

Research on the Multi-functionalization of Transport Hubs for Effective Urban Space Use

City Research Department

We have been advancing our research on the multi-functionalization of transport hubs such as station squares and its peripheral developments for the formation of urban spaces where "you feel comfortable and want to walk." We are mainly aiming at the creation of the station squares with the function to exchange railway lines, bus lines, etc., and with rich pedestrian and greenery spaces.

Social Background and Problems

- Conventionally, at the stages of designing and planning transport hubs (station squares etc.), there used to be a tendency to place importance on securing traffic space for exchanging modes of transport, including railways, buses, taxis, and privately owned cars.
- In recent years, people's activities in urban areas have diversified, and these would be seen at transport hubs as well. Hence, it will be desirable to have transport hubs that not only serve as a transfer place, but also enable their users to use environmental space such as greenery spaces, the remaining space excluded traffic space from transport hub area, for various reasons.



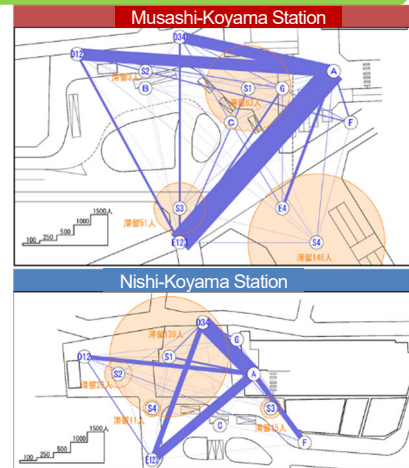
Transport hub Integrated with the Surrounding Area (Musashi-Koyama Station, Tokyo, Japan)

Description on the Research

Characteristics of the transport hub use based on on-site observation

To grasp the actual situation of transport hub usage, we observed and analyzed the number of passengers getting on and off, their flow lines and staying statuses, etc. in different hours at two sets of two station squares, with different characteristics of their railway stations, surrounding downtown areas, etc. even though they generally are comparable in the number of passengers, station square area, and environmental space area.

Observed Areas (Examples)		Musashi-Koyama Station	Nishi-Koyama Station	
Characteristics	Number of users of the station (regular users)	Generally the same		
	Area of the station square/Area of environmental space	Generally the same		
	Characteristics of station	Express train stop	Local train stop	
	Characteristics of surrounding downtown areas	Both residential and commercial	Mainly residential	
Results of observation	Use of squares	The number of users		
		Large	Small	
	Ratio of users of non-traffic systems (in daytime)	Use of squares	Frequent	No frequent
		Transitory passage	No frequent	Frequent
Average staying time		Long	Short	
Population characteristics of users		Use by groups	Use by individuals	

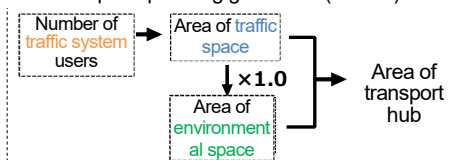


State of flow lines and stays of people in station

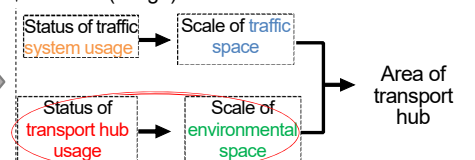
Examining the Direction for the Improvement of Transport hub Planning Methods

To be able to show ideas for planning and/or design, including the redevelopment of station squares etc. based on the social situation, urban policies, etc., including new technology, DX, and the new normal in relation to cities and traffic systems, we have been advancing the direction of improvement in planning methods according to the characteristics of a transport hub (flexible use of environmental space in terms of scale, allocation, composing elements, and time and so forth).

Idea for station square planning guidelines (current)



New idea (image)



An image of the improvement in transport hub planning methods

Making transport hub, one of the bases of a city, multi-functional and sophisticated to contribute to the formation of an aggregated urban structure (compact + network) and of a walkable inner-town space