

1. Determine the relation that should exist between income and service by agreeing that a certain percentage of the gross earnings from operation shall be used in giving service; the balance to be retained by the company for fixed charges and profits. A discussion of what this ratio should be under Pittsburgh conditions has been prepared and will follow in a later report.

2. Study the requirements of each section of the city and district and the physical difficulties to be contended with.

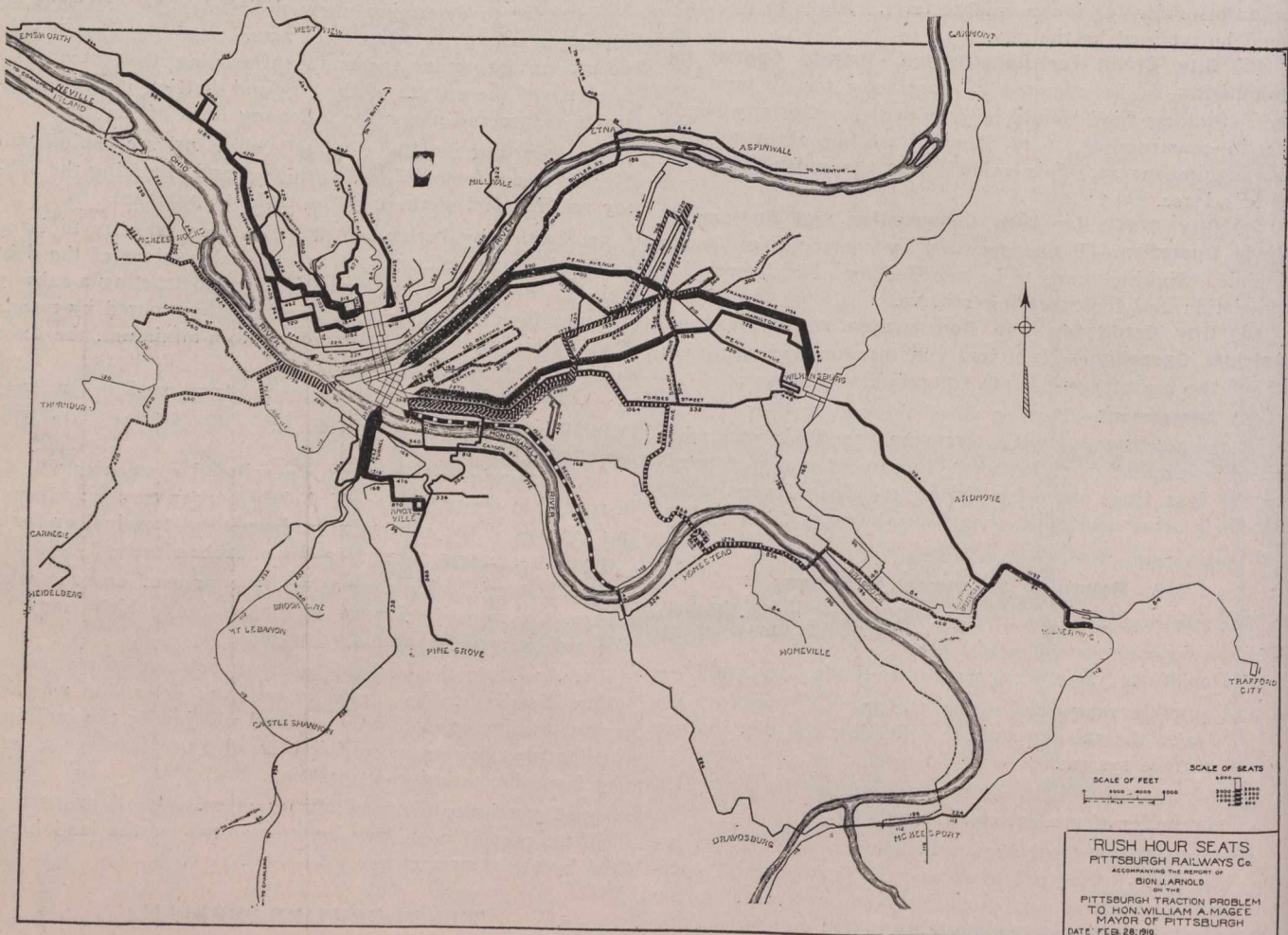
3. Establish the principles of routing that will result in the most economical distribution of the car miles available with a given income.

Data Required For Routing Problem.

Any rearrangement of routes, to be of permanent benefit, must be based on facts and not on assumptions. Among the records which should be available to those charged with the responsibility of working out an improved schedule are the following:

1. **Monthly Records** of the number of passengers, number of car miles and earnings per car mile on each route for several past years.

2. **Continuous Daily Records** showing the earnings of each car on each route, the total number of passengers carried by each car and the actual time of each trip as compared to the scheduled time.



The relative widths of the lines indicate the number of seats scheduled for each route. The total number of seats due to leave the central business district at "The Point" and on the North Side is 23,942 during the peak hour of the evening rush. This diagram shows where these seats go and how the system is routed on the "direct" principle, with most of the cars running from the centre of the city to the outlying districts with

one way on each route during a rush hour. The main line and the branch business district at "The Point" and on the North Side is 23,942 during the peak hour of the evening rush. This diagram shows where these seats go and how the system is routed on the "direct" principle, with most of the cars running from the centre of the city to the outlying districts with

4. Provide a system for the recording and the checking of schedules, delays and accidents. These records should be constantly used for improving the service and should be public.

5. Make provision for extending and altering the tracks and routes to take care of constantly growing and shifting demands.

It will be decidedly ineffective work to approach the re-routing part of the transportation problem without an equipment for securing the information needed as well as a definite understanding that a comprehensive plan is to be developed, which will be acceptable to and accepted by the majority of interests affected.

3. **The Physical Limitations** of each route showing length of line, curves, width of streets, obstructions at corners, distance between tracks, overhead obstructions, grades, terminal facilities and connections with other routes.

4. **The Present Schedule** showing the number of cars scheduled at different times of the day for summer and winter service, and the time required for each run during rush hours and non-rush hours.

5. **The Location of Car Houses and Storage Tracks** and a statement of the dead mileage which the present arrangement entails in running empty cars to and from the ends of their routes when placed in or taken out of service.

6. **Records of Counts** on passenger and seats which have