

## *“What is a desirable traffic network?”*

### **7. Future Transport Network Alternatives**

#### **7.1 Planning Principle**

In establishing the Transport Master Plan, the following goals were used to establish the basic policies of planning:

- To ensure smooth mobility for citizens and for industries
- To protect the environment suitable for comfortable life of citizens.
- To create a lively and attractive city centre.
- To secure accessibility to the cultural and historical heritages.

The basic policies were established based on the future course of development of the city structure and from both the perspectives of a road transport network and a public transport network used to attain the above goals.

#### **7.2 Formation of Basic Transport Networks**

Based on the basic policies, two basic network patterns for each of the future road network and public transport network were established.

##### **1) Basic Road Network Pattern**

###### **a. Radial and Ring Formation Pattern (Figure 7.1)**

In order to meet future vehicle traffic demand, a radial and ring formation pattern with a high service level is formulated under this alternative.

###### **b. Ring Road Reinforcement Pattern (Figure 7.2)**

In order to resolve existing traffic problems, a ring road reinforcement pattern with minimum investment is formulated under this alternative.

##### **2) Basic Public Transport Network Pattern**

###### **a. Rapid Transit Axis Pattern (Figure 7.3)**

For this alternative, the metro network is considered as the principal public transport mode. The Rapid Transit Axis Pattern is thus a metro oriented pattern where the six routes will be improved and/or newly constructed.

###### **b. Multi-Modal Axis Pattern (Figure 7.4)**

For this alternative, the roles and functions of tram are considered to be the same as for metro. The Multi-Modal Axis Pattern is a tram oriented pattern where radial and ring tram routes will be developed.

#### **7.3 Selection of Alternatives**

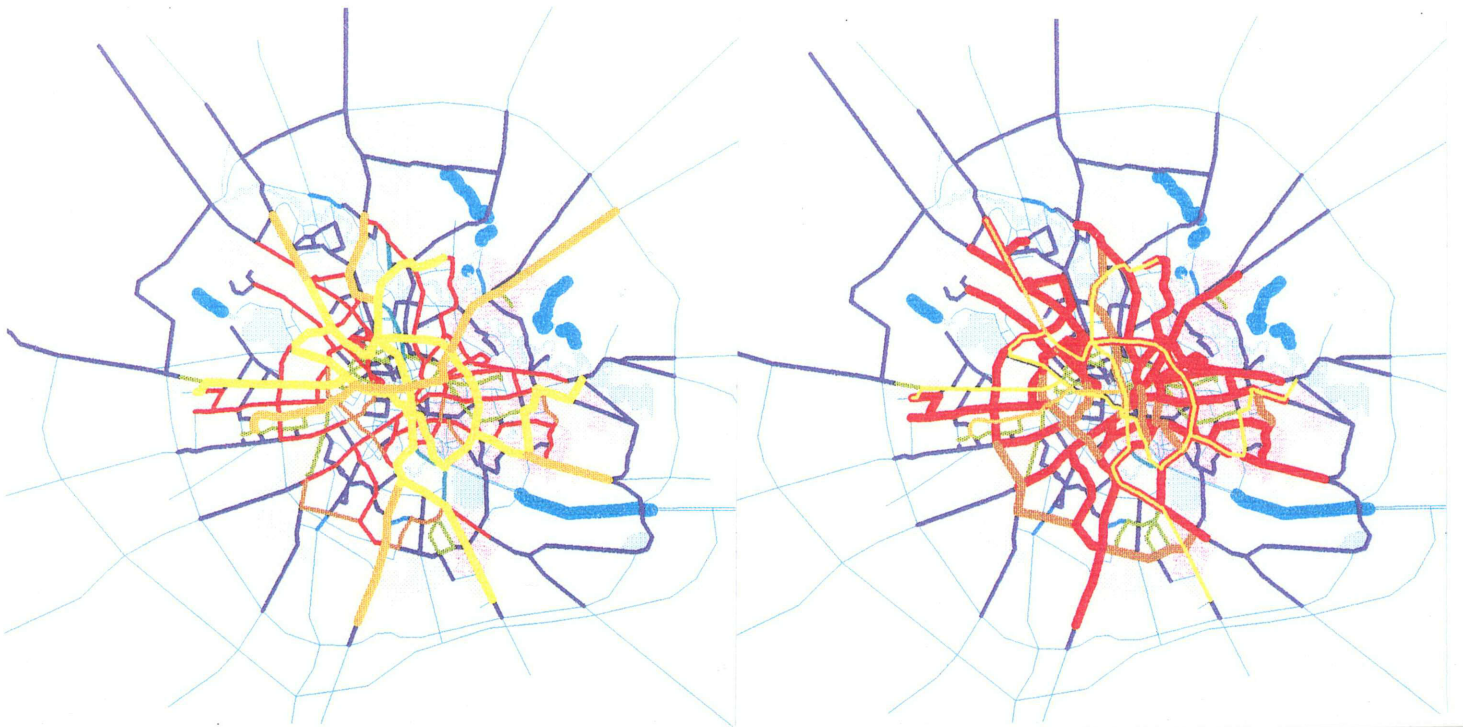
Four alternatives produced by combining the above two road network patterns and two public transport network patterns were examined for feasibility based on the estimated costs and benefits compared with the Do Nothing Case (Tables 7.1 and 7.2). Consequently, Alternative 4 (combination of Ring Road Reinforcement as basic network pattern / Multi-Modal Axis Pattern as public transport network pattern) was selected as appropriate because it:

- Requires the minimum investment cost;
- Has the highest economic internal rate of return and;
- Has the lowest impact on the environment.



**Figure 7.1 Radial and Ring Figure Formation Pattern**

**7.2 Ring Road Reinforcement Pattern**



**Figure 7.3 Rapid Transit Axis Pattern**

**Figure 7.4 Multi-Modal Axis Pattern**

**Table 7.1 Alternatives of Road Transport Network**

Public Transport Road Network	Rapid Transit Axis Pattern	Multi-Modal Axis Pattern
Radial and Ring Formation Pattern	Alternative 1	Alternative 2
Ring Road Reinforcement Pattern	Alternative 3	Alternative 4 (Selected)

**Table 7.2 Comparison of Alternatives**

Item	Alternative 1	Alternative 2	Alternative 3	Alternative 4 (Selected)
Cost (Lei billion)	43,097.7	33,819.6	38,276.8	28,985.5
Benefit (Lei billion)	4,410.1	4,065.9	4,657.1	4,287.9
IRR %	11.2	9.1	16.4	18.1
B/C (discount rate of 12%)	0.951	0.838	1.131	1.376
Public Transport (Trip)	3,619,635	3,746,040	3,545,746	3,673,570
Private Car (Trip)	1,894,709	1,768,304	1,968,598	1,840,774
Share of Public Transport Mode %	65.6	67.9	64.3	66.6

Note 1: Benefit in 2016 (after completion of all projects)

Note 2: IRR – Internal Rate of Return

Note 3: Existing 67.6%, Do Nothing 54.8%

Note 4: “Benefit” composed of “time saving benefit” and “vehicle operating cost saving”.