

# Traffic Signals – Frequently Asked Questions



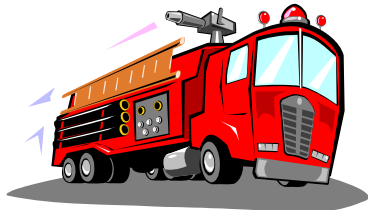
Traffic signals are one of the most asked-about features on the county roadway system. They give us gaps to enter the highway, but they also hold us up once we're on our way. They give a convenient place for pedestrians to cross, but the "Walk" light only stays on for a few seconds. They're often requested to enhance safety, but they have the highest crash rates statewide. Here's a few of the most frequently asked questions and answers on traffic signals:

## How much do signals cost?

If there aren't any road improvements needed, such as adding turn lanes, then a traffic signal contract will usually cost approximately \$200,000 to \$250,000. When additional costs such as control equipment, project inspection, and design are taken into account, the cost edges closer to \$300,000. There are also ongoing costs for electricity, painting, relamping, and other maintenance.

## What are the floodlights on the signal arms for?

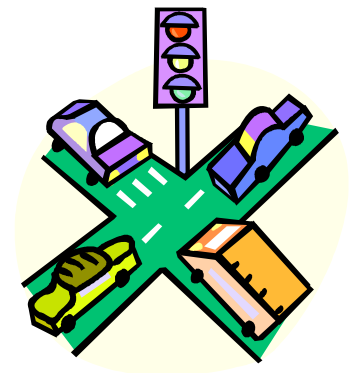
These white lights are activated by emergency vehicles or trains, when the system receives a signal to override its normal timing program. Emergency Vehicle Preemption (EVP) is activated by a special transmitter within the emergency vehicle which forces the system to give a green light to that approach, thereby reducing emergency response



times and the risk of a crash. In most states, including Minnesota, it's illegal to possess one of these devices unless you're driving an emergency vehicle. New EVP systems allow for the system to only recognize strobe signals with an embedded code, making non-emergency or unscrupulous use impossible.

## How do the signals work?

This depends on where you are. In Washington County, traffic signals operate using vehicle detectors, usually a wire loop buried in the pavement. These work like a metal detector, sensing the car's magnetism, not the weight. Some newer signals use computerized video detection, and although these are not yet as reliable as roadway loops, they allow the flexibility to make changes. The detectors send a signal to the main computer, causing the light to change when there's a gap in the traffic. The signals do have some fixed timings entered, such as minimum and maximum green times, yellow time, or pedestrian timing, but otherwise the signal responds to the traffic that's present. In the middle of the night, the signal might stay green for hours in the same direction if there's no traffic.



### **Will a signal make the intersection safer?**

A traffic signal should not be expected to reduce the total number of crashes at an intersection. Traffic signals in Minnesota, according to a 2001 study, have a statewide crash rate of between 7 and 8 crashes for every 10 million entering vehicles. An all-way stop has an average crash rate of 6 crashes for every 10 million entering vehicles, and a two-way stop has an average of only 4 crashes per 10 million entering vehicles. Of course, this depends on other site conditions, but, on average, a signal will reduce right-angle crashes while causing an increase in rear-ends and an overall increase in crashes. Unfortunately, drivers still occasionally run red lights or fail to notice stopped traffic in front of them, and many of the County's serious and fatal crashes occur at signals. It's therefore very important to study the intersection and determine that the signal is in fact the best option, if not a perfect one.



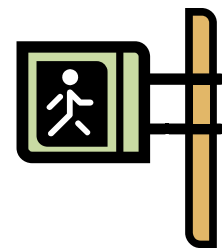
### **How does the County decide where to install signals?**

Signals are usually warranted based on minimum traffic volumes for 8 hours of a typical weekday. These minimum volumes, or "warrants", vary depending on the speed of the roadway and the number of approach lanes. For a signal to be approved, it needs to meet the warrants, but also be justified. To be considered "justified", other considerations must be taken into account, including access and distance to nearby signals, lane geometry, and future road plans. If all these conditions are satisfied, and if funding is available, a signal may be installed.



### **Why doesn't the "Walk" light stay on longer? I can only get halfway across before it starts flashing!**

The "Walk" light isn't supposed to stay on for more than a few seconds. The state standard is seven seconds, but can be as little as five seconds. The "Walk" light only means that it's okay to start crossing. If you started crossing right when the "Don't Walk" started flashing, it should flash long enough for most people to make it all the way across the road before the "Don't Walk" stops flashing and the light starts to change. If the signal is flashing "Don't Walk", it is okay to continue crossing, but do not start crossing if you haven't already.



### **Why don't we allow left turns on green more often?**

Minnesota policies have generally required that left turns be "protected" (green arrow only) when the speed limit of the oncoming traffic is over 45 mph, when there are dual left turn lanes, when turning volumes are high, or when sight lines are restricted. Relaxing the policy would reduce delay time and save fuel, but would be expected to cause an increase in crashes, especially among pedestrians and older drivers. With the rising cost of fuel, it's possible that this standard could be reevaluated. Allowing the left turn using alternative signal indications, such as a flashing yellow arrow, is being tried experimentally across the country with promising results. If approved for use, these indications could replace some of the traditional phasing, thereby reducing delay.

### **Why can't the signals along a road be timed together to reduce delay?**

All traffic signals in Washington County rely on detectors to maximize their efficiency. Traffic signals typically will not turn red for the main highway until the detectors sense a gap in the traffic stream, which increases efficiency and also safety by reducing the number of vehicles confronted with a yellow light. Unfortunately, these gaps in traffic often occur when a large platoon of traffic is approaching, just out of range of the detectors. This can result in the entire platoon of vehicles arriving at a red light, often for the benefit of just a few vehicles waiting to enter from the sidestreet.

Traffic signal systems can be linked together, but doing so will typically lead to higher wait times for sidestreet traffic and for left turns. When traffic signals are coordinated, they must run on a fixed cycle time to remain in step with each other, and the cycle must be long enough to accommodate the busiest intersection in the corridor. While this coordination is an overall benefit to the system, it is costly to implement and will typically lead to longer wait times to enter the highway. Four coordinated corridors are currently operating on the Washington County highway system:

- Radio Drive (County Rd 13) from Pinehurst Rd to 4<sup>th</sup> St North
- Radio Drive (County Rd 13) at Valley Creek Rd (County Rd 16) and adjacent intersections
- 10<sup>th</sup> St N (County Rd 10) from Greenway Ave to Heron Ave
- West Broadway Ave (County Rd 2) from Everton Ave N to Highway 61

In late 2008, Washington County will be implementing a fifth coordination system on Valley Creek Road (County 16) from Tower Drive to Weir Drive. In subsequent years, County staff will focus efforts on adding corridors and updating the timing plans for the previous four systems, as timing plans become less effective as traffic patterns evolve.

### **What should drivers do when a traffic signal is flashing?**

When a traffic signal malfunctions but still has power, it will often revert to a flashing mode. In some areas, signal lights go into a scheduled flash mode on a daily basis to reduce delay and save electrical costs. When you approach a signal light that is flashing red, you must come to a complete stop (Mn Statute 169.06, Subd. 7).

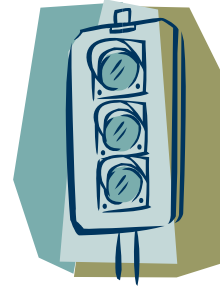
Sometimes, the intersection will flash red in all directions, making the intersection operate like a four-way stop. But at some intersections, the lights may flash yellow for the main roadway, thus making the intersection like a two-way stop, which saves fuel and reduces unnecessary stops. Always make sure it is safe to proceed before entering the intersection, as the crossing traffic may not be required to stop.

If you approach a flashing yellow light, you do not need to come to a stop. However, be alert for drivers entering and proceed with caution.

Signals that are in flashing mode can come back into normal operation at any time and without warning, even when repair workers are not present. The flashing red may change to a solid red, and drivers often fail to notice the difference and run the red light. Proceeding on a solid red light is always illegal and can lead to a deadly crash. Be alert, and make sure that the light is still flashing and that it is safe to proceed before entering the intersection.

### **What should drivers do when traffic Signal Lights Are All Dark:**

During planned or prolonged power outages, stop signs may sometimes be installed to control traffic until the signal is repaired or power is restored. But during unplanned power outages, stop signs are usually not present. When a signal system is completely dark and no stop signs are present, and the signal lights are not covered with sacks, the intersection legally becomes an uncontrolled intersection. But the rules of right-of-way still apply (Mn. Statute 169.20). If you approach a signal system without power and the lights are not covered with sacks:



- Reduce your speed and prepare to stop. You may not have the right-of-way once you arrive at the intersection.
- Vehicles have right of way in the order which they arrive, regardless of which road they arrive from. In heavy traffic, this usually necessitates a complete stop.
- If two vehicles arrive at an uncontrolled intersection at approximately the same time, the vehicle on the left must yield to the vehicle on the right, and left turns must yield to oncoming traffic (Mn. Statute 169.20)

To report a signal malfunction, contact the highway department responsible for the signals. For signals on State highways in Washington County, contact the Minnesota Department of Transportation at 651-234-7500. For signals on County Roads, contact Washington County Public Works at 651-430-4300. If an emergency, dial 911.