



# **TRAFFIC ENGINEERING AND TRAFFIC REGULATION AND MANAGEMENT**

# KEY QUESTIONS



1. Transport vs Traffic Engineering
2. Traffic Engineering Concept,
3. Objectives and measures for regulating and managing traffic flows

# 1 Transportation vs Traffic Engineering



## **TRANSPORTATION ENGINEERING**

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Management >

Organization >

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# 1. Transportation vs Traffic Engineering



Traffic engineering can be defined as a phase or part of transportation engineering that deals with the efficient and safe movement of people and goods on a network of streets and roads, i.e. Traffic engineering is a part of Transportation Engineering.

# 1. Transportation vs Traffic Engineering



Traffic engineering includes the following scientific disciplines :

- ✦ Traffic flow theory and road capacity
- ✦ Regulation and management of traffic flows on the road and street network
- ✦ Traffic planning, street and road networks and supporting infrastructure
- ✦ Traffic safety
- ✦ Traffic network and network section design
- ✦ Equipment maintenance and infrastructure supervision
- ✦ Traffic demand management
- ✦ Parking
- ✦ Valuation

## 2. The concept, objectives and measures of regulating and managing traffic flows



### **Traffic flow regulation-Traffic regulation (TR)**

represents a set of administrative and technical measures by which a certain idea, solution, or traffic management tactic is implemented. Traffic regulation is based on legislation and essentially relies primarily on horizontal, vertical, and road signs, and the only dynamics or adaptability is possible with the use of additional signs that spatially and temporally allow or disallow certain movements or movements only for certain vehicle categories.

## 2 . The concept, objectives and measures of regulating and managing traffic flows



**Traffic Flow Management-Traffic Management (TFM)** It also includes traffic regulation, but the essence is that it is the so-called dynamic traffic regulation in both space and time, i.e. a traffic flow system that adapts to the unevenness of traffic demands. It is based on traffic lights in different operating modes and the development of information technologies and Intelligent Transport Systems (ITS).

## 2. The concept, objectives and measures of regulating and managing traffic flows



The general objectives of Traffic Regulation and Management are :

- ✦ more efficient traffic flow
- ✦ more efficient use of the existing network
- ✦ improve accessibility for people and goods
- ✦ improve environmental quality
- ✦ reduce the number of accidents,
- ✦ increase the level of safety



## 2 The concept, objectives and measures of regulating and managing traffic flows



Регулисање и Управљање саобраћајним токовима засновано је на следећим мерама :

- A) regulatory-regime and management**
- B) regulatory-management and construction,**
- C) awareness of traffic participants,**
- D) Economic**
- E) sustainable development**
- F) demand control (demand management)**

## 2. The concept, objectives and measures of regulating and managing traffic flows



### A) Tactics within the framework of regulatory and management measures

- ❖ traffic management using traffic lights
- ❖ speed management and control
- ❖ traffic regime (one-way street systems, restriction of certain directions at intersections)
- ❖ traffic calming
- ❖ restriction of use of certain parts of the network for specific users

## 2. The concept, objectives and measures of regulating and managing traffic flows

### A) Tactics within the framework of regulatory and management measures

- ❖ exclusion of certain vehicle categories depending on axle load and vehicle size
- ❖ parking regulation and control
- ❖ special treatment of JMPP vehicles
- ❖ access control
- ❖ regulation of pedestrian and cyclist movement
- ❖ occasional regulation for special events (road works, etc.) traffic management using ITS

### 3. The concept, objectives and measures of regulating and managing traffic flows



#### B) Tactics within Regulatory Management and Construction Measures :

- ✦ relocation of the highest-ranking roads in cities and use of areas for other users (parking, bicycles, etc.), change of purpose
- ✦ introduction of appropriate physical barriersredesign of intersections
- ✦ closing/opening parts of the network for certain categories of vehicles
- ✦ replacing the road surface in order to reduce speed
- ✦ providing crossings for certain categories of road users (handicapped, children, etc.)providing stops for certain categories of road users

## 2. The concept, objectives and measures of regulating and managing traffic flows



### C) Awareness of traffic participants::

- ✦ traffic signs (urban, suburban, tourist, sports, etc.)for specific traffic participants (trucks, cyclists, pedestrians)
- ✦ classic maps, special purpose mapsJMTP (park and ride, stops)
- ✦ street/building markingsinformation with the help of new technologies (Internet, SMS, digital maps, vehicle guidance, etc.)

## 2. The concept, objectives and measures of regulating and managing traffic flows



### D) Economic measures

- ✦ **vehicle occupancy - vehicles with high occupancy**
- ✦ **parking - dynamic pricing**
- ✦ **city center entrance fees (examples: London, Copenhagen, Stockholm, Singapore) fuel prices**
- ✦ **JMTP tariff policy**

## 2. The concept, objectives and measures of regulating and managing traffic flows



### E) New technologies and sustainable development:

- ✦ **vehicles with reduced exhaust emissions**
- ✦ **better traffic management and info services with the help of ITS teleworking**
- ✦ **increasing parking space in certain zones with the help of ITS**
- ✦ **vehicles with new energy sources (biofuels, electric vehicles, hydrogen, etc.)**

## 2. The concept, objectives and measures of regulating and managing traffic flows



F) Requirements management has an impact on :

- ✦ **mode of travel**
- ✦ **time of travel**
- ✦ **choice of route**
- ✦ **change of destination of travel**
- ✦ **cancellation of travel**