

### 3.4 TRAFFIC SIGNALS

Traffic signals are control devices which could alternately direct the traffic to stop and proceed at intersections using red and green traffic light signals automatically. The main requirements of traffic signals are to draw attention, provide meaning and time to respond and to have minimum waste of time. Advantages of traffic signals:

Properly designed traffic signals have the following uses:

- They provide orderly movement of traffic and increase the traffic handling capacity of most of the intersections at grade.
- They reduce certain types of accidents, notably the right-angled collisions.
- Pedestrians can cross the road safely at the signalized intersection.
- The signals allow crossing of the heavy traffic flow with safety.
- Signals provide a chance to crossing traffic of minor road to cross the path of continuous flow of traffic stream at reasonable intervals of time
- Automatic traffic signal may work out to be economical when compared to manual control.

#### Disadvantages of traffic signals:

- The rear-end collisions may increase.
- Improper design and location of signals may lead to violations of the control system.
- Failure of the signal due to electric power failure or any other defect may cause confusion to the road users.

#### Type of traffic signal

The signals are classified into the following types:

1. Traffic control signals
  - a. Fixed-time signals
  - b. Manually operated signals
  - c. Traffic actuated (automatic) signal
2. Pedestrian signal
3. Special traffic signal

The RED light is meant for STOP, the GREEN light is meant for GO and the AMBER or YELLOW light allows the CLEARANCE TIME for the vehicles which enter the intersection area by the end of green time, to clear off.

***fixed-time signals*** or pre-timed signals are set to repeat regularly a cycle of red, amber

and green lights. The timing of each phase of the cycle is predetermined based on the traffic studies and they are the simplest type of automatic traffic signals which are electrically operated. The main drawback of the signal is that sometimes the traffic flow on one road may be almost nil and traffic on the cross road may be quite heavy.

*TRAFFIC ACTUATED SIGNALS* are those in which the timings of the phase and cycle are changed according to traffic demand.

#### *1. Vehicle Actuated Signal*

In fully actuated traffic signals the detectors and a computer assigns the right of way for traffic movements on the basis of demand and pre-determined programming. But these are very costly to be installed at all intersections.

#### *2. Semi-vehicle Actuated Signal*

In semi-actuated traffic signals the normal green phase of an approach may be extended up to a certain period of time for allowing a few more vehicles approaching closely, to clear off the intersection with the help of detectors installed at the approaches.

#### *manually operated signals*

This type of signal operated by manually. normally traffic police can operate this type signals.

### **PEDESTRIAN SIGNAL**

Pedestrian signals are meant to give the right of way to pedestrians to cross a road during the “walk period” when the vehicular traffic shall be stopped by red or stop signal on the traffic signals of the road.