SPEED STUDIES

- Spot Speed Studies
- Speed and Delay Study

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Factors Affecting Speed Studies

- Geometric feature of the road
- Traffic regulations & control
- Traffic volume on routes
- Purpose of the trip
- Time of travel
- Climatic & environmental factors
- Type of vehicle, load & its condition
- The characteristics of the driver

Some basic terms

1. Spot speed: instantaneous speed of a vehicle at a specified cross-section or location
2. Average speed: it is the average of spot speeds of all the vehicles passing a given point on the highway
3. Running speed: It is the average speed maintained by a vehicle over a particular stretch of road, while the vehicle in motion
4. Travel speed(overall speed): Effective speed of travel and is obtained by dividing the route length by the total travel time

Speed study

A. Spot speed study
B. Speed and delay study

A. Spot speed studies

1. Space mean speed: It represents the average speed of vehicles in a certain length of road

   $V_s = 3.6dn/t$

2. Time mean speed: It represents the speed distribution of vehicles at a given point on the roadway

   $V_t = V/n$

Use of spot speed

- Planning traffic regulation & control measures such as speed limit, etc.,
- Design or redesign of various geometric elements of the road
- To decide the design speed of existing or new facilities
- In accident studies & preventive measures
- Study of traffic capacity
- To find the speed trends with respect to last several years
- To compare the behavior of diverse types of drivers & vehicles under specified set of conditions

Numerical on Speed Study

Speed Range, kmph	Frequency
0-10	15
10-20	30
20-30	60
30-40	115
40-50	340
50-60	470
60-70	250
70-80	135
80-90	70
90-100	10
100-110	5
	1500

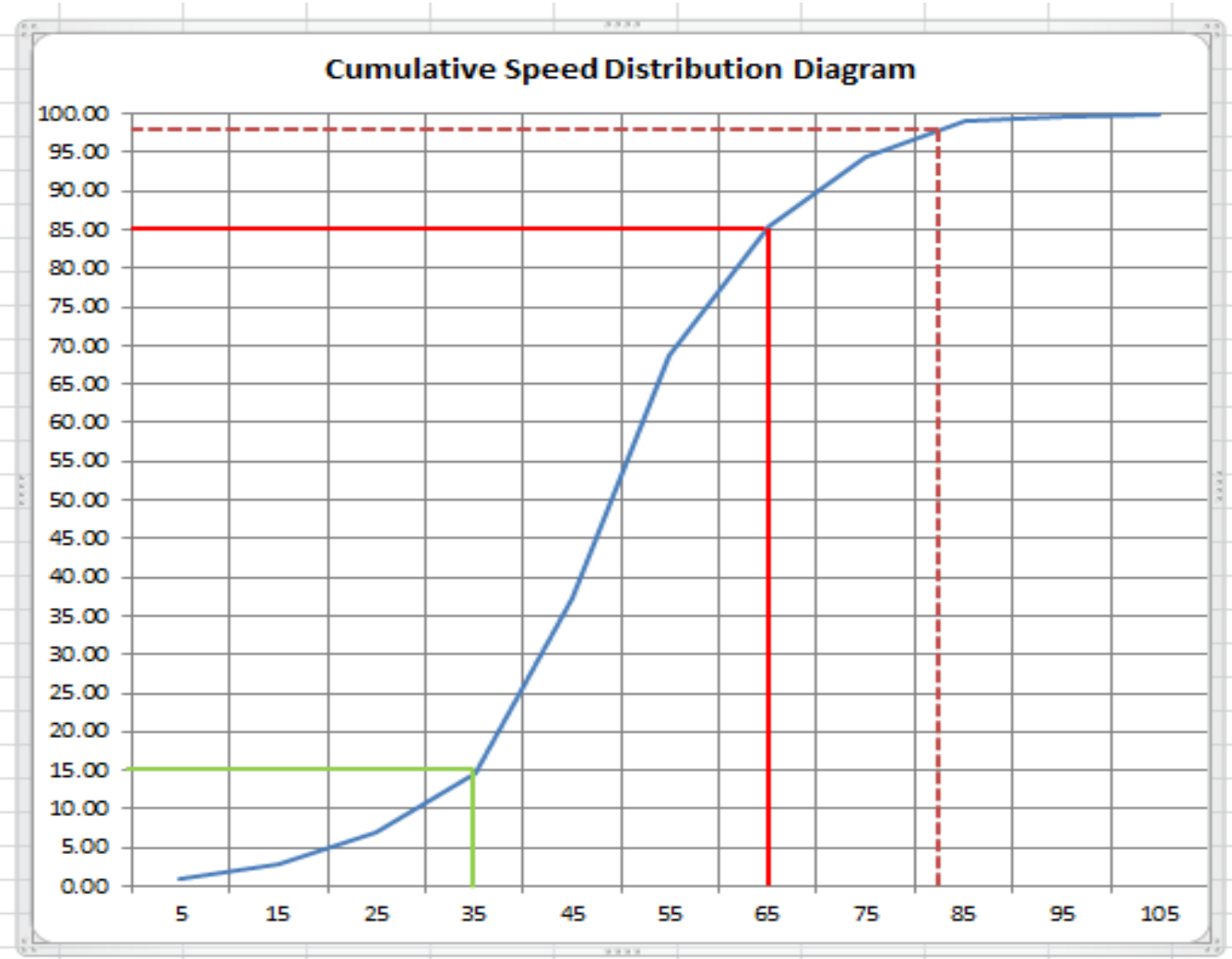
To find/calculate
Upper and lower speed limits for installing speed regulations
Design speed for checking geometric elements

Given Data	Approach
Speed Range	Mid Speed
Frequency	% Frequency
	Cumulative % Frequency
	Plot and obtain values for upper and lower speed limits and design speed.

Numerical on Speed Study

Speed Range, kmph	Mid speed, Kmph	Frequency	%, frequency	Cumulative frequency
0-10	5	15	1.00	1.00
10-20	15	30	2.00	3.00
20-30	25	60	4.00	7.00
30-40	35	115	7.67	14.67
40-50	45	340	22.67	37.33
50-60	55	470	31.33	68.67
60-70	65	250	16.67	85.33
70-80	75	135	9.00	94.33
80-90	85	70	4.67	99.00
90-100	95	10	0.67	99.67
100-110	105	5	0.33	100.00
		1500		

Numerical on Speed Study



Numerical on Speed Study

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80-90	70
90-100	10
100-110	5
	1500

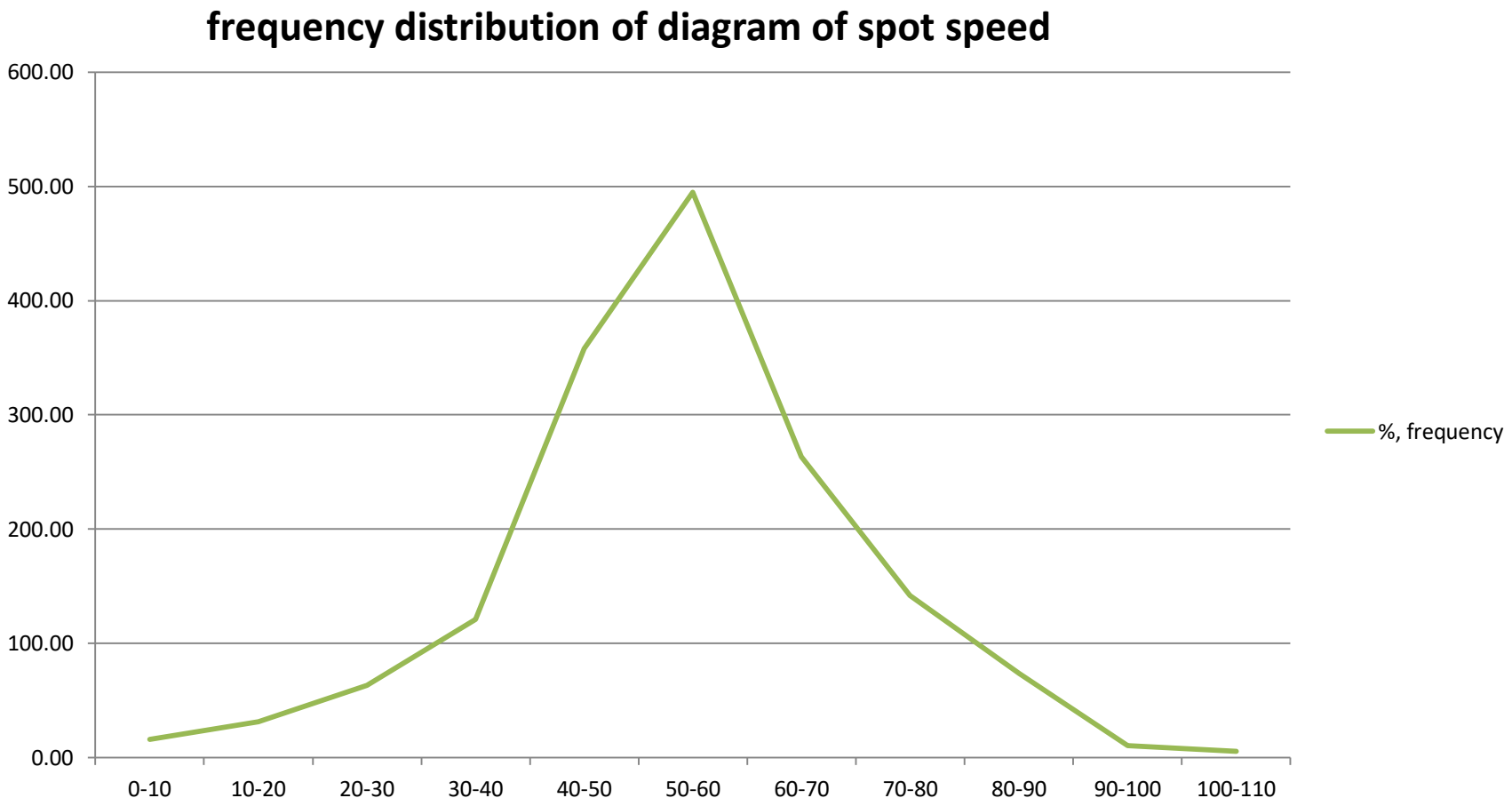
To find/calculate
Determine most preferred speed at which maximum portion of vehicle

Given Data	Approach
Speed Range	Mid Speed
Frequency	% Frequency

Numerical on Speed Study

Speed Range, kmph	Mid speed, Kmph	Frequency	%, frequency
0-10	5	15	1.00
10-20	15	30	2.00
20-30	25	60	4.00
30-40	35	115	7.67
40-50	45	340	22.67
50-60	55	470	31.33
60-70	65	250	16.67
70-80	75	135	9.00
80-90	85	70	4.67
90-100	95	10	0.67
100-110	105	5	0.33
		1500	

Modal speed


frequency distribution of diagram of spot speed
600.00
500.00
400.00
300.00
200.00
100.00
0.00
0-10
10-20
20-30
30-40
40-50
50-60
60-70
70-80
80-90
90-100
100-110
%, frequency

Speed and Delay studies

Methods of conducting the studies:

a. Floating car method/riding check method
b. License plate method/ vehicle no. plate method
c. Interview technique
d. Elevated observations
e. Photographic technique