

A large-scale 920-meter-long subway station extension improvement project using the three-dimensional urban planning system" — Sengakuji Station, Toei Asakusa Line —

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1. Station improvement background

Sengakuji Station on the Toei Asakusa Line serves as a transportation node with excellent access to Tokyo's subway network and Tokyo International Airport. In the vicinity of the station, a new JR station has opened and large-scale development as an international exchange center is expected in the future.

Sengakuji Station is currently a box-shaped tunnel with two underground levels. The second underground level has two 5-meter-wide island platforms with four tracks, and the first underground level has separate concourses on the north and south sides. In addition, the station faces the problem of chronic congestion during rush hours, and the increase in the number of station users is expected to become even more pronounced as large-scale development progresses in the surrounding area.

Therefore, there is a need for a drastic improvement of the station, including the widening of platforms and improvement of elevator facilities, in order to improve the safety and convenience of the station.

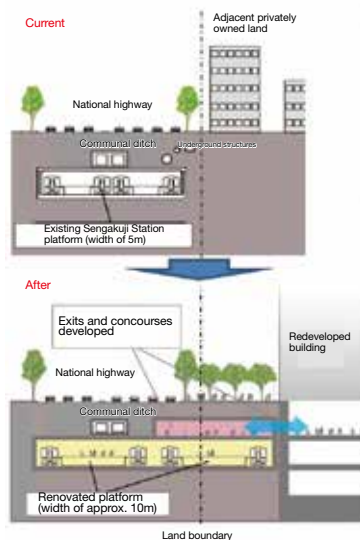


Fig. 2 Station renovation overview diagram

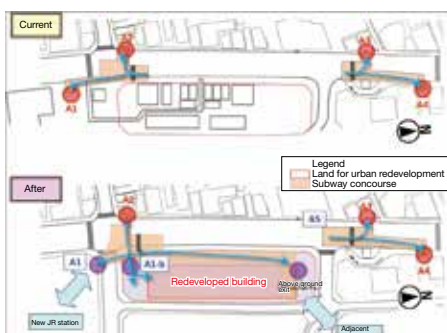


Fig. 3 Station exit development diagram

2. Station Improvement Plan

Securing sufficient space using the area under the road was difficult. The Bureau of Transportation of the Tokyo Metropolitan Government therefore decided to change the urban planning of Urban Area Rapid Transit Line 1 in the 920-meter section that includes Sengakuji Station, and to use the three-dimensional urban planning system to define the necessary area for the development of urban facilities, and to use part of the underground area of the urban redevelopment project site as the project space for the station improvement project. The width of the platform will be adjusted to accommodate passengers.

The platform width will be widened to about 10m to meet the service level of passengers and to minimize the scope of the renovation.

The station will have additional entrances and exits to form a new pedestrian network and enhance passenger routes, avoiding the constraints of important infrastructure such as the nearby national historic sites and the communal ditch and sewage line directly above the station.

In addition, in order to further improve the convenience of the station, the elevating facilities will be enhanced, and two barrier-free routes will be developed to allow passengers to move from the platforms to the ground level entrances by elevator.

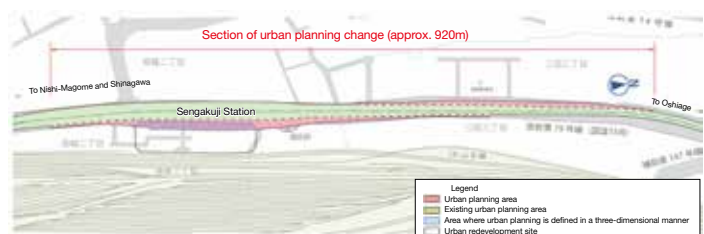


Fig. 1 Plane view of plan

3. Conclusion

Improving Sengakuji Station is a highly difficult construction project to be carried out in a narrow space while the subway is in operation. Furthermore, it is directly under the main road where there is a lot of traffic and congestion of underground structures.

This project will apply reinforcement methods to cope with structural changes due to the construction and removal of new structures, formulate a track switching plan to minimize the impact on railroad operations, and adopt a trenchless method under a national historic site.