Western Transportation INSTITUTE

SYSTEMS ENGINEERING PROGRAM

ABSTRACT:

Under contract with the California Department of Transportation (Caltrans), the Western Transportation Institute (WTI) at Montana State University, in partnership with the Mineta Transportation Institute (MTI) at San Jose State University, conducted a research and development study of the proof-of-concept system for integrating aviation weather information systems with Roadside Weather Information Systems (RWIS). The project was started in 2008. The goal of the project is to meet the potential needs of providing airport managers, air traffic controllers, pilots, and related operators of air ambulance services with more comprehensive and accurate meteorological data by integrating currently used weather systems with systems used by related agencies. Implementing such an integrated system is expected to improve safety and increase efficiency. The project is targeted at small, underserved rural airfields and heliports.

In particular, data from the two aviation weather information systems: Automated Weather Observing System (AWOS) and Automated Surface Observing Systems (ASOS) and the surface transportation RWIS could be integrated to provide greater coverage for multiple agencies. Treating these (currently) independent systems as a larger, integrated system could achieve greater levels of efficiency and lead to cost savings through coordination of operations and maintenance as well as planning for future deployment.

This relatively small ITS project follows a small scale systems engineering process. Literature review, AWOS/ASOS and RWIS sites analysis, user survey and requirements analysis, and cost benefits analysis research activities have been conducted during phase I of the project. In addition, a proof-of-concept system was developed and evaluated, and the second phase has been planned for expanded geographic coverage, improved functionality, and more extensive evaluation.

PROBLEM: Underserved, rural airfields and heliports may not have access to comprehensive and accurate local meteorological data.



It is important to note that the non-aviation stations and sensors discussed here are not FAA-certified, and there are no absolute quality guarantees.





Distance to Nearest Stations

AWOS/ASOS

AWOS/ASOS + RW AWOS/ASOS/RWIS

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Integration of Aviation Weather Information Systems with Roadside Weather Information Systems

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st Weather	535 Airports Total		495 Heliports Total	
	within 5 miles	within 10 miles	within 5 miles	within 10 miles
	127 (24%)	200 (37%)	121 (24%)	262 (53%)
IS	148 (28%)	256 (48%)	138 (28%)	317 (64%)
S + Other	380 (71%)	506 (95%)	435 (88%)	459 (93%)









Rural Research Matters - Integration - Innovation - Implementation

SOLUTION: A web-application that aggregates available weather information into a userfriendly, map-based interface: <u>http://aviation.weathershare.org/</u>.







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Links:

http://aviation.weathershare.o

ttp://www.westernstates.org/Projects/Aviat

Sponsors:

The California **Department of Transportation** (Caltrans)

U.S. Department of Transportation University Transportation Center Program Western Transportation Institute

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