Available online at www.sciencedirect.com

ScienceDirect

Transportation Research Procedia 25 (2017) 331–343

Transportation Research Procedia

www.elsevier.com/locate/procedia

World Conference on Transport Research - WCTR 2016 Shanghai. 10-15 July 2016

# Large depot redevelopment project in central Tokyo

Shinji Morimoto[a]*, Takuya Serizawa[a], Seiichiro Honda[b]

[a]*East japan railway company, 2-2-6 yoyogi Shibuya-ku, Tokyo, Japan*
[b]*JR East Consultants Company Metropolitan Plaza Bldg,1-11-1Nishi-Ikebukuro,Toshima-ku,Tokyo*

**Abstract**

Old and large railway facilities tend to lose their efficiency as the years pass. Shinagawa depot, located 6 km from Tokyo Station, is one of the largest depots in Japan (approximately 22 ha), with a history of over 90 years. Due to the increase in the number of carriages on passenger train sets and the decline of sleeper trains, Shinagawa depot has not been used effectively for recent few decades. By the opening of the Ueno-Tokyo Line in 2015, it had been necessary to redevelop the depot to accommodate the new transportation system. However, it is very difficult to carry out such large depot renewal project in the Tokyo metropolitan area while continuing train operation. Therefore, it was required to plan renewal project by utilizing experience from past track improvement work in a station.

For Shinagawa depot, we were unable to transfer all of its functions to other depots. The depot is surrounded by densely built-up area, so we could not acquire other land easily. Therefore, it was inevitable to plan redevelopment project in the same location while continuing train operation. An investigation was conducted to figure out necessary functions and capacity for Shinagawa depot. The minimum necessary functions remain in Shinagawa depot and the other functions transferred to other depots. Thus Shinagawa depot was reduced in area, and improvement construction work carried out parallel with current train operation. We proceeded investigation on track layouts that enable improvement work to be completed over 3 separate track changeovers without interrupting depot operation.

We achieved a redevelopment plan which can be conducted under the various constraints by utilizing experience from past large station renewal works. We made Shinagawa depot to be better adapted to the new transport system after the opening of the Ueno-Tokyo line, and also optimized the inspection and repair of JR-East trains in the Tokyo metropolitan area. As a result, over 10ha of newly vacant land has been created in central Tokyo.


Peer-review under responsibility of WORLD CONFERENCE ON TRANSPORT RESEARCH SOCIETY.

*Keywords:* depot; redevelopment; railway

* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .
*E-mail address:* author@institute.xxx

2352-1465 
Peer-review under responsibility of WORLD CONFERENCE ON TRANSPORT RESEARCH SOCIETY.
10.1016/j.trpro.2017.05.410

## 1. Introduction

### *1.1. Background*

With the change of times, large old railroad facility tends to lose their efficiency. Due to the decline of sleeper trains and the replacement of locomotives and passenger cars with electric trains, Shinagawa depot also has lost its efficiency.

In addition, in Tokyo metropolitan area, the traffic congestion of railway is so terrible in the morning rush hour. In order to increase convenience of passengers, it has been necessary to reduce it. Moreover it has been also necessary to short the travel time. Therefore we have decided to construct the Ueno-Tokyo Line which has enabled certain services on the Utsunomiya, Takasaki, and Joban lines, which terminated at Ueno Station, to connect to the Tokaido line.

By the opening of Ueno-Tokyo Line, it has been necessary to redevelop the depot and Shinagawa Station and Shinagawa depot to accommodate the new transportation system.

In this paper, we describe that the problems about redeveloping depots in Tokyo metropolitan area and how we have overcome them.

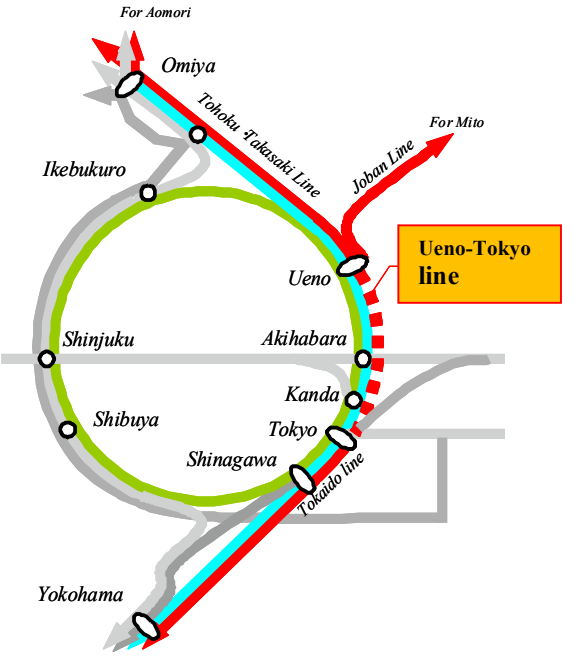


Fig. 1. Railway in central Tokyo

### *1.2. History of Shinagawa depot*

#### *1.2.1. Dawning of Japanese railroad ~present*

Shinagawa depot, located 6 km from Tokyo Station, is one of the largest depots in Japan with a history of over 90years. In 1872 the first railroad of Japan started business among Shinagawa and Yokohama. At the same time Shinagawa Station opened. In 1911, the construction work to expand the Shinagawa Station started and freight marshalling yard opened at the area of filled ground. In the end of Taisho period, the passenger car yard of Tokyo station moved to the Shinagawa Station and by the opening of electric trains, the electric car yard was established there. In 1937 the freight marshalling yard moved to Shintsurumi depot. In 1942 locomotive yard of Tokyo Station was transffered to Shinagawa depot. The depot became a large general depot which operates electric cars,