"Fast and comfortable new facility of travel"

16. New Public Transit Corridor Development

16.1 Objective

A track system (new tram) with a different capability from the conventional tram in Bucharest is introduced to add a new transport axis to the trunk public transport network.

16.2 Outline

The selected radial route for the new tram is between Colentina, central area, and Alexandria, for which a large demand is expected. This route, with a total length of 13.2km, should be constructed in stages from the existing tram route. As the route for accessing the central area, some alternative plans as well as the most appropriate plan are proposed in consideration of building construction plan which recently arose (Figure 16.1).

The major contents of the projects are as follows:
- construction of segregated tracks in principle
- introduction of environmentally sound high speed trams (39)
- construction of automatic point-switches (5)
- establishment of public transport priority signaling system (PTPS) (23)
- improvement of depots (Colentina, Alexandira)
- improvement of power supply system (4 new sites)

16.3 Economic Evaluation

The Colentina - Unirii - Alexandria route is estimated to have a total cost of 82 million US$ but also an EIRR as high as 17.6% and thus is economically feasible. In this route, the section between Unirii and Alexandra has the higher EIRR (18.6%) than the one between Colentina and Unirii and thus should be constructed with a higher priority.

Table 16.1 Economic Evaluation of New Public Transit Corridor

Item	Colentina – Unirii	Unirii - Alexandria	Colentina-Alexandria
Financial Cost ($ 1,000,000)	43.0	39.0	82.0
Economic Cost ($ 1,000,000)	31.0	28.1	59.1
Total Benefit (Lei Mil./day)	588.1	581.8	926.5
IRR (%)	16.9	18.6	17.6
B/C	1.516	1.726	1.509
NPV (Lei Mil.)	198,143	243,759	309,466

16.4 Implementation plan

This project is assumed to be implemented by the RATB. For the implementation, the following points should be considered.

1) In the project route, fourteen tram lines already exist. As the first stage of improvement, a F/S including rearrangement of public transport routes and examination of major facilities is required. In the next step, the improvement of tracks, extension of power supply systems, introduction of PTPS, and provision of point-switches are required. Then, the new coaches should be introduced.
2) Since a cathedral is planned to be constructed at Piata Unirii, the route must be determined prudently. Since the district northeast of Piata Unirii is narrow, it is likely that the existing route needs to be changed.
3) The source of funds required for implementation must be secured because the project cost is large.

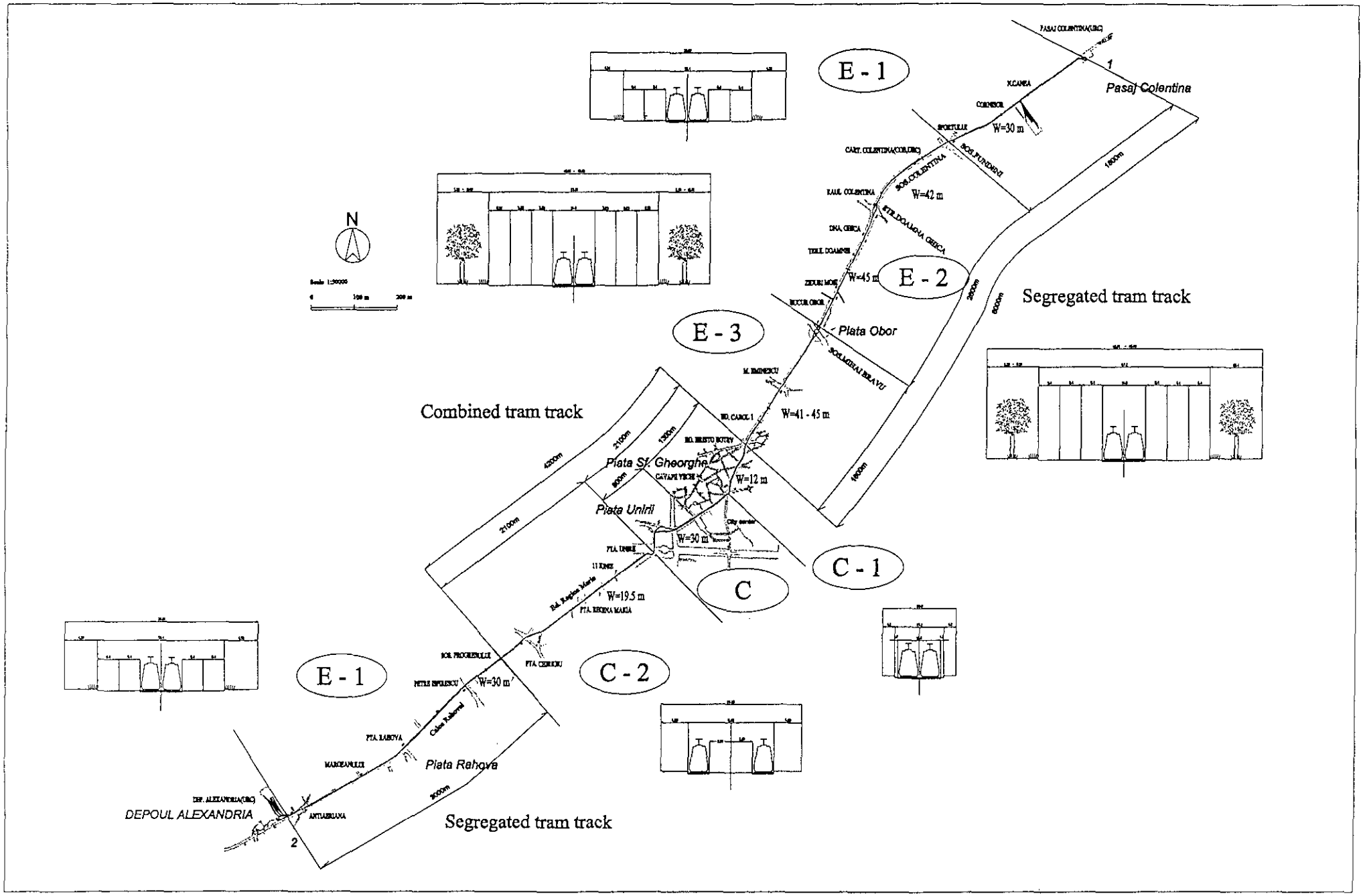

Figure 16.1 Outline of New Tram

"Making transfer between public transport modes convenient"

17. Fare System Improvement

17.1 Objectives

Objectives are to improve the convenience of transferring between public transport modes and to increase the number of public transport passengers by means of reducing the impediments of transferring between public transport modes. At the same time rationalization of the public transport management is expected by rearrangement of the public transport network due to the new fare system.

17.2 Outline

Integration of fare system, ticketing system and supporting devices will be promoted and common ticketing system will be introduced among different public transport administration bodies as participants. Revenues are pooled and then distributed to each participating public transport body according to the place-kilometer or passenger-kilometer principle.
Magnetic card with time limitation for validity will be used for both metro and surface public transport. Passengers can freely utilize public transport modes regardless of mode and provider.
Self-service ticket checking system at boarding is proposed for the moment.
The project cost is estimated at about 20 million US$.

17.3 Economic Evaluation

The network simulation with low barriers for transfer between public transport modes demonstrated the increased convenience and increased passengers of public transport modes, proving its meaningfulness in traffic policies. Since the management is also rationalized when the public transport service is modified, the necessity of implementing this project is high. The following lists the effects of improving the fare system.

Table 17.1 Effects of Improving the Fare System

User	Public Transport Service Provider
a. Reduction of time required for trip The user can use the shortest route without worrying about costs.	a. Increase of passengers Improved convenience of public transport modes is expected to increase passengers.
b. Alleviation of transfer cost Costs can be alleviated for trips with many transfers.	b. Rearrangement and rationalization of routes Rationalized selection of routes by passengers promotes the natural selection of routes and rearrangement and rationalization of network.
c. Understandable route formation Rational routes for the service provider leads to an understandable network for the user.	

17.4 Implementation Plan

For the implementation of this project, the following points must be considered:

1) For the moment, the boarding-time checking, although requiring more loading and unloading time, must be used to prevent fare evasion. In future, however, a method befitting the Bucharest city had better be determined in view of other European cities.
2) For the implementation, consensus on the policy must be formed because the institutional and technical feasibility must be examined and organizations with coordinating functions must be rearranged.
3) As managerial efforts are not directly reflected in the financial condition of participants in the case of common flat fare system, securing incentives for rationalization of management and improvement of profitability is a vital issue.
4) It will be necessary to consider the common fare system as part of integrated policies in combination with rearrangement of networks leading to the rationalization of administration.

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SUMMARY OF THE STUDY

1. Country	Republic of Romania
2. Name of Study	The Comprehensive Urban Transport Study of Bucharest City and Its Metropolitan Area
3. Counterpart Agency	The Municipality of Bucharest
4. Objective of Study	Formulation of the Comprehensive Urban Transport Master Plan up to the year 2015

1. Study Area : Bucharest city and its metropolitan area (61,681 ha)

2. The Master Plan Summary

2.1 Formulation of Urban Transport Master Plan

Based on various traffic surveys including the person trip survey, the future transport demand was forecast and the urban structure was determined. Then, with the objectives of i) securing the smooth mobility, ii) creating the attractive city center, iii) formulating sub-core centers, vi) protecting the urban environment, etc., the transport master plan was formulated in which the Ring Road Reinforcement as a basic network pattern was combined with the Multi-Modal Axis Pattern as a public transport network pattern.

2.2 Selection of Priority Projects

Priority projects to be further studied were selected among the projects which are expected to be implemented within 2 or 3 years after the completion of the Study. The following five projects were selected as priority projects, based on the criteria of i) whether projects match the recommended city structure, ii) whether projects concern the completion of a ring road, and iii) projects match the Multi-Modal Transport Axis Pattern.

a. Inner Ring road linkage by Basarab overpass
b. Bottleneck Piatas improvement
c. Parking system development in central area
d. New type tram introduction
e. Fare system improvement

3. Implementation Plan

In order to realize the recommended Master Plan, about 2,174.5 million dollars of investment fund is required. This investment amount was allocated to the short term, medium term and long term, considering the following criteria of i) whether projects solve problems without requiring a large amount of investment, ii) whether the economic and financial evaluation is high, iii) projects which have close relationship to each other should have related construction timing, etc..

Short Term	(−2003)	:	Investment	673.7 Million Dollars
Medium Term	(2004 – 2008)	:	Investment	608.8 Million Dollars
Long Term	(2009 – 1015)	:	Investment	892.0 Million Dollars

4. Economic Evaluation

The economic evaluation of the Master Plan and the selected priority projects are as follows:

Project	IRR	B/C
Master Plan	18.8%	1.38
Inner Ring road linkage by Basarab overpass	30.7%	3.90
Bottleneck Piatas improvement	24.7%	1.77
Parking system development in central area	13.7%	1.08
New type tram introduction	17.6%	1.51
Fare system improvement	12.7%	1.04

5.Recommendations

(1) To realize the Master Plan, especially, priority projects
(2) To conduct the feasibility studies and/or basic designs necessary for fund raising and implementing the projects
(3) To proceed with the legal and institutional reform necessary for the implementation of the Master Plan
(4) To update and expand the data base according to the change of socioeconomic situation