

University of Al-Maarif
College of Engineering
Department of Civil Engineering



TRAFFIC ENGINEERING

SECOND LECTURE

Lecture rs:

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Characteristics of the Driver, the Pedestrian, the Vehicle, and the Road

The four main components of the highway mode of transportation are:

1. The driver
2. The pedestrian
3. The vehicle
4. The road

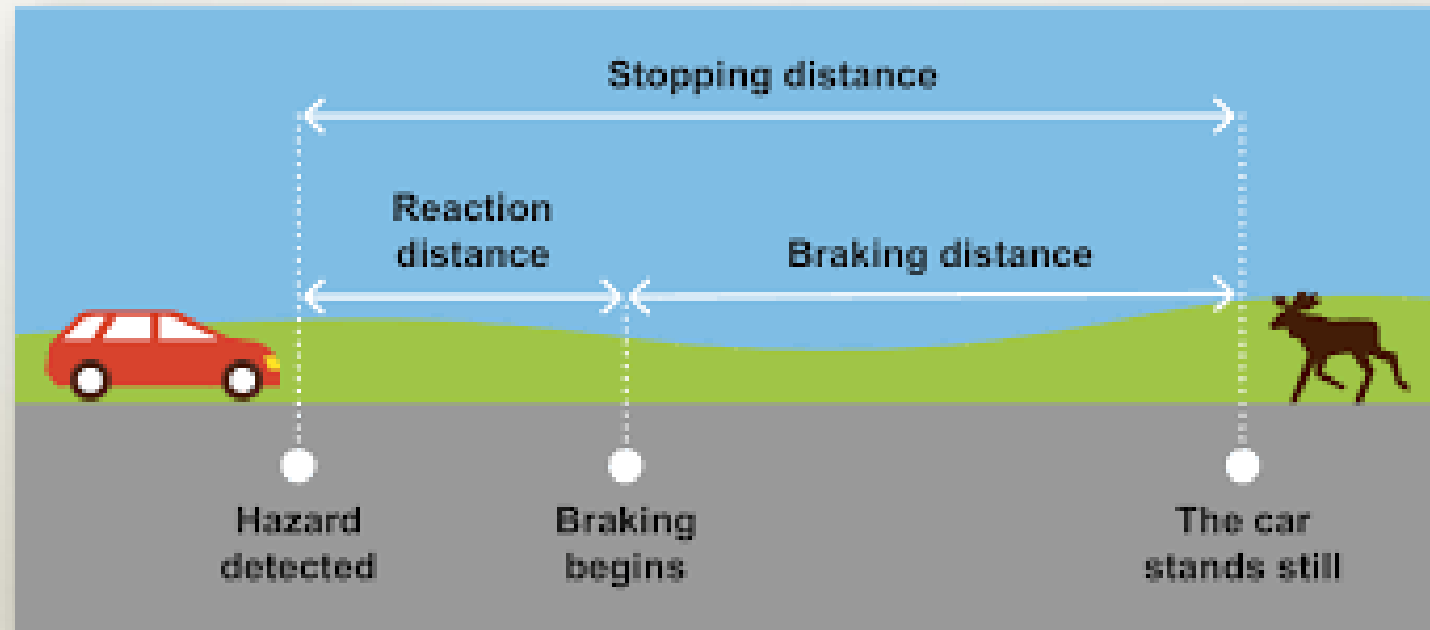
Driver Characteristic

Vision is the most important.

Perception/Reaction Time (PRT) the time required to perceive and react

- Perception: perceiving the presence of an event in the field of vision
- Identification: driver identifies and understands the event
- Emotion: driver decides how to react to the event
- Reaction: driver executes the decision

PIER Perception-Reaction Time: is an important factor in the determination of braking distances and the length of the yellow phase at signalized intersections, the perception-reaction time varied from 1.26 to over 3 seconds, Recommendations made by the American Association of State Highway and Transportation Officials (AASHTO) that **2.5** seconds for stopping-sight distances.



A decorative graphic on the left side of the slide, consisting of several overlapping, parallel lines in shades of blue and green, forming a stylized corner or frame element.

Example:

A driver with perception/reaction time of 2.5 seconds is driving at 50 km/h when he observes an accident has blocked the road. How far would the vehicle travel, in meter, before being able to apply the brakes?

Answer:

Pedestrian Characteristic

Same Characteristics of driver, with addition of others which influence the design and location of pedestrian control devices, such as:

- Special pedestrian signals.
- Safety zones and islands at intersections.
- Elevated walkways.
- Crosswalks.

Significant differences have also been observed between male and female walking speeds.

Vehicle Characteristic

Criteria for the geometric design of highways are partly based on the:

1. Static characteristics: include

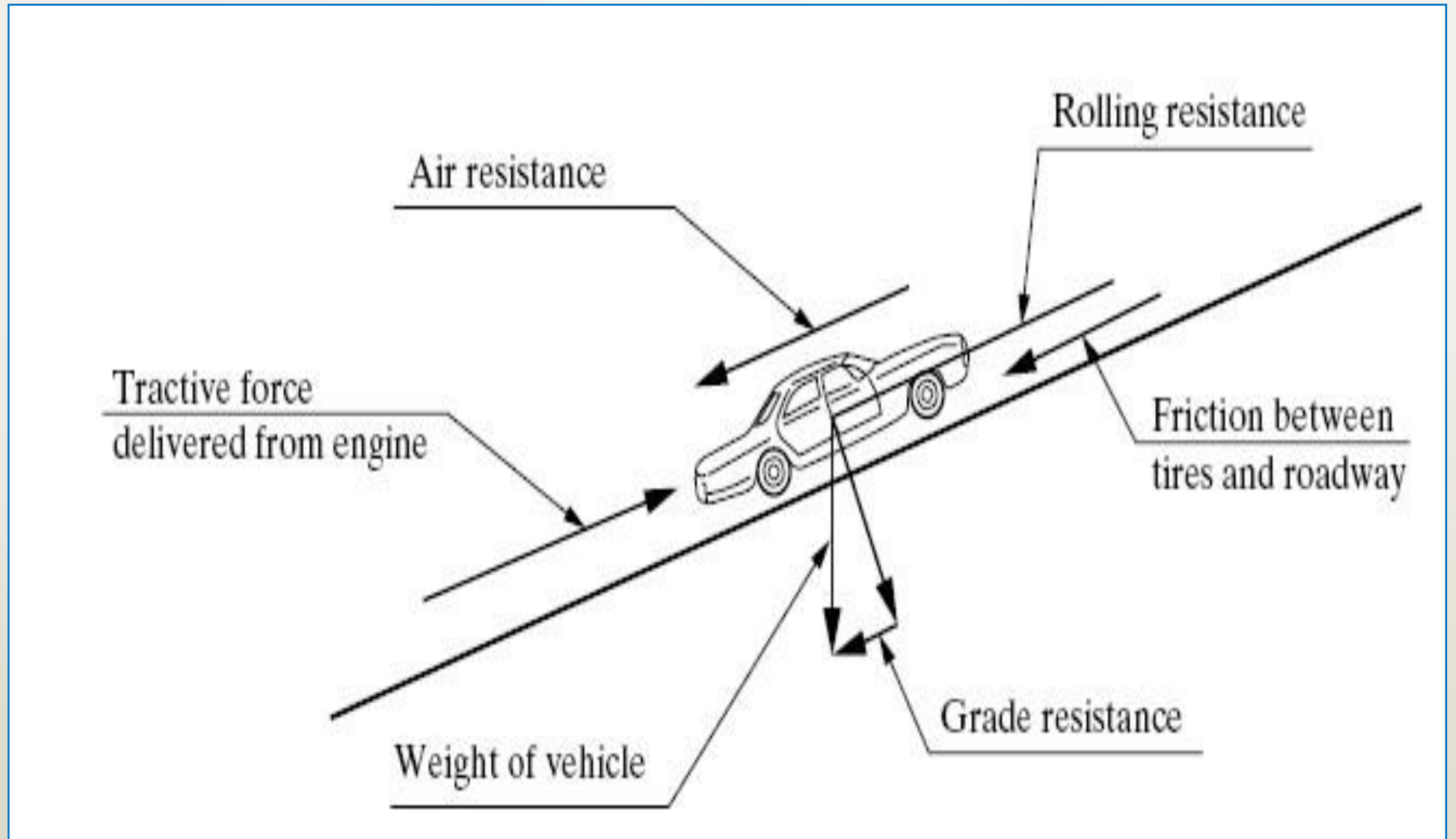
- weight and size of the vehicle.
- design standards for physical components of the road. These include
 - lane width,
 - shoulder width,
 - length and width of parking bays,
 - and lengths of vertical curves.

2. Kinematic characteristics: involve the motion of the vehicle without considering the forces that cause the motion.

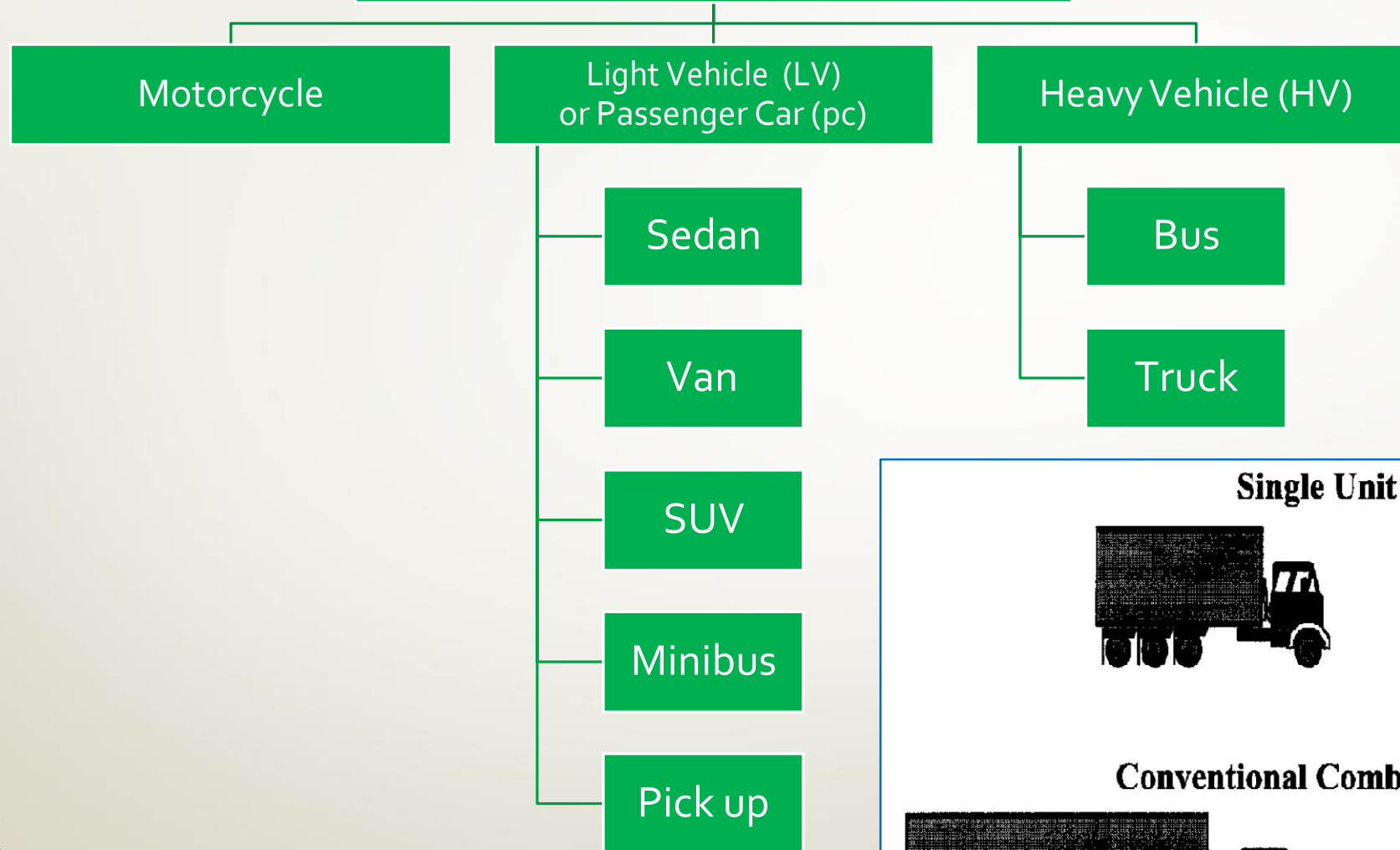
3. Dynamic characteristics: involve the forces that cause the motion of the vehicle.

- Air resistance
- Grade resistance
- Rolling resistance
- Friction resistance
- Curve resistance *

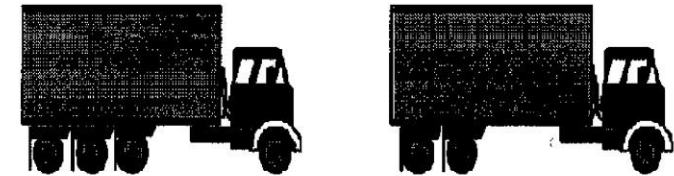
Vehicle Characteristic



Type of the vehicle



Single Unit Trucks



Conventional Combination Vehicles



5-Axle Tractor Semi-Trailer



6Axle Tractor Semi-Trailer



THANK YOU FOR
LISTENING