Speed and Control - Stopping Distances

The Arizona Chapter

SWANA

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Hazard Perception, Reaction and Vehicle Emergency Stopping Distances
Over the past two decades, the number of truck accidents has increased by 20%. According to the Federal Motor Carrier Safety Administration (FMCSA),

When the driver of a garbage truck has an accident many times the result or failure is not seeing the other party. It may be the truck is going too fast that the driver can’t react or turns in front of a pedestrian or bicyclist. Even motor vehicles can be difficult to see.
Five Most Common Words on a Crash Report???

I

DID NOT

SEE IT
So... What’s the following distance out there? 30 MPH?
So... What’s the following distance out there? What does ADOT Recommend?

• 1 second for every 10 feet of vehicle length for speeds below 40 mph
  30’ truck = 3 seconds, 40’ truck = 4 seconds, 50’ truck/trailer = 5 seconds
• Add 1 second for speeds above 40 mph
  30’ truck = 4 seconds, 40’ truck = 5 seconds, 50’ truck/trailer = 6 seconds
What adds to total stopping distance?

- Perception Distance  
  1 second @ 30 mph = 34 feet
- Reaction Distance  
  1 second @ 30 mph = 34 feet
- Braking Distance  
  ???
Actual Braking Distance

27 Yard, Drum, Loaded – 15,600 lbs
Actual Braking Distance
27 Yard, Drum, Loaded – 15,600 lbs

30 MPH - 187 Feet
25 MPH - 102 Feet
Actual Braking Distance
31 Yard, Drum, Loaded – 15,980 lbs

35 MPH - 97 Feet
25 MPH - 43 Feet
Actual Braking Distance
31 Yard, Drum, Loaded – 15,980 lbs
Actual Braking Distance
31 Yard, Disc, Loaded – 16,220 lbs
Actual Braking Distance
31 Yard, Disc, Loaded – 16,220 lbs
Actual Braking Distance
DRUM versus DISC

35 MPH - 97 Feet

35 MPH - 59 Feet
Actual Braking Distance

DRUM versus DISC

30 MPH - 219 Feet

30 MPH - 113 Feet
Actual Braking Distance
Rear Load, Drum, Kubota w/Trailer, Loaded – 11,440 lbs

NO Brakes
25 MPH - 42 Feet

Brakes
25 MPH - 32 Feet
Actual Braking Distance
Rear Load, Drum, Kubota w/Trailer, Loaded – 11,440 lbs
Three things add up to total stopping distance:
Perception Distance
+ Reaction Distance
+ Braking Distance

= Total Stopping Distance