

Introduction to Transportation Planning

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Week 3

- Role of Transportation in Society
- Factors Affecting Transportation



Role of Transportation in Society



Economic Role

- Production, distribution and consumption of goods and services
- The place, timeliness, and quality of goods and services
- Accessibility to resources
 - Education, trainings, speed of technical services, etc.
- Competition of suppliers
 - Better roads → cheaper transportation



Social Role

- Increase/facilitate
 - Communication
 - Collaboration
 - Cooperation
- Growth of urban centers
- Cultural interaction
- Reach to Knowledge / education
- Family bonds



Political Role

- International trade
- Serving to people
 - Housing, power, water, goods and services
- Administrative access
- Safety
- Military access to international waters, locations, etc.



Environmental Role

- Safety of public
 - Accidents
- Air pollutions
- Noise pollution
- Energy consumption

An aerial night photograph of a city, showing light trails from traffic on a highway and various buildings illuminated. A prominent yellow and orange curved graphic element is overlaid on the left side of the image. The background is a solid blue color.

Factors Affecting Transportation



Human Factors

- Variability of age, education, physical attributes, etc.
- Reaction time
 - Perception
 - Intellection
 - Emotion
 - Volition
- Visual acuity and driving performance
 - Sight distance
 - Driver experience
- Hearing ability
- Psychological effects



Vehicle Factors

- Design of the vehicles
 - Length, width, height
 - Safety characteristics
- Weight and axle configurations
- Turning radius and paths
- Acceleration and braking
- Communication infrastructure (V2V & V2I)



Road Factors

- Road surface
 - Asphalt, concrete
 - Pavement/marking color – night visibility
- Geometric aspects
 - Lane width, turning radius, etc.
- Traffic control systems
 - Traffic lights, signs, etc.
- ITS technologies



Transportation: An Internal Perspective



Internal Components

- Physical System Components
- Management
 - Planning
 - Operational
- Labor
 - Who is in it?



Physical System Components

- Infrastructure
 - Roads, railways, etc.
 - Terminals
 - Stations, hubs
- Vehicles
- Power systems
- Fuel
- Control and communications systems

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Question

Think about the general transportation system concept to a particular transportation system or situation *of your choice*

- Thinking about the important issues and questions that must be considered when designing, evaluating or operating a transportation system.
- Identify the most important aspects of your system.
- Discuss how you might change the system to improve its performance and, if appropriate, assess the difference between the short-term and long-term effects.