# ~~~EVAS~~~~ EMERGENCY VEHICLE ALERT SYSTEM

Presented by: E-Light, LLC Tom Pappas

## What is EVAS?

- Traffic control device designed to improve traffic safety during emergency vehicle runs.
- Provides advance warning of approaching emergency vehicles.
- Activated by a transmitter from a distance of 2,500 feet.

## Why EVAS?

In the State of Michigan there were over 3000 crashes involving public safety vehicles responding to emergencies in a four year period (2004 – 2007).

Nationwide during this same time period there were 136 emergency vehicle fatalities.

Minimize risks faced by emergency vehicles en route to incidents.

## Cause of Emergency Vehicle Accidents

- Failure of non-emergency vehicles to yield the right-of-way to approaching emergency vehicles.
- In a recent survey, 82.9% of drivers are not able to recognize the approaching emergency vehicle in time to react appropriately.
- Failure to recognize the emergency vehicle altogether.

## **EVAS** Operation

- Emergency vehicles must be equipped with a transmitter that is activated on demand via a Department of Defense general control frequency.
- The transmitter is activated and a signal relayed to a receiver located on the light assembly.
- When activated the sign displays an image of a fire truck (MUTCD symbol) which provides a visual warning of approaching emergency vehicle.

#### Operation cont.

The display flashes once per second (MUTCD specification) until the vehicle clears the intersection.

The device automatically shuts off after a pre-set interval when a drop in the signal strength has occurred.

#### **EVAS Trial and Evaluation**

- Wayne State University Transportation Research Group lead by Dr. Tappan Datta and Dr. Pete Savolainen.
- Goals of the study:
  - 1. determine the effectiveness of the alert system
  - 2. impact on traffic safety and operations

#### **Statistical Analysis**

- Traffic conflicts and "violations" were evaluated as surrogate measures of safety
- The frequency and proportion of "violations"
- Proportion of yielding vehicles
- Time difference between emergency vehicle arrival and time which non-emergency vehicle yield or violate the EVAS
- Time required for traffic to restart after the emergency vehicle departed the intersection

### Results

- As the percentage of vehicles yielding to the emergency vehicle increases, the safety potential of the intersection increases as well
- With EVAS the percentage of compliant vehicles increased from 74% to 95%
- The increased percentage was consistent for both through/right turn and left turn movements
- EVAS was shown to effectively increase the proportion of yielding motorists and decrease the proportion of motorists that yielded after crossing the intersection

#### **Results continued**

- If the vehicle does not yield the right-of-way, this action is considered a "violation"
- If the violation results in the violating driver or the emergency vehicle driver being forced to take evasive action this is considered a "traffic conflict"
- As the number of "violations" and "traffic conflicts" increase the safety potential of the intersections decrease and potential of crash occurrence increases
- Dramatic reduction of violations (0.768 per run vs 0.122 per run with EVAS)

#### **Results** continued

Time between first yield and the arrival of the emergency vehicle increased from 6.54 seconds to 9.44 seconds With EVAS drivers tended to resume moving approximately 6.32 seconds after clearance which is a significant improvement over the 3.06 second startup time prior to installation.

## Data Summary

- EVAS was found effective at improving the safety of both the traveling public and emergency vehicle drivers
- EVAS leads to greater compliance and fewer violations
- When violations did occur, they happened earlier, mitigating the hazards to both drivers
- EVAS improved motorist awareness of approaching emergency vehicles consequently reducing risks to drivers at intersections during incident response

## Conclusion

Firefighters, Police Officers and Paramedics will experience an increased level of safety as they are responding to emergencies when E-Light is present. E-Light has been a positive improvement in the emergency field Protecting lives is E-Light's number one priority

#### **Product Summary**

E-Light conforms to all Federal Highway Administration, Manual of Uniform Traffic Control Devices and Michigan Department of Transportation specifications.

Price List of components:

Installation by Wayne County Road Commission \$1500.00/ two devices (Check with your county)

All transmitters are installed in Police, Fire and Rescue vehicles

#### **Contact Information**

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