Western States Rural Transportation Consortium (WSRTC)

Steering Committee Meeting
June 13, 2023
Yreka, California

Meeting Minutes

This document is the official record of the WSRTC Steering Committee meeting held June 13, 2023, in Yreka, California, just prior to the 18th annual Western States Rural Transportation Technology Implementers Forum.

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June 13, 2023
Meeting/WebEx
Western States Rural Transportation Technology Implementers Forum
Yreka, California

Meeting Minutes

Prepared by

Leann Koon
Western Transportation Institute, Montana State University

Leann Koon and Sean Campbell welcomed everyone and called the meeting to order at 1:00 PM Pacific Time. Introductions were made by those at the meeting site in Yreka, California, and by those joining via WebEx. Leann reviewed the purpose of the meeting and the planned agenda.

The meeting agenda, presentation, and minutes are posted on the Consortium website at:
http://www.westernstates.org/Documents/Default.html.

Western States Forum

Leann Koon gave an overview of the 18th annual Western States Forum which starts today and goes through Thursday (June 13, 14, and 15). Speakers representing four of the Consortium member states (CA, NV, UT, WA) will be presenting seven different topics. Speakers and representatives at the meeting shared some background and a quick synopsis of their presentation. We are again anticipating a full house with a diverse audience – eight states representing six DOTs, including all five Consortium member states, two universities, and the Southwest Research Institute. Keeping with a similar Schedule of Events as for past events, registration starts later this afternoon, followed by a reception and dinner. The technical program will be full tomorrow and the day ends with dinner and networking at a local park. Technical presentations continue Thursday morning, and the event will conclude with final remarks and lunch.

WSRTC Pooled Fund Updates and Discussions

Sean Campbell spoke briefly about the history of the WSRTC and how it evolved from its beginnings with the COATS project. In 1997 and 1998, John West from the Office of New Technology (now DRISI) at Caltrans had discussions with Steve Albert at the newly formed Western Transportation Institute about rural transportation issues and the COATS region. After eight project phases over 25 years, the California Oregon Advanced Transportation Systems project came to an end earlier this year. The work of the COATS project continues through the WSRTC. The Consortium also reached a milestone this year as

Phase 1 TPF-5(241) concluded. Phase 2 of the WSRTC, TPF-5(494), is now open with three active task orders:

- Evaluation of the Fotokite Tethered Unmanned Aerial System for DOT Operations in Network-Deprived Areas (AHMCT, UC Davis)
- Chain-Up Delay Tracking and Estimation (Montana Tech)
- WSRTC Meeting Coordination, Western States Forum, Website Maintenance (WTI)

While WSDOT and Caltrans were explaining the Fotokite project, Doug Spencer commented that Oregon DOT was working on a project comparing incident reconstruction using drones versus using robotic stations.

Once final invoices are received from the respective universities, WTI Task Order 14 and Montana Tech Task Order 1 will be closed. Approximately $8,000 will be divided evenly and sent back to the member states. Sean reviewed status of commitments and obligations to the Pooled Fund. Tony Leingang (WSDOT) will check into invoices sent. Leann Koon reported that approximately $97,100 remained in the WSRTC Meeting Coordination, Western States Forum, Website Maintenance Task Order (Phase 2 Task Order 2 / WTI Task Order 15) as of the beginning of June. However, the Western States Forum and ITE / NRITS are both this summer.

Sean discussed the budget for the WSRTC Meeting Coordination, Western States Forum, and Website Maintenance task order. It is planned out with bare bones for the Forum and travel and doesn't account for inevitable cost increases with future similar task orders. At the current commitment levels, there is funding for three of these task orders as budgeted. This could leave the fourth year of the Pooled Fund for this task with little to no funding. If the fourth year (Task Order 18) goes unfunded, likely to lose key personnel.

Sean asked the states to consider increasing their annual commitment to the WSRTC from $5,000 per year to $10,500 annually. Ideas for continuing the Forum and travel covered through this Task Order were discussed including:

- Advertising, vendors, private companies at the Forum. Sean reiterated the tenets of the Forum (e.g., transparency and trust, frank and open discussions of what works and doesn't work, geared to public agency engineering practitioners) and indicated that maintaining these tenets is what makes the Forum unique.
- Holding the Forum every other year, possibly after the 20th annual event. Doing this could pose challenges for momentum, sustaining the current level of participation, and maintaining the high quality of the event.
  - If went to every other year for the Forum, should do some kind of event in the off years. A virtual and/or ½ day meeting was suggested.
  - The value of in person meetings and networking was emphasized.
- State owned facility to save cost? Possibly in Redding, California.
- Value of travel to events like NRITS, ITE, ITSA, or NWTC. Agreed these events were beneficial. The group should continue to meet at these events.
- Member state representatives all agreed to ask for an increased commitment to the WSRTC but acknowledged tight budgets and associated challenges.

WSRTC Projects

Doug Galarus reviewed Montana Tech WSRTC Task Order 1 which ended March 31, 2023, and summarized the project's work. This project provided on-going support to the Automated Safety Warning System Controller (ASWSC) and One-Stop-Shop (OSS) projects. ATC Firmware and ASWSC updates were tested and demonstrated to address issues from the prior phase. A presentation on the ASWSC was given at the 2022 Western States Forum; a presentation on the system will also be given at the upcoming 2023 ITE Annual Meeting and NRITS Conference in Portland, Oregon. The ASWSC lab equipment was returned to Caltrans District 2 in conjunction with the trip to WSF 2023. One-Stop-Shop has had strong usage levels particularly over the winter months. Feeds for incidents in Montana and Idaho were made operational. Maintenance and monitoring of OSS and WeatherShare continued, with several bug fixes performed. A related presentation entitled, "Analytics and the One-Stop Shop for Rural Traveler Information – Measuring Use Across Corridors and Between Communities During Winter Weather Events" will be presented at the Institute of Transportation Engineers (ITE) Mountain District Conference, Helena, Montana, November 1-3, 2023.

Doug Galarus also gave a brief overview of the new WSRTC project – Chain-Up Delay Tracking and Estimation. Like what was envisioned with the travel times incubator project, the intent of this project is to use data from Caltrans-deployed Bluetooth loggers that will log time and MAC address, and to use the readings from these loggers in conjunction with chain control status and other data to develop an algorithm to estimate travel time/delay through the affected area.

The WeatherShare Maintenance project is to be funded and contracted directly by Caltrans and has a tentative start date of fall 2023. The project will provide ongoing support to the WeatherShare system and includes establishing a lab development environment at Montana Tech.

The Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center at UC Davis will be working on a project in partnership with WSDOT and Caltrans to procure and evaluate Fotokite UASs for DOT operations in network-deprived areas. There will be two main phases for the research. The first phase will be procurement, which will be completed by the end of fiscal year 1. The second phase will be documentation of system setup, field trials by WSDOT and Caltrans including support and observation by AHMCT, and final evaluation and documentation. The project started February 1st of 2023.

The How-to Handbook/Manual for the Western States Forum was updated after the 2022 Forum and will be updated again after this year's event. The Handbook is a practical, user-friendly guide for planning and executing the Western States Forum. It is intended to document the Forum in such a way that the event and its standard of excellence can be easily continued even as staffing and other inevitable changes occur.

Leann Koon, Jeremiah Pearce, and Sean Campbell briefly discussed the Professional Capacity Building for Communications project which ended earlier this year after five phases over 15 years. A sixth training course was procured and delivered in October of 2022. It was a weeklong course covering Radio Frequency Fundamentals. Additional fiber optics courses were also delivered over the past year and taught by the same instructor who delivered the original course in 2012.

As noted earlier, COATS Phase 8 also ended in January of 2023.

Websites

Leann Koon briefly described the WSRTC Website (http://www.westernstates.org/) and the Western States Forum website (http://www.westernstatesforum.org/). She indicated that progress has been made and work continues relative to compliance and accessibility for the two sites.

Upcoming Meetings

- ITE Annual Meeting, NRITS Conference, Portland, Oregon, August 13-16, 2023 (early bird registration ends June 23, 2023). Travel support is available through the Consortium for one individual from each member state to attend. If you haven't already done so, please tell Leann name and contact information for these individuals.

Roundtable of Recent ITS Activities

Seth Daniels, Jacob Grivette – Nevada DOT
- Seth went to WSDOT (Tony Leingang) for a Peer Exchange on Smart Work Zones and upgrading data exchanges to handle work zone devices.
- Lots of continued work on implementing TSMO initiatives.
- Several good presentations and lots of activities on infrastructure and lighting.
- ITS Asset Management – one of the few states tackling the _____ for ITS asset management. Developed tools. Several projects looking at how assets are managed and maintained, including automated work orders and cycles for preventative maintenance to help with performance based budgeting.
- Testing devices for traffic incident management.
- Upgrading ATMS systems. Recently upgraded the 511 system and working on getting the wrong way driver systems to flag up on the ATMS screen.
- Expanding the ATM system at the Tropicana Interchange in Las Vegas near the sports stadium.
- Working with the University of Nevada Las Vegas to research the effectiveness of the ATM systems.

Doug Spencer – Oregon DOT
- Before and after evaluations of the nine ATM projects (2018 ATM projects)
  - Sharing results.
  - Project results are showcasing the tenets of TSMO – that a relatively small investment in ITS improvements and management can lead to big benefits to safety, travel times, etc. which helps in funding discussions. "We can't just build our way out of congestion; we have to manage the freeway more efficiently."
  - One ATM project in Portland – fully automated VSL system that adjusts highway advisory speed limits based on congestion. Two years before system implemented, there were about 1300 crashes on the segment. With the system improvement, those crashes came down to around 550. There was also a three-minute savings in travel times for that segment as well.

- o Curve warning system implemented on a corridor with very sharp curves on either end. Using the ATC and ITS firmware that Doug presented at the Forum a few years ago, the system detects a vehicle's approaching speed and based on the curve's dynamics sets the thresholds for what the sign activation is. Another set of radar detects whether the vehicle slowed or not. When the system was on, 11% activation rate with 8 mph decrease in speed. While they don't have crash data for the segment, results did show that speeds through the corridor and the curves were decreasing because of the system.
  - o Washington County – upgraded traffic signals and included dynamic pedestrian operation. The system adjusted crosswalk times dynamically based on the type of pedestrian (e.g., walking, jogging), bicycles, etc. Much work done on detection. Using extended times but too risky to truncate crosswalk time.
  - o Partnership with Oregon State Police where ODOT provided five drones for incident reconstruction particularly with fatalities. Full LIDAR systems, need FAA license to operate, 2 million data points within a few minutes. Incident reconstruction times came down significantly (E.g., For a complex incident, incident reconstruction took about 4.5 hours using the robotics stations. The drone did the same work in 30 minutes.)
  - o Traffic signal priority project – TriMet (Transit Authority) in the Portland area: joint project with ODOT and City of Portland for a centralized system to give clearance to the bus using their AVL software talking to ODOT's traffic signal central software. One week of using the system saved 700 gallons of diesel fuel and resulted in a 15% improvement in delay times.
- Had to develop a Broadband administrative rule but have faced legal challenges; has been on hold with executive management to flesh out with Justice Department. Questions include whether Broadband is a utility and are they allowed in the right of ways free of charge or does it need to be done as a contract.
- Connected vehicles ecosystem (Galen McGill project). Studying road use charge as a successor to gas tax. Team of diverse players.
- Working on a variety of price agreement contracts for ATC, VMS, and cameras. Detection cameras contract with FLIR.
- Working on a joint project with Washington and California for parking management along I-5.
- ATM Software – transitioning from using the ODOT specific system built by Parsons; have a contract with the Southwest Research Institute for development of new software.

Tony Leingang – Washington State DOT
- Busy with the recent legislative session. Agency request legislation (WSDOT and WSP) with law signed to have speed safety camera systems in work zones. Staffing up to implement that law. Complex management and deployment of the contract and systems with several aspects to consider – technology, implementation, administration, system use, access and equity, etc.. The systems need to be operational by July 1, 2024 so working on defining things like speed thresholds for when a ticket is sent, fine structures, etc.
- Virtual Coordination Center (VCC) – completion near the end of September ($8 million ATCMTD grant over four years with additional funding from other sources). The VCC integrates all systems related to incident management. The VCC is operational in Seattle and is currently in the evaluation phase. It will cover the I-5 corridor first and then ultimately statewide.
- Between the work zone speed camera program and the VCC program, WSDOT will need to hire six newly-funded positions.

- GIS-based Pre-planned Detour System is a parallel project being built independently of the VCC but will be integrated with the VCC. The system aims to develop pre-planned detour routes for incident management in addition to providing details on resources and staffing needs for implementation.
- Work Zone Data Exchange (WZDx) Demonstration grants – WSDOT was one of 13 states to receive these grants. WSDOT's approach takes information from smart work zone roadside units, ingests the data into their own WZDx translator for immediate situational awareness at the Traffic Management Centers, and then sends the information back out to the public API for private data consumers' use. WSDOT's approach is testing proof of concept with their Incident Response team in unplanned incident-related locations and anticipates making a full investment in the technology in the coming year.

Tyler Laing – Utah DOT
- Working on developing specific guidelines for deployment of Rural ITS. Updating their ITS Design Manual to include a chapter dedicated to Rural ITS with guidelines for communications, power, etc.
- ITS Master Plan update – look at what has been done since the last update and how useful the tool has been.
- Much work in progress relative to ITS Asset Management – developing work order system that can track ITS devices and pull out performance measures; roadway management has been using ATOM (Google product). Just gave them a Scope of Work for ITS asset management system.
- The past winter was challenging statewide giving a good opportunity to 1) look at what is critical ITS infrastructure, and 2) consider needs for hardened equipment and redundancy (power, communications). Once these two steps are completed, will consider steps to make those systems more reliable.
- Replacing ATMS system with Active ITS developed by the Southwest Research Institute. Did receive funding for ongoing maintenance of the system as well.
- Connected and Autonomous Vehicles – Utah was an early adopter of connected vehicle technology and deployed DSRC technology statewide but that technology is now sunsetting and is no longer being supported. Received funding to replace DSRC technology with CAV 2X technology – signal priority for transit and signal preemption for snowplows. Successful deployments thus far.
- Wrong way driving projects – tested two systems, chose the Carmana system for larger deployment statewide (20 deployments) mostly on freeway off ramps. Also doing research with LIDAR technology.
- Liveview cameras are old. Replacing 200 of these cameras in rural areas with new UDOT owned cameras, infrastructure, and software. Project has been ongoing for two years and will wrap up this year. Working on software solution to allow maintenance personnel to control the cameras from their phone or workstation.

Sean Campbell, Caltrans DRISI
- Testing deployment of OptaSense DAS technology in rural areas.
- Developing a program for conducting microwave tower inspections (cabling, structures) with Unmanned Aerial System technology.
- UAS project part 2 for cellular Wi-Fi flying hot spots. First iteration was a successful prototype. Now working to integrate and shrink it to a more municipal package.

- Starlink deployed at five sites in District 2 with good results so far. Discussed residential / consumer vs. industrial / commercial grade equipment. Starlink continues to regularly bring large numbers of satellites online.
- Project studying use of hydrogen fuel cells to mitigate public safety power shutdowns. Evaluating the technology at four sites.
- California Highway Information Network Data coming to CWWP2 soon. Includes information about California roadways previously not very exposed.
- Rest areas being instrumented to facilitate truck parking. Will also feed into the CWWP2.

Jeremiah Pearce, Caltrans District 2
- Completing microwave expansion south to Tuscan Butte, north to Mount Bradley, and then this fall extending north to Antelope and to the Oregon border. The next phase will start hopping east along 299.
- Hydrogen fuel cell project researching the practicality of large-scale systems in rural areas – 2 sites, 1) traffic signal, 2) Lassen National Park CCTV. Concrete pads for the cabinets were just poured.
- Five Starlink sites – aimed at addressing challenges such as when the Lassen CCTV site was down for three months because there was too much snow for the Telco company to get in and repair the phone lines. Equipment is consumer grade. Concerns about issues like mounting and environmental impacts (lightening, snow, wind, heat, etc.) Jacob Grivette asked Sean and Jeremiah about equipment being used and discussed ruggedized versions; the group commented on the Starlink system overall and looks forward to potential viable applications in rural transportation.
- Bluetooth detection equipment purchased and currently being deployed in preparation for the chain on delay research project.
- IT and Headquarters Traffic Operations divisions deploying a network access control device to enhance the security posture for the field element network.
- Recruitment – succession planning, five vacancies, three recent retirements.

Andres Chavez, Caltrans Headquarters, District 3
- Many projects in Caltrans District 3.
- CAV on Wheels, aka the COW, self-contained RSU on a trailer. If need to do any CAV testing can be deployed in matter of days vs. months. Challenge - need FCC license to operate. Internally funded. Reach out if interested in using the system. Possible future Forum presentation.

Announcements

Sean Campbell expressed appreciation in support of the rural research program. Good luck to Andres in his role at DRISI.

Thank you to Sean Campbell for his leadership and ongoing support for the Forum and the WSRTC!

There is a good program for the Forum over the next few days. Forum presentations will be posted after the event.

With thanks all around, the meeting was adjourned.

Action Items

Item	Deadline
1. Tony Leingang (WSDOT) will check on the invoices sent for the Pooled Fund.	After the meeting
2. State leads will ask their respective agencies about increasing their commitments to the Pooled Fund to $10,500 per year.	Prior to the next meeting
3. State leads confirm interest and individuals attending upcoming ITE Annual Meeting / NRITS Conference with travel support from the Consortium.	After the meeting, prior to 6/23/2023

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