Video Detection

Video cameras are now being used to change the indications at a traffic signal. Cameras are aimed at the approaches to the intersection for traffic monitoring purposes. The monitoring is being done without human intervention. The image from the video camera is processed electronically and analyzed to determine if there are vehicles located in the detection zones (areas predetermined during setup to monitor for traffic). During the installation, detection zones are drawn with the assistance of a mouse and a monitor. The zones are located behind the stop bar (the solid white line designating the point where a car should not cross on red) in each lane that is to be monitored. Left turn lanes are usually monitored separately using the same camera through programming in the setup.

By installing video cameras as the means of detecting when there are vehicles needing to be serviced on any given approach, several negative impacts are avoided. Traditional methods of vehicle detection use inductive loops. This type detection requires closing lanes and is often short lived. Keeping crews out of traffic as much as possible is safer for employees and motorists. A damaged loop must be replaced in the same manner in which it was originally installed, whereas replacing a camera can be done much faster and can, on occasions, be replaced without blocking traffic at all. Cameras that are properly installed will usually outlive an inductive loop and often provides much greater flexibility and is immune to damage from utility cuts and shifting pavement.

The first intersection in Johnson City where video detection was installed at a traffic signal was in 2000. The first project was at the intersection of State of Franklin Road with Market Street. In addition to the normal benefits of video detection, this intersection was under construction for several months where lanes were being shifted around to permit construction crews to work. If loops were used as the method of detection, all detection would have been lost at the beginning of the project and would not have been restored until the end of the project. With this intersection being extremely busy and congested without construction, loosing all efficiency gained by detection during construction would have made congestion much worse. Video detection allowed zones to be moved as lanes were moved and operation without detection was minimized.

Some intersections with video detection have a connection to the office where the video images used to control the traffic can also be viewed to determine where problems may be occurring and adjustments can be made more rapidly.