



# ADOT Engineering Survey Section

## UAS Support

# Mission and Goals:

- Provide support to Engineering Survey Section by supplementing topographic mapping projects using UAV's
- Support ADOT Project Managers and Consultants with orthorectified imagery and videos

# Engineering Survey Section (ESS)

- Two ESS associates became licensed FAA Part-107 UAS Pilots in April 2017
- As of January 2021, completed 640 total drone missions operating four different Unmanned Aerial Systems (UAS) platforms

# Services Provided

- Digital Terrain Models (DTM)
- Pre and Post Construction Survey
- Construction Progress Monitoring
- Material/Piles Volume Calculations
- Environmental Impact Assessment

# Services Provided (cont.)

- Inventory Management
- Asset Inspections
- Traffic Monitoring/Traffic Studies
- Right of Way (Parcel Imagery)

# Project Examples

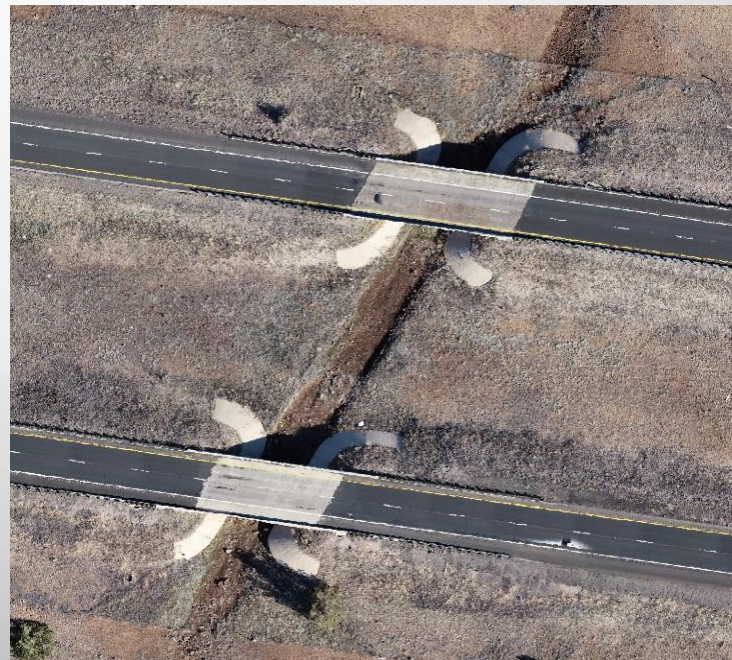


# I-40 Pineveta Wash DTM

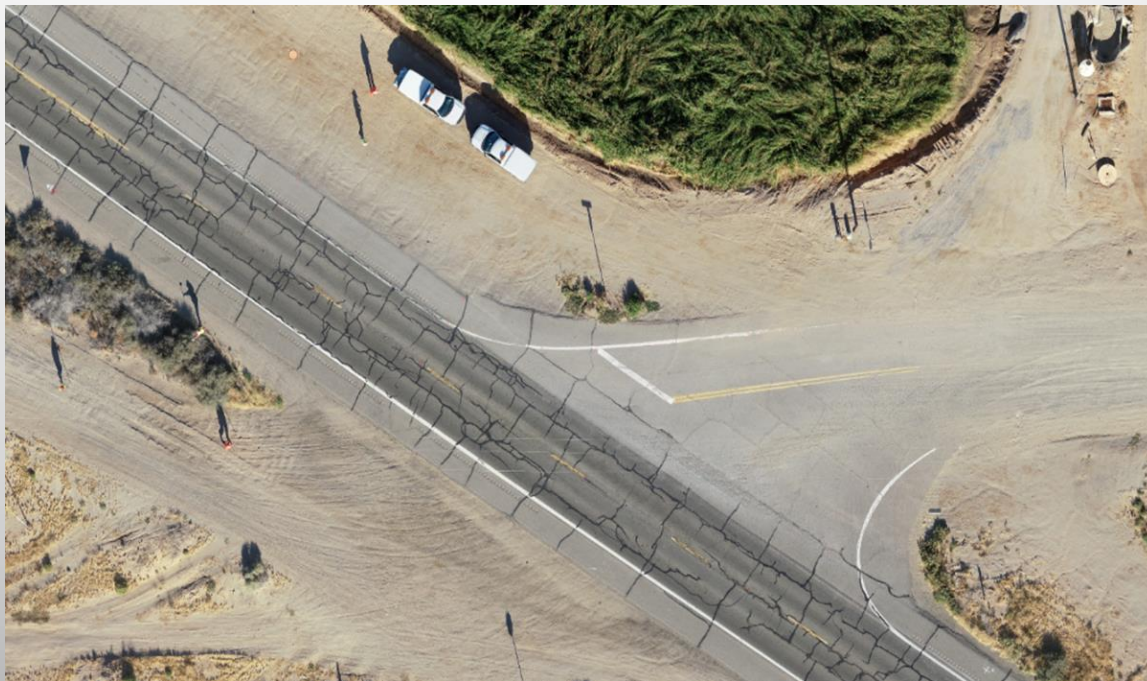
Orthoimage



Point cloud



# US-95 at Ave 12E Supplemental Survey

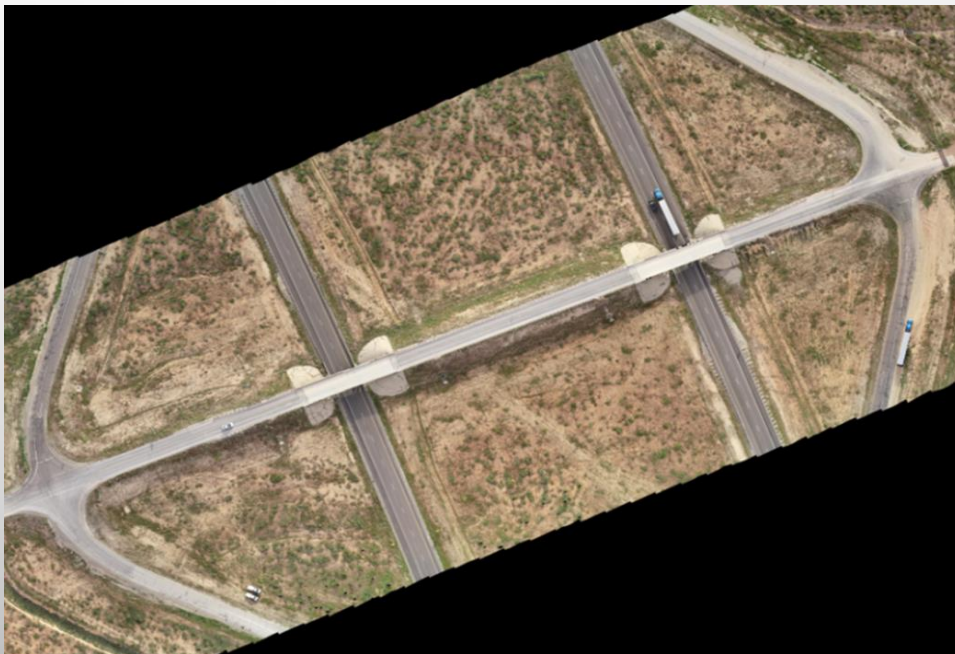




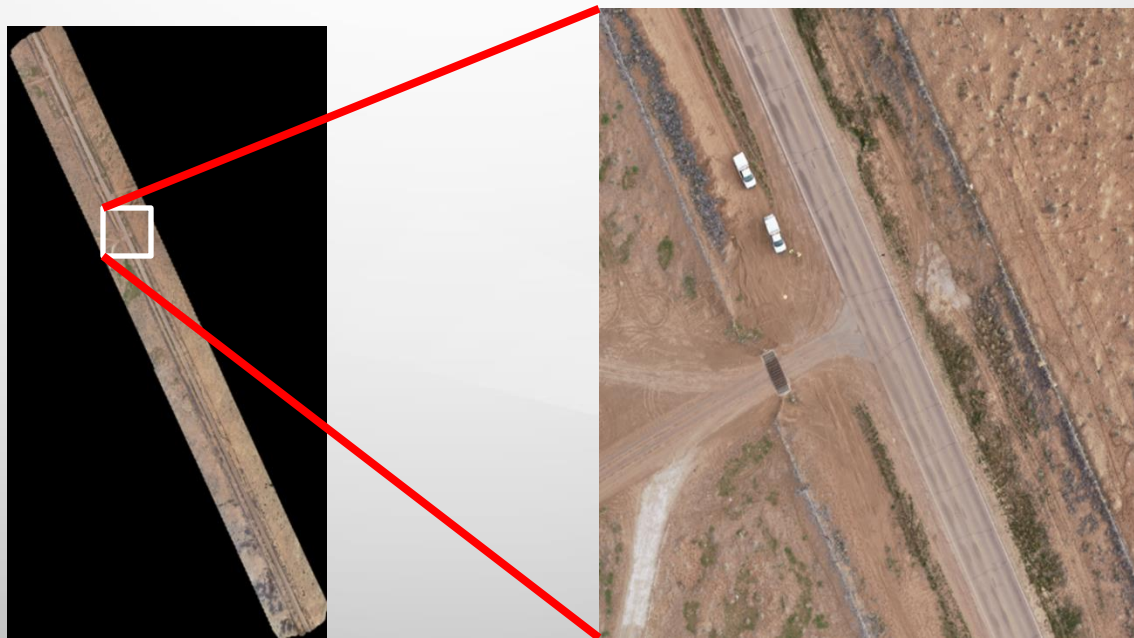
# SB I-17 MP 296 DTM Point Cloud



# I-15 Black Rock TI Orthoimage



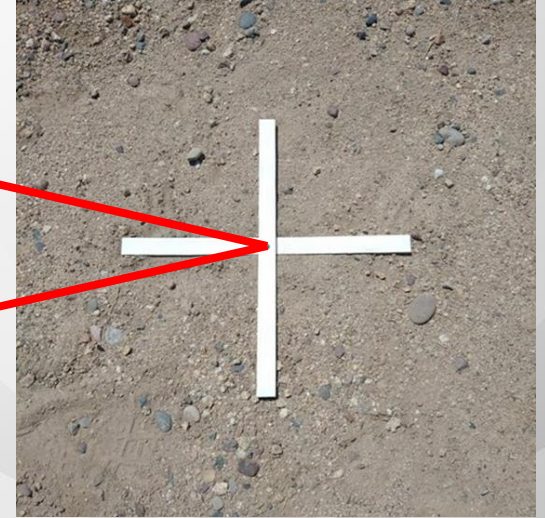
# SR-191 MP 448 to 460 Roadway Improvement





# SR-89A Sedona Construction Progress







# Volume Calculations Hazmat Glass Pile





# Volume Calculations Vulcan Mine Piles

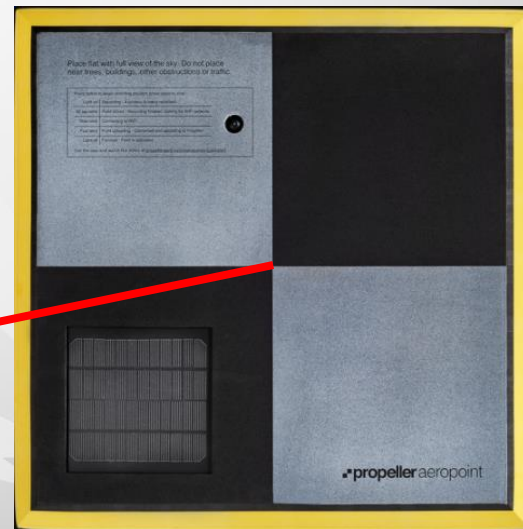


# SR-88 MP 205 Road Washout





# SR-88 Rock Slide MP 242



# SR-87 near Slate Creek





# ADOT Yard Casa Grande Asset Management



# High Resolution vs Low Resolution



ADOT UAV



Google Earth



# SR-260 Roundabout Traffic Monitoring



# ADOT Right of Way Parcels



# UAV Benefits

- No costly aircraft maintenance or fuel
- Flights are easier to schedule
- Imagery is high resolution and is up to date
- Quicker project delivery
- Accessibility where 'Right of Entry' is an issue
- Increased safety for ADOT personnel working near busy highways and/or rugged terrain
- All post-processing is performed in-house

# UAV Project Deliverables

- Point clouds for extracting DTM and planimetric data
- Orthorectified imagery
- Aerial photography
- Video

# Contact Information

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THANK YOU!