound route.

Willamette Heights Route (WH)

The proposed Willamette Heights route will continue to serve the same area and will follow substantially the same streets as the existing route.

The route will be operated with motor coaches instead of street cars, as is now the case.

The proposed route will operate from a terminal at NW Thurman St. and NW Gordon Ave. via NW Thurman St., NW 25th Ave., NW Pettygrove St., NW 22nd Ave., NW Overton St., NW 20th Ave., W Burnside St., SW Alder St. and SW 3rd Ave. to SW Morrison St.

The return route from SW 3rd Ave. and SW Morrison St. will be via SW Morrison St. and SW 20th Ave. to NW 20th Ave. and thence along the same streets as the inbound route.

CROSSTOWN ROUTESBridge Transfer (BT) Route

The existing Bridge Transfer route provides an excellent means of transfer for passengers approaching the West Side business district from the north, northeast and southeast sections of Portland and destined for the East Side business district or who wish to transfer to another route without having to go thru the West Side business district.

Substitution of motor coaches to replace existing street cars on this route is recommended.

The proposed Bridge Transfer route will operate from a terminal at N Broadway and N Larrabee Ave. via N Broadway, N Benton Ave., N Williams Ave., N Holladay St., NE Holladay St., NE Grand Ave., SE Grand Ave., SE Market St., SE 6th Ave., SE Clay St. to SE Grand Ave.

The return route from this point will be via SE Grand Ave., NE Grand Ave., NE Holladay St., N Holladay St. and N Larrabee Ave. to N Broadway.

82nd (82) Route

The proposed 82nd route is an entirely new crosstown service replacing the portions of the existing Mississippi route and the existing Halsey route operating over 82nd Avenue. There have been a number of requests for service along this street. Studies of the origin-destination survey and our reconnaissance survey indicate need for the service.

We propose the use of motor coaches on this route.

The proposed 82nd route will operate from a terminal at NE 82nd Ave. and NE Sandy Blvd. via NE 82nd Ave., SE 82nd Ave. to SE Crystal Springs Blvd.

The return route will be identical, except for a loop at the north terminal via NE Mason St., NE 81st Ave. and NE Sandy Blvd. to NE 82nd Ave.

Killingsworth (KW) Route

The proposed Killingsworth route follows the same streets across the north and northeast sections of Portland as the existing Killingsworth route. However, the existing NE 42nd Avenue leg has been abandoned as part of the Killingsworth route by substitution of a leg of the Beaumont route operating along NE 42nd Avenue to NE Holman Street.

The proposed transit system will allow passengers originating on the Killingsworth route to transfer to any one of nine routes providing direct service to the West Side business district.

It is proposed to continue the operation of motor coaches on this route.

The proposed Killingsworth route will operate from a terminal at N Philadelphia Ave. and N Jersey St. via N Philadelphia Ave., N Ivanhoe St., N Richmond Ave., N Willamette Blvd., N Portland Blvd., N Detroit Ave., N Killingsworth St. and NE Killingsworth St. to NE 42nd Ave.

The return route will follow the same streets.

39th (39) Route

The proposed 39th route will operate over substantially the same streets as the existing 39th route, except that the west terminal is located at N Mississippi Avenue and N Russell Street instead of N Castle Avenue and N Shaver Street. The route will provide transfer facilities to the West Side business district over 16 routes offering direct service to the West Side business district and also by means of these same routes to any part of the northeast and southeast sections of Portland.

It is proposed to continue the use of motor coaches on this route.

The 39th route will operate from a terminal at SE 39th Ave. and SE Gladstone St. via SE Gladstone St., SE 37th Ave., SE Center St., SE 39th Ave., NE 39th Ave., NE Wascost, NE 37th Ave., NE Sandy Blvd., NE 37th Ave., NE Knott St. and N Mississippi Ave. to N Russell St.

The return route will be via N Russell St., NE Russell St., NE Union Ave. and will thence follow the same streets to SE 39th Ave. and SE Gladstone St.

SHUTTLE ROUTES

Arlington Heights (AH) Route

The proposed Arlington Heights route will follow the same streets as the existing route and connect with the 23rd route for downtown service.

This route will continue to be operated with motor coaches.

This route will operate from a terminal at NW Westover Rd. and W Burnside St. via W Burnside St., SW Tichner Dr., SW Kingston Ave. and SW Fairview Blvd. to SW View Pl.

The return trip is via SW Fairview Blvd., SW Kingston Ave., SW Tichner Dr., W Burnside St., NW Gambrinus Ave. and NW Westover Rd. to W Burnside St.

Fessenden (F) Route

The proposed Fessenden route has been changed somewhat from the existing route but will serve the same territory, in addition to the area along NW Willis Boulevard and North Halleck Street between North Denver Avenue and North Chatauqua Boulevard. The proposed route will be a feeder for the Interstate route rather than the St. Johns route, as is now the case.

This route will continue to be operated with motor coaches.

The operation of this route will be from a terminal at N Jersey St. and N Burlington Ave. via N Burlington Ave., N Central St., N St. Louis Ave., N Fessenden St. to N Buchanan Ave. and also from the same terminal via N Jersey St., N St. Johns Ave., N Burgard St., N Terminal Rd., N Swift Blvd. and N Buchanan Ave. to N Fessenden St., thence both legs

will follow N Fessenden St., N Woolsey Ct., N Trenton St., N Foss Ave., N Alaska St., N Chatauqua Blvd. and N Willis Blvd., N Peninsular Ave., N Halleck St., N Delaware Ave., N Kilpatrick St. and N Denver Ave. to N Maclellan St.

The return route will follow the same streets.

Kings Westover (KH) Route

The proposed Kings Westover route is a shuttle route following the same streets as the existing route and connects with the 23rd route for downtown service.

This route will continue to be operated with motor coaches.

The proposed Kings Westover route will operate from a terminal at NW Westover Rd. and W Burnside St. via W Burnside St., NW Macleay Blvd., NW Alpine Terrace, NW Ariel Terrace, NW Cumberland Rd., NW Westover Rd., NW Cornell Rd., NW Lovejoy St. and NW 23rd Ave. to NW Northrup St.

The return route will be via NW Northrup St., NW 24th Ave. to NW Lovejoy St. and thence follows the inbound route.

Parkrose (PR) Route

The proposed Parkrose shuttle route is identical to the existing Parkrose route.

This route will continue to be operated with motor coaches.

The Parkrose route operates from a terminal at NE 82nd Ave. and NE Sandy Blvd. via NE Sandy Blvd., NE Prescott St., NE 112th Ave., NE Shaver St., NE 115th St., NE Prescott St. NE 122nd Ave. and loops back via NE Sandy Blvd. to NE 82nd Ave.

Swan Island (SI) Route

The status of this proposed route is in doubt due to the decrease in use of the existing route since cessation of war activities. If new industries locate in this area or demand for the line is created in some other

manner, Swan Island should be served by a motor coach route, similar to that now in effect.

The proposed route will operate from a terminal at the main federal office building on Swan Island via the roadway along the west side of Swan Island and N Going St. to N Interstate Ave.

The return route will be via N Interstate Ave., N Prescott St., N Campbell Ave., N Going St. and the roadway along the west side of Swan Island to main federal office building.

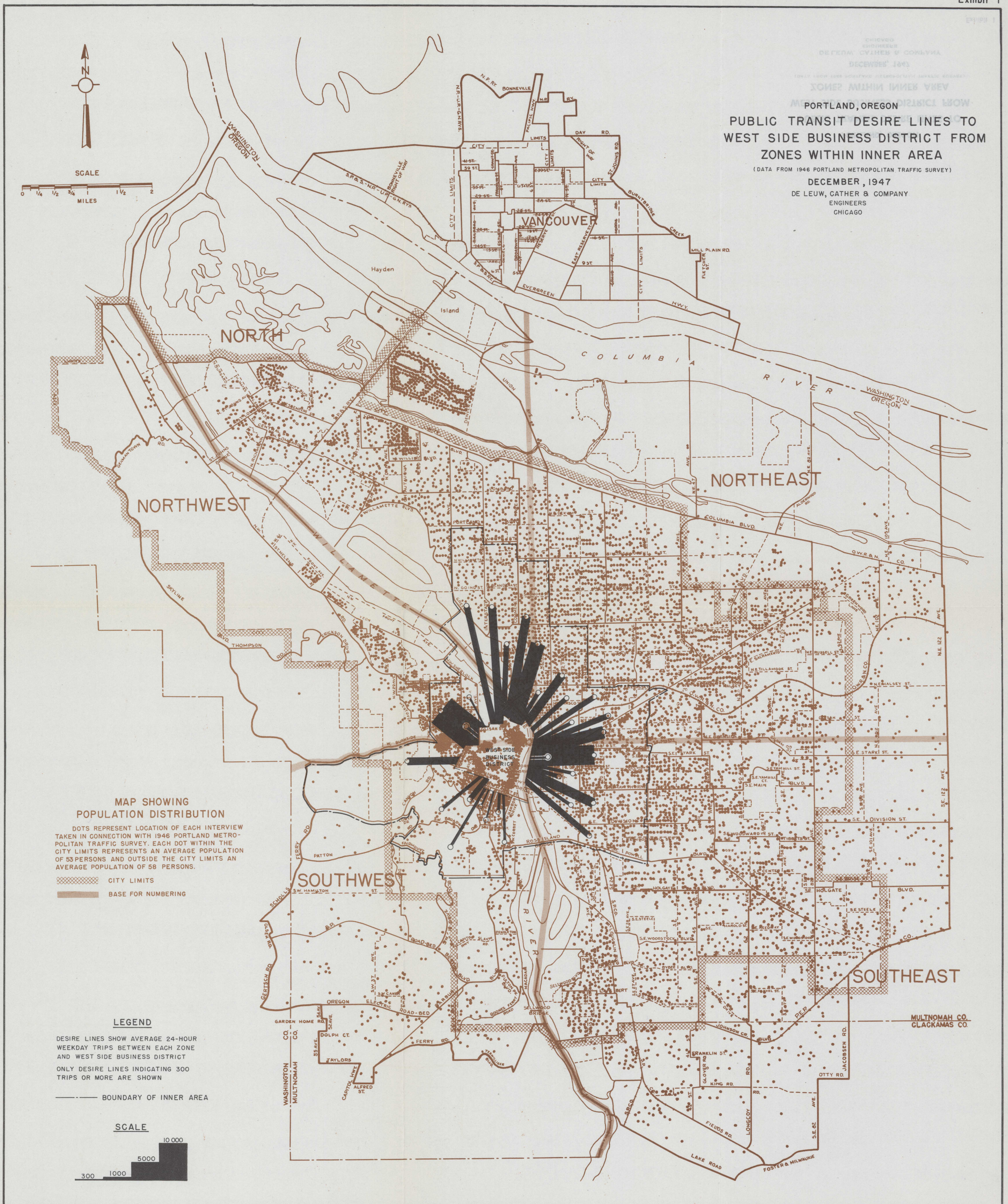
Woodstock (WS) Route

It is proposed to extend the existing Woodstock route along Woodstock Boulevard to 87th Street. Extension of this route will provide service to an area in which light demand exists and will also provide connection to the proposed 82nd crosstown route.

This route will continue to be operated with motor coaches.

The Woodstock route will operate from a terminal at SE Tenino Ave. and SE 39th Ave. via SE 39th Ave. and SE Woodstock Blvd. to SE 87th Ave.

The return route will follow the same streets.



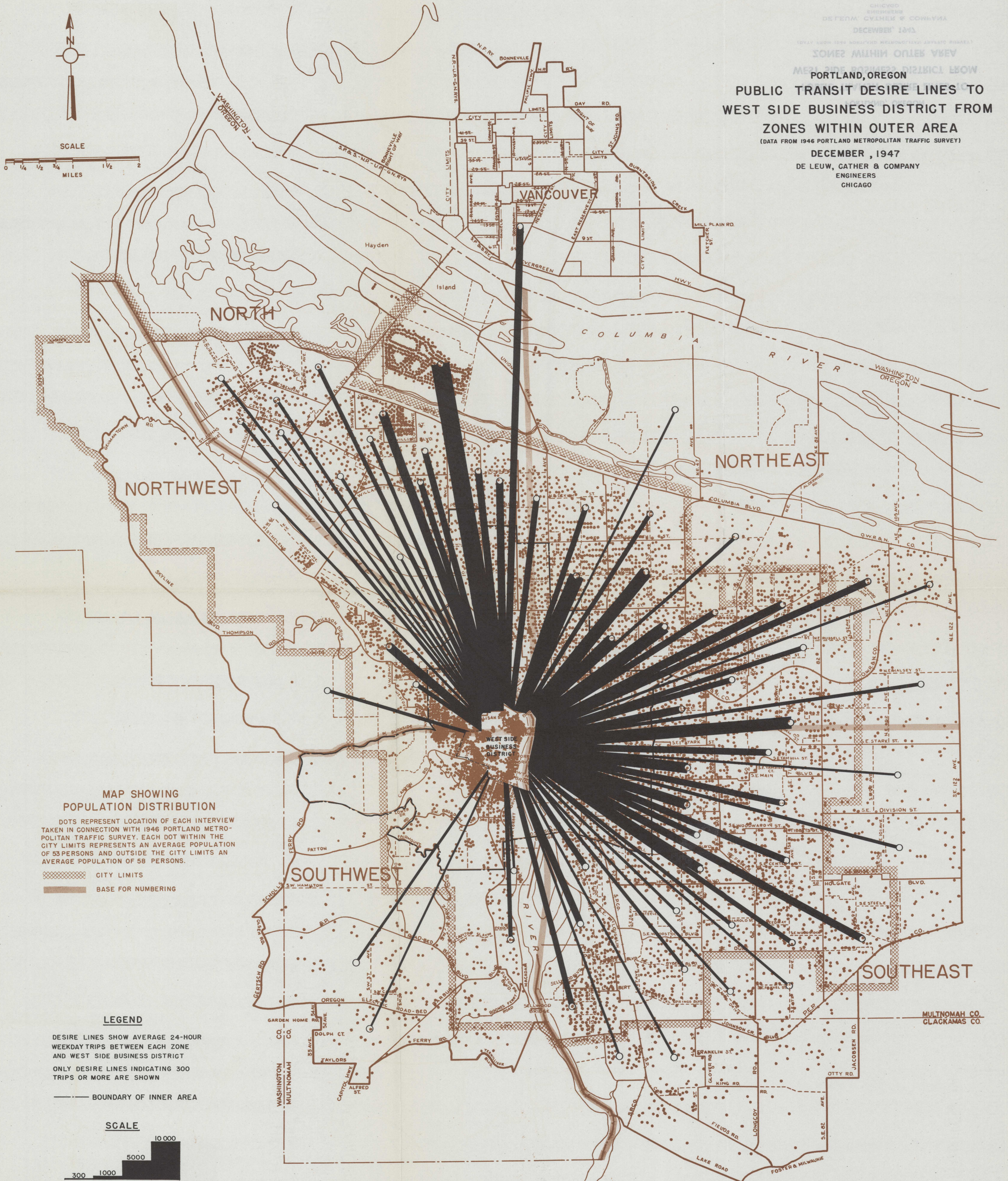
CHICAGO
ENGINEERS
DE LEUW, CATHEN & COMPANY
DECEMBER 1947
ZONES WITHIN OUTER AREA
METROPOLITAN DISTRICT LEON

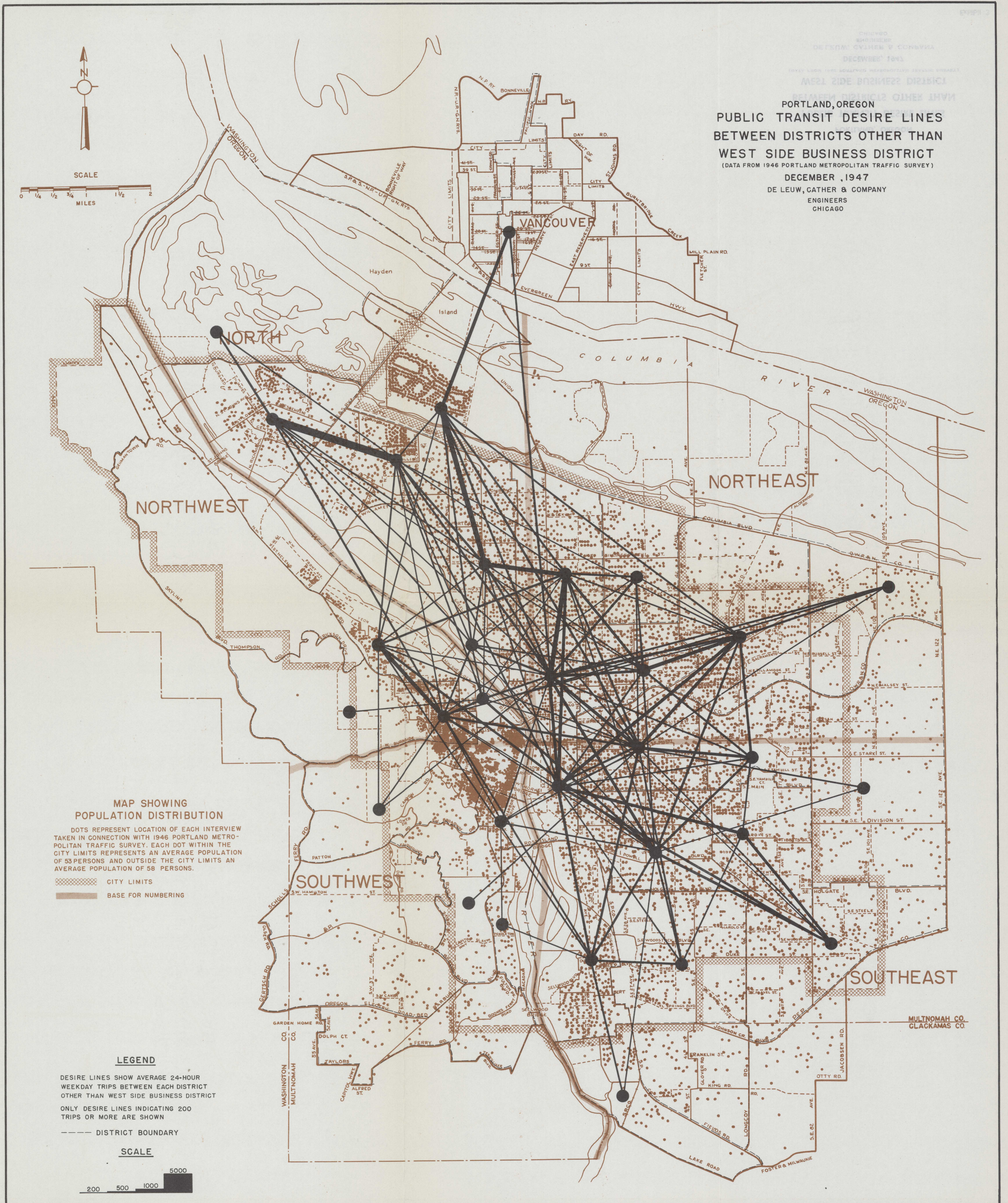
PORTLAND, OREGON PUBLIC TRANSIT DESIRE LINES TO WEST SIDE BUSINESS DISTRICT FROM ZONES WITHIN OUTER AREA

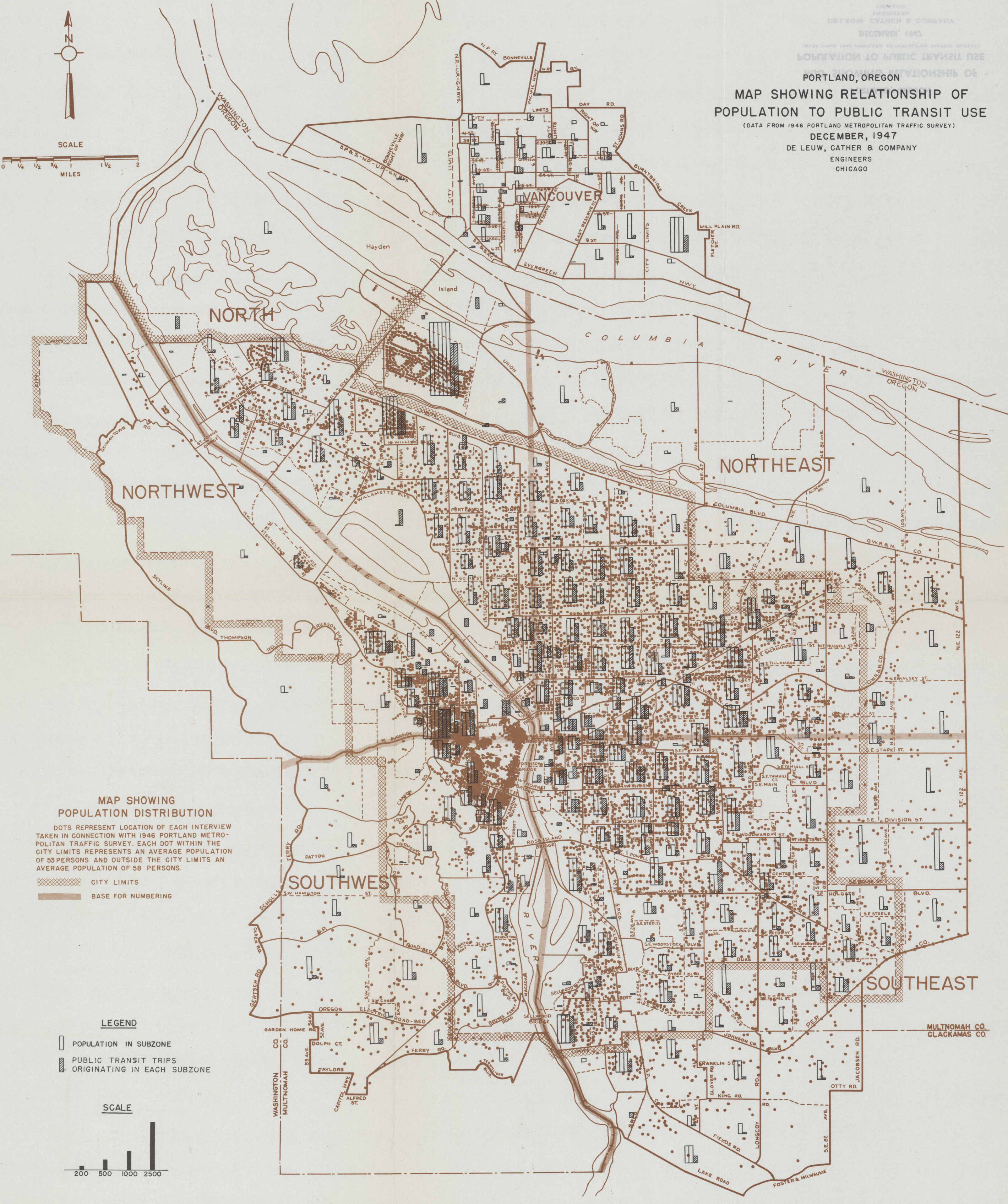
(DATA FROM 1946 PORTLAND METROPOLITAN TRAFFIC SURVEY)

DECEMBER, 1947

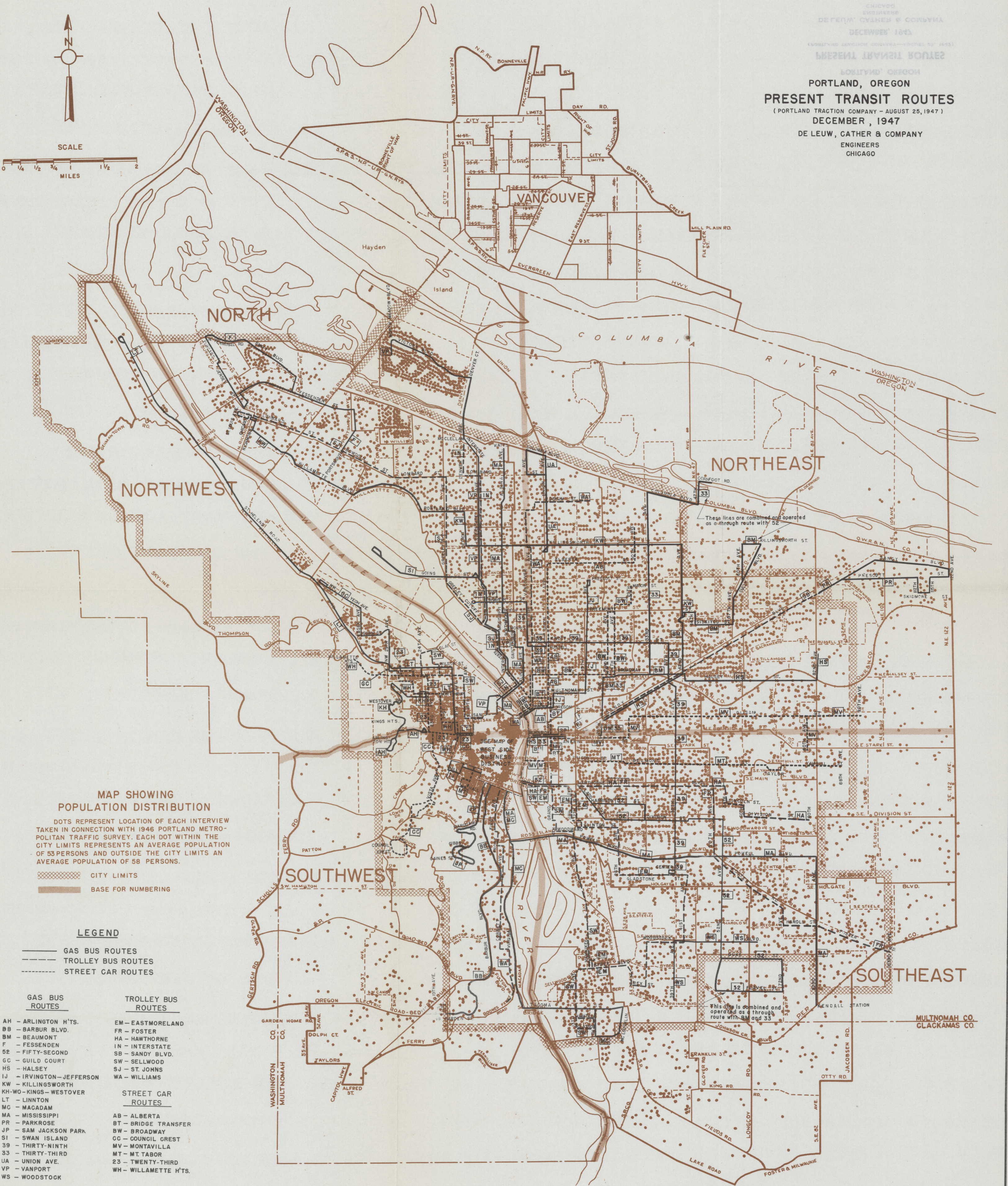
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DECEMBER 1947
PRESENT TRANSIT ROUTES
PORTLAND, OREGON
(PORTLAND TRACTION COMPANY - AUGUST 25, 1947)
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CHICAGO



PORTLAND, OREGON PRESENT TRANSIT ROUTES WEST SIDE BUSINESS DISTRICT

(PORTLAND TRACTION COMPANY - AUGUST 25, 1947)
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CHICAGO

LEGEND

- GAS BUS ROUTES
- - - TROLLEY BUS ROUTES
- STREET CAR ROUTES
- INTERURBAN ROUTES
- 19 INDICATES NUMBER OF TRANSIT RIDERS ORIGINATING IN BLOCK-BY-HUNDREDS
- LIMITS OF AREA USED AS BASIS FOR COMPARISONS OF BUS-MILES, TURNS, ETC.

GAS BUS ROUTES

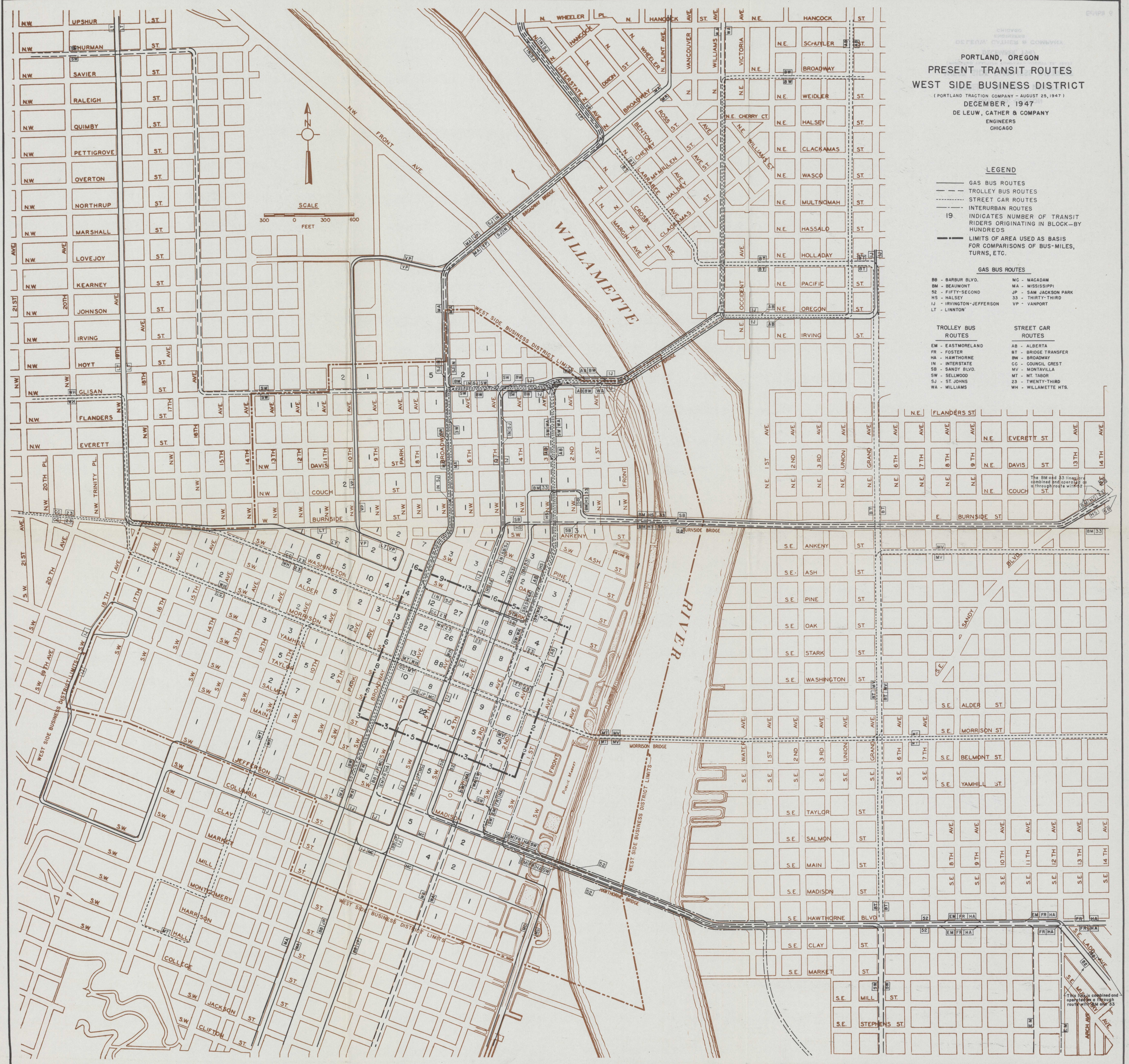
- | | |
|--------------------------|-----------------------|
| BB - BARBUR BLVD. | MC - MACADAM |
| BM - BEAUMONT | MA - MISSISSIPPI |
| S2 - FIFTY-SECOND | JP - SAM JACKSON PARK |
| HS - HALSEY | 33 - THIRTY-THIRD |
| IJ - IRVINGTON-JEFFERSON | VP - VANPORT |
| LT - LINNTON | |

TROLLEY BUS ROUTES

- | |
|-------------------|
| EM - EASTMORELAND |
| FR - FOSTER |
| HA - HAWTHORNE |
| IN - INTERSTATE |
| SB - SANDY BLVD. |
| SW - SELLWOOD |
| SJ - ST. JOHNS |
| WA - WILLIAMS |

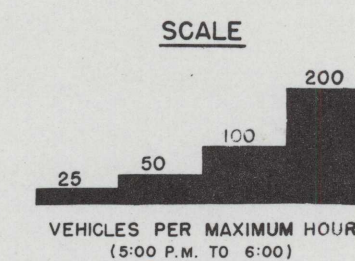
STREET CAR ROUTES

- | |
|----------------------|
| AB - ALBERTA |
| BT - BRIDGE TRANSFER |
| BW - BROADWAY |
| CG - COUNCIL CREST |
| MV - MONTAVILLA |
| MT - MT. TABOR |
| 23 - TWENTY-THIRD |
| WH - WILLAMETTE HTS. |



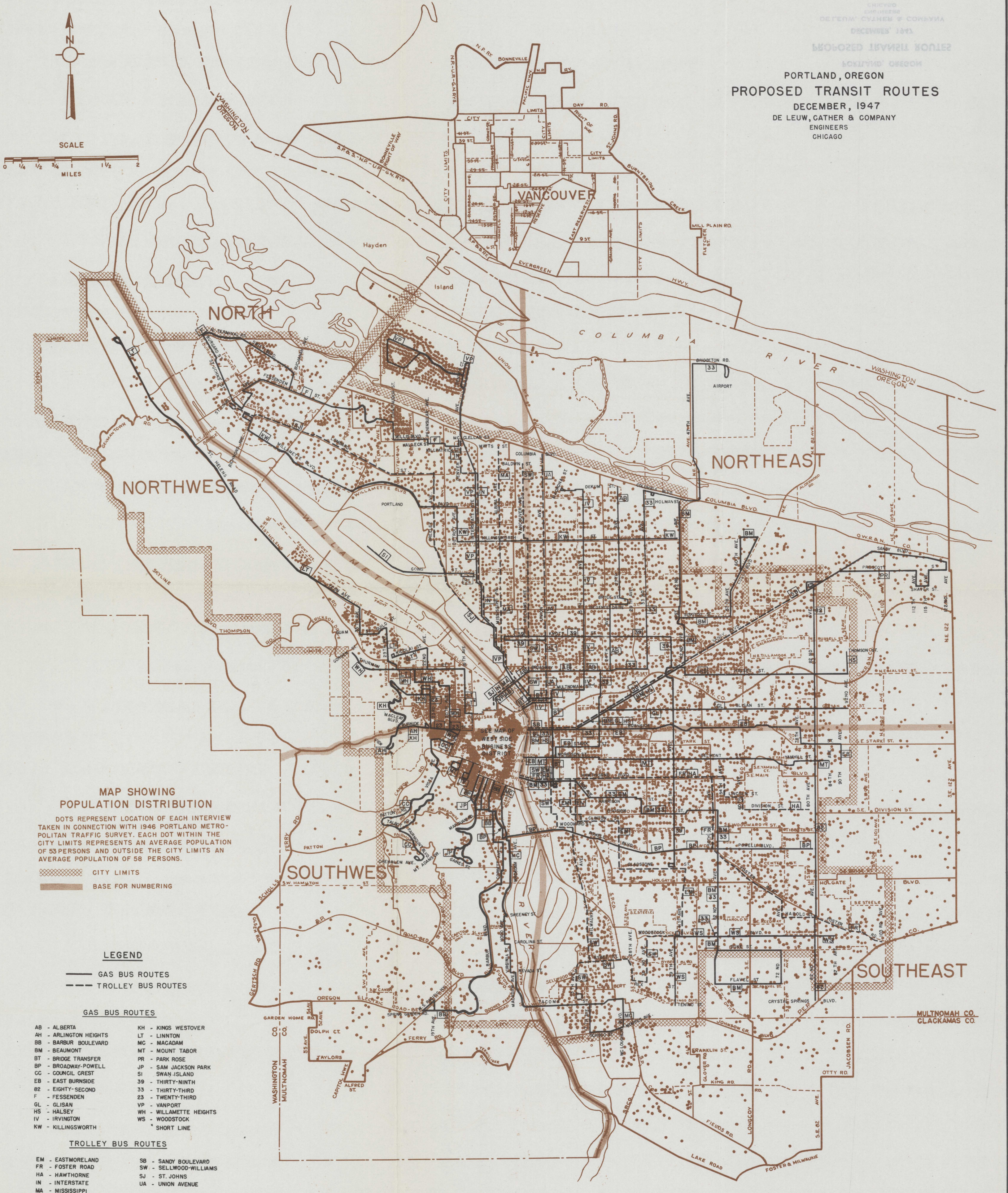
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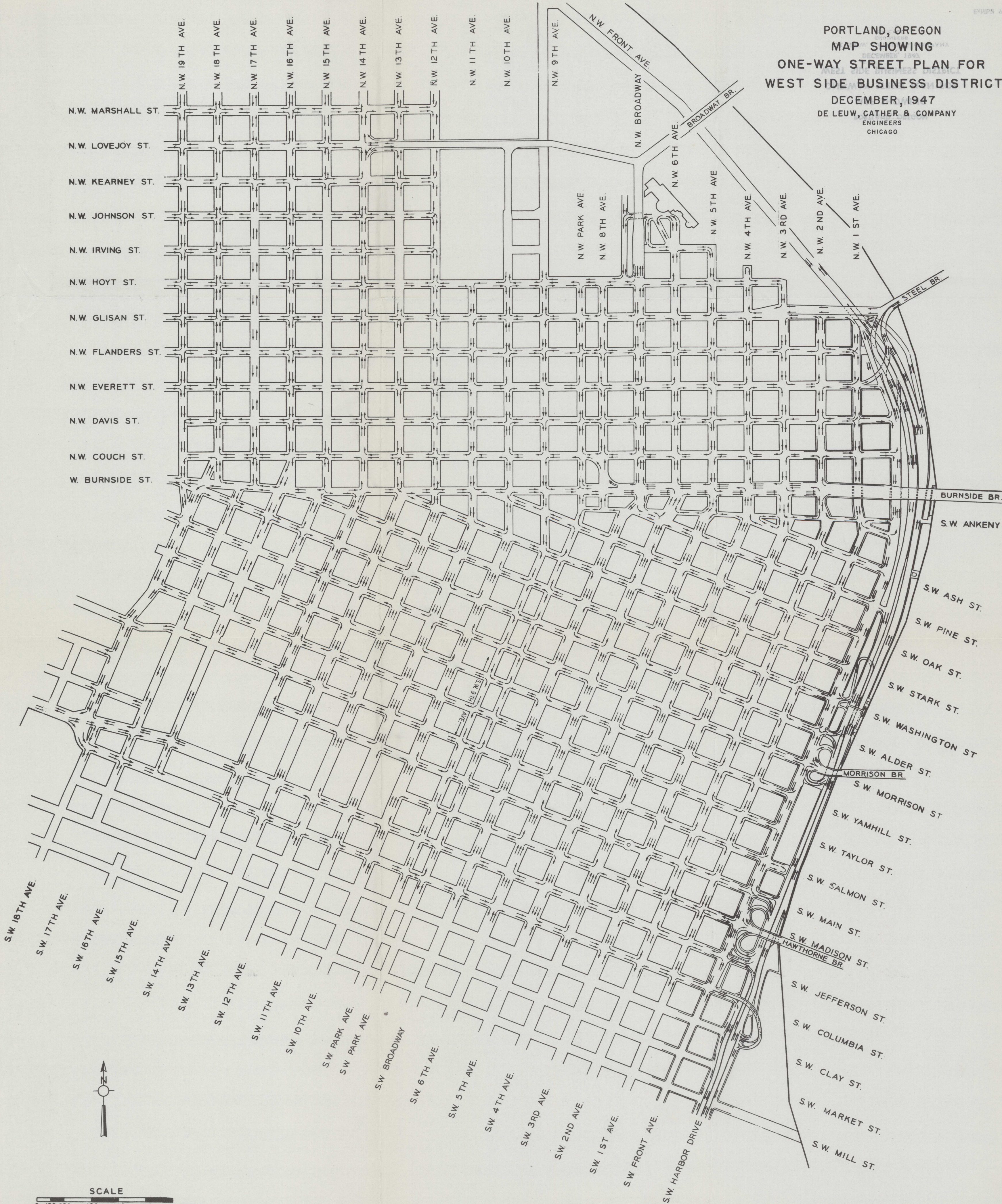


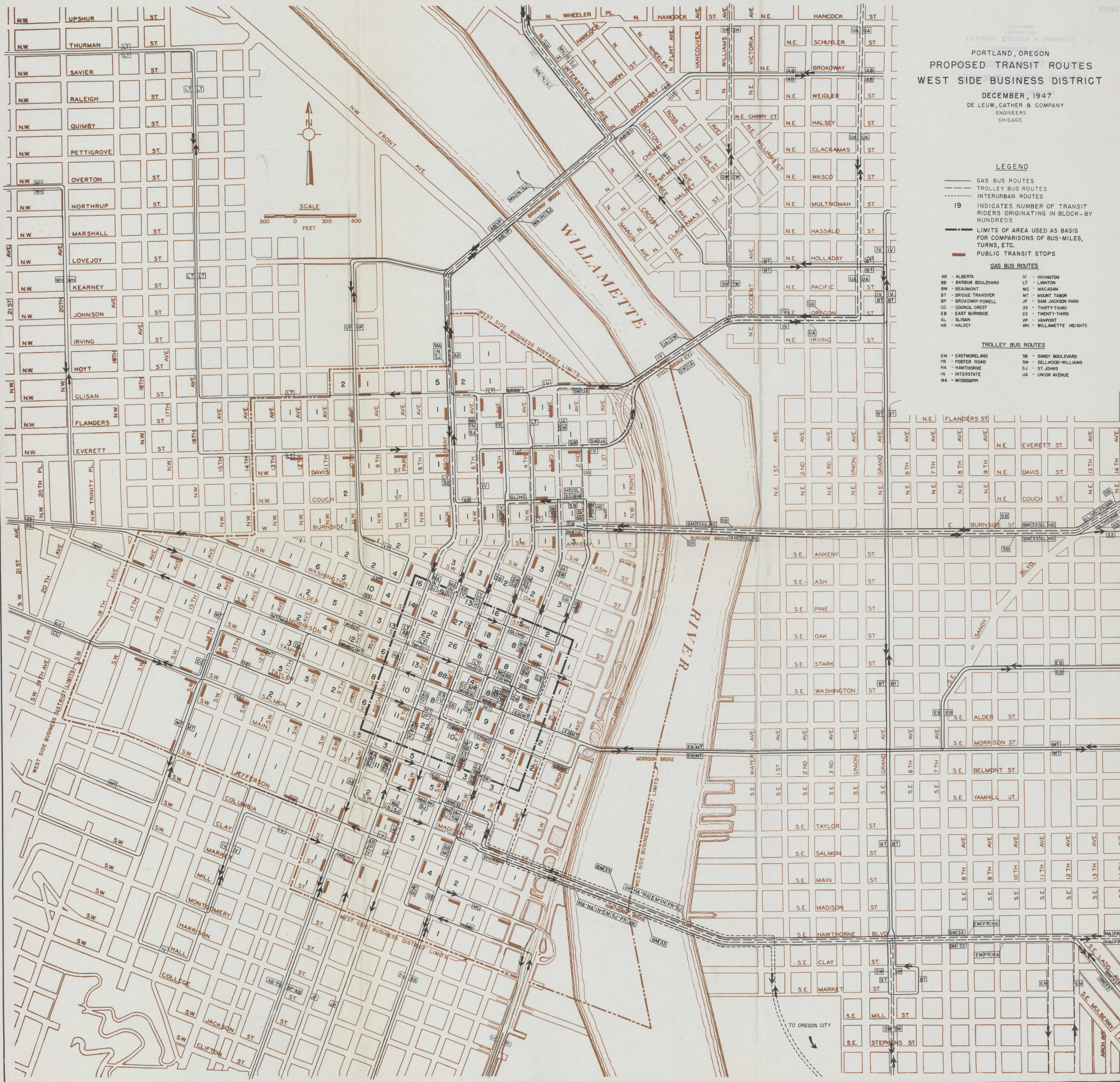
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DECEMBER 1947
STATION 114200000
PORTLAND, OREGON

PORTLAND, OREGON
PROPOSED TRANSIT ROUTES
DECEMBER, 1947
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ENGINEERS
CHICAGO



PORTLAND, OREGON
MAP SHOWING
ONE-WAY STREET PLAN FOR
WEST SIDE BUSINESS DISTRICT
DECEMBER, 1947
DE LEUW, CATHAR & COMPANY
ENGINEERS
CHICAGO





PORTLAND, OREGON
PUBLIC TRANSIT VEHICLE FLOW MAP
PROPOSED TRANSIT ROUTES
WEST SIDE BUSINESS DISTRICT

DECEMBER, 1947
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