from the smooth movement of the traffic through groups of signals on an arterial street. This helps to increase traffic safety and reduce accidents.

The City's Public Works Department, Engineering Division is constantly reviewing the City's signal system by monitoring traffic volumes on streets and turning movements at busy intersections. This information is then used to help traffic flow easier and with less delay. The goal of signal coordination is to get the greatest number of vehicles through the system with the fewest stops in a comfortable manner. The ideal goal would be to allow vehicles to proceed through the system without ever stopping. Unfortunately, this is not possible even in the best designed systems. As a result, the busiest traffic movements are given precedent over the smaller ones.

Other Traffic Informational Brochures Available:

Avoiding Parking Tickets
Children At Play
Left Turn Traffic Signals
Pedestrian Signals
Speed Limits; How Are They Set
Stop Signs
Traffic Safety Tips
Traffic Signals

If you have questions, requests or suggestions concerning traffic, please call the Department of Public Works at (785) 309-5725
TDD: (785) 309-5747
Website: www.salina-ks.gov

Revised November 2011

City of Salina
Department of Public Works
PO Box 736, 300 W Ash
Salina, KS 67402-0736

TRAFFIC SIGNAL SYSTEMS

City of Salina

DEPARTMENT OF PUBLIC WORKS

Each year, the City receives many inquiries concerning the operation of traffic signals within the City. The public's understanding of the function of traffic signals can improve driving habits by reducing speeding and associated traffic accidents. The more drivers know about the operation of traffic signals, the less they will be frustrated when waiting for the signal to change.

Why Are Traffic Signals Needed?

As traffic volumes increase beyond the capability of lesser controls such as a 4-way stop, it is necessary to install a traffic signal. Before installing a traffic signal at an intersection, established minimum criteria must be satisfied. A review includes: the amount of vehicular and pedestrian traffic, the need to provide interruption to the major flow for side street vehicles and pedestrians, special conditions such as hills and curves, the accident history of the intersection, and the proximity to schools.

Advantages of Traffic Signals

Signals offer maximum control at intersections by relaying messages of what to do and what not to do. The primary function of any traffic signal is to assign right-of-way to conflicting movements of traffic at an intersection by means of time separation.

By alternating right-of-way to various traffic movements, signals provide for the orderly movement of conflicting flows. They may interrupt extremely heavy flows to permit the crossing of minor movements that could not otherwise move safely through an intersection.

When properly timed, a traffic signal increases the traffic handling capacity of an intersection, When installed under conditions that justify its use, a traffic signal is a valuable device for improving the safety and efficiency of both pedestrian and vehicular traffic. In particular, signals may reduce certain types of accidents, most notably right-angle (broadside) collisions.

Disadvantages of Traffic Signals

While many people realize that traffic signals can reduce the number of right-angle collisions at an intersection, few realize that signals can also cause a significant increase in rear-end collisions. Normally, traffic engineers are willing to accept an increase in rear-end collisions for a decrease in the more severe right-angle accidents. Traffic signals are not a "cure-all" for traffic problems. The primary goal of the traffic engineer is to attain the safest and most efficient overall traffic flow possible. In addition to an increase in accident frequency, unjustified traffic signals can also cause excessive delays, disobedience of signals, and diversion of traffic to residential streets.

Traffic Signal Equipment

Traffic signals are more costly than is commonly realized, even though they represent a sound public investment when justified. A modern signal can cost up to $200,000. This money pays for:

- Traffic Signal Controller
- Signal Heads
- Vehicle Detectors
- Signal Poles and Supports

The controller is the signal's brain that operates the selection and timing of traffic movements in accordance with the varying demands of traffic. Signal faces are part of a signal head provided for controlling traffic in a single direction. They usually include solid red, yellow, and green turn arrow lights and can contain one or more signal faces. Detectors are devices for indicating the passage or presence of vehicles.

Special Signal Functions

At times the signals may be flashing red. In this instance, drivers are required to follow the same rules as at a 4-way stop. During a flashing yellow signal, drivers can proceed past the signal with caution. When a traffic signal has gone dark due to a power failure, it is also considered to function the same was as a 4-way stop.

Signal Timing

Traffic signals assign the right-of-way to various traffic movements for different time intervals depending on traffic flow levels. Pre-timed signals have pre-set time intervals for different times of the day including the morning, noon, and evening peak travel periods. The City has a few pre-timed signals remaining in the downtown area and older parts of the City.

Traffic actuated signals use detectors located in the pavement on traffic signal approaches to monitor and assign the right-of-way on the basis of changing traffic demand. These signals attempt to assign most of the available green time to the heaviest traffic movements.

Coordination of Traffic Signals

The coordination of traffic signals to facilitate smooth traffic flow along a street is a proven technique. The quality of flow along a street is a funciton of the spacing of the signals along the street, the prevailing speed of traffic, and the traffic signal cycle length. The amount of traffic and the proportion of the green time given to the progressed movements are also important. The greatest benefit to the public for each dollar spent on traffic operations comes