

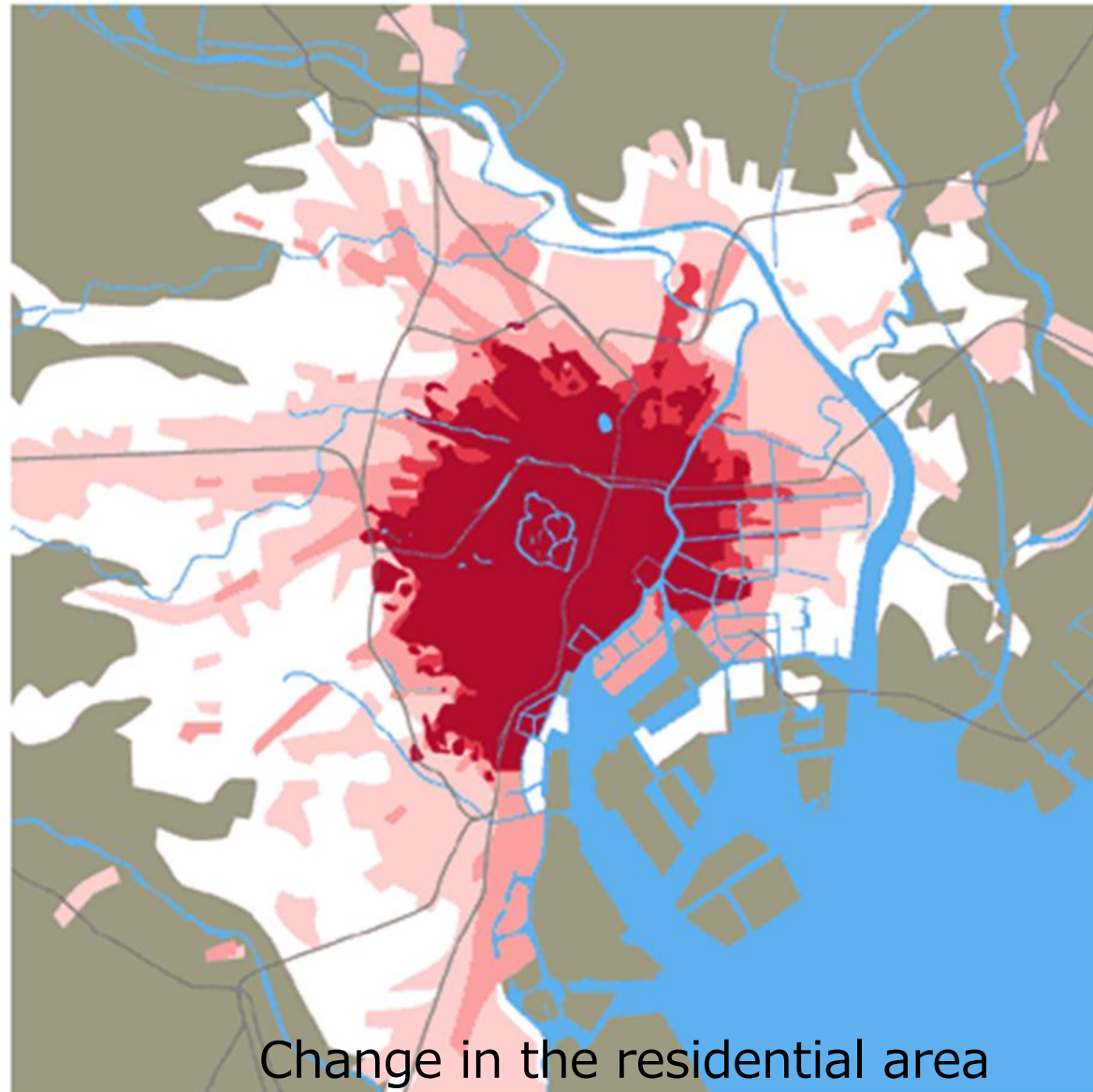
A Historical Review of Railway Planning in Tokyo Metropolitan Area

by Hisao UCHIYAMA

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- 2.Development in Railway Network of Tokyo
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- 7.Some Findings

1.Expansion of the Residential Area



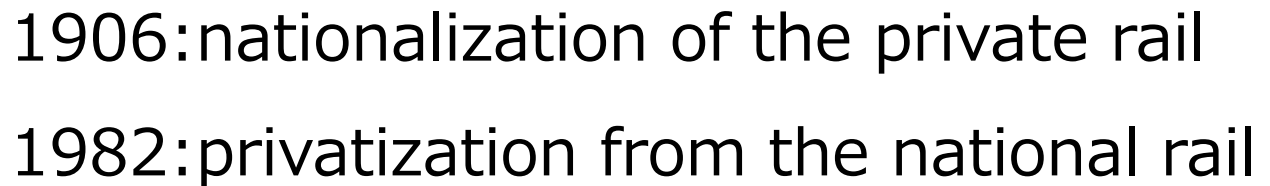
- Around year 1860
- Around year 1868
- Around year 1923
- Around year 1945
- Around year 1964

Before 1868 (the Meiji Revolution), population was more than 1.5 million.

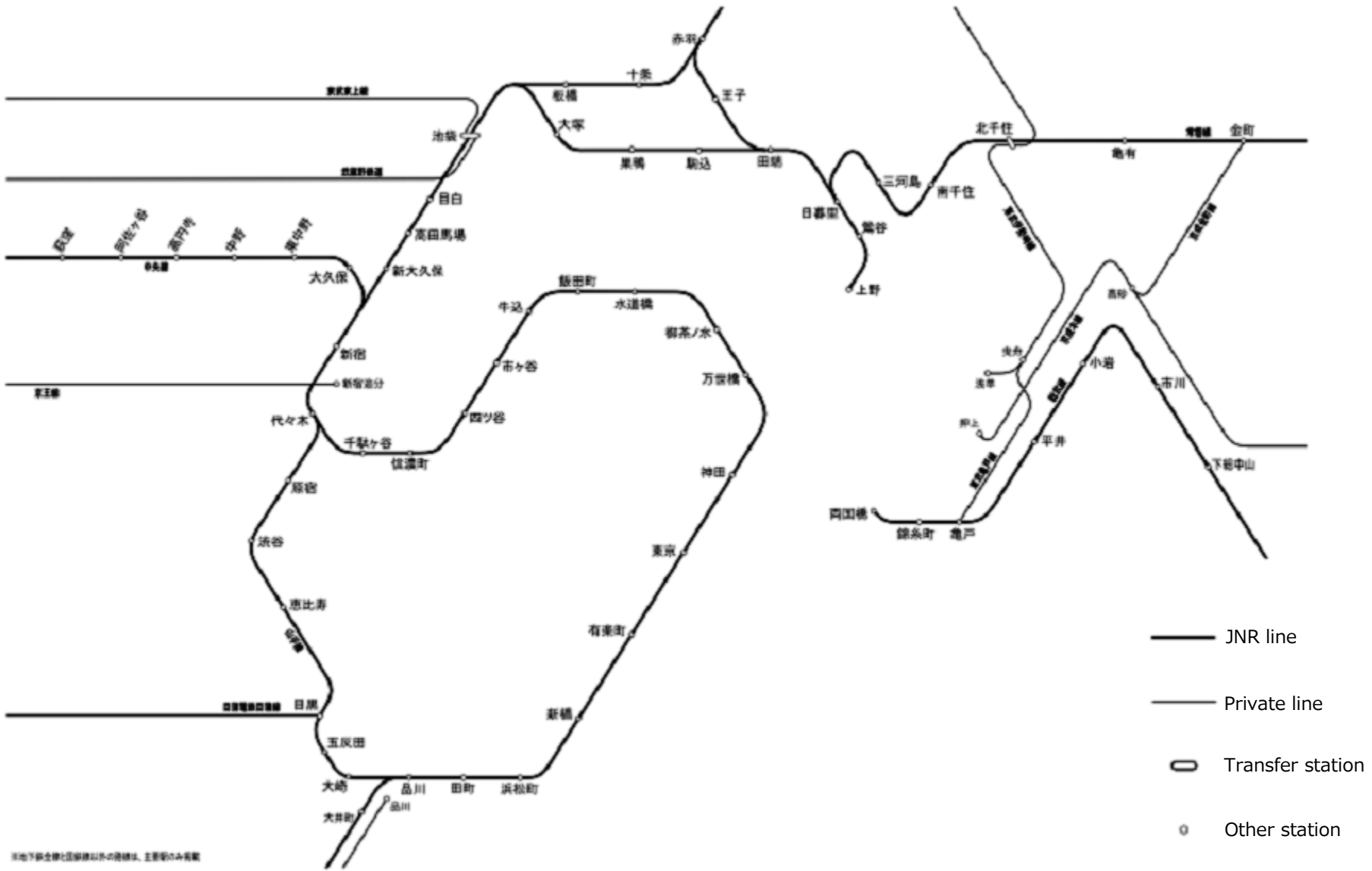
In those days, the residential area was located only inside of the Yamate Line in the west.

Then after, the population was spreading out to the west.

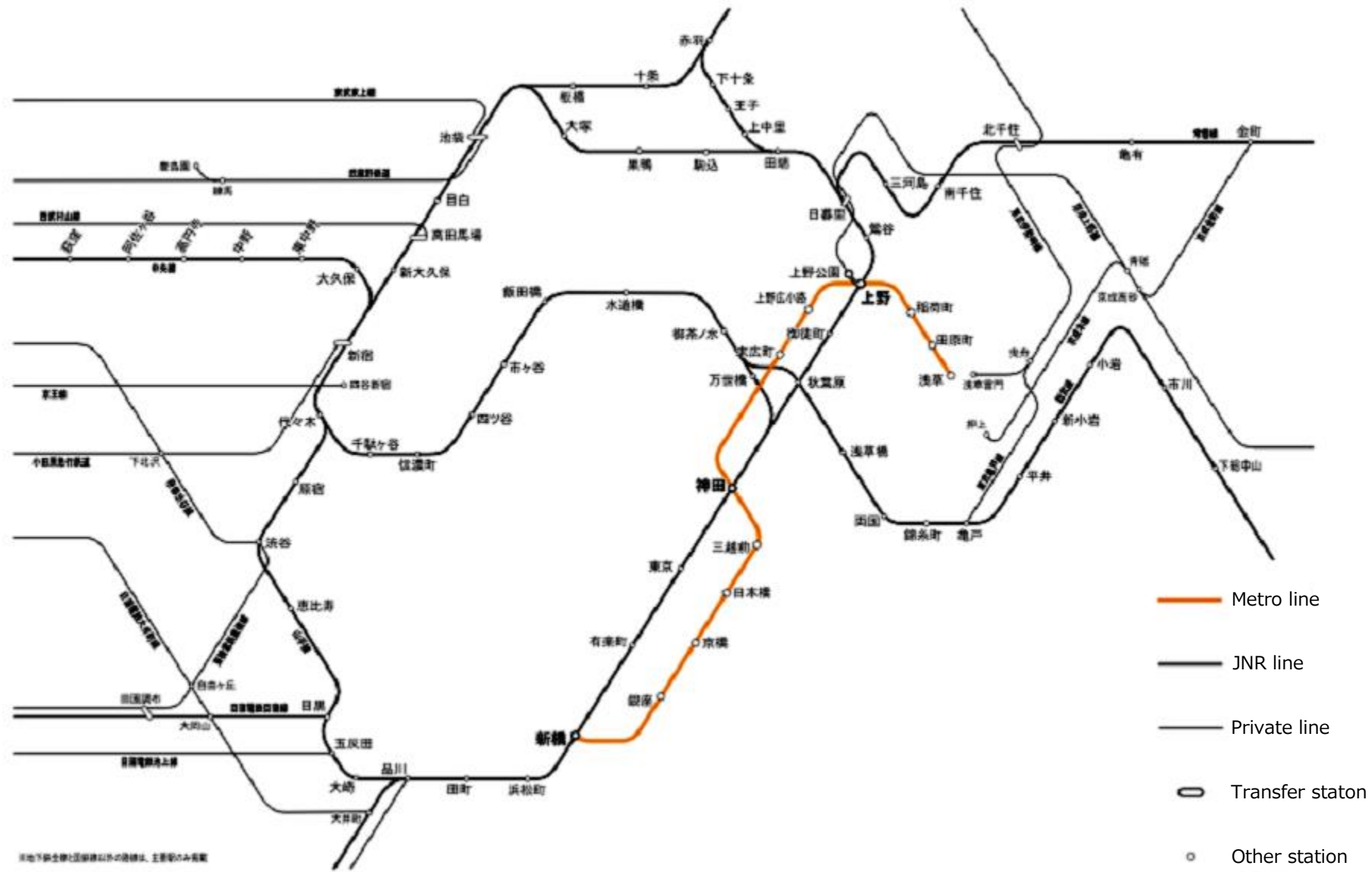
● Rail Network in 1905



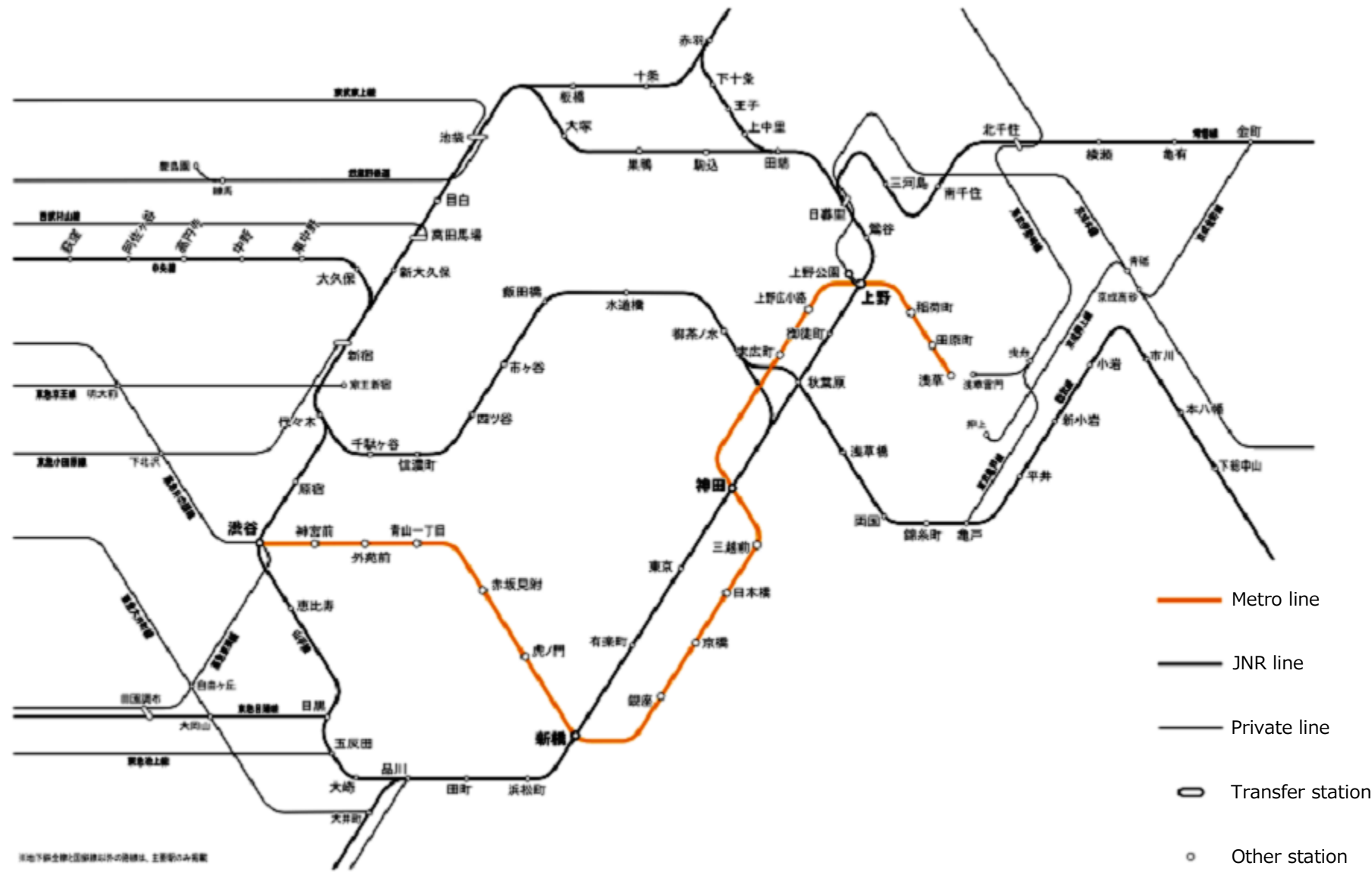
● Rail Network in 1925



● Rail Network in 1935



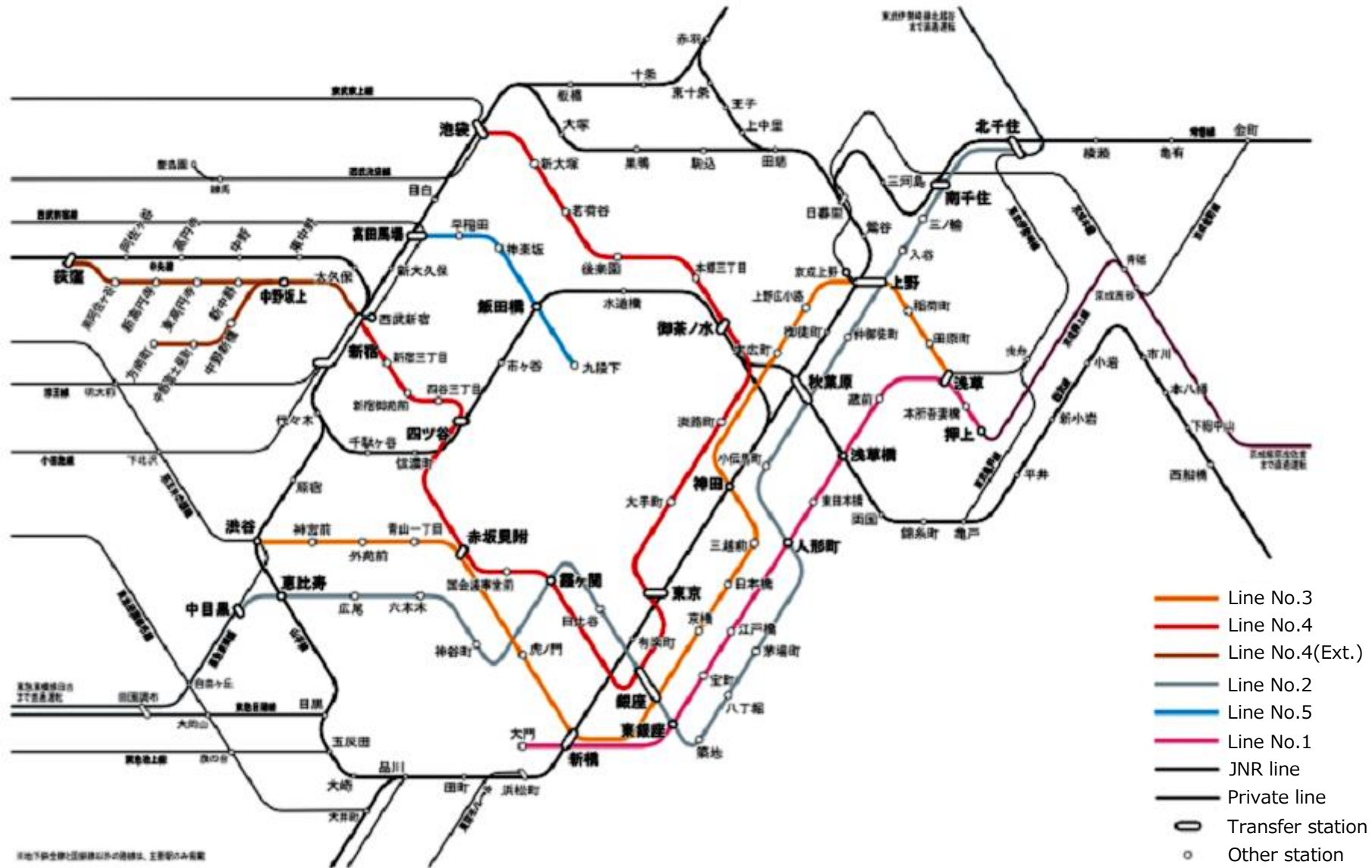
● Rail Network in 1945



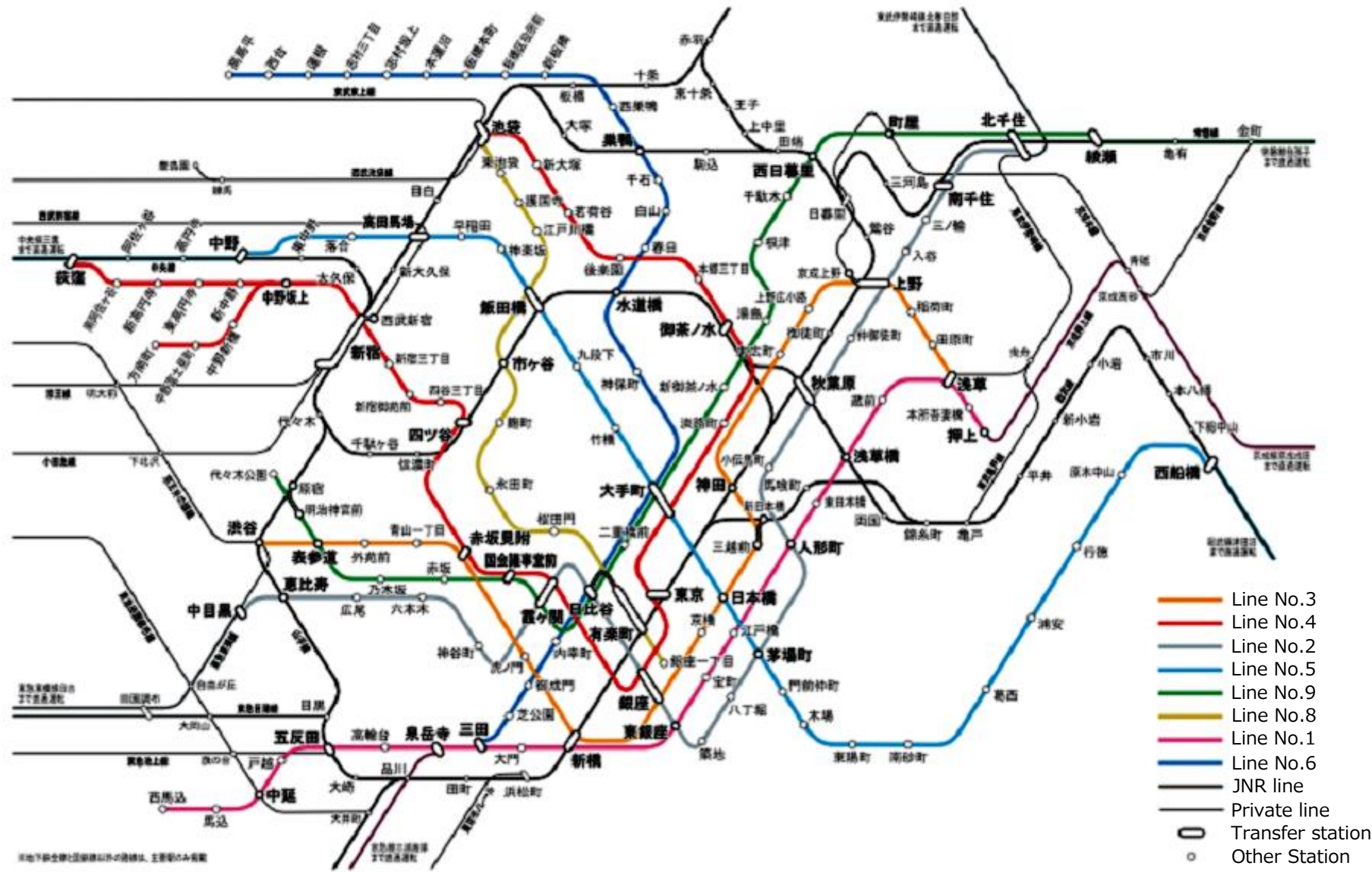
● Rail Network in 1955



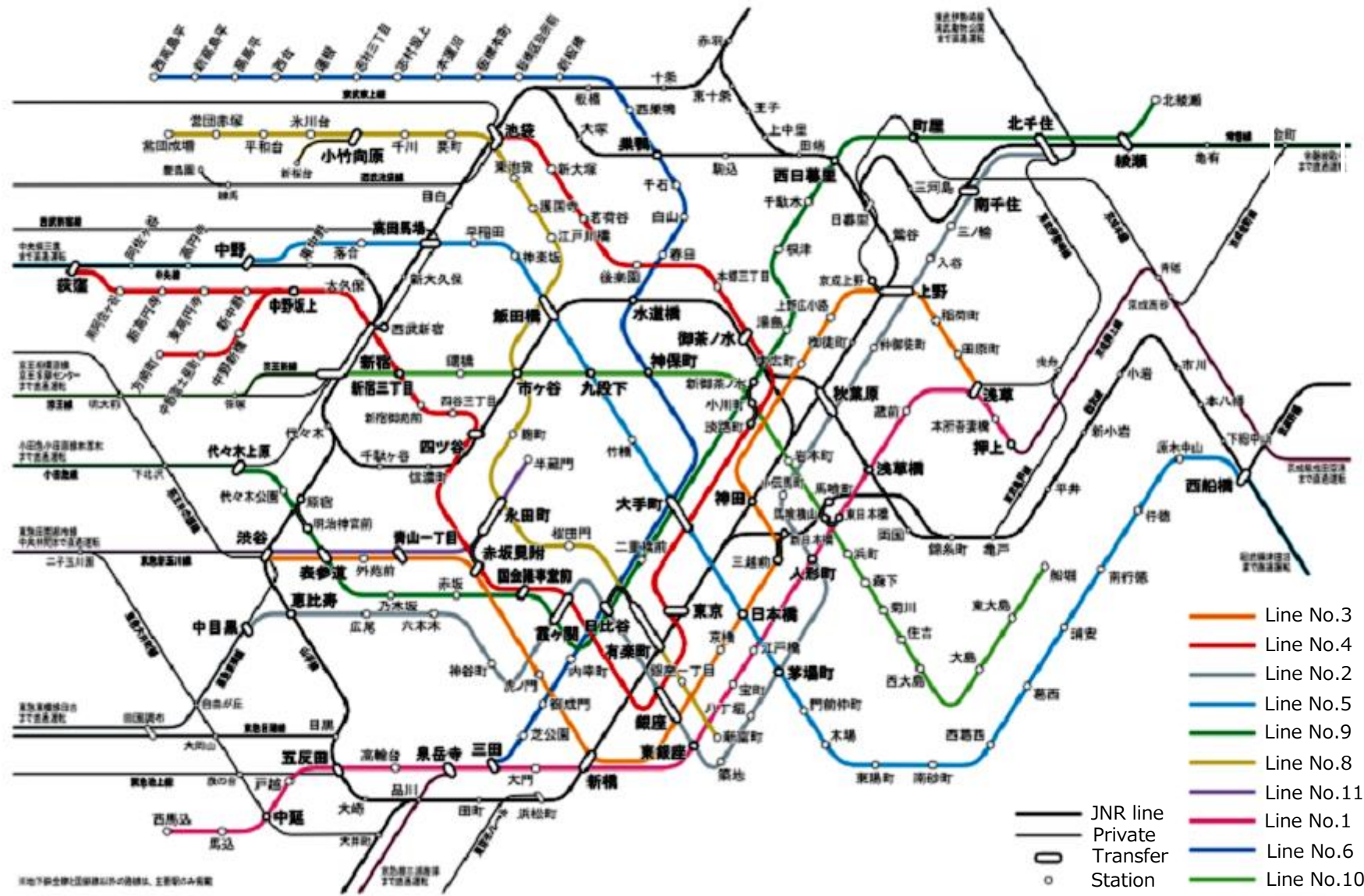
● Rail Network in 1965



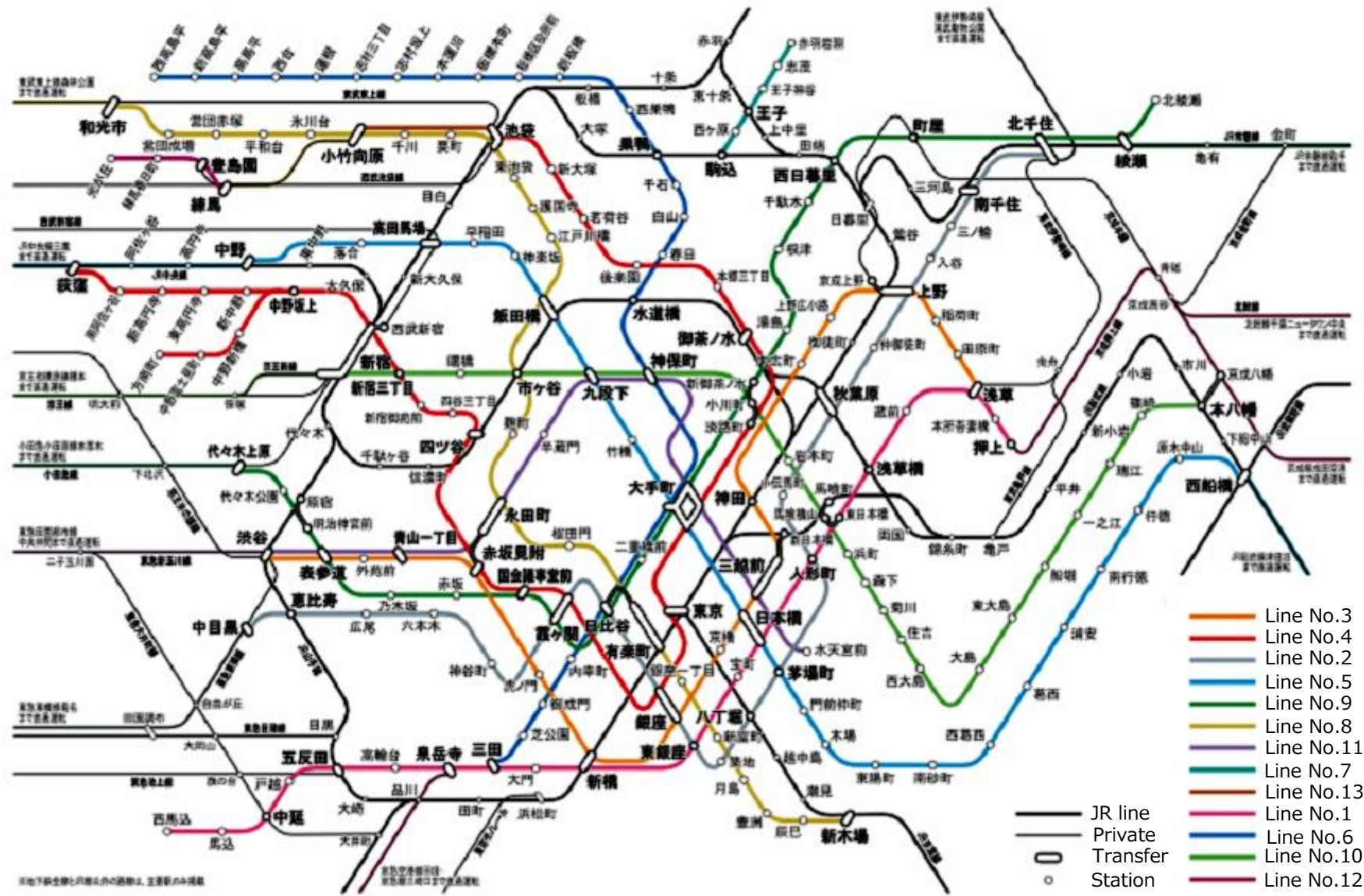
● Rail Network in 1975



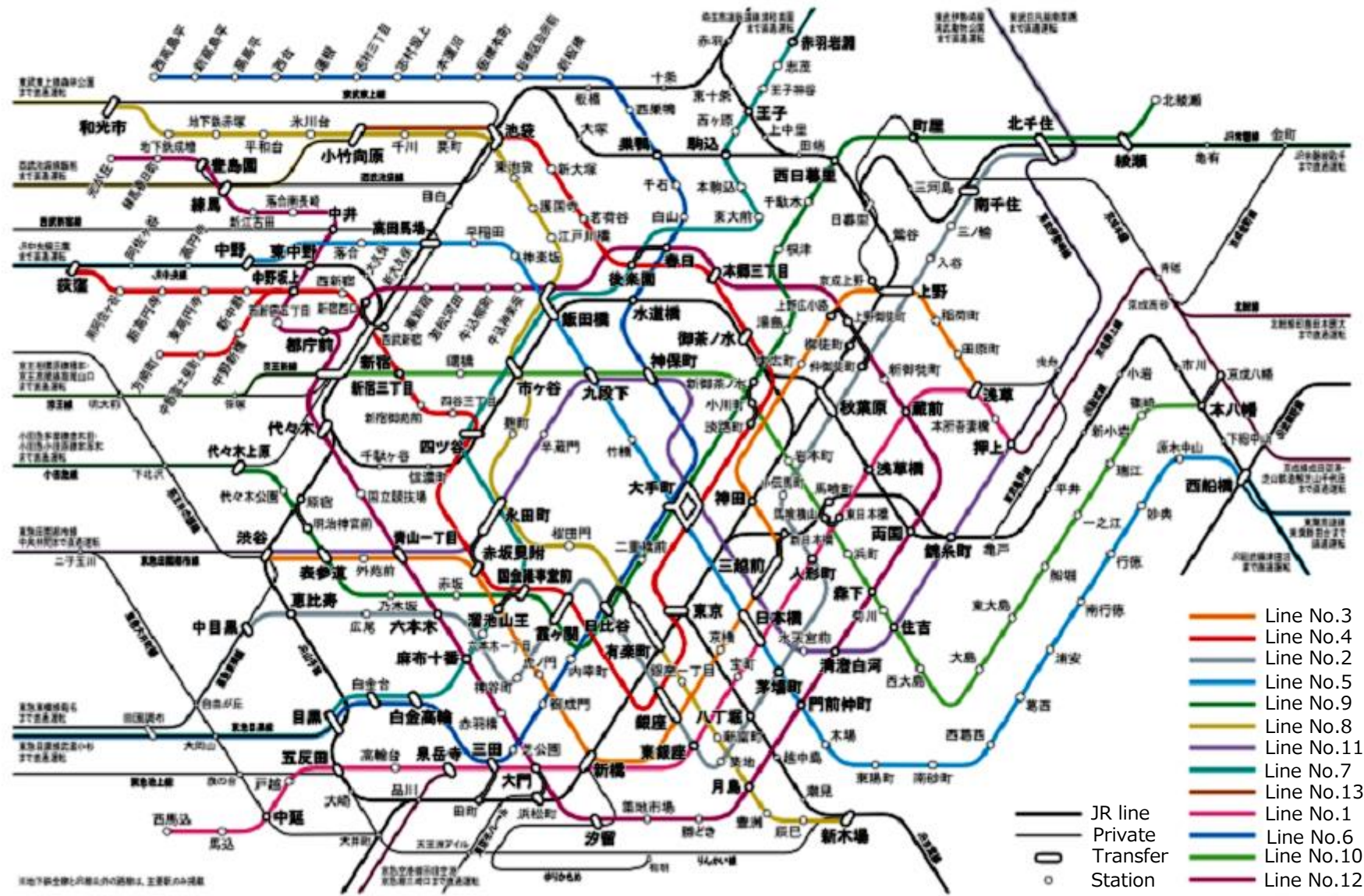
● Rail Network in 1985



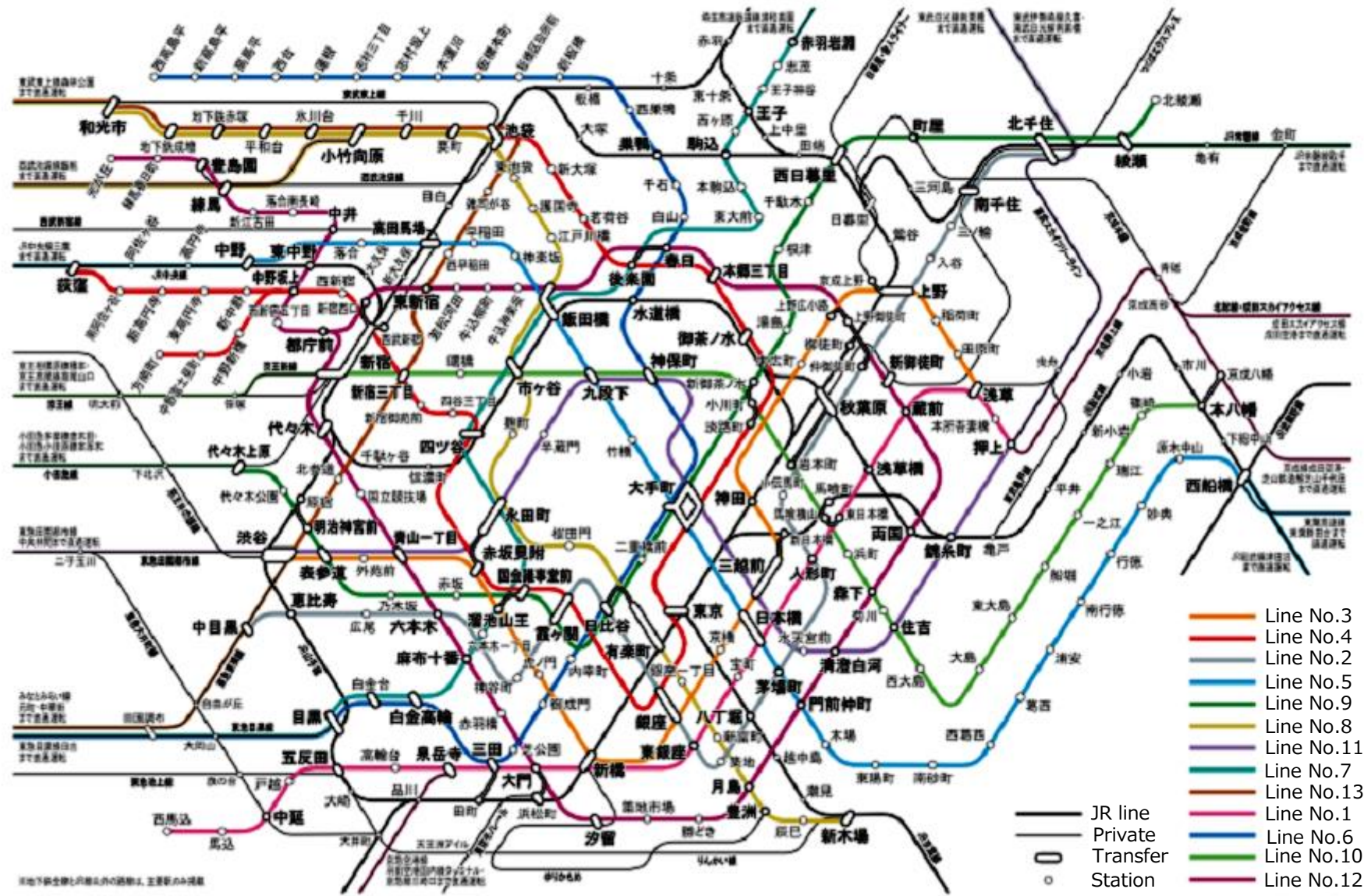
● Rail Network in 1995



● Rail Network in 2005



● Rail Network in 2015



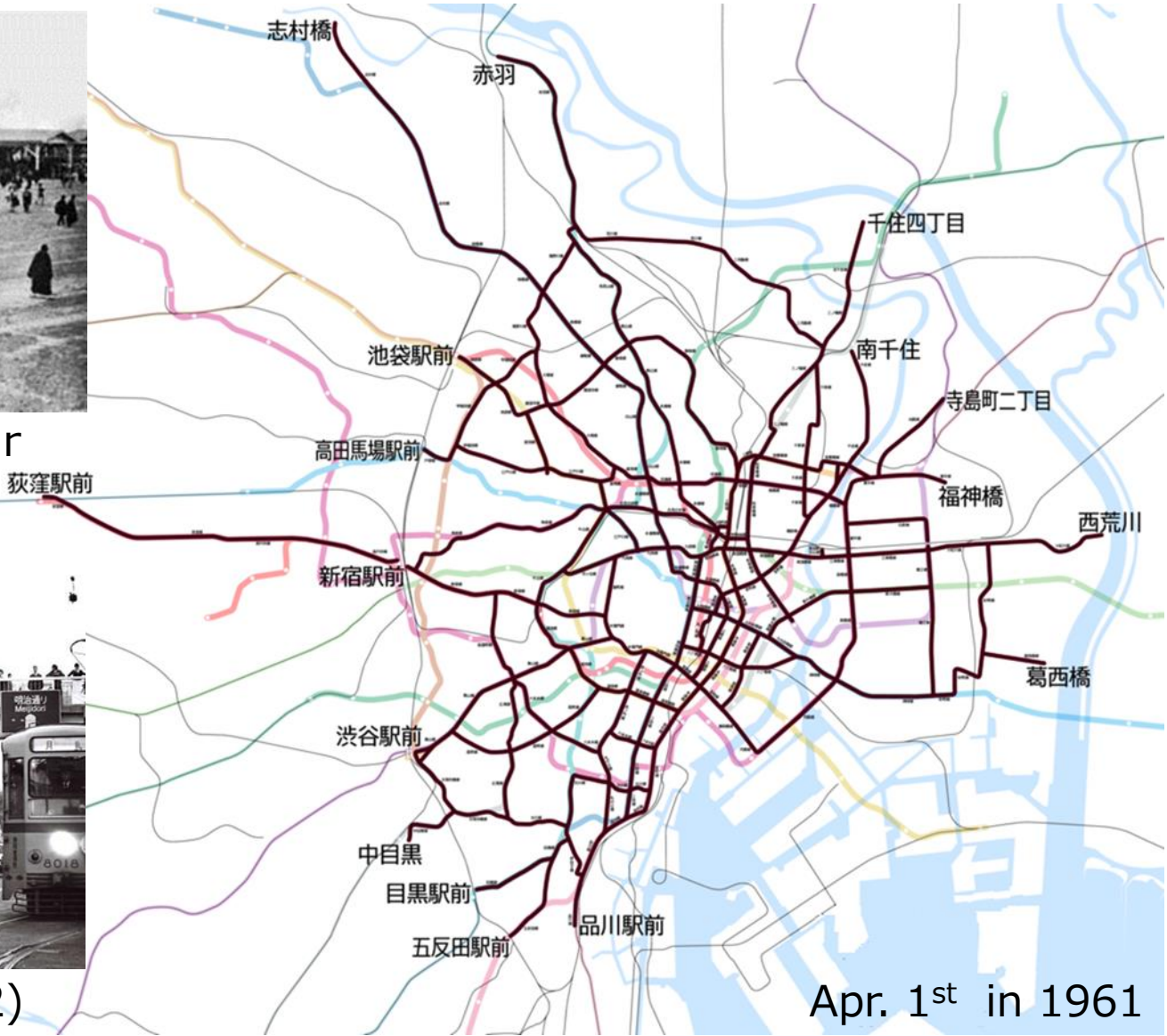
3.Tram Network in Tokyo



horse drawn streetcar
(1982:Shinbashi)



Good-bye Tram(1962)



Apr. 1st in 1961

● Tram view this and that



● Congestion of Tram

congestion: both of passengers and road traffic

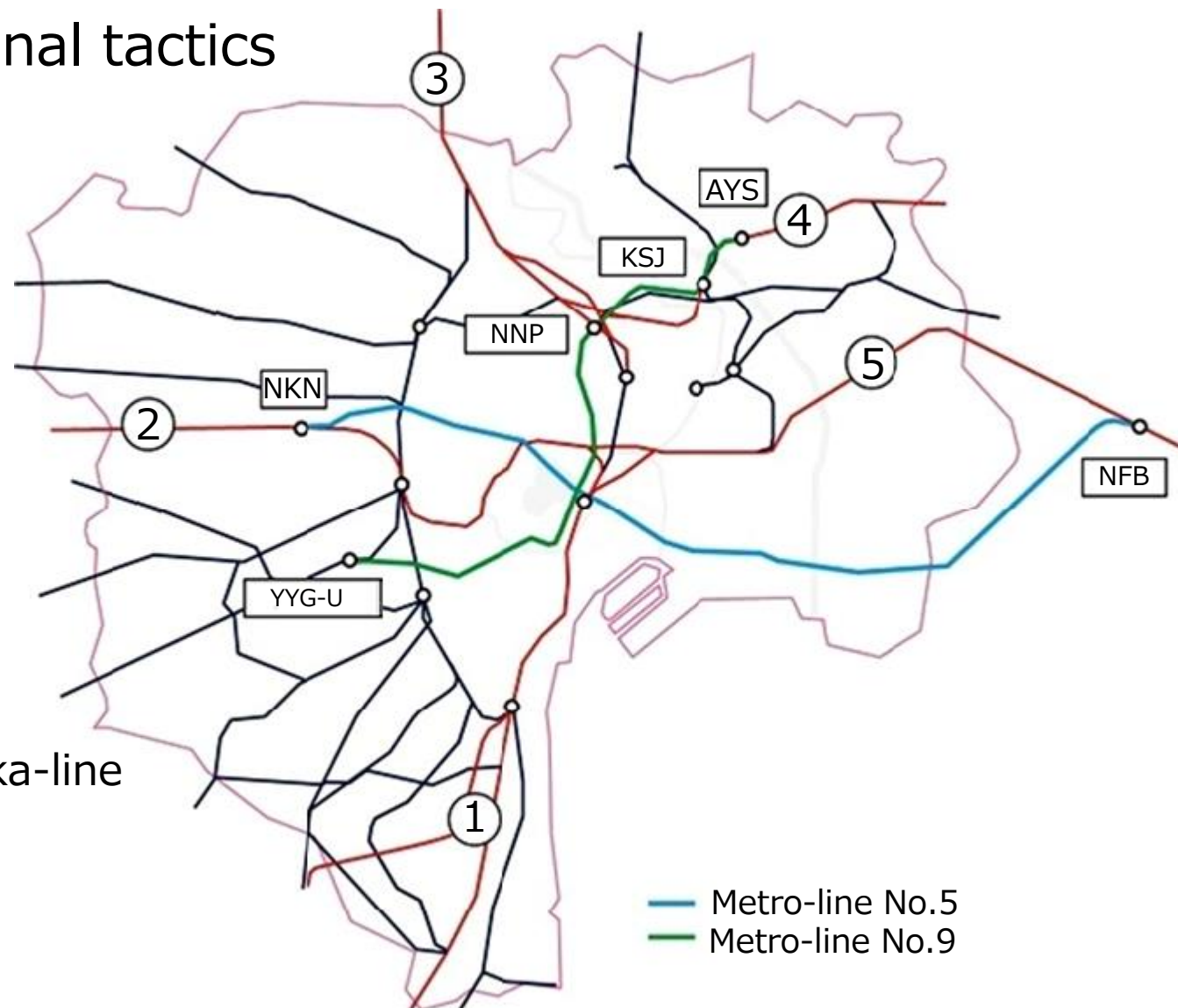


Abolition of tram system
⇒ Introduction of metro system

4.Conventional Rail Network in Tokyo

- JNR 5 directional tactics for commuter 1965~1971

double track
⇒ four-track



- ① Toukaido-Yokosuka-line
- ② Chuuou-line
- ③ Tohoku-line
- ④ Joban-line
- ⑤ Sobu-line

● commuters' Hell at Shinjuku-1



● commuters' Hell at Shinjuku-2



● commuters' Hell at Shinjuku-3



5.Congestion Degree vs Comfortable Ride



100%

- passenger capacity of a vehicle:
the sum of seating capacity and
standing capacity
- standing capacity of a vehicle:
effective floor space/ 0.3m^2



150%

to be able to spread a newspaper
and to read it easily
recent target in Japan

※ A capacity of a vehicle is around 140~150 passengers.



180%

to be forced to fold a newspaper for reading it



200%

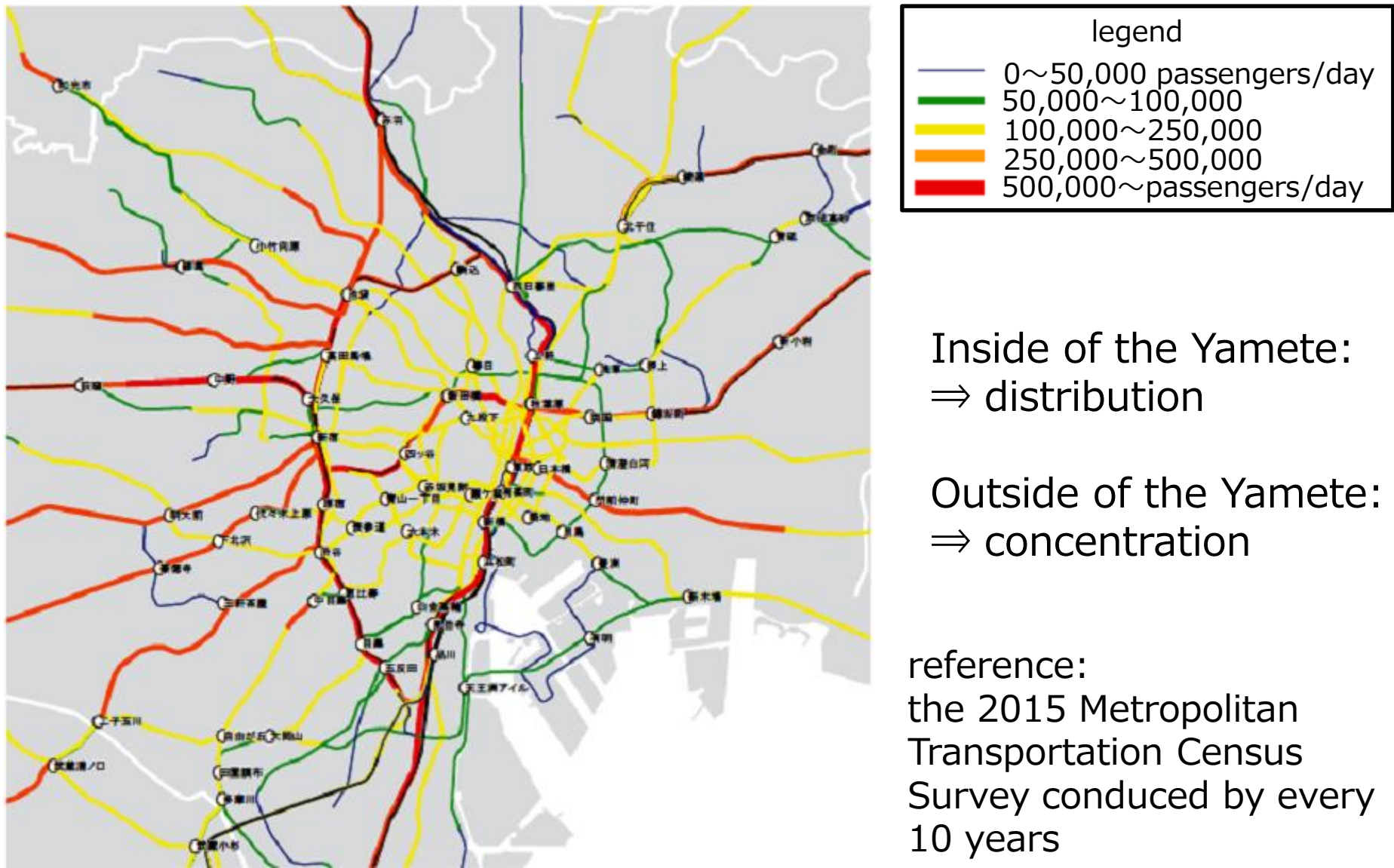
to read barely enough a weekly magazine, even feeling pressure from surrounding passengers



250%

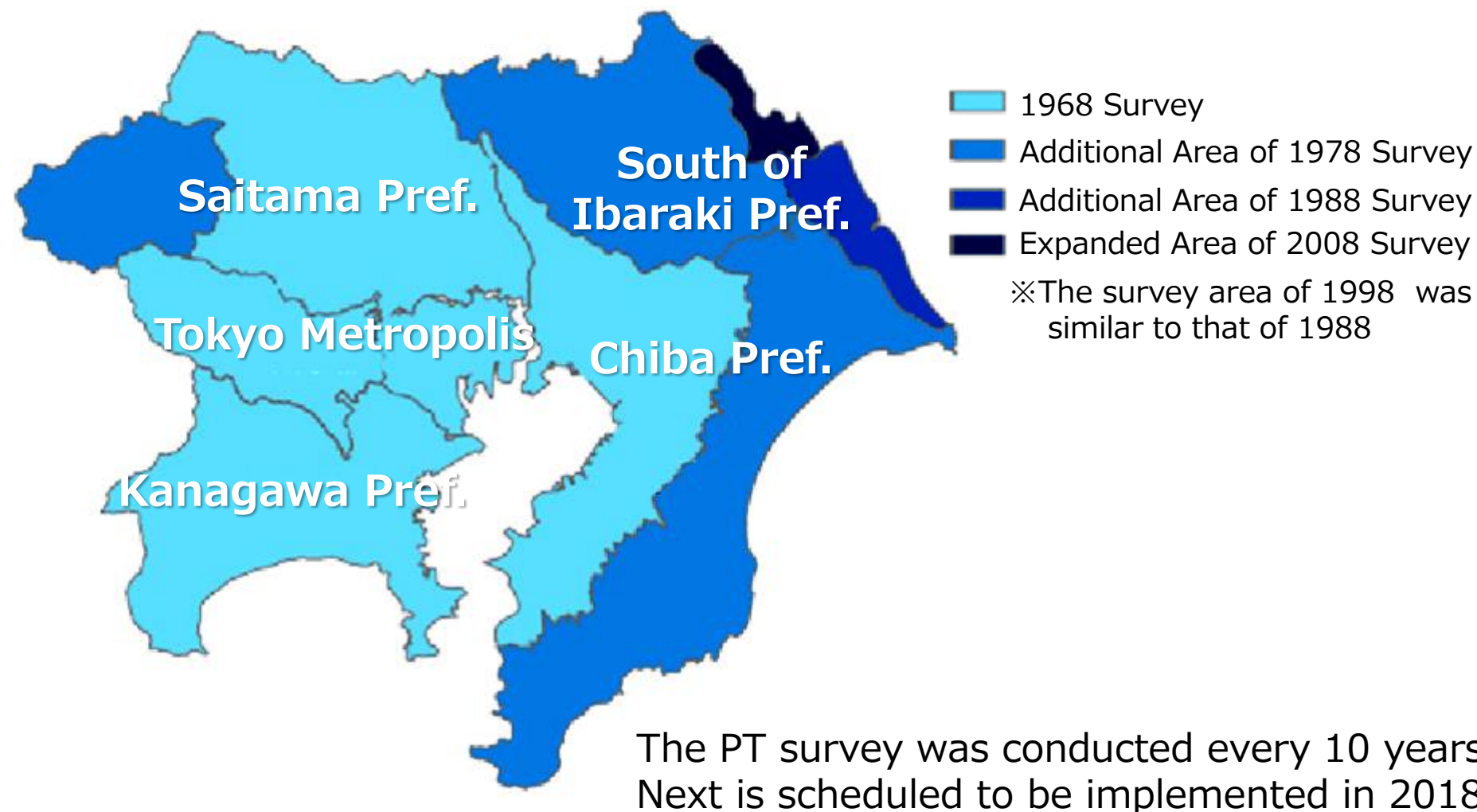
not to be able to move a body and hands at all, since leaned body synchronizing with train swaying

● Daily Cross traffic volume by line(2015)



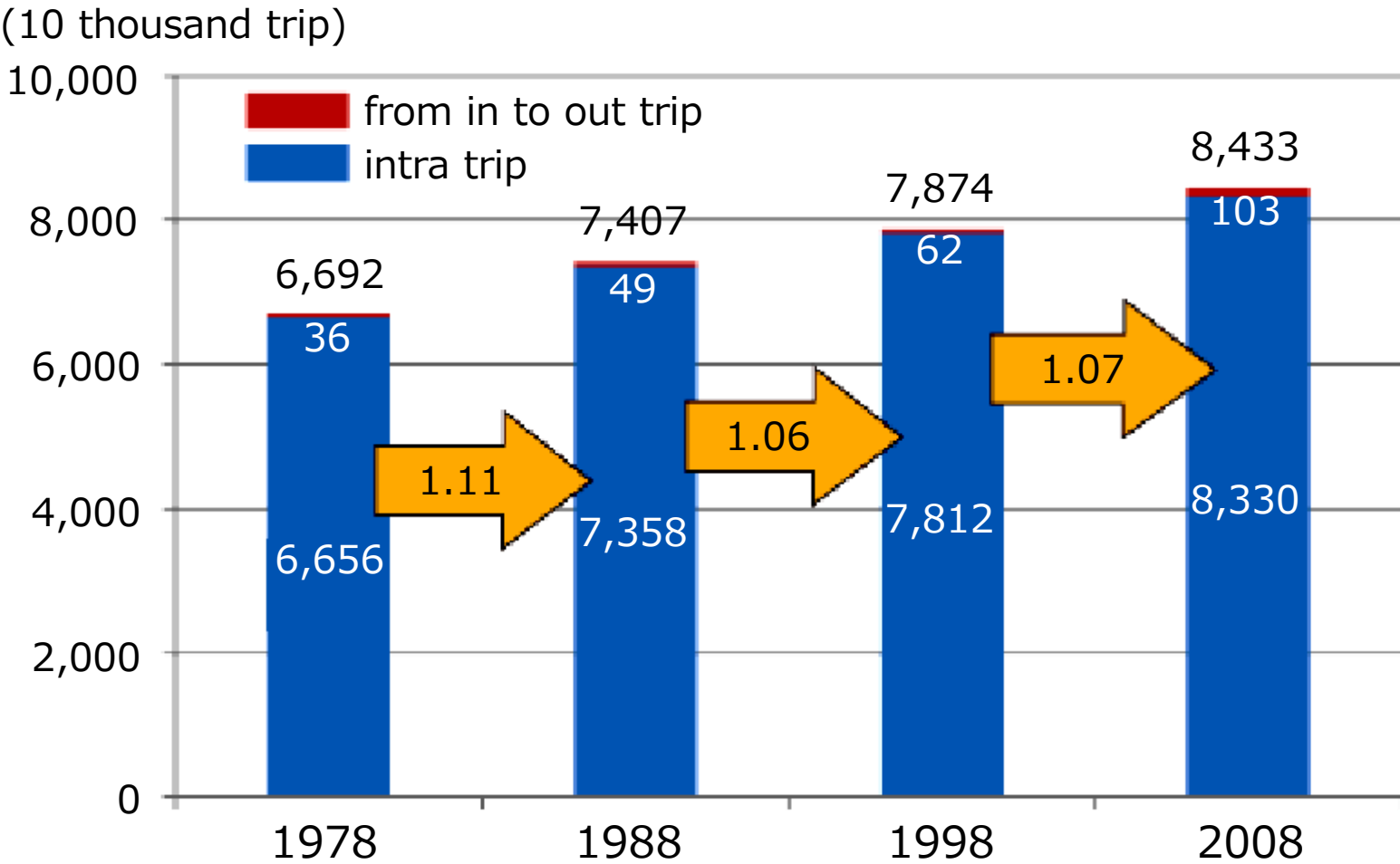
6.Person Trip Survey in Tokyo Metropolitan Area

● Expansion of PT Survey Area(1968~2008)

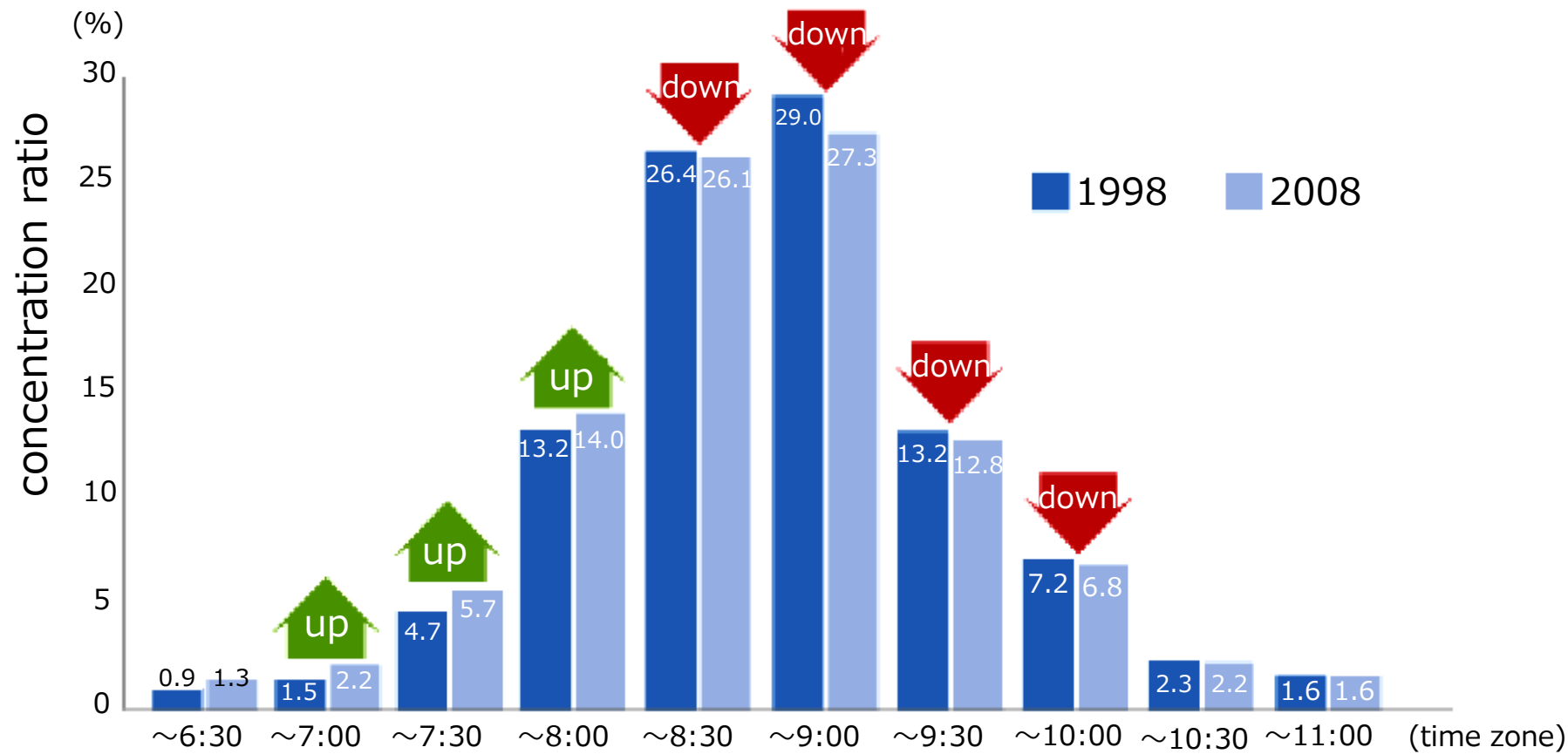


Example of the aggregated results

- Total Trips Travelled by residents



● Concentration ratio to arrival time(railway passenger)
1998~2008



Some companies have introduced flex time system.

7.Some Findings

- 1.harmonious planning with future population distribution
- 2.radial concentration from the suburbs to the city center
- 3.intra distribution of passengers entering into the CBD
- 4.priority placed on user(passenger) oriented planning
- 5.easy access to the station, easy transferring, frequent service, punctual service, high-speed service, etc.

-not discussed here but necessary to-

- 6.scientific analysis with high accuracy as well as high resolution for accountability
- 7.acquisition of financial support for realization

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Thanks for your kind attention.