

A photograph of a two-lane asphalt road stretching into the distance, flanked by sparse desert vegetation. A massive, dense wall of brown dust or sand is blowing across the road from the left, completely obscuring the horizon and the sky. The dust is thick and turbulent, creating a sense of an approaching natural hazard. The sky above the dust is a pale, overcast blue.

Communication Plan for Windblown Dust Research Recommendations

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Background

- ▶ **Research study conducted by ADOT Research Center for ADOT Communications**
- ▶ **Key personnel:**
 - Dianne Kresich, project manager**
 - Tim Tait, sponsor**
 - Sonoma Technology, Inc., prime consultant**
 - Partners in Brainstorms, subconsultant**

Study Objectives

Identify actionable recommendations for:

- ▶ **Most effective means for acquiring information about approaching dust storms**

- ▶ **Best available communication methods to the public and within ADOT**
 - **Intelligent Transportation System (ITS) assets**
 - **Traditional media**
 - **Social media**

Study Process

- ▶ **Review current practices**
 - ▶ **Dust detection and warning practices in Arizona and in other states**
- ▶ **Needs assessment**
 - ▶ **Literature review on driver behavior**
 - ▶ **Survey and focus groups with drivers; document their understanding and experience of driving during dust storms, ADOT messaging**
- ▶ **Recommendations**

Review of Key Findings

- ▶ **Windblown dust events in Arizona occur as a result of:**
 - **Thunderstorm outflow during summer monsoons**
 - **Cold front movement in the fall, winter and spring**
- ▶ **“Hot spots” for dust-related crashes**
- ▶ **Small-scale dust events (“dust channels”) are difficult to predict and detect**

Review of Key Findings

- ▶ **Visibility warning systems in other states are similar to the ADOT Safford District pilot system**
 - ▶ **Forward-scatter optical sensors, CCTV, DMS and HAR**
- ▶ **Sensor durability and maintenance are key issues**
- ▶ **Systems in other states focus on localized issues**
- ▶ **Effective warning messages reflect actual road conditions and are broadcast near the weather event**

Recommendations Overview

Focus Area

Recommendation

Forecasting

Fine-tuning meteorological models for localized events

Detection

Dense network of monitoring equipment
Pilot testing of new technologies

Detection

Augment sensors with human verification to prevent false warnings

Photo courtesy of Mike Olbinski Photography

Recommendations Overview

Focus Area

Recommendation

Communication

Dynamic Message Signs in dust “hot spots” in tandem with refinements to messaging

Other

Research on land-use contributors to dust to determine mitigation strategies

Photo courtesy of Mike Olbinski Photography

Recommendations:

**NEEDS ASSESSMENT (DRIVER
SURVEY AND FOCUS GROUPS)**

Recommendations

Core Components for Communication

Focus Area

Core Components of Implementation

Messaging

Improve “Pull Aside, Stay Alive” driver information

Communication

Use communication channels drivers prefer

Education

Expand approach to informing all travelers about dangers

Assessing
Effectiveness

Measure/assess effectiveness of ADOT communication

Photo courtesy of Mike Olbinski Photography

Short-Term Recommendations

Focus Area

ADOT Resources and Staff in Place

Messaging

Use high-impact, graphic messaging that shows the consequences of driving into blowing dust
Inform drivers of rationale behind safe driving tips

Communication
(Signage)

Add DMS, mobile, flashing lights, billboards
Consider progressive series

Communication
(Signage)

Accurate, timely, informative and reliable DMS messaging to improve driver trust
Provide clear instruction to aid driver decision-making

Photo courtesy of Mike Olbinski Photography

Short-Term Recommendations

Focus Area

ADOT Resources and Staff in Place

Communication

Use mix of media that is responsive to cell phone apps, wireless alerts and age-associated preferences

Education

Coordinate efforts with internal and external partners

- Motor Vehicle Division
- Department of Public Safety
- Local communities

Photo courtesy of Mike Olbinski Photography

Mid-Term Recommendations

Focus Area

ADOT Resources and External Assistance

Communication

Aggressively promote use of ADOT social media and online tools

Communication
(Signage)

Work with partner agencies to address community and cultural preferences

Education

Partner with other agencies to develop outreach to employers, businesses, and trucking industry

Photo courtesy of Mike Olbinski Photography

Long-Term Recommendations

<u>Focus Area</u>	<u>Requiring more money/time/cooperation</u>
Communication (Technology)	Explore improving tech options available to consumers
Communication	Continue partnerships to develop holistic efforts to mitigate the dust problem
Education	Conduct ADOT-sponsored workshops
Education	Solicit support to help underwrite costs

Photo courtesy of Mike Olbinski Photography

Implementing Recommendations and Assessing Effectiveness

Focus Area

Impact of communication plan

Partnership/
Collaboration

Work with partners to develop strategies/tools to measure public response and effectiveness of communication plan to influence driver behavior

Public Involvement

Continuous
Improvement

Further research and opportunities for improvement

Photo courtesy of Mike Olbinski Photography

May we provide more information?

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