

## How do traffic signals work? There are three basic types of traffic signals:

- 1. Pre timed:** The signal serves each phase of traffic without sensing any traffic at the signal.
- 2. Semi Actuated:** The main flow of traffic won't sense any traffic, but the side street senses cars.
- 3. Fully Actuated:** All phases of traffic sense cars and the signal cycles on demand. The controller is programmed for minimum and maximum green times. The green phase of traffic will terminate in two ways: The green phase served its maximum time, or the phase "gapped out" (excessive amounts of time between cars).

## How does a traffic signal sense cars?

When a signal is installed, multiple 6 ft by 6ft coils of wire are placed under the road surface. These wires are connected to the controller equipment. A small electrical signal is present on the wires and when a vehicle drives over the loops it changes the inductance value on the wire. This change of inductance is recognized as a vehicle presence and the controller acts accordingly. Vehicles should always stop at the white "stop bar" painted on the road. This is where the last loop in your lane is located. Usually there are multiple loops per lane in order to achieve good vehicle detection. Loops can also count vehicles.

## Why do some lights stay green when there are no cars present?

If the signal was designed to operate as a pre timed or semi actuated signal, it could rest green until the controller allows the next phase to go green.

Sometimes the loop wires become damaged and the signal controller will interpret the damaged wires as a vehicle call. This will hold the phase green for the maximum amount of seconds programmed into the controller.

If the signal is running in a coordinated string of traffic signals, it will hold green in order to maintain its coordination with the other signals.

## How does a fire truck change the lights to green?

Most fire engines in Cleveland have a high frequency strobe light that is mounted on top of the engine. The controller equipment at the signal has a directional detector that sees the engine coming. The controller equipment safely clears any

cross street traffic, pedestrians, and then gives him the green light. Once the engine has passed, the light will cycle normally.

### **Can I make the light change to green by flashing my headlights?**

No. If you think you have done this, the light was in the process of changing anyway.

### **How are traffic signals coordinated in a system?**

The traffic signal controllers are very sophisticated. They are based upon high speed microprocessors that make thousands of logic calculations every second. Very accurate time clocks are integrated into the controllers functions. If all the clocks at each intersection are set the same, the controller knows when to coordinate each coordinated phase based upon the amount of time that has elapsed since the last midnight. This allows the signals to be coordinated together without connecting wires between them.

### **Who do I call if I see a problem with a traffic signal?**

If a bulb is burned out or the signal has no bulbs burning at all, please contact Cleveland Utilities at 472-4521. This number is available 24 hours a day. If the signal is just not functioning properly, please contact the City Traffic Engineering Department Monday-Friday, 8:00 A.M.-5:00 P.M. at 559-3330. If you experience problems at a signal and it is not during regular business hours, you may contact Cleveland Utilities at 472-4521 or wait until the next business day.