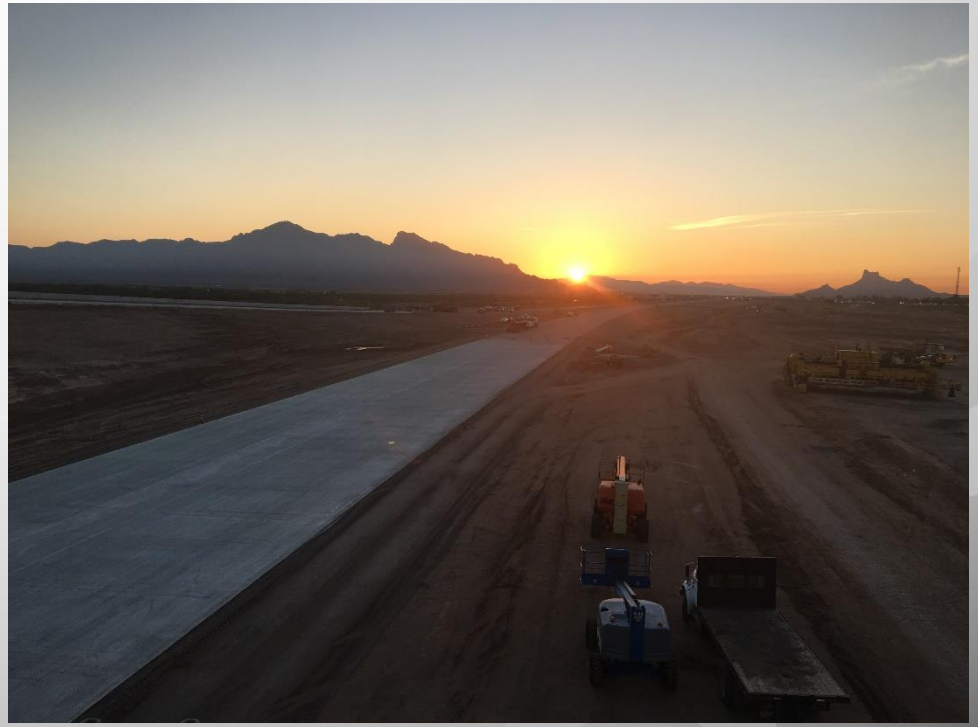
Real Time Experience Studying ADOT I-10 Dust Project Implementation

2020 Arizona Dust Workshop, March 3, 2020

Project Overview (who was involved)

- Designers
  - Kimley-Horn
  - WSP
- Contractors
  - Coffman Specialties
  - Sturgeon Electric
- Equipment
  - Enterprise Electronics Corporation (EEC)
  - Vaisala
- DPS
- National Weather Service
- ADOT
  TOC, TSMO, IDO, Communications and South Central District
- FHWA



Project Details

- Project award to Coffman Specialties in November of 2017, bid of $58,465,000
- 780,000 yrds^3 roadway ex.
- 930,000 yrds^3 of borrow
- 211,000 yrds^2 of PCCP
- 120,000 tons of asphalt
- Civil work completed in Oct.‘19

October 2011 – Three dust related crashes near Picacho / Casa Grande.

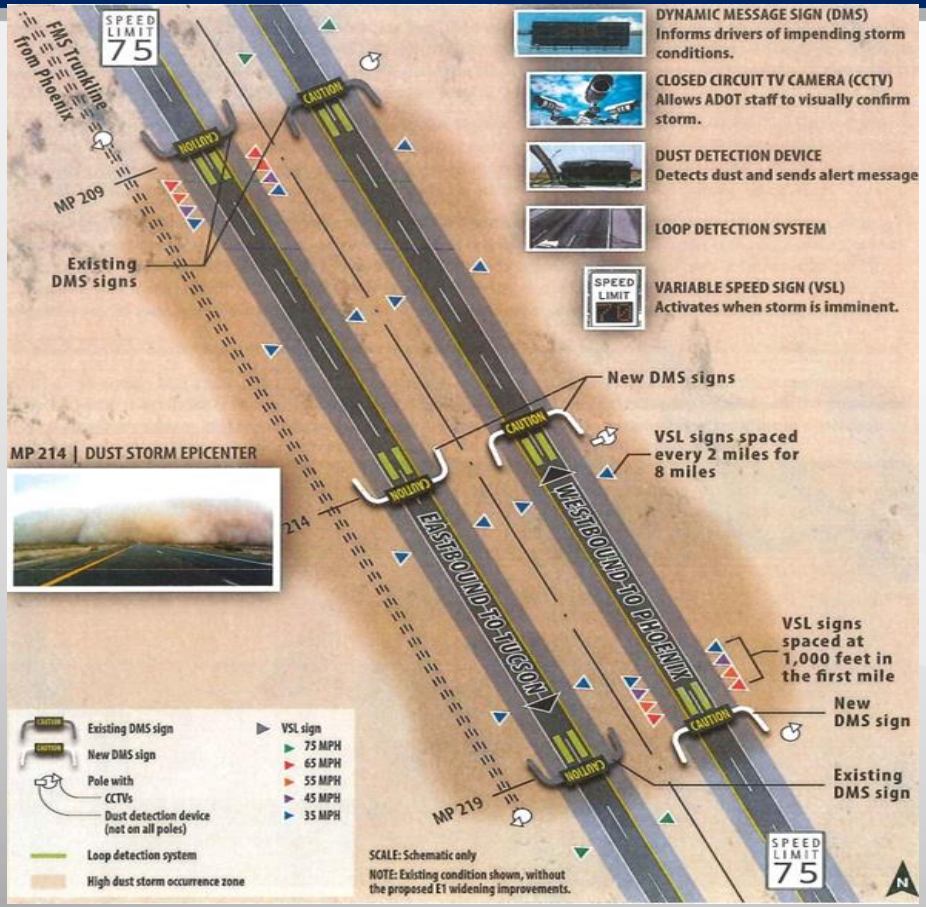
- **24 vehicles**
- **16 injured**
- **1 dead**

October 2013 – dust storm related crash on I-10

- **19 vehicles / 7 Trucks**
- **12 injured**
- **3 dead**

Project Goals

- Provide early warning of blowing dust approaching and within the corridor
- Measure visibility within the corridor
- Provide video to allow the ADOT TOC to have ‘eyes on the road’
- Disseminate real-time information to motorists
- Implement lowered speed limits within corridor



X-BAND RADAR (RANGE–X5)

CLOSED CIRCUIT TV (5)

SPOT DETECTOR (13)

DYNAMIC MESSAGE SIGN (4)

VARIABLE SPEED LIMIT SIGN (16)

SPEED FEEDBACK SIGNS (2)

Vaisala Equipment:

- PWD 10 (measure visibility) (13)
- RG13H (rain gauge)(1)
- WXT536 (wind, temp. and humidity)(3)

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AWS310 (the brains)
Each of the three locations talks to all 13 visibility sensors

codespace	shortname	Parameter Name	group	qualifier	period (seconds)	min length	max length	unit	low	high	missing
AZDUST	PWDS_8	PWD Status (Sensor 8)	Technical	Instant	60	0	2	Code	0	99	///
AZDUST	VIS1_9	Visibility 1 Minute Average (Sensor 9)	Atmospheric	Average	60	0	5	feet	0	99999	///
AZDUST	VIS10_9	Visibility 10 Minute Average (Sensor 9)	Atmospheric	Average	600	0	5	feet	0	99999	///
AZDUST	PWDS_9	PWD Status (Sensor 9)	Technical	Instant	60	0	2	Code	0	99	///
AZDUST	VIS1_10	Visibility 1 Minute Average (Sensor 10)	Atmospheric	Average	60	0	5	feet	0	99999	///
AZDUST	VIS10_10	Visibility 10 Minute Average (Sensor 10)	Atmospheric	Average	600	0	5	feet	0	99999	///
AZDUST	PWDS_10	PWD Status (Sensor 10)	Technical	Instant	60	0	2	Code	0	99	///
AZDUST	VIS1_11	Visibility 1 Minute Average (Sensor 11)	Atmospheric	Average	60	0	5	feet	0	99999	///
AZDUST	VIS10_11	Visibility 10 Minute Average (Sensor 11)	Atmospheric	Average	600	0	5	feet	0	99999	///
AZDUST	PWDS_11	PWD Status (Sensor 11)	Technical	Instant	60	0	2	Code	0	99	///
AZDUST	VIS1_12	Visibility 1 Minute Average (Sensor 12)	Atmospheric	Average	60	0	5	feet	0	99999	///
AZDUST	VIS10_12	Visibility 10 Minute Average (Sensor 12)	Atmospheric	Average	600	0	5	feet	0	99999	///
AZDUST	PWDS_12	PWD Status (Sensor 12)	Technical	Instant	60	0	2	Code	0	99	///
AZDUST	VIS1_13	Visibility 1 Minute Average (Sensor 13)	Atmospheric	Average	60	0	5	feet	0	99999	///
AZDUST	VIS10_13	Visibility 10 Minute Average (Sensor 13)	Atmospheric	Average	600	0	5	feet	0	99999	///
AZDUST	PWDS_13	PWD Status (Sensor 13)	Technical	Instant	60	0	2	Code	0	99	///
AZDUST	BT	Battery Voltage	Technical	Instant	60	0	4	Vdc	0	99	///
AZDUST	EXTDC	Supply Voltage	Technical	Instant	60	0	4	Vdc	0	99	///
AZDUST	STATUS	QML Status Code	Technical	Instant	60	0	2	Code	0	99	///
AZDUST	WXTS	WXT Status Code	Technical	Instant	60	0	2	Code	0	99	///

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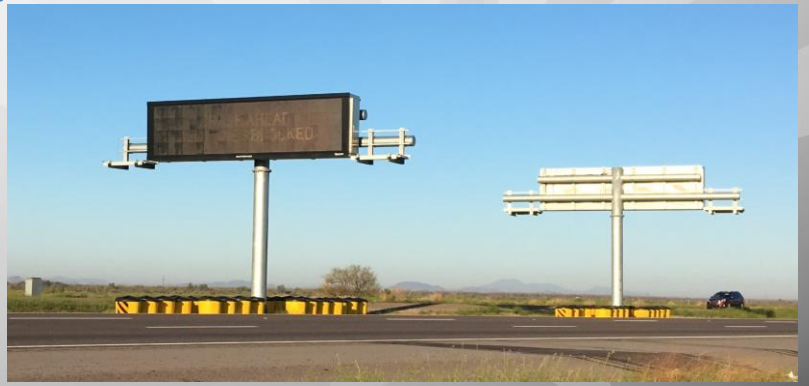
Integration Team:
Kimley-Horn, Flir & ADOT

Testing through June and activation by first of July



Questions?

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Pull Aside – Stay Alive