

The improvement plan of Shinjuku Station and the Renewal of Shinjuku Over-bridge

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1. Introduction

It has been more than seventy years since the Shinjuku Over-bridge, looking to the South Exit of JR Shinjuku Station, on Route No. 20 was built. Because it has become old the renewal of the over-bridge is in urgent need to secure its earthquake-resisting quality. Furthermore, besides traffic jams on the over-bridge there arose urgent problems of insufficiency of parking lots and of pedestrians' passages. Thus, the Ministry of Construction planned the new over-bridge with wider passages for pedestrians, the construction of artificial ground above the railways on the south side of the bridge, and the construction of bus terminals as well as the establishment of public parking lots. This project is called "the Renovation of the Urban Structure in the South area of Shinjuku Station."

It is said that this project is a precedent example of PFI in Japan. The renewal of the over-bridge was started in February, 2000. The Ministry of Construction entrusted our company with the renewal of the bridge at the railway crossings and the necessary work of Shinjuku Station. The purpose of this presentation is to explain the improvement plan of Shinjuku Station including the relocation of the lines and platforms.

2. How the construction is conducted

The present over-bridge is 30m in breadth, and 123m in extension. The proposed project is to construct a three-span-beam over-bridge which is 50m in breadth and 127m in extension. In order to build the new over-bridge, it is firstly necessary to prepare an artificial ground for building a beam. Secondly, the beam for the expansion is to be installed. Thirdly, the traffic is to make a detour for the renewal work.

3. The issues to be considered for the improvement plan of Shinjuku Station

Since there is almost no room at Shinjuku Station, where many lines are fully laid, it is necessary to secure the space for the new bridge to be built. Also, the space for the columns should be secured within the lines in consideration of the coming construction of artificial

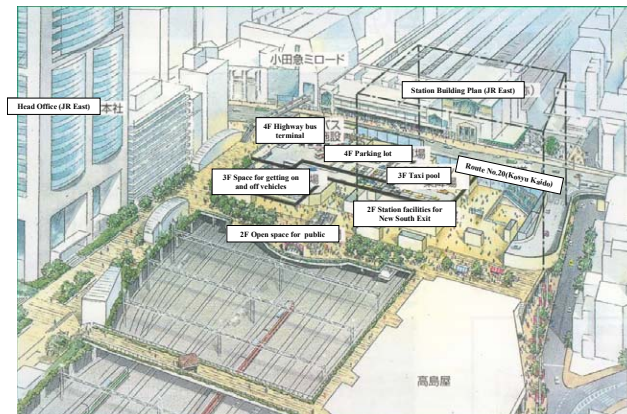


Fig-1 Image of the Project "Renovation of the Urban Structure in the South area of Shinjuku Station"

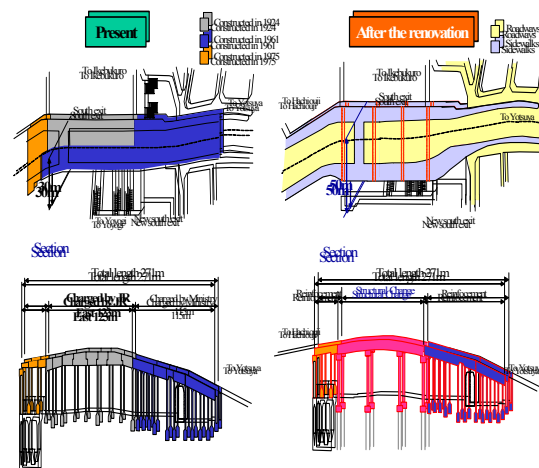


Fig-2 Outline of the Renewal of Shinjuku Over-bridge

Key words : over-bridge, station, development, PFI

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grounds. Consequently, it is required to conduct a change of wiring in a wide range and to repair station facilities.

In making the plan of the change of wiring, it is most significant to maintain the present function of train running and the stream of passengers at Shinjuku Station during the construction work. At the same time, it is inevitable to solve the following problems which Shinjuku Station now faces:

- 1) the level crossing obstacle between Chuo-line limited express trains and the Chuo-line rapid up-trains
- 2) the distribution of many special switching crossings
- 3) the imperfect connection of platforms in the new south exit area

4. The decision of the improvement plan of Shinjuku Station

The following is the actual improvement plan of Shinjuku Station in consideration of the issues described above.

1) The change of wiring in individual platforms

It is planned to secure the space for the reconstruction of the bridge and the building of the artificial ground, and to solve the current problems of wiring.

Also, in reconstructing the Chuo-line platforms, station facilities are repaired by temporarily suspending the use of railway in individual platforms in order to maintain the present function of train running during the construction work. The present train running schedule is changed in individual platforms by setting up two lines on both sides of temporary platforms. The following is the procedure for construction ;

- 1) to prepare a temporary platform
- 2) to change wiring in individual platforms and to repair the station facilities
- 3) to restore the function of original platforms

In restoring the platforms, in order to solve a level crossing obstacle on Chuo-line, the platform for limited express trains of Chuo-line is moved to platform No. 4 from the temporary platform. This relocation of the platforms is aimed at allocating Chuo-line's platforms for limited express trains between the platform of rapid up-trains and the platform of down-trains. Simultaneously, it is planned to simplify the train running route, and to replace the present special switching crossing with normal crossing railways.

2) The connection of all of the platforms with the new south exit

After setting up passages and entrance stairways at the ends of the platforms from No. 4 to No. 7 in Yoyogi direction, these passages and entrance stairways are connected to the artificial ground, and then the extended transfer passage is connected with the new south exit.

5. Conclusion

In this improvement plan of Shinjuku Station with the construction of Shinjuku over-bridge, it was intended to maintain the current train running function of the station during the construction work as well as to solve the problems of the current Shinjuku station.

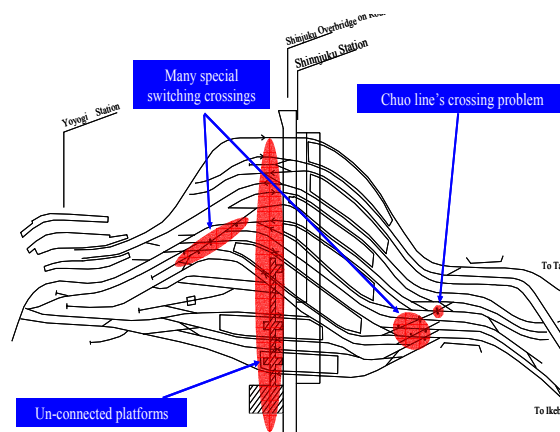


Fig-3 The issues to be considered for the improvement plan of Shinjuku Station

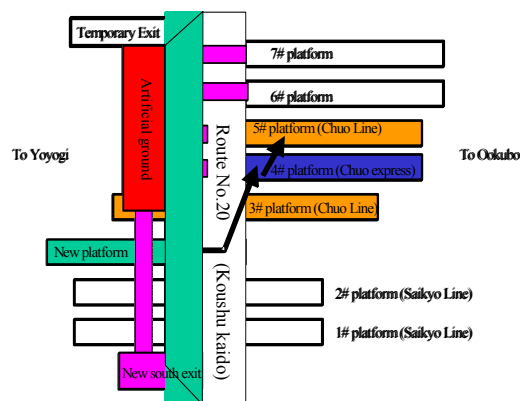


Fig-4 Procedure for improvement of the station