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Subject

HIGHWAY AND
TRAFFIC ENGINEERING

Submitted To

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Qureshi

Q1: Keeping in view modes of transportation compare Railway with highway.

High Way

- In highway the frequency of accident are more.
- The maintenance cost is less.
- Its suitable for any distance.
- Door to Door service are available.
- The load carrying capacity is less.

Railway

- In Railway the frequency of accident is less.
- The maintenance cost is more.
- Its is suitable for long distance.
- Door to Door service is not available.
- The load carrying capacity is more.

Q2 Ans

Being a transportation engineer I will consider the following step for office study highway.

Data Examination: It is the first step in which we examine all available data in which the road is to be constructed.

There is no use of photogrammetric investigation in this phase.

Data Sources

The data source majorly available with National and Provincial departments.

Mostly the data is collected in form of:

- Maps
- Aerial photograph
- Charts
- CAD Visuals
- Existing engineering projects e.g dams.

- The type of data to be collected dependant on the highway type.

Topography of Data Collection

- Engineering include geology, climate

- traffic volume.
- Social and Demographic includes land use and zoning pattern.
- Economic including unit cost for construction and the trend of agricultural, commercial, and industrial activities.
- Environmental include type of wild life location of recreational & historical sites effect the air, noise & water pollution.

Preliminary Analysis of Data

- It will indicate if any specific sites should be excluded from consideration.
- At completion of this phase the engineer will be able to select generally area through which highway can traverse.
- ~~It~~ In the presence of any historical archaeological site the ~~route~~ route that transverse it is excluded from further consideration.

Q3 Ans

The vehical performance in highway design is very important because of following points:

- Adequate passing and sloping sight distance.
- Acceleration and deceleration lanes.
- Timing of signalized intersection.
- Braking characteristic also effects vehical performance.
- Climbing or passing lane.
- Free Way ramps.
- Setting speed limits.

Q4 Ans

Directional Distribution

High way must be design to adequate serve the peak-hour traffic volume in the peak direction of flow. In directional distribution

The total traffic hourly in both directions is used to design two lane roads. In the design of highway with more than two lanes and on two lane roads where important intersections are encountered or where additional lanes are to be provided. Later knowledge of the hourly traffic volume for each direction of travel is essential.

Example:-

If 80% of DHU is in one direction at least three lanes in each direction would be needed for 3200 uph.

Q5 Ans

Following of classification of surface distress made

1) Disintegration

This is in the form of stripping or removal of paving materials. Which can result from such thing as loss of bonding and chemical reactivity, traffic abrasion aggregate degradation or binder aging.

2. Distortion

This is in form of deformation which can result from such thing as excessive loading, densification or subgrade issue.

3) Fracture

This could be in the form of cracking or breaking, generally due to excessive loading and thermal changes.

Q# 06 Ans

1) Alligator Cracking

Alligator cracking is a series of interconnecting cracks caused by fatigue failure of asphalt surface under the repeated traffic loading. The cracks initiate from the bottom of the asphalt surface where tensile stress and strain is highest under a wheel load.

2) Block Cracking

Block cracking are inter connected

cracks that divide the pavement into approximate rectangular pieces.

Block range in size 1 by 1 foot to 10 by 10 feet. It is caused by shrinkage by asphalt concrete and daily temperature.

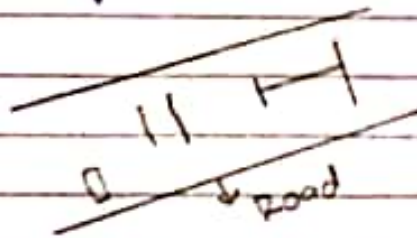
3) Longitudinal Cracking

Longitudinal cracks are parallel to the pavement center line or laydown direction cause shrinkage of AC surface due to low temperature of the asphalt.

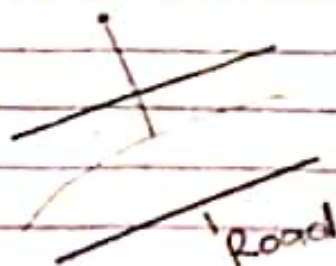
4) Transverse Cracking

Transverse cracks are extend across the pavement at approximate right angle to the pavement center line or direction of lay down. There type of cracks are not usually load associated.

Transverse Cracks



5) longitudinal cracking



Block Crocking.

