

PUBLIC TRANSPORT LINE – BASIC CONCEPTS AND DEFINITIONS

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Sustainable Transportation within the Framework of Green Deal - SPHERE

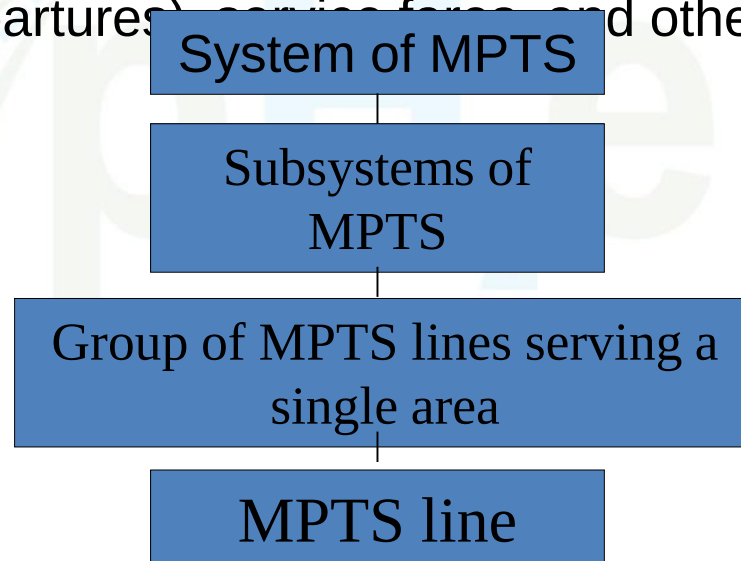
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PUBLIC TRANSPORT LINE – BASIC CONCEPTS AND DEFINITIONS

A MPTS line is the basic element of the public mass passenger transport system and the lowest level in the management of this system.

A line is a part of the transport network of the MPTS system on which passenger transport is carried out under predefined and user-known conditions, namely: the route of the line with defined stops, vehicle headways (departures), service force and other conditions.



Hierarchy in management and the position of a line in the MPTS

CLASSIFICATION OF MPTS

LINES

According to the location of the line route in relation to the city

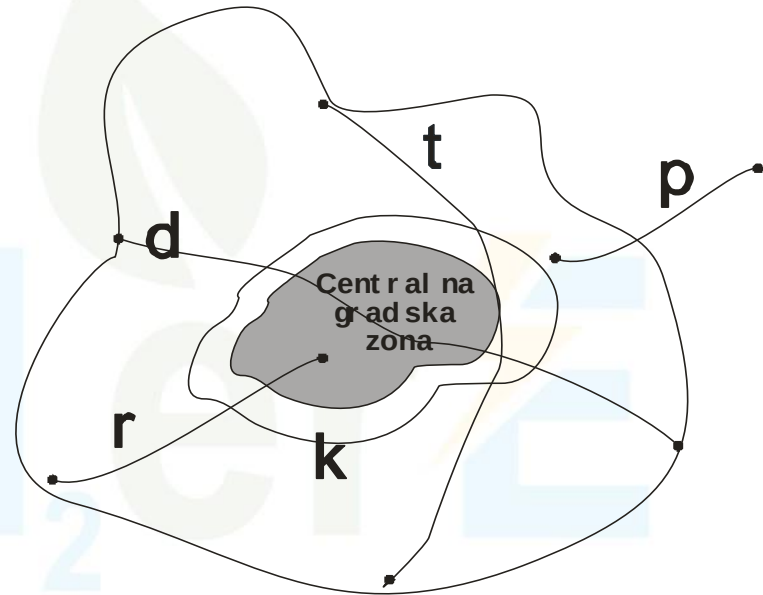
r – radial lines

d – diametrical lines

t – tangential lines

k – circular lines

p – peripheral lines



The selection of the optimal type of line is carried out based on surveyed passenger 'desire lines', defined by the intensity of transport demand flows in space.

CLASSIFICATION OF MPTS

LINES

Radial lines – connect the central city zone (CCZ) with peripheral parts of the city via the shortest route, where passenger flows are the most intensive.

Diametrical lines – connect two peripheral parts of the city by passing through the center. In this way, the CCZ is relieved of terminal functions, and it enables passenger travel through the CCZ without transfers.

Tangential lines – connect peripheral parts of the city by “tangentially” bypassing the CCZ, thereby avoiding congestion and reducing travel time for passengers whose destination is not in the CCZ.

Circular lines – enable intra-zone travel within the CCZ, thus relieving other lines in the CCZ and allowing convenient transfers for long-distance trips with a single transfer.

Peripheral lines – connect peripheral urban zones with satellite settlements.

CLASSIFICATION OF MPTS LINES

According to the intensity of transport demand

Basic (direct) lines – characterized by intensive and continuous passenger flows.

“Auxiliary” lines – which relieve the basic lines on certain sections (local lines) or during specific time periods (peak-hour service – commuter service).

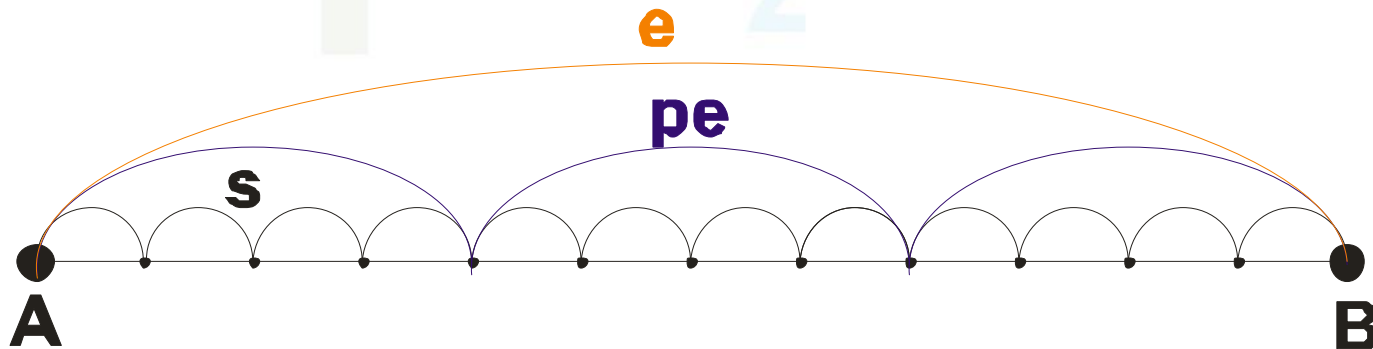
CLASSIFICATION OF MPTS LINES

According to the vehicle stopping regime at stations

Standard lines – vehicles stop at all stations along the route.

Accelerated (semi-express) lines – vehicles stop only at a selected number of stations.

Fast (express) lines – vehicles stop only at the initial and final stations.



CLASSIFICATION OF MPTS LINES

According to the position of the line route in relation to the roadway

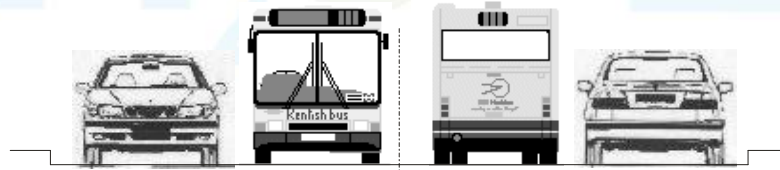
a. one-way



b. two-way



c. Central



CLASSIFICATION OF MPTS LINES

According to MPTS modes (subsystems)



АУТОБУСКЕ



ТРОЛЕЈБУСКЕ



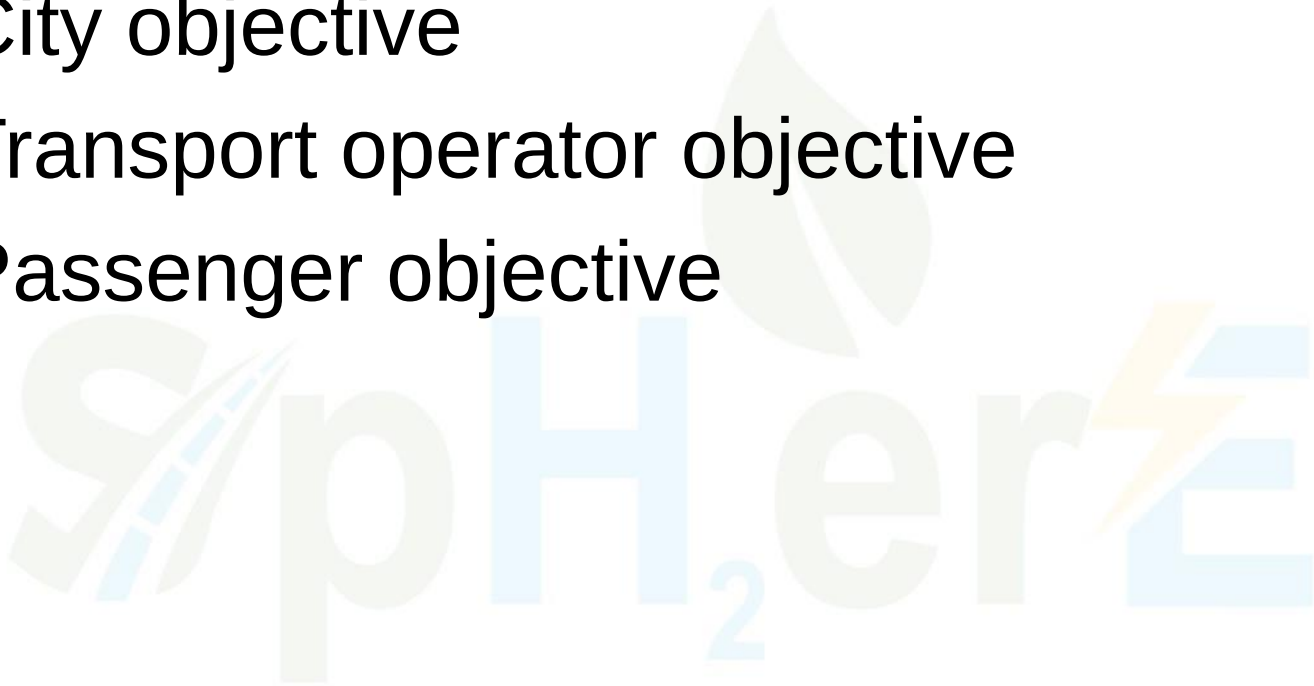
ТРАМБАЈСКЕ



Light Rail System

FACTORS FOR MEASURING THE QUALITY OF LINE NETWORKS

- City objective
- Transport operator objective
- Passenger objective



Passenger requirements are determined by quality factors:

- ✚ Network density
- ✚ Network branching (degree of branching)
- ✚ Network directness
- ✚ Network adaptability, coverage of the urban area
- ✚ Intensity of network usage

CRITERIA FOR DESIGNING A LINE NETWORK

1. The route of the line should be aligned with passenger desire lines.
2. All public transport (MPTS) lines should be treated as a single integrated system.
3. Transfer points must be arranged in a way that ensures easy, safe, and comfortable transfers.

CRITERIA FOR DESIGNING A LINE NETWORK

4. Ensure the greatest possible independence of line routes from other surface traffic, especially tram traffic.
5. The network should be designed with a minimal number of transfers.
6. The density and coverage of the network should be adequate so that the walking distance to stops is as short as possible.

CRITERIA FOR DESIGNING A LINE NETWORK

7. Terminals of lines should, as a rule, be located outside the central urban area.
8. The overlap of multiple lines of the same transport mode on shared corridors should not exceed a limit frequency of 60 vehicles per hour.
9. Good integration between urban, suburban, and intercity public passenger transport should be ensured.

CRITERIA FOR DESIGNING A LINE NETWORK

10. Lines with up to 1,000 passengers per hour should terminate at the terminals of main tram, trolleybus, and bus lines. For flows exceeding 1,000 passengers per hour, it is justified for the lines to penetrate into the urban fabric up to the edge of the wider city center.

CRITERIA FOR DESIGNING A LINE NETWORK

11. The route of each line should be designed to follow the main passenger flows between two parts of the city.
12. When designing a line, efforts should be made to achieve a uniform load along the entire route.
13. Dedicated lanes for public transport vehicles (MPTS) are justified on all sections where the flow of public transport vehicles exceeds 20 vehicles per hour.