

FINAL PROGRAM

9th Annual Meeting

SEPTEMBER 11, 2017

ANCHORAGE, ALASKA

ITS - Current and Future Trends

LOCATION: BP ENERGY CENTER, 900 E. BENSON BLVD, MIDTOWN

*COST PER PERSON (PRIVATE AGENCIES ONLY): \$15 TO COVER LUNCH



2017 ANNUAL MEETING

FINAL TECHNICAL PROGRAM

Session	Presentation / Topic
8:00 am	Registration and Welcome
8:30 – 9:00 ITS Alaska Business Meeting	ITS Alaska Annual Business Meeting (30 min.) - <i>(Everyone is welcome to attend!)</i> Opportunity for each sponsor to introduce themselves and their company
9:00 – 10:00 Session #1: Integrated Corridor Management Moderator: Dean Deeter	9:00 – AMATS: Glenn Highway Integrated Corridor Management (ICM) Study (Jeanne Bowie, Kinney Engineering) 9:30 – ICM, Connected Vehicles, and Smart Cities: Bringing It All Together (Koorosh Olyai, Stantec)
10:00	Break
10:15 – 12pm Session #2: Road Weather Maintenance ITS Tools Moderator: Sander Schijvens	10:15 - MDSS and MMS - using the latest technology to support Alaska DOT&PF's operations (Ron Davis, AKDOT/M&O) 10:45 – Innovations in RWIS Using Low Cost Alternatives (Billy Connor/UAF) 11:15 – RWIS Technology (Mark DeVries, Vaisala)
12:00 – 1:00 Moderator: Art Johnson	Keynote / Lunch <i>Lunch will be on-site, provided to registered participants</i> Transportation Systems Management & Operations (TSMO) What State DOTs Are Doing – Les Jacobson (WSP) and Dean Deeter (Athey Creek Consultants)
1:00 – 1:15	Break

Session	Presentation / Topic
<p>1:15 - 3:00</p> <p>Session #3: Yukon ITS Applications and Drone Use by AKDOT</p> <p>Moderator: Vivian Underwood</p>	<p>1:15 – Yukon Government – ITS Projects (Amanda Price, Yukon Government)</p> <p>1:45 – AK DOT Drone use for support of surveying and mapping in 2017 (NR/Troy Hicks/Surveyor)</p> <p>High Mast Tower Inspections (Jesse Escamilla, AKDOT)</p> <p>AK DOT Drone Use for Construction (Andrew Plumlee and Brandy Milles, AKDOT, Northern Region)</p>
<p>3:00 - 3:15</p>	<p>Break</p>
<p>3:15 - 4:30</p> <p>Session #4: Signal and Traffic ITS Applications</p> <p>Moderator: Lisa Idell-Sassi</p>	<p>3:15 - Fairbanks Signal Operations Center and Fiber Optic Interconnect (Art Johnson, Kinney Engineering)</p> <p>3:45 – ITS used for traffic count and other applications - AKDOT Highway Data (Matt Murphy, AKDOT)</p>
<p>4:30pm</p>	<p>ITS Alaska President’s closing comments (Les Jacobson, WSP)</p>

Email Lisa Idell-Sassi to register lisa.idell-sassi@alaska.gov

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Speaker Abstracts and Bios

Keynote Luncheon Presentation

Transportation Systems Management and Operations (TSMO): What State DOT's Are Doing

Nationally, there is an ever-increasing focus on operating the transportation network as effectively and efficiently as possible. Mission, vision, goals and objectives, and organizational structures within transportation agencies have been evolving to reflect the focus on system operations, or transportation systems management and operations (TSMO). Performance measures and project selection criteria are also evolving. Our Luncheon speakers will present information on this evolution and how some agencies are responding to the added focus on TSMO.

Les Jacobson, WSP, Inc.

Les Jacobson is a vice president and Senior ITS Manager for WSP USA. Les has been involved in and led innovative transportation projects and efforts over his entire 39-year career, including architecture and road weather information system work in Alaska. Les is working on Transportation System Management and Operations (TSMO) projects across the country, including developing a plan for the AASHTO Guide on Operations. Les has developed TSMO program plans for clients, has facilitated workshops to help agencies develop TSMO implementation plans, and is a facilitator/instructor for Regional Operations Forums. Les is currently the President of ITS Alaska, chairs the TRB Regional TSMO Committee, is a member of the TRB Freeway Operations Committee, and is on the Executive Committee of the ITE TSM&O Council. Les spent 22 years at the WSDOT before moving to the private sector.

Dean Deeter, Athey Creek Consultants

Dean Deeter is responsible for technical operations of Athey Creek Consultants. He has more than 25 years of experience in planning, design, operations and evaluation of technology solutions for transportation, with an emphasis on Systems Engineering, Traveler Information, Connected and Automated Vehicles, and Rural Initiatives. Dean has a Bachelor's degree from Colorado State University and a Master's degree from the University of California, Irvine. He is a registered Professional Engineer in Minnesota and Oregon.

Session 1 – Integrated Corridor Management

AMATS: Glenn Highway Integrated Corridor Management (ICM) Study

The Glenn Highway is identified by FHWA as an Interstate and part of a network of highways which are important to the US strategic defense policy (STRAHNET). This Project will look at the portion of the Glenn Highway starting east of the Airport Heights and Glenn Highway Intersection and end at the Anchorage & Matanuska - Susitna Boundary. The purpose of the ICM Study is to identify methods to improve the efficiency in the movement of people and goods through institutional collaboration and proactive integration of existing infrastructure along the corridor. This presentation will summarize the plans for this study, which is just getting under way.

Speaker: Jeanne Bowie, Kinney Engineering

Jeanne Bowie is a Principal and Traffic Engineer with Kinney Engineering, LLC in Anchorage, Alaska. She holds a PhD in Civil Engineering, emphasis Transportation, from the University of Central Florida and a Master's degree in Civil Engineering, emphasis Transportation, from Brigham Young University. She has over thirteen years of experience in transportation engineering analysis in the areas of safety, traffic control devices, traffic operations, and transportation planning. Her research interests include safety, signs and markings, freight, and pedestrian topics. She is licensed as a professional engineer in Florida and Alaska.

ICM, Connected Vehicles, and Smart Cities: Bringing It All Together

This presentation will discuss the importance of advancing multi-modal ICM projects and having the necessary institutional, technical and operational integration by all the transportation providers in place. Well developed and deployed ICM projects will play a key role in the success and realization of the promises of deploying Connected Vehicle technologies and transportation elements of Smart Cities.

Speaker: Koorosh Olyai, Stantec

Koorosh Olyai, PE, is a Senior Principal with Stantec for Advanced Transportation Management Systems. He has over 35 years of experience in public and private sectors developing, implementing, operating and managing highway and public transportation facilities, including traffic engineering and Intelligent Transportation Systems. He has led

the development and launch of one of the only two fully developed and deployed, federally funded ICM projects in the US, or the US 75 ICM including Texas's first 511 System.

He has served as Technical Director for the SR-4 ICM project in California and the ongoing I-84 ICM in Oregon, and is assisting FHWA with the development of Business Rules for ICM Decision Support Systems. Prior to Stantec, he was Assistant VP for Planning and Development for DART where he co-led the development of multi-modal transportation system plans and implemented 84 miles of Managed HOV Lanes throughout the Dallas area. Previously, he has served as Traffic Engineer and City Transportation Engineer for the Cities of Plano and Denton in Texas.

An international authority on ITS, he is an ANSI designated US Expert on ITS, Chairman of the US Technical Advisory Group (US TAG), Head of US Delegation (HOD) and Convener of Working Group for Public Transport and Emergency Management to the International Standards Organization (ISO) for ITS.

Session 2 – Road Weather Maintenance Tools

MDSS and MMS - using the latest technology to support Alaska DOT&PF's operations

The presentation provides an overview of the Maintenance Decision Support System (MDSS) currently in use at the AKDOT Fairbanks Maintenance Station, its features, and how it is put to work. Additionally, the presentation will outline some of the features of the next generation Maintenance Management System (MMS) being developed for AKDOT by AgileAssets, Inc.

Speaker: Ron Davis, Alaska Department of Transportation, M&O, Northern Region

Ron Davis is a Highway Maintenance District Foreman for the Alaska Department of Transportation & Public Facilities based out of Fairbanks. With roots stemming from the dairy farms of Wisconsin, Ron's love of trucks and heavy equipment brought him to ADOT&PF as an equipment operator in 2007, following a fighter aircraft maintenance career in the US Air Force that spanned more than 20 years. Ron and his wife Kristi enjoy traveling throughout the state, Canada, and Lower 48 showing the Bernese Mountain Dogs that they have bred and raised. Together, they have 5 children and 8 grandchildren scattered throughout Alaska and the Lower 48.

Innovations in RWIS Using Low Cost Alternatives

RWIS provides critical data for planning maintenance activities, especially for snow and ice control. Cost and lack of power has limited the installation of RWIS in many areas of Alaska. Using low cost, low power sensors, UAF and Fathym have partnered to develop RWIS that can be installed for as little as \$10,000 with a power budget as little as 300 watts. The base system consists of wind, relative humidity, air temperature and ground temperature. The system uses cell technology, but can easily be adapted to any communication system. This presentation will discuss the performance of two installations in Fairbanks, Alaska.

Speaker: Billy Connor, University of Alaska Fairbanks, University Transportation Research Center (AUTC)

AUTC Director Billy G. Connor, PE, retired from the Alaska DOT&PF after 30 years of service. He spent twenty years in AKDOT&PF's research branch as a research engineer, ten of these as the Chief of Research for the department. His work covered a wide range of transportation activities including developing Alaska's pavement design procedures, pavement management, maintenance and forensic engineering, permafrost, frost heave and thaw weakening research, hydraulic research including fish passage, rip rap design and development of Alaska's Hydraulic Manual, and numerous other transportation related activities.

He has chaired two TRB committees and been active in numerous other TRB committees and activities. He has also served on the AASHTO Research Advisory Committee, ASCE Technical Council of Cold Regions Engineering (currently chairing the Frost Action Committee), and numerous other state and national activities. Mr. Connor has also worked as a Construction Project Manager for AKDOT&PF, managing over \$30 million per year. Mr. Connor has been working with the Alaska DOT&PF on MDSS activities. As an offshoot of this effort, he has been working with Fathym to develop low cost, low power RWIS that will allow a higher density of RWIS and allow RWIS in locations where power is unavailable.

RWIS Technology

In this session we will discuss the latest trends in RWIS and weather measurement Industry. We will discuss how agencies are utilizing the technologies to assist their operations and benefit their customers. We will share some of the latest technologies in the software and how these help the agency evaluate their performance in winter operations. We will learn about an FHWA program to better communicate weather information and how that is being done.

Speaker: Mark DeVries, Lead Consultant, Vaisala

Mark serves as a Lead Consultant and winter maintenance expert for Vaisala Inc. In his new role he serves as a resource that is helping clients/agencies/etc. to improve their operations and works with them to solve problems, offers training opportunities and serves as customer support. Mark is an expert in winter maintenance operations, chemical use including liquid programs and blending liquid de-icers. Mark also serves as a winter maintenance researcher on behalf of Vaisala.

Mark has presented at Snow and Ice seminars all across North American and abroad, many environmental seminars and for various Municipalities across North America. Mark is the recipient of many awards throughout his career, and currently serves on numerous committees. He is Chairman of the National APWA Winter Maintenance Sub-Committee. Member of the AASHTO Winter Maintenance Technical Service Program. A member of the Transportation Research Board (TRB) Winter Maintenance Committee and the TRB Surface Transportation Weather Committee. Member of the APWA Chicago Metro Chapter.

Session 3 –Yukon ITS Applications and Drone use by AK DOT&PF

Yukon Government – ITS Projects

This presentation will focus on developing Yukon's ITS Strategy, our existing infrastructure, how we have integrated new technologies for remote data collection and the data warehouse.

Speaker: Amanda Price, ITS Manager, Yukon Government

Amanda Price is a Transportation Analyst with the Department of Highways and Public Works, Government of Yukon. Amanda has worked for the Yukon government for the last 10 years, eight of those in the Transportation Division, where she worked in the transportation maintenance and engineering branches. Her background is in Geomatic Engineering Technology and prior to starting with the Yukon government she worked in northern Alberta, Canada as a survey crew chief. Currently, she is the Program Manager for Intelligent Transportation Systems focusing on integrating new technologies and practices into Yukon's ITS program. Amanda currently represents Yukon on the ITS Canada Community of Practice Board and she is the ITS Canada representative for Yukon.

AK DOT Drone Use for Support of Surveying and Mapping in 2017

This presentation will provide a brief explanation of methods and issues of using drones in surveying. It will look at its use in various projects, such as, the Richardson Hwy MP 18 to 115, Valdez Glacial River, Tok Cutoff MP 38 – 80, Cordova (Whitshed Rd), Nome Council Rd, and Susitna River Bridge. It will demonstrate how drones were used for those areas and how the data gained is being used, including a preliminary analysis of savings or cost/benefit.

Speaker: Troy Hicks, Surveyor, Alaska DOT&PF, Northern Region

Troy is a DOT Surveyor for Alaska DOT&PF, Northern Region with over 15 years' experience in Land Surveying in both private and public practice. He has a B.S. in Land Surveying and Geomatics from Great Basin College, Elko, NV and a B.S. in General studies (physics, math, economics, and management) from University of New Mexico. Prior to Land Surveying, Troy worked as an IT Manager and a Physics Research Technician.

Troy served in the U.S. Marines and is currently a Military Intelligence officer for Army National Guard of Alaska.

High Mast Tower Inspections

The ADOT&PF Bridge Design Section is in charge of the inspection program for the States inventory of 124 high mast towers (HMT's). A formalized inspection program began in the mid 2000's as the result of a collapse of a tower on the Glenn Highway in the late 1990's. HMT's can be upwards of 200ft in height and have proven difficult to inspect for the full length. While the inspection program focuses on the base of towers with sensitive equipment such as strain gauges, thickness meters, and bolt tension meters, we've relied on spotting scopes to scan up each tower to visually inspect for defects. With the advancement of drone technology, the Bridge Section has experimented for the past 2 seasons with drone photography to visually inspect otherwise impossible areas.

Speaker: Jesse Escamilla, Alaska DOT&PF, Bridge Headquarters, Juneau

Jesse is a Technical Bridge Engineer for the Alaska Department of Transportation & Public Facilities (AK DOT&PF) based out of Juneau, Alaska. He started his engineering career as an intern with AK DOT&PF in 2004 and after graduation worked in Texas, Arizona, and

Washington. In 2014 Jesse returned to Alaska to with his family and rejoined AK DOT&PF. He leads multiple design projects across the State including new structures, rehabilitations, and retrofits. During the summer months Jesse serves as a team leader for both routine and fracture critical bridge inspections. Additionally, Jesse leads the States inspection and management program for high mast towers.

AK DOT Drone Use for Construction

This presentation will show an evaluation done on testing the usage of drones and photogrammetry software for application in State of Alaska DOT Construction projects. Topics covered include environmental limitations, regulations, drone capabilities and cost, , software and hardware options, multi-site operator evaluations, field experiences and conclusions from the testing.

Speaker: Andrew Plumlee and Brandy Milles, Alaska DOT&PF, Northern Region Construction

Brandy Milles is a native Alaskan, born and raised in the interior. She has been with the Department for three years. She is a Lead Materials Technician, a grade inspector operating GPS, and piloting a University of Alaska Drone. She manages Contract review and closeouts.

Andrew Plumlee is a native Alaskan, born and raised in the interior and has been with the Department for 12+ years. He has 15 years in civil engineering/construction field. He has worked in civil construction with urban, rural road system, and fly-in village projects, towered/non-towered airports; road, bridge projects, & ice road construction, and has experience as equipment operator, materials tech, grade inspector, and project engineer. He has five years as manager of construction inspection and testing equipment for Alaska DOT's Northern Region Construction section.

Session 4 – Signal and Traffic ITS Applications

Fairbanks Signal Operations Center and Fiber Optic Interconnect

The Fairbanks North Star Borough frequently experiences extreme cold temperatures during the winter period; forming inversion layers, trapping air and pollutants close to the ground - resulting in some of the highest concentrations of fine particulate matter (PM) 2.5 in the United States. Since 2009, the Fairbanks North Star Borough has been designated as a PM2.5 non-attainment area by the Environmental Protection Agency. Research indicates on-road motor vehicles contribute about 20% of PM2.5. To help improve air quality in the area, the Northern Region DOT&PF is constructing a fiber optic interconnect system and a new

traffic operations center that will improve traffic operations and reduce idling emissions. This presentation will provide an overview of the fiber interconnect project and the status of the new traffic operations center, which is weeks from completion.

Speaker: Art Johnson, Kinney Engineering

Art Johnson is a Principal and Senior Engineer with Kinney Engineering, LLC in Anchorage, Alaska. A 3rd generation Alaskan, Art has a BS in Civil Engineering from the University of Alaska Fairbanks, and holds IMSA Level II certifications for traffic signal design, fiber optics design, and fiber optics field technician. He has 5 years of experience developing Wind Profilers, Doppler radar, weather radio sites, and modernizing the Alaska Region Weather Service forecast offices throughout Alaska for NOAA/NWS; And has more than 25 years in transportation engineering design in the areas of highway safety, roadway illumination, traffic signal systems, traffic operations, and signal communications in Alaska, Washington, and Idaho. He is currently licensed as a professional engineer in Alaska.

ITS Used for Traffic Counts and Other Applications

A variety of technology is used for obtaining traffic data in Alaska including: inductive loops, piezoelectric sensors and radar to count and classify vehicles. Since 1990, ADOT&PF's Highway Data Section has also been collecting ambient air, pavement and subsurface roadbed temperatures down to a depth of 72" (182cm) for assisting with management decisions for setting/lifting seasonal vehicle weight restrictions. In order to minimize costs and maximize efficiency, Temperature Data Probe sites are installed at Automatic Traffic Recorder and RWIS stations where they can share power and telecommunications providing near real-time information regarding the depths of freezing and thawing under the pavement. Timely weight restriction implementation reduces the likelihood of costly damage to roadways while concurrently improving ADOT&PFs customer service to commercial trucking companies.

This presentation will provide an overview of ADOT&PF's Highway Data Section's use of devices, power and telecommunications used for collecting traffic and temperature data. Robust time-tested technology will be compared to new technology for the future. Of particular interest, I will discuss geographical distribution of these stations and the challenges/successes associated with this remote monitoring program in the Alaskan setting.

Speaker: Matt Murphy, Alaska DOT&PF, Highway Data, Central Region

Matt Murphy is a Planner with ADOT&PF Highway Data Section specializing in Automatic Traffic Recording and Temperature Data Probe stations. His ITS experience comes from 11 years of “on-the-job” training while working on remote weather stations located on mountain ridges used in support of avalanche forecasting for the U.S. Forest Service and ADOT&PF. For the past 2 years, Matt has maintained over 50 ATR’s in Central Region between Homer and Talkeetna, and over 70 Temperature Data Probes statewide.