THE STUDY ON THE STANDARDIZATION FOR INTEGRATED RAILWAY NETWORK OF METRO MANILA

(EXECUTIVE SUMMARY)

Study Period : February 2000〜March 2001
Accepting Organization : Transportation Planning Service, Department of Transportation and Communications

1. Objectives of the Study

The Study intends the formulation of a master plan for the integration of the rail transport system in Metro Manila and the implementation of a basic design study on model stations.

In addition, technology transfer to counterparts in the Philippines who will participate in the Study during the study period will be conducted through field survey work.

2. Study Method

The study team conducted on-site surveys in order to gain an understanding of the actual situation in Philippines. It exchanged views with the Philippine steering committee, technical working committee and counterpart team, and gathered information. Based on the results of the survey in the Philippines and Japanese experience, the study team drew up a report.

3. Study overview

The operation, construction as well as planning of urban railway lines are currently in progress in Metro Manila so as to enhance the convenience of transport and to ease the traffic congestion in the region.

However, the inadequate consideration of mutual links between different lines and the subsequent lack of a plan for the introduction of services on different lines could create major inconvenience as the public transport, and the construction of new railway lines without proper examination of their conformity with urban planning around new stations has led to problems. Meanwhile, in the software aspect, the introduction of through tickets for passengers using more than one railway line are less than ideal.
Consequently, this study covers such matters as railway technical standard, railway fare and passenger service policy, through operation policy, station and station plaza design standards, station plaza development, and preliminary design of stations and station plazas.

(1) Development scenario for integration and standardization in Metro Manila

1) With due consideration to the population pressure of 24 million in the greater Metro Manila area by year 2015, it will be necessary to develop railways as a means of public mass transportation system in order to vitalize socio-economic activities. On the other hand, the construction of railways is obliged to have huge initial investment cost with relatively expensive operation and maintenance costs. From this point of view, management of railways is considered to have relatively low financial viability.

In the Metro Manila case, the advantages have often been negated by fragmented developments of the railway lines, sparseness of the railway network, and disregard of user’ convenience.

2) In order to accelerate the use of railways by citizen, it is necessary to promote standardization and integration of railway transport by introducing railway technical standard, service improvement, through operation, station and station area development in addition to the construction of new lines.

(2) Railway technical standard

1) In order for railways to operate safely, speedily, accurately and efficiently, it is necessary to have set rules and standards. Therefore, it is essential for the national government to clearly indicate standards on safety condition and so forth so that railway operators can satisfy a specific level of social requirements by meeting the standards.

Railway technical standards are divided into compulsory standards which prescribe for safety and voluntary standards aimed at improving production efficiency and removing trade impediments, etc. In the Study, examination was carried out on compulsory standards.

Compulsory standards prescribe necessary performance items for securing required safety levels, maintaining networks, displaying railway characteristics, securing convenience of users, and adopting environmental countermeasures.
Proposed railway technical standard consists of 11 chapters with 75 articles and describes the performance requirements for respective items. Furthermore, the way of thinking as the background of these items is explained Interpretation Guidelines by showing examples.

2) Compulsory technical standards must be clearly stated in legislation of the Philippine government and widely informed to railway operators. The legislative system of the Philippine government consists of Acts, Executive Orders, Presidential Orders and Department Orders, etc. It is appropriate that railway technical standards are prescribed in Department Order of the DOTC.

Also, it is necessary to establish a responsible organization for establishing technical standards and carrying out revisions according to technical progress, etc. In this context, the Railway Transport Planning Division within the DOTC is considered to be appropriate as the responsible department. Moreover, in order to handle opinions in the practical running of the railway, it is proposed that a railway technical standards council composed of railway experts is set up within the Railway Transport Planning Division.

(3) Railway fare and passenger service policy

1) It is necessary to set the basic fare for railways upon giving careful consideration to the ability to pay of general users and competition with other public modes of transport. Accordingly, in this Study, a fare roughly 25% higher than that for air cooling buses was set as a provisional standard, and parameters were used to compute the fare where optimum transport volume and revenue are realized. As a result, it was found that optimum transport volume and fare revenue were achieved in the case of reducing the above provisional standard fare by 15%.

In order to promote railway use and realize labor saving, it is proposed that introduction of commuter passes, issue of inter-railway transit tickets, introduction of transit fare settlement system will be effective.

2) Passenger services should be discussed roughly from the viewpoints of station arrangements and functions to transportation services, face-to-face passenger services, etc. In this Study, it is recommended that shortening of distances between stations, installation of escalators, bolstering of ticket windows, enhancement of communication and transport functions between railways should be considered. In
addition, promotion of related businesses, improvement of PNR services, and securing links between railways and other transport modes are proposed.

(4) Through operation policy

1) Implementation of through operation improves convenience for passengers and also has merits for the railway companies. Therefore, through operation is something which should definitely be implemented on sections where it is possible. In this Study, through operation between line 1 and line 3, line 1 and line 6, North rail and MCX be taken up as lines which through operation is possible and discussed in detail.

2) Through operation between line 1 and line 3 is possible under set conditions. Therefore, Monument station should be reformed to enable through operation between line 1 and line 3.

According to the rough estimate in the Study, transfer time will be cut by 20 minutes, passenger will increase by 31 million per year(2015), and administration expenses will be reduced. Meanwhile, it is estimated that the increase in works costs accompanying through operation will be 2.6 billion peso. However, rough survey of the merits and demerits found the plan to be attractive.

3) Through operation between line 1 and line 6, which connects two lines at Baclaran, improves convenience for passengers and increase transportation volume. In addition, it will be possible to move the rolling stock depots from the current inconvenient sites in the city to land alongside line 6.

4) Through operation between North rail and MCX has problems on the section between Tayuman and Vitocruz, where facilities are deteriorated, there are numerous crossings, and squatters live alongside the track. Therefore, in the Study, it is proposed to carry out through operation by constructing underground line on the section of approximately 7 km between Tayuman and Victocruz and semi-underground line between Victocruz and FTJ.

(5) Station and station plaza design standard.

1) In order for stations and station plazas to provide services which are safe, comfortable and convenient, it is necessary to design appropriate scale and functions and plan an effective arrangement of facilities. For this reason, it is effective to establish the standard scale, equipment, functions and layout of station and station
plazas according to the local characteristics, number of users and type of each station, and to develop stations and station plazas based on this standard. In the Study, station and station plaza design standards (manual) are proposed.

2) Important points in the use of this manual are as follows.

* The size of stations is generally set based on the estimated number of users 15 years in the future. It is important to carry out computation based on standard figures which the Study proposed.

* To make user-friendly station, it is necessary to install escalators and elevators. It is also necessary to adopt a sign system and introduce pictographs based on ISO international standards to make boarding and alighting and transfer of trains easier. In addition, it is necessary to install facilities for physically challenged persons (guide and warning blocks, etc.)

* Since station plazas are strongly connected to land use plans and urban facilities plans in addition to railway plans, it is important to coordinate with local governments and other related agencies.

(6) Institutional and financial methods for station plaza development

Station plazas not only provide sites for changing between railways and other modes of transport, they are integral part of urban facilities around stations.

For this reason, since station plaza development is development of common social infrastructure and can only be implemented by the private sector (railway companies, etc.) to a certain extent, public sector involvement is necessary.

However, it would be financially difficult for the Philippine public sector to develop station plazas using its own funds; rather, public sector involvement should center around preparation of the business environment and provision of tax and financial incentives.

A possible means of realizing this is to designate station plazas and surrounding areas, and establish a Priority Area Development System.

It is also effective to enhance the business environment through implementing deregulation, and to offer tax reduction and financial incentives on securities, etc.
Concerning the raising of funds, private capital should be utilized to the full: a promising alternative would be to receive investment from Philippine citizens at home and abroad through establishing an SPC (special purpose company) and issuing bonds.

Moreover, rather than raising funds separately for individual projects, it is better to set up a long-term stable fund (Urban Development Fund) and examine introduction of urban development tax, etc. as a new source of funds.

(7) Preliminary design of stations and station plazas

1) Concerning preliminary design of station facilities, on the two stations targeted for preliminary design, i.e. Monumento and Magallanes, the basic specifications of station facilities (length and width of platform, number of ticket machines, width of stairs, number of escalators, etc.) were computed based on the station design standards with consideration given to the number of users in 2015.

Moreover, facilities layouts, section drawings and improvement work procedure drawings were prepared for Monumento station and Magallanes station. Also, economic and financial analysis and initial environmental examination in the case of station improvement and station plaza development was carried out.

2) Concerning preliminary design of station plaza on two stations, rough estimation was carried out on the required number of bus, taxi and jeepneys berths and the necessary station plaza area based on the station plaza design standards.

However, since areas around stations consist of commercial and residential land, it will not be easy to secure site land for station plazas as planned. For this reason, it is necessary to secure station plaza sites by utilizing the institutional and financial methods as described in Chapter 7 and to design realistic station plazas which are compatible with that land.

Moreover, evaluation was carried out on six alternatives for station plaza sites in the case of Monumento station and seven alternatives in the case of Magallanes station. Out of these, the optimum sites were selected and preliminary design was carried out on the station plazas and corridors linking them to the stations. Also, economic and financial analysis and initial environmental examination were carried of for the case of station plaza construction at both stations.
(8) Comprehensive Recommendation

1) Realization of planned lines

The most important thing in order to increase the number of rail users in Metro Manila is to achieve the earliest possible realization of these already proposed rail network plans. In addition to the operating line 1, line 3 and PNR, if construction of line 2 and the planned line 3 extension, line 4, line 6, North rail and MCX is realized, dramatic increase in the number of rail users can be anticipated.

In advancing construction of the railway network, it will be necessary to promote cooperation between related Departments and Agencies such as the DOTC, NEDA, MMDA and DPWH, etc. under the guidance of the President, to hear the views of local government representatives, railway operators, urban transportation experts and transportation users, and to seek the understanding of citizens by presenting specific railway construction plans, cost benefits and sources of construction funds, etc. before the public.

In order to carry out the planned construction of rail network in Metro Manila, it will be necessary to pay attention to the introduction of appropriate rail system based on detailed demand forecasts, introduction of maximum private sector funding by providing institutional and financial incentives to private companies while seeking an appropriate burden from users, integrated development of the railways and urban functions by working together with road and city officials in promoting projects.

Moreover, since PNR connects the center of Metro Manila to districts with growth potential in the north and south, it is an attractive route as a commuter main line. It is important to develop PNR as a key route of the rail network in Metro Manila through improving the north and south lines and carrying out drastic revision of the central section. Accordingly, in the Study, it is proposed that improvement of services through raising speeds, free rider countermeasures and squatter countermeasures be sought by turning the central section into an underground line.

2) Recommendation on the main subjects of the study

Recommendation is reported taking into consideration of the conclusion of main subjects such as Railway technical standard, Railway fare and passenger service policy, Through operation policy, Station and station plaza design standards, Station plaza development, Preliminary design of stations and station plazas.
3) Implementation plan and schedule

For the purpose of carrying out projects proposed in the Study, Action Plan was prepared. Action Plan includes eight items of project lists, evaluation of projects, priority and implementation schedule.

The proposed projects are shown as follows.

- Multi-modal station area development
- Station facilities improvement project
- Through operation project
- Bus and jeepneys rerouting project focused on stations.
- Establishment of taskforce team for materializing integrated transport policy and planning
- Urban development fund raising program
- Human resource development for railway sector
- New residential area development with railway transport
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