

INTRODUCTION TO TRANSPORTATION ENGINEERING

- **Importance of transportation in Economic Development of a Nation**

- ü Transportation and Economic growth
- ü Social Costs and Benefits of Transportation

- **Career Opportunities in Transportation Engineering**

- Planning
- Design
- Construction
- Traffic Operation & Management
- Maintenance

- **Involvement of Civil Engineers in Transportation Engineering**

Historically, the primary involvement of civil engineers in transportation has been in the provision of physical facilities and the devising of operation strategies for them.

§ Employed by facility-oriented organizations, railway-which provide their own physical facilities and urban transit operators.

§ Civil Engineering activity related to the provision of physical facilities such as design, construction and maintenance of fixed transportation facilities

§ Major highway project- design & construction of bridges and other structures requires- structural engineering, drainage design – hydraulic & hydrologic engineering, earthwork compaction & slope stability- geotechnical engineering, construction management and surveying.

§ Similar complexity and civil engineering involvement characterize other transportation projects, such as the construction of airports or urban rail rapid transit systems

- Transportation as an Inter-discipline related subject
- Transportation Management system in Nigeria.

TRANSPORTATION SYSTEM

Transportation is one of the major functional systems of modern society. A system in the sense intended here, is something that may be thought of as a whole consisting of parts or components. The description of a system involves identification of the system itself as distinct from its environment (that is, the rest of the world), identification of its components and a description of how the components interact.

The transportation system is a functional system in the context of society as a whole because it provides a service- the movement of goods and people from place to place.

The transportation system includes the following components:

- ü Physical facilities including streets, roads and highways, railroads, airports, sea and river ports, pipelines and canals
- ü Fleets of vehicles, vessels and aircraft
- ü Operating bases and facilities, including vehicle maintenance facilities and office space
- ü Organizations
- ü Operating strategies

MODES OF TRANSPORTATION

Different Modes of Transportation

- Ø Rail road
- Ø Airway
- Ø Highway
- Ø Waterway
- Ø Belt conveyor
- Ø Pipeline

Intrinsic Features of Different Modes

ü Classification

- Unit of carriage
- Guidance & Manoeuvrability
- Buoyancy & Stability

ü Characteristics of Vehicles Used in Transportation

- Highway
- Aircrafts
- Water-borne vessels
- Railroad vehicles

ü Component

- Motive Power
- Way or travel medium