



# Responding to Dust Storms on State Highways

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# Response Strategies

- Preparation
- Field Tactics
- Technology
- Public Education

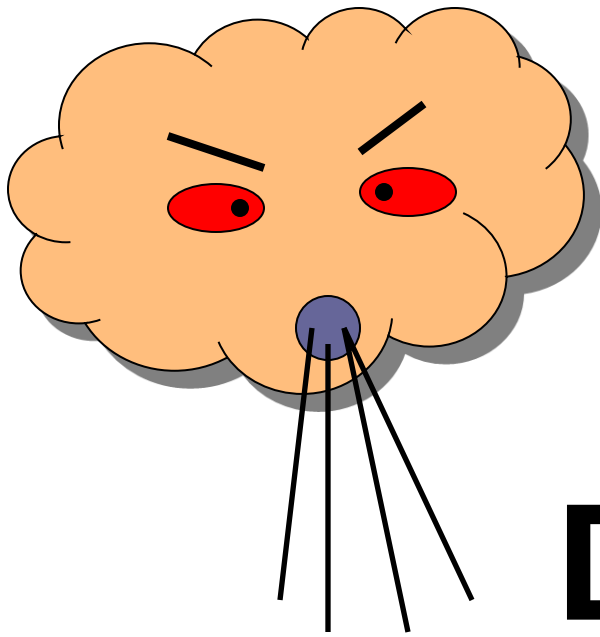
# Preparation

- Alert & trained DOT crews & DPS patrol officers
- Experience: location, season, conditions
- Weather reports: forecasted wind speed, gusts, & direction
- Communication protocol
- Ready to go?

# Field Tactics

- Patrolling & reporting observations
- Slow & go or close & detour?
- Overhead variable message signs (DMS)
- Arizona & New Mexico coordination





**Do We Need a  
Dust Storm  
Warning System?**

# Technology

## *FHWA & ADOT Partnership*

- Rural Innovation Safety Grant
- \$600,000 in 2008
- Installed in 2011; one year evaluation

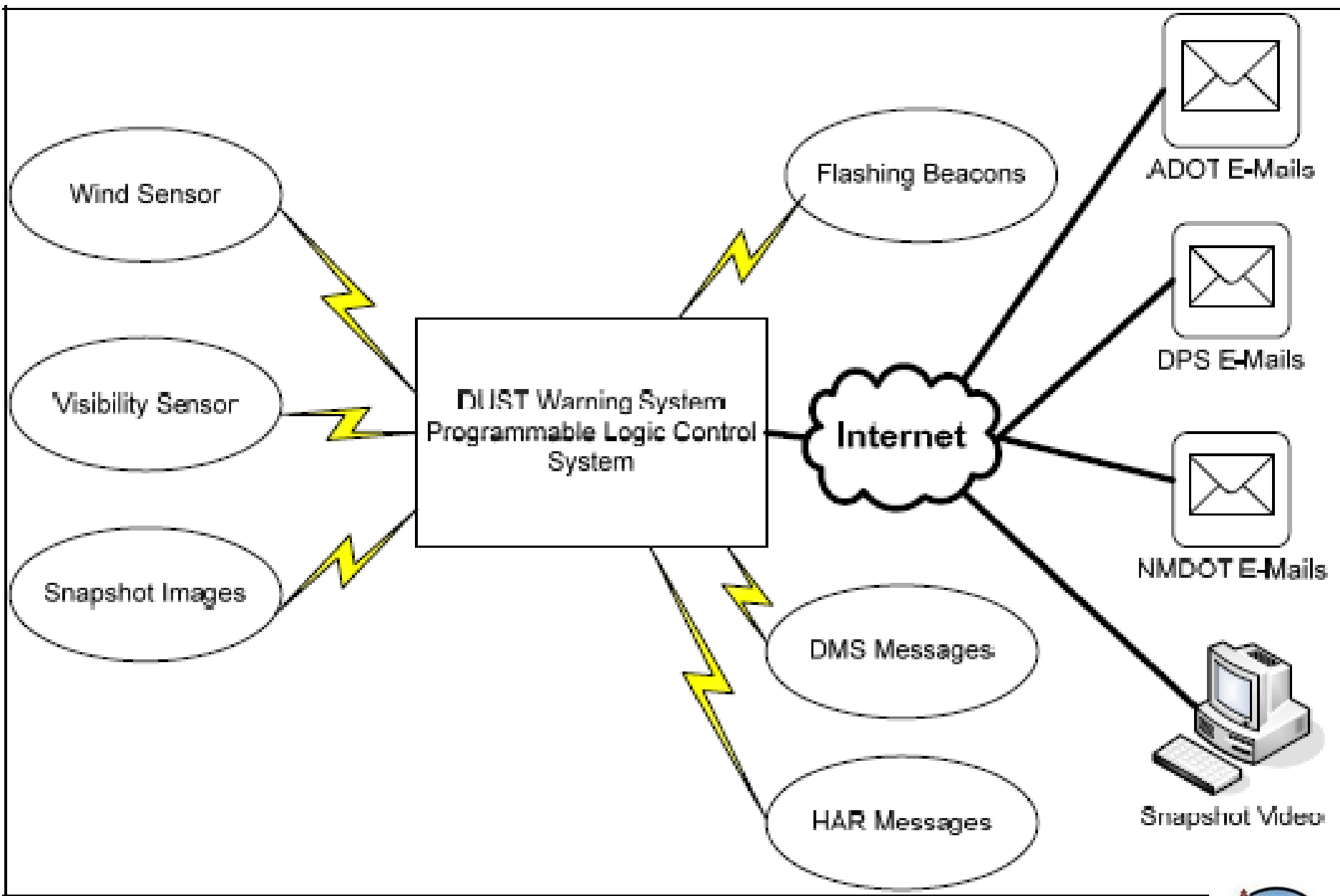




# Technology

## *Sensory Instrumentation*

- RWIS
  - Wind speed: average & gusts
  - Wind direction
  - Visibility
- Cameras



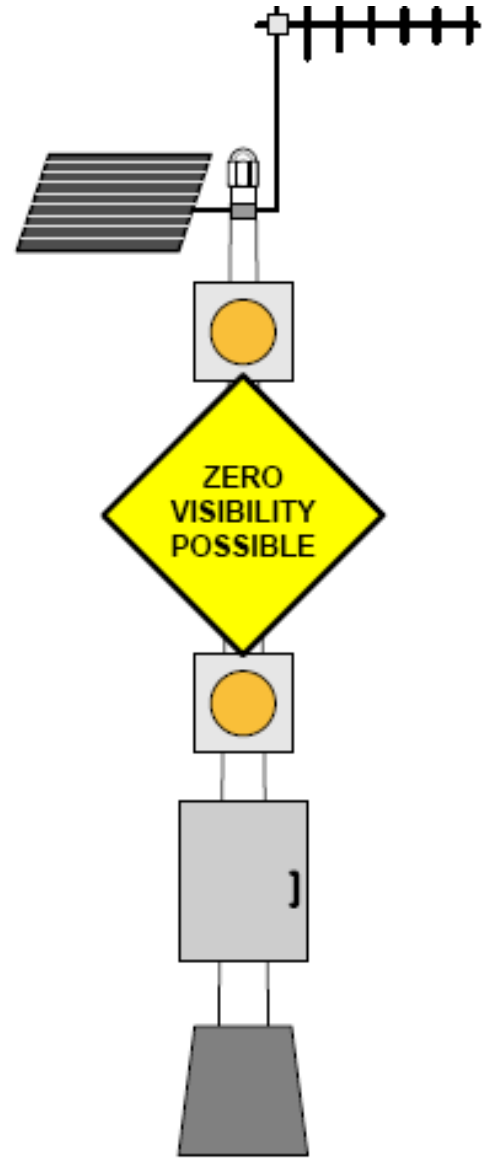


<b>Dragoon</b> <input type="button" value="Camera"/>	<b>Temp</b> 75.4 °	<b>Barometer (InHg)</b> 25.05	<b>Relative Humidity</b> 43.96 %	<b>Wind Speed Visibility (mi.)</b> 4 MPH	<b>Wind Direction</b> SW	<b>Dew Point</b> 56.8 °	<b>Precipitation Type</b> None Precipitation Rate 0.00 in/hr
	<input type="button" value="Camera"/> <input type="button" value="Off Delay"/> 1 Min.	<b>Beacon Control</b> <input type="button" value="Auto"/> <input type="button" value="On"/>	<b>EB Beacons WB Beacons</b> 	<b>Setpoints: Wind / Visibility</b> 	<b>Wind Speed Visibility (mi.)</b> 8 MPH	<b>HAR Control HAR Status</b> <input type="button" value="Auto"/> HAR Wind Warning <input type="button" value="On"/> HAR Dust Warning <input type="button" value="On"/>	<b>HAR Beacon</b> <input type="button" value="On"/>
<b>Bowie</b> <input type="button" value="Camera"/> <input type="button" value="Off Delay"/> 1 Min.	<input type="button" value="Auto"/> <input type="button" value="On"/>			<b>Wind Speed Visibility (mi.)</b> 3 MPH	<input type="button" value="Auto"/> HAR Wind Warning <input type="button" value="On"/> HAR Dust Warning <input type="button" value="On"/>	<input type="button" value="On"/>	<input type="button" value="Auto"/> DMS Wind Warning <input type="button" value="On"/> DMS Dust Warning <input type="button" value="On"/>
<b>San Simon</b> <input type="button" value="Camera"/> <input type="button" value="Off Delay"/> 1 Min.	<input type="button" value="Auto"/> <input type="button" value="On"/>			<b>Wind Speed Visibility (mi.)</b> 5 MPH	<input type="button" value="Auto"/> HAR Wind Warning <input type="button" value="On"/> HAR Dust Warning <input type="button" value="On"/>	<input type="button" value="On"/>	<input type="button" value="Auto"/> DMS Wind Warning <input type="button" value="On"/> DMS Dust Warning <input type="button" value="On"/>
<b>Olga Road</b> <input type="button" value="Camera"/> <input type="button" value="Off Delay"/> 1 Min.	<input type="button" value="Auto"/> <input type="button" value="On"/>						
Arizona Department of Transportation Highway Dust Monitoring System							

# Technology

## *Warning the Public*

- Static signing
- Signing with flashing lights
- Dynamic message signs
- HARS



# Technology

## *Informing the Agencies*

- Email to ADOT, DPS, & NMDOT
- Data collection
- TOC

# Technology

## *Issues*

- Snap shot with very localized view
- HARS questionable
- Reliability of instrumentation & com gear
- Capital + O&M costs
- Budgets, B/C Ratios
- Crews gone home & not checking email
- Both accidents & weather are random
- Needs further evaluation!

# Public Education

- Public Service Announcements thru commercial radio, ADOT internet, etc.
- Roadside warning signs







# Questions?