



**NEVADA  
DOT**



***SAFE AND CONNECTED***



# NDOT AERIAL CAMERA SYSTEM REPLACEMENT



# Background Information

- NDOT has been acquiring aerial photography since 1959.
- Aerial photography is essential for providing a better transportation system for Nevada.





# Existing Camera

- Zeiss RMK TOP 15 large format metric film camera system.
- Aerial film manufacturing ending.





# Replacement Camera

- Z/I DMC IIe 140 Large Format Metric Digital Camera System.
- Will acquire B/W, color or infrared images simultaneously.
- Requires no additional aircraft modifications.
- Fits seamlessly into our current work flow.
- Meets the design mapping standards of NDOT





# Pros of Owning a Digital Camera

- Higher quality and resolution.
- Fly at a higher altitude.
- No film processing or scanning.
- Reduced turnaround time.
- Fewer Survey Control Points.
- Reduced time for Photogrammetry.



# Consultant?

- One year of film in stock.
- Contract photo missions to consultants.
- Using consultants is not a viable option.



# Why not a UAV?

- Technology has not yet been proven to meet NDOT needs.





# Other DOTs

- Both Washington and Oregon Departments of Transportation use outside vendors for aerial acquisition.
- Both agencies have had accuracy issues with these cameras.
- Arizona Department of Transportation is replacing their current film aerial camera with a digital camera.



# Camera Cost

- There is one camera of this model available for \$637,665 (includes installation/training).
- Normal cost is \$1,165,545.
- No net impact to the highway fund.



# Cost Analysis

- Cost/hour for plane: \$446.41
- Cost/hour camera crew (2 people): \$64.16
- Film purchase, process & scanning cost
- Cost to contract flights \$117,000
- Cost for NDOT to fly projects \$34,400
- Additional savings in Survey crew and Photogrammetry



# Cost Analysis (cont.)

## ➤ Example Project:

LPN 1396 Kietzke Lane - Reno

1.5 hours plane time = \$771.24

3.5 hours camera crew time = \$224.56 (flight + camera installation and removal)

Total cost NDOT = \$995.80

Contractor cost = \$4,420

**\$3,424.20 savings for NDOT to fly (77%)**



# Leasing

- Typically Leica does not lease cameras.
- 12 month lease at \$35,000/month with option to purchase.
- 50% of the rental would be applied towards the purchase price.
- Total cash outlay would be \$810,000 (\$420,000 rent + \$390,000 due at time of exercise)



# Conclusion

- Location Division analysis indicates that the time is right to replace NDOT's outdated 18 year old aerial camera system resulting in time and cost savings as well as safety improvements.
- The price will never be lower for this caliber camera system and the increased safety to our survey and flight crews are immeasurable.



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