1.2 HIGHWAY PLANNING

Highway Planning involves the planning, design, construction, operation, and maintenance of roads, bridges, and tunnels to ensure safe and effective transportation of people and goods.

SIGNIFICANCE OF HIGHWAY PLANNING

The significance are,

- ✓ To provide safe, efficient, economic, compatible and speedy moment of people and goods
- ✓ To plan for expected features development and social needs to fix update wise properties for development of each road link based on utility
- ✓ To optimise the usage of roads with available resources
- ✓ To work out financing system

Objectives of Highway Planning

- ✓ A highway should be safe and secure.
- ✓ The highway develop must be efficient, but at a minimum cost, especially in cases of developing and underdeveloped countries.

Objectives of Highway Research Board

- ✓ To collect and analyze results on research
- ✓ To coordinate and conduct the correlation services in transport research
- ✓ To evaluate the nature and extend of research required.
- ✓ To regulate the conductive services.

DIFFERENT MODES OF TRANSPORTATION

Transportation has developed along three basic modes of transport

a) Land
b) Water
c) Air

Land has given scope for development of transportation by road and rail transport. Water and air media have developed waterways and airways respectively. The roads or the highways not only include modern highway system but also includes the urban

arterials, city streets, feeder roads and village roads catering for a wide variety of vehicles and pedestrians. Railways have been developed both for long distance travel and also urban travel. Waterways include transportation by oceans, rivers, canals and lakes for the movement of ships and boats. The airways help in faster transportation by aircrafts and carriers. Apart from these major modes of transportation, other modes include pipelines, elevators, belt conveyors, cable cars, aerial ropeways and monorails. Pipe lines are used for the transportation of water, other fluids and even solid particles The four major modes of transportation are:

a) Roadways or highways for road transportation
b) Railways for rail transportation
c) Waterways for water transportation
d) Airways for air transportation

ROADWAYS

Transportation by road is the only mode which could give maximum service to one and all. Road transport mode has the maximum flexibility for travel with reference to choice of the route, direction, time and speed of travel. This is only mode which caters for the movement of passengers and goods independently right from the place of origin up to the destination of any trip along the route. The other three modes (railways; water ways; airways) have to depend on transportation by road for the service to and from their respective terminals. Therefore, the roadway essentially serves as a feeder network. It is possible to provide door to door service by road transport. Ultimately, road network is therefore needed not only to serve as feeder system for other modes of transportation and to supplement them, but also to provide independent facility for road travel by a well-planned network of roads throughout the country.

Advantages:

1) Flexibility: It offers complete freedom to the road users.
2) It requires relatively smaller investments and cheaper in construction with respect to other modes.
3) It serves the whole community alike the other modes.
4) For short distance travel, it saves time.

5) The road network is used by various types of vehicles.

Disadvantages:

1) Speed is related to accidents and more accidents results due to higher speed and is usually not suitable for long distance travel 2) Power required per tonne is more.

RAILWAYS

The concept of rail transportation is movement of multiple wagons or a train of wagons passenger's bogies on two parallel steel rails. The resistance to traction along the railway track for the movement of steel wheels is much lower than that along more uneven road surface for the movement of road vehicles with rubber tyres. The transportation along the railway track could be advantageous by railways between the stations both for the passengers and goods, particularly for longer distances. The energy requirement to haul unit load through unit distance by the railway is only a fraction (one fourth to one sixth) of the required by road. Hence, full advantage of this mode of transportation should be taken for the transportation of bulk goods along land where the railway facilities are available. The Indian railways is one of the world's largest Railway network in the world. It was introduced in 1853 and it is spread over 1,09,221 km covering 6906 stations.

Advantages:

1) Can transport heavy loads of goods at higher speed