Understanding the Enemy

Choosing your Battles

Choosing your Attack Strategies

Presented by:
Charlie Ginocchio
of
ADDSCO
Closer than most know, but we still have some work to do

• A video monitor embedded in the dashboard of a Ford Explorer concept vehicle shows a vehicle ahead of it, with a green box around it. Get too close for safety, and the box turns to red, which senses that a crash may be imminent. This makes the seat belts tighten automatically and a computerized voice beckon, "Warning."

• FAST WHEELS: GM's Terracross, a luxury SUV slated for the 2004 market, includes a 'docking port' in the dash - to hold a laptop computer.

GENERAL MOTORS CORP./AP
• Fog-Warning System Planned For I-68 In Western Maryland

• Caltrans Plans 'Fog Detection System' On Highway

• West Virginia Fog Sensor System Operational

DMS, Wx sensors, 511, HAR: we have the tools!
Justification for Investment (sufficient threat)

• Problem Statement; “According to NTSB low visibility accident statistics, multiple vehicle type accidents (pile-ups) present the greatest loss in lives and financial costs on U.S. Highways”.

Before we go to war:
Understanding the Enemy

• The Physics of Fog
    • Definitions
    • Characteristics
    • NWS Products

• Driver Behavior
  – Psychology 101
Before we go to war:  
Understanding the Enemy

• Behavior Modification
  – Target
    • “Reducing vehicle speed differentiation in low visibility will yield the most significant safety improvement”.

• A speed differentiation of 20 MPH results in the trailing vehicle to be gaining on the lead vehicle at a rate of 29.22 ft. per second. In fog conditions of 50 ft. visibility range, a 20 MPH speed differentiation would require the trailing vehicle 1.711 seconds to identify the lead vehicle and reduce their speed by 20 MPH to avoid contact.
Before we go to war: Choosing your Battles

• Known Areas
  – Classifying threat by level of impact
    • # of events, severity of events, number of vehicles, vehicle mix
  – Information Quest
    • Designated Evaluation
    • Piggybacking PITS and permanent installed resources
    • FHWA, AMS and many others here today
Information and warnings of hazardous visibility conditions prior to drivers entering the area of threat (DMS “caution fog ahead”, kiosk, Internet, etc.)

Yield –

No way of statistically validating reduced travel

Vehicle detectors only showed a slight change in driver behavior (reduced speed, increased headway)

Accident statistics would need to be based on significant periods of evaluation time, due to varied conditions

Exit polling (drivers pulled over and questioned) revealed that warnings significantly increased drivers focus and concentration to the roadway (reduced cell phone use, in car conversations, etc.)
Day of Reckoning: Choosing your attack strategy

Use of improved lane marking and road side marker reflectivity, and lighted delineators

Yield-

Vehicle detectors showed a slight increase in vehicle speed and lessened headway when compared to like conditions prior to changes
Use of Dynamic Speed Limit Signs “Advisory Format”

Yield-

Vehicle detectors showed a reduction in vehicle speed and increased headway several times the delta from other studied measures

Exist polling reviled that drivers slowed because they believed the speed limit signs to be enforceable and not just advisory
What’s to be learned from recent utilizations of sensing (U.S. based, road-side technology):
Most post system installation evaluations claim a positive improvement in safety.
Statistically validating the success of a visibility is difficult, long term and costly.
The uses of aviation grade visibility sensors are costly both in initial system installation and maintenance costs.
Inadequate involvement based on the number of system vendors bidding on visibility system projects has lead to exorbitant system costs.
Relying on “RWIS” (snow and ice) centered system vendors and the lack of investigation of “off the shelf” hardware / software system components has contributed to high system costs.
Day of Reckoning: Choosing your attack strategy

Copying your neighbors work is permitted:

**Best Practices for Road Weather Management**

Prepared by
Lynette C. Goodwin
Sr. Transportation Engineer
Mitretek Systems, Inc.

for
Paul Pisano, Team Leader
Road Weather Management Program
Office of Transportation Operations
Federal Highway Administration

Website: [http://www.its.dot.gov/JPODOCS/REPTS_TE/13828.html](http://www.its.dot.gov/JPODOCS/REPTS_TE/13828.html)
Independence Day:

Winning the War

Hard work, perseverance, staying united
Learning from our own mistakes and from the trials of others.....we will triumph

Questions???????