

Preliminary Program



GIS-T

Crossroads in the Heartland

DES MOINES, IOWA ■ APRIL 19-22, 2015

GEOSPATIAL INFORMATION SYSTEMS FOR TRANSPORTATION SYMPOSIUM

To provide a forum for transportation officials from State, Province, Federal, and
Municipal Agencies to discuss GIS and transportation issues

April 19– 22, 2015
Workshops – April 19, 2015
Des Moines, Iowa

Sponsored by:

AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

AASHTO

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The twenty-eighth annual GIS-T Symposium – *GIS-T 2015* – provides a forum for professionals interested in the design and use of Geospatial Information Systems for Transportation. This meeting brings together individuals from education, the private sector, and all levels of government for a full day of workshops on April 19, 2015 and three full days of conference activities on April 20 – 22, 2015.

WHO SHOULD ATTEND?

- ❖ Transportation professionals who need to know how to better utilize GIS and related systems.
- ❖ Executives and managers concerned with management and institutional issues.
- ❖ Information Technology and GIS professionals from both public and private organizations:
 - Transportation Engineers and Planners
 - City, County & Regional Planners
 - Educators
 - Elected Officials
 - Environmental Scientists & Regulatory Specialists
 - GIS and Information Systems Managers and Specialists
 - Consultants and Service Providers

SESSIONS

Keynote Speaker – Paul Trombino, Director, Iowa DOT

State Summary & Roll Call of States – Summary results from a survey sent to GIS representatives in each state will be presented and one representative from each country, state, province, or local agency are asked to briefly describe the status of their GIS implementations and challenges they may face.

Concurrent Sessions – The Symposium will feature seven concurrent sessions, each consisting of multiple tracks of presentations. In addition to the independent tracks planned for GIS-T, there will be opportunities for participants to attend tracks sponsored by GIS-T offering a way of further enhancing the attendee's experience.

GIS Mapping Gallery – Successful GIS projects and Web Mapping applications will be showcased through map products and electronic displays. Prizes will be awarded on a variety of criteria, and all attendees are encouraged to submit multiple GIS products reflecting their own agency's work. For detailed category and submission information please visit the Symposium website www.GIS-T.org. Mapping Gallery entries must be received by April 10th, 2015 to be eligible for display and awards.

Check WWW.GIS-T.ORG for the most current information.

General Schedule

	Sunday April 19, 2015	Monday April 20, 2015	Tuesday April 21, 2015	Wednesday April 22, 2015	
7:00 AM	Registration Breakfast <small>Workshop Attendees Only</small>	Registration Breakfast	Registration Breakfast	Sleep In	7:00 AM
8:00 AM	Workshops (see p5) 1. Mapping and Visualization of Transportation Assets 2. Leveraging FMIS and ARNOLD to Locate Federal-Aid Projects 3. GIS & Safety Analysis Review Panel 4. Open Source in Three Easy Movements	Opening Session Welcome To Iowa Keynote Speaker Paul Trombino <small>(see p6)</small>	Roll Call Round Table Sessions Developing, Building, and Using a Statewide Road Basemap The Data Life-cycle <small>(see p7)</small>	Registration Breakfast	8:00 AM
9:00 AM		Trivia		Session 3 (see p12) Business Management Traffic Safety and Crash Analysis Process Improvement Integrating Data Supply Chains	Session 6 (see p15) Mobile GIS SHRP2 Open Data and Crowdsourcing Developing a Comprehensive Network
10:00 AM		Break	Break		Break
11:00 AM		State Summary & Roll Call of States <small>(see p6)</small>	Session 4 (see p13) Multi-Level Road Networks Data Modelling Data Management and Visualization Applied Geospatial Science	Session 7 (see p16) Data Integration Local Roads and HPMS Transportation Dashboards/Visualization Traffic Data	Box Lunch Next Host State Presentation Awards/Drawings/Raffle
12:00 PM	Lunch - Workshop Attendees Only	Lunch Provided			
1:00 PM	Workshops (see p5) 5. Data Governance 6. Best Practices In GIS-Based Snow Removal Management Systems 7. Enhancing the Use of GIS to Support Asset Management Requirements Under MAP-21 8. ARNOLD: Beyond HPMS	Lunch Provided	Session 5 (see p14) Photolog, Imagery, LiDAR Federal Initiatives Web Planning Tools Performance Management	Symposium Wrap-Up Come join us for a debriefing of this year's symposium and planning for the next year. Refreshments Provided!	1:00 PM
2:00 PM		Session 1 (see p10) Enterprise Solutions Asset Management Federal Programs All Roads Network of Linear Referenced Data			Session 2 (see p11) Multi Level Linear Referencing Systems Web Portals Technology Solutions Mapping Solutions
3:00 PM		Break	Break	Break	3:00 PM
4:00 PM		Break	GIS Gallery Voting ends at 6:30 <small>(see p7)</small>	Tuesday Night Social 6:00pm to 9:00pm <small>(see p7)</small>	4:00 PM
5:00 PM	Break	Technology Hall Reception (see p6)	Technology Hall Reception (see p10)	5:00 PM	
6:00 PM	Technology Hall Open	Technology Hall Open	Technology Hall Open	6:00 PM	
7:00 PM	Technology Hall Open	Technology Hall Open	Technology Hall Open	7:00 PM	
8:00 PM	Technology Hall Open	Technology Hall Open	Technology Hall Open	8:00 PM	
10:00 PM	Technology Hall Open	Technology Hall Open	Technology Hall Open	10:00 PM	

GIS-T Workshops – Sunday, April 19

Four tracks for workshops are available at the 2015 GIS-T Symposium. Participants may pick one from the morning and one from the afternoon. Lunch is provided to workshop attendees.

<p>Workshop 1</p> <p>Mapping and Visualization of Transportation Assets</p> <p>Connie Gurchiek, Transcend Spatial Solutions</p> <p>Brad Adams, Transcend Spatial Solutions</p> <p>Stephen A. Ellis, Langan Engineering</p>	<p>Workshop 2</p> <p>Leveraging FMIS and ARNOLD to Locate Federal-Aid Projects</p> <p>Tom Roff, FHWA</p> <p>Joe Hausman, FHWA</p>	<p>Workshop 3</p> <p>GIS & Safety Analysis Review Panel</p> <p>Eric Green, University of Kentucky</p> <p>Ted Grossardt, University of Kentucky</p> <p>Leverson Boodlal, KLS Engineering</p>	<p>Workshop 4</p> <p>Open Source in Three Easy Movements</p> <p>Paul Ramsey, Boundless</p>
<p>Workshop 5</p> <p>Data Governance</p> <p>Zeke Bishop, Oracle</p> <p>Denise Hesselroth, Minnesota DOT</p> <p>Eric Abrams, Iowa DOT</p>	<p>Workshop 6</p> <p>Best Practices In GIS-Based Snow Removal Management Systems</p> <p>Simon Lewis, McMahon</p> <p>John DePalma, McMahon</p>	<p>Workshop 7</p> <p>Enhancing the Use of GIS to Support Asset Management Requirements Under MAP-21</p> <p>Frances Harrison, SpyPond Partners</p> <p>Ben Williams, FHWA</p> <p>James Hall, University of Illinois, Springfield</p>	<p>Workshop 8</p> <p>ARNOLD: Beyond HPMS</p> <p>Tom Roff, FHWA</p> <p>Steve Lewis, BTS</p>

MORNING SESSIONS **(8:00 AM – 12:00PM)**

Workshop 1 Mobile Mapping and Visualization of Transportation Assets

Instructors: Connie Gurchiek, Transcend Spatial Solutions
Brad Adams, Transcend Spatial Solutions
Stephen A. Ellis, Langan Engineering

This workshop will present the benefits of a comprehensive approach to data acquisition, extraction, and visualization. Topics will include survey-grade data acquisition at planning-level efforts and costs; manual and semi-automated feature extraction tools; and visualization of LiDAR points clouds, derived models, and extracted features in geospatial and straight line diagram formats.

The workshop will start by describing the processes associated with the collection of LiDAR and video log imagery data using mobile mapping solutions. Recent advances in mobile mapping technology now allow for the collection of highly-accurate LiDAR and imagery data at much lower prices. The data collected can then be used for multiple purposes including asset inventories and inspections (that generally require planning level accuracy) as well as precise measurements for items such as guardrail heights, vertical clearances and preliminary engineering (that require higher survey accuracy). This “collect it once and use it many” approach results in higher returns on investments and greater data availability across a transportation network.

The second portion of the workshop will focus on feature extraction tools, another area of tremendous growth and investment. Manual and semi-automated tools are available from a number of vendors to ease the process of creating geospatial features from the LiDAR and video log imagery. The extracted features (such as edge of pavement, lane lines, curb and gutter, rumble strips, guardrails, median barriers, street lights, horizontal and vertical clearances, or signs) will have both the engineering-accurate coordinates as well as associated linear-reference locations.

The final portion of the workshop will demonstrate geospatial tools such as transportation portals and straight line diagramming applications that overlay the extracted features with existing DOT inventories and roadway characteristics. The associated video logs and point clouds can also be accessed from these geospatial applications allowing for additional attribution population or extended tools for decision support. Finally, 3-D models can be created from the point clouds and integrated into geospatial applications to support more sophisticated and realistic visualization of field conditions.

Workshop 2 Leveraging FMIS and ARNOLD to Locate Federal-Aid Projects

Instructors: Joe Hausman, Federal Highway Administration
Tom Roff, Federal Highway Administration

In August 2012, the Federal Highway Administration (FHWA) issued a memo to the State Departments of Transportation (DOTs) which expanded on the requirement to submit geospatial network data representative of Federal-aid roads, via annual Highway Performance Monitoring System (HPMS) reporting activities. Per the memo, the State DOTs were required to develop and submit a plan to FHWA providing details as to how they would ultimately go about assembling geospatial network data representative of all public roads, i.e., ARNOLD (All Roads Network of Linear Referenced Data), to be submitted (via HPMS) beginning in June 2014.

To help support the States, FHWA begin developing guidance detailing recommendations on how to develop and implement ARNOLD. While not being prescriptive, the resulting documents assembled best practices, industry initiatives and input from leading State DOTs. As the guidance was finalized in September 2014, a follow-up Pooled Fund Study was developed in order to provide resources to States needing help achieving the ARNOLD objectives.

On a related note, FHWA then issued a memo in November 2013 containing guidance (i.e., “FMIS State Guidance”) intended to help State DOTs prepare for the implementation of Fiscal Management Information System (FMIS) version 5.0. This system will require the submittal of geo-location data for Federal-aid projects meeting specific criteria for project authorization and update purposes. Ultimately, this data must be submitted in accordance with the geospatial network data that is submitted for HPMS purposes.

The first portion of this workshop will present an overview of the results of the ARNOLD research effort, and suggested guidance/techniques for network development purposes. Additionally, the progress of the several Pooled Fund Study States and their accomplishments to date will be discussed. The second portion of the workshop will convey information intended to help the States fulfill the detailed reporting requirements for FMIS 5.0, and allow for discussion of various project implementation scenarios and suggested approaches for project geo-location purposes. Lastly, this workshop will discuss the programmatic needs for this data as it pertains to FHWA’s ongoing performance management efforts.

Workshop 3 GIS & Safety Analysis Review Panel

Instructors: Eric Green, University of Kentucky
Ted Grossardt, University of Kentucky
Leverson Boodlal, KLS Engineering

FHWA is interested in advancing GIS-based efforts to support traffic safety programs through good practices, development of case studies, and eventually technical support. KLS Engineering, LLC and the University of Kentucky have been tasked to assist FHWA in this effort. A GIS Review Panel will be established to identify the current State of the practice of using GIS for safety data collection and/or analysis within State and local jurisdictions. Case studies that promote "good GIS practices" that support road safety programs will also be developed to share with other DOTs who may be interested in starting and/or advancing their own GIS practice in this area.

The team plans to host the review panel meeting at the 2015 GIS-T as a workshop. This workshop will feature presentations from participating agencies that showcase best practices where GIS has helped to advance highway safety. A facilitated discussion will be conducted, led by the review panel. Participants will be asked to comment and share strategies used by their agencies to promote highway safety. The workshop will continue by breaking into groups, each to focus on a different topic area to help identify potential noteworthy practices to be potentially added to an FHWA document.

Workshop 4 Open Source in Three Easy Movements

Instructors: Paul Ramsey, Boundless

Open source GIS tools can be a viable and cost effective alternative to traditional proprietary solutions. This workshop will provide participants curious about open source GIS solutions and overview of open source technology and strategies on how to get started.

Act 1: A history of where the open source movement came from, and why managers today should be looking at having an open source strategy for their organizations. Open source is a new way of having a relationship with the software that runs your organization, and using it changes the power relationship you have with vendors, the way you recruit and evaluate employees, and the way you acquire new technology, so knowing the “ins and outs” is important.

Act 2: An overview of the specific open source technology available for geospatial problem solving today. What are the capabilities, how does it match up to proprietary alternatives, and what does the future look like?

Act 3: A tour of current users of open source geospatial software in the transportation field. Some organizations have adopted an open philosophy throughout their operations and maintained that philosophy over time. Others are new entrants with fresh experiences to share. Case studies will be presented about the benefits and challenges of enacting an open source plan.

AFTERNOON SESSIONS **(1:00 PM – 5:00PM)**

Workshop 5 Data Governance

Instructors: Zeke Bishop, Oracle
 Denise Hesselroth, Minnesota DOT
 Eric Abrams, Iowa DOT

Many organizations today are beginning to understand the clear benefits of managing their information assets efficiently. With that said, many organizations are also struggling to understand the clear starting place for maturing their Enterprise Information Management function and often start the journey with the wrong questions and little understanding of what road blocks lay ahead. Key focus areas for any endeavor of this magnitude are People, Process, and Technology. Often organizations are investing significant time on the technology portion of this equation and little time on the process and people components. Data Governance is about the people and how we can structure the organization effectively to ensure one of our most important assets, data, is governed effectively.

This workshop will provide participants an overview and a better understanding of data governance concepts: why a data governance program is beneficial; what is data governance, how can a data governance program help the organization, and who should ultimately be concerned about data governance within the organization. Participants will have the opportunity to hear about the current state of Data Governance Programs that are being developed at Minnesota DOT and Iowa DOT.

Workshop 6 Best Practices In GIS-Based Snow Removal Management Systems

Instructors: Simon Lewis, McMahan
 John DePalma, McMahan

Winter Maintenance Management System (WMMS) or Snow Removal Management Systems (SRMS), when properly set-up and adopted, can give transportation agencies significant benefits. The purpose of this workshop is to give participants a review of GIS-based SRMS, including: i) what different types of Snow Removal Management Systems do, and, ii) how such systems help agencies improve operational and cost efficiencies, as well as benefits in safety and reduced salt in the environment. Key components of the workshop cover: a) System definition and typical application functions, b) Key systems components and alternatives, c) Key data requirements, d) Key application issues, e) Best practices, f) A review competitive offerings, g) Field examples and case studies (three to five), h) How applications integrate with, link to, other wider agency IT, databases and GIS, i) Rules of thumb will be provided for successful system implementation., j) Expected results and benefits, k) Expected continuing field developments, etc. and l) Conclusions. Depending on internet availability, for participants who bring a laptop, a quick hands-on exposure will be given to at least one example software package. In conclusion, as with all management systems, it is emphasized that software (technology) alone is not the full solution, but needs to be part of matrix that combines with people, data and business processes aligned and working together.

Workshop 7 Using GIS for Transportation Asset Management: Building a Business Case for Enhanced Capabilities

Instructors: Frances Harrison, SpyPond Partners, Inc.
Ben Williams, FHWA
James Hall, University of Illinois, Springfield

The MAP-21 legislation requires states to develop risk-based asset management plans for pavements and bridges on the National Highway System (NHS). Agencies are encouraged to expand the content of these plans to include all assets within the highway right-of-way.

At a minimum, an asset management plan should include a summary of assets and their condition, asset management objectives and measures, a summary of gaps between actual and targeted conditions, lifecycle cost and risk management analysis, a financial plan, and investment strategies. GIS technology can significantly contribute to the development of an effective asset management plan by integrating data sets and analyzing geospatial data to support investment decisions. In addition to data integration and analysis, GIS can also effectively communicate the outcomes and benefits of asset management.

This workshop reviews and extends material presented at the 2014 GIS-T conference, based on the recently completed study conducted under the National Cooperative Highway Research Program (NCHRP 08-87). The workshop will include:

- A summary of the MAP-21 performance management process, an update of the draft performance management regulations, the asset management requirements, and an update on resources available from FHWA to support states in meeting these requirements
- An overview of the NCHRP 8-87 Implementation Guide, outlining how GIS can be used to support five key asset management processes, including:
 - Understanding the state of the asset
 - Assessing and managing risk
 - Identifying needs and work candidates
 - Packaging projects into effective programs
 - Managing and tracking work activities
- Hands-on exercises to build a business case for a new GIS capability in support of asset management. These exercises will take participants through a systematic process of identifying a candidate improvement, developing alternative approaches to implementation, estimating costs and benefits, and recommending a course of action.

Workshop 8 ARNOLD: Beyond HPMS

Instructors: Tom Roff, FHWA
Steve Lewis, BTS

On Aug 7, 2012, the Federal Highway Administration began the ARNOLD initiative to meet specific requirements as part of the Highway Performance Monitoring System. The value of a single spatial representation of all public roads in the US allows decision makers to evaluate and visualize data across all program areas (Planning, Operations, Infrastructure and Safety). A network that addresses these core functions is essential, but the true value is gained as ARNOLD is applied to many areas beyond the requirements of HPMS. For example Asset Management, Freight Analysis and Disaster Management are a few areas that could benefit greatly from a stable Highway Network in the public realm.

This workshop intends to explore some of these extended use cases of ARNOLD through a few presentations and breakout discussions.

TRB ABJ60 MID-YEAR MEETING– STANDING COMMITTEE ON GEOGRAPHIC INFORMATION SCIENCE AND APPLICATIONS

(SUNDAY 4:30 PM TO 5:30 PM)

The scope of this committee includes all aspects of the spatial, locational and temporal data used in transportation. The committee is interested in both research into and applications of this information and its associated information systems, commonly referred to as Geographic Information Systems in Transportation (GIS-T). The committee will provide a focal point for and promote coordination of GIS- T activities within the TRB committee structure. Relevant activities include the application of spatial data and spatial sciences across the entire domain of transportation information systems.

TECHNOLOGY RECEPTION – TECHNOLOGY EXHIBITS OPEN

(SUNDAY 5:30 PM TO 8:00 PM)

(MONDAY 6:30 PM TO 8:00 PM)

The Technology Hall opens on Sunday evening at 5:30 pm with a reception for all Symposium attendees and guests. On Monday, Symposium participants are welcome to attend another reception starting at 6:30 pm.

The Technology Hall will open at 12:00 noon and close at 8:00 pm on Monday. On Tuesday, it will be open from 7:00 am to 5:00 pm. On Wednesday, the Technology Hall will open at 7:30 am and end at noon. Participants are encouraged to visit with industry specialists to discuss solutions available in today's consulting community.

Opening Session / KEYNOTE SPEAKER

(MONDAY 8:30 AM TO 10:00 AM)



Paul Trombino was appointed director of the Iowa Department of Transportation May 9, 2011, and confirmed by the Iowa Senate June 28, 2011. Prior to this position, Mr. Trombino worked at the Wisconsin Department of Transportation (WisDOT) for 17 years. At WisDOT he held several positions, serving as director of the bureau of transit, local roads, rails and harbors; regional operations director of the highway division; director of the statewide structures; and manager of highway bid lettings. Before coming to WisDOT, Mr. Trombino spent four years in the finance and banking industry in Chicago and Washington, D.C. He holds a Bachelor of Science degree in Civil Engineering from the University of Wisconsin-Milwaukee and Bachelor of Science degree in Economics from the University of Wisconsin-Madison. He is a licensed professional engineer in the states of Iowa and Wisconsin.

STATE SUMMARY AND ROLL CALL OF STATES
(Monday 10:30 AM to 12:00 noon)

Summary results from a detailed survey sent to GIS representatives in each state will be presented. The Roll Call of States also features one representative from each country, state, province, or local agency briefly describing the status of their GIS implementations and the challenges that they face. Additionally, the Roll Call offers a time for attendees to put a face with a name and to make plans for continuing discussions with their peers

GIS GALLERY
(Monday 5:00 PM to 6:30 PM)

GIS-T 2015 invites registered attendees to participate in the GIS-T Mapping Gallery. In this showcase attendees will be able to display the creative ways they have found to communicate their work through Web applications, GIS generated mapping and poster products. This is an opportunity to share techniques and applications with peers in the transportation GIS community. Come and see how states are using GIS to advance their work. A panel of judges will evaluate each map and mapping application; awards will be presented during the Wednesday Box Lunch. Awards for the maps displayed will be given in the categories of: Transportation Publication, Information Usage, Public Presentation, and Effective Cartography. Winners in the Savvy Web Mapping category will also receive awards. Send your maps and posters to the Iowa Department of Transportation at the following address:

Lori Judge
Office of Systems Planning
Iowa Department of Transportation
800 Lincoln Way, Bldg. 5
Ames, IA 50010
lori.judge@dot.iowa.gov

This year, presenters are also asked to submit a PDF of their map or poster. Detailed guidelines for paper and web mapping application submissions are outlined at www.gis-t.org.

Roll Call Round Table Discussion Session

(Tuesday 8:00 AM to 10:00 AM)

TWO CONCURRENT SESSIONS

The following discussion themes were chosen by the GIS-T Planning Committee based on a review of topics submitted by symposium participants for the 2014 Roll Call of States: Symposium participants are encouraged to participate in the discussions, bring their issues, and share their experiences.

Data Governance Roundtable:

"Data Governance - It's Not Just Your Data Anymore!"

Moderator: TBD, Company TBD

The increasing demands by a wide spectrum of internal and external interest, for access and to transportation agency data and geospatial information has heightened the need for effective data governance practices in DOTs. Data governance is defined as the execution and enforcement of authority over the management of data assets and the performance of data functions. Data Governance institutionalizes and assigns responsibilities around traditional data management practices focusing on data collection, storage, security, data inventory, analysis, quality control, reporting, and visualization. Data Governance also involves administering spatial-related data from a strategic perspective. This Roundtable will provide the opportunity for spatial data collectors, users, managers and agency leaders and to discuss general principles of effective data governance, spatial data governance issues, and the challenges to implement in transportation agencies.

Data Sharing and Open Data Roundtable:

"Data Sharing - Are We Opening Pandora's Box?"

Moderator: TBD, Company TBD

GIS professionals have a long history of sharing data. Geospatial analysis and mapping often requires data from disparate sources. GIS is a perfect technology to deal with this. However, finding and accessing data are often difficult tasks, even within a single DOT. GIS technology and service oriented architectures (SOA) have made the ability share data much simpler. But technology is not the only road block. This Roundtable will explore the issues related to data sharing, best practices, and what "Open Data" really means.

TUESDAY NIGHT SOCIAL
A Night at the Museum – Watch out for Dinosaurs...
(Tuesday 6:00 PM to 9:00 PM)



Dine with the dinosaurs at the Science Center of Iowa. Socialize with new GIS fans, vendors, and cohorts. Have hors d' oeuvres and adult beverages while mingling with the dinosaurs. Browse the new *Ultimate Dinosaurs exhibit* revealing a new breed of dinosaurs that evolved in isolation in South America, Africa and Madagascar. Enjoy the music with a DJ and the live acoustic sounds of local artist Danny Grause. There are plenty of options for entertainment at the Star theater or use augmented reality and interactive games to discover the latest about some of the oldest bones around.

<http://www.sciowa.org/explore/exhibit>

WEDNESDAY LUNCH
(12 – 1:30 pm)

Box Lunch is provided for presentation of awards, next host state presentation and drawings for prizes.

SYMPOSIUM WRAP-UP AND DEBRIEF
(1:30 – 3 pm)

Come join us for a debriefing of this year's conference and preliminary planning for next year. Refreshments provided.

GUEST TOURS

**Monday, April 20th –
(8:00 AM to 3:30 PM)**

Salisbury House Tour - <http://salisburyhouse.org/>
Botanical Center Visit - <http://www.dmbotanicalgarden.com/>
Jasper Winery Tasting Room - <http://www.jasperwinery.com/>

**Tuesday, April 21st –
(9:30 AM to 3:30 PM)**


D Line tour to:
World Food Prize Tour - <http://www.worldfoodprize.org/>
State Historical Museum - <http://www.iowahistory.org/museum/>
East Village for Shopping

**Wednesday, April 22nd –
(9:30 AM to 11:00 AM)**

Iowa Capital Tour - <https://www.legis.iowa.gov/resources/tourCapitol>

CONCURRENT SESSION 1






1:30PM MONDAY, April 20

1.1 Enterprise Solutions		Salons A-C	
Moderator: Sarah Wray – North Carolina Department of Transportation			
1.1.1	Oklahoma Transportation Asset Browser(OK TAB)	Jeremy Planteen Oklahoma Department of Transportation Oklahoma City, Oklahoma	Bruce Aquilla Intergraph Corporation Huntsville, AL
1.1.2	ODOT's Enterprise GIS Framework for the Web	Brian R. Sovik, PMP, GISP Data Transfer Solutions, LLC. Orlando, Florida	David Blackstone Ohio Department of Transportation Columbus, Ohio
1.1.3	Caltrans Geospatial Data Clearinghouse for Open Authoritative Geospatial Transportation Data	Harold Feinberg Caltrans Sacramento, California	Chad Baker Caltrans Sacramento, California
1.2 Asset Management		Salon D	
Moderator: Connie Gurchiek – Transcent Spatial Solutions			
1.2.1	DCSign: GIS Inventory and Analysis of Traffic Signs	James K. Graham DC Department of Transportation Washington, DC	John Hudler Transcend Spatial Solutions Sarasota, FL
1.2.2	 Secondary Roads Leveraging Enterprise GIS	Brad Ketels Linn County Secondary Road Department Marion, IA	Matt Boyle Linn County Cedar Rapids, IA
1.2.3	LRS maintenance and Asset Management Systems	Phil Hardy AgileAssets San Clemente, CA	
1.3 Federal Programs		Salon E	
Moderator: Sharon Hawkins – Arkansas Highway Department			
1.3.1	Latest Developments in the National Transportation Atlas Database and Future Direction	Mark Bradford USDOT/BTS (Bureau of Transportation Statistics) Washington, DC	
1.3.2	The 3D Elevation Program	Jim Langtry U.S. Geological Survey Lincoln, Nebraska	
1.3.3	Mississippi DOT's Approach to FMIS Modernization	Mike Cresap Mississippi Department of Transportation Jackson, MS	Bruce Aquilla Intergraph Corporation Huntsville, AL
1.4 All Roads Network of Linear Referenced Data		Salon F-H	
Moderator: Richard Grady – Applied Geographics			
1.4.1	Show me your assets! Transitioning to a geo-spatial LRS	Aja Davidson Texas Dept. of Transportation Austin, TX	
1.4.2	Moving beyond Linear Reference Systems	Tom Roff FHWA Washington, DC	
1.4.3	Building an All-Roads LRS Network for Alaska	Bruce Spear, PhD Cambridge Systematics Cambridge, MA	Kerry Kirkpatrick Alaska DOT&PF Juneau, AK

The  symbol indicates a session from Iowa, the Host State.

CONCURRENT SESSION 2


3:30PM MONDAY, April 20

2.1 Multi-Level Linear Referencing Systems			Salons A-C
Moderator: Nate Reck - Geodecisions			
2.1.1	Implementing an Authoritative LRS: The ALDOT Experience	J.D. D'Arville Alabama Department of Transportation Montgomery, Alabama	Troy Marsh PMG Software Professionals Marietta, Georgia
2.1.2	Implementing the Roadway Information Management System (RIMS): An enterprise LRS upgrade marathon	David Blackstone Ohio Department of Transportation Columbus, Ohio	Bryan Kelley Transcend Spatial Solutions Sarasota, Florida
2.1.3	ADOT's New LRS - Roads and Highways	Patrick Whiteford, GISP Arizona Department of Transportation Phoenix, Arizona	Mark Flahan Arizona Department of Transportation Phoenix, Arizona
2.2 Web Portals			Salon D
Moderator: Troy Marsh – PMG Software			
2.2.1	CPMS Portal – ALDOT's Web-based Project Mapping Integration Tool	Joe Lambrix Atkins Atlanta, GA	Ronan Flannery Alabama DOT Montgomery, Alabama
2.2.2	Leveraging ArcGIS Online to federate and organize disparate government ArcGIS Online implementations	Ray de Leon JMT Technology Group Washington, DC	Jay Mukherjee Maryland-National Capital Park and Planning Commission Silver Spring, MD
2.2.3	 Iowa DOT portals leveraging COTS	Eric Abrams Iowa Department of Transportation Ames, IA	Derek Peck Iowa Department of Transportation Ames, IA
2.3 Technology Solutions			Salon E
Moderator: Mary Beth Pfrang – Kansas Department of Transportation			
2.3.1	 Snowplows & AVL (Year 4)	Eric Abrams Iowa Department of Transportation Ames, IA	
2.3.2	 Development of Railroad Highway Grade Crossing Closure Rating Formula: Database Creation	Zachary Hans Institute for Transportation, Iowa State University Ames, Iowa	Patrick Johnson Institute for Transportation, Iowa State University Ames, Iowa
2.3.3	Mapping Safer Routes to School: An Ohio Collaboration Success Story from Toledo, Columbus, and Akron School Districts.	Douglas Lynch TranSystems Cincinnati, Ohio	
2.4 Mapping Solutions			Salon F-H
Moderator: Bryan Kelley – Transcend Spatial Solutions			
2.4.1	Leveraging Python to Revolutionize the Production of the Vermont Town Highway Maps	Johnathan Croft Vermont Agency of Transportation Montpelier, VT	Michael Trunzo Vermont Agency of Transportation Montpelier, VT
2.4.2	 A GIS Tour of Des Moines	Anna Whipple, GISP City of Des Moines Des Moines, IA	
2.4.3	 Mapping Bike Share Trips: A Spatial Approach to Evaluating Supply and Demand for On-Street Bicycle Facilities in New York City	Katie O'Sullivan University at Albany, SUNY Albany, NY	

The  symbol indicates a session from Iowa, the Host State. The  symbol indicates Student Presentation.

CONCURRENT SESSION 3


10:30AM TUESDAY, April 21

3.1 Business Management			Salons A-C
Moderator: Bruce Aquila – Intergraph Corporation			
3.1.1	Smarter Work Zones – Leveraging GIS-T Tools to Meet FHWA Goals	W.D. Baldwin, PE HDR Bellevue, WA	Todd Peterson, PE, PTOE USDOT Federal Highway Administration Washington, DC, DC
3.1.2	Making GIS the Keystone of PennDOT's Maintenance Operations	Matthew Long PennDOT Harrisburg, PA	Nate Reck GeoDecisions Camp Hill, PA
3.1.3	Managing Road Dedications at South Carolina DOT	Donny McElveen South Carolina DOT Columbia, South Carolina	Mitch Stephens PMG Software Professionals Cumming, GA
3.2 Traffic Safety and Crash Analysis			Salon D
Moderator: Richard Paddock – Traffic Safety Analysis, Systems & Services, Inc.			
3.2.1	Analyzing State and Local Safety Data Using AASHTOWare Safety Analyst™	Doug Argall, GISP, OCA GeoDecisions Camp Hill, PA	
3.2.2	 Review on GIS-based spatial and spatiotemporal analysis in traffic safety study	Chenhui Liu Iowa State University Ames, IA	
3.2.3	Wisconsin Statewide Crash Mapping Automation Enhancements	Steven T. Parker University of Wisconsin-Madison TOPS Lab Madison, WI	Kelly Schieldt Wisconsin Department of Transportation Madison, WI
3.3 Process Improvement			Salon E
Moderator: Frank DeSendi – Pennsylvania Department of Transportation			
3.3.1	Implementing Roads and Highways at the Louisiana Department of Transportation	Brian Reigh Louisiana Department of Transportation and Development Baton Rouge, Louisiana	Chris Cannaday Louisiana Department of Transportation and Development Baton Rouge, Louisiana
3.3.2	GIS-Based Evaluation of Crash Reductions for Selective Law Enforcement Campaigns	Jenna Simandl The University of Alabama Tuscaloosa, Alabama	Andrew Graettinger, Ph.D. The University of Alabama Tuscaloosa, Alabama
3.3.3	Improving Field & Office Workflow for Data Collection	Brett Black Leica Geosystems Wapello, IA	
3.4 Integrating Data Supply Chains			Salon F-H
Moderator: Bo Guo – Gistic Research, Inc.			
3.4.1	TxDOT Local Streets and the ARNOLD Initiative	Jenn Sylvester TxDOT Austin, TX	
3.4.2	Using Open Data in a GIS-Based Web Portal for Crash Mapping GIS	Brittany Shake The University of Alabama Tuscaloosa, Alabama	Randy Smith, Ph.D. The University of Alabama Tuscaloosa, Alabama
3.4.3	Local Centerline Evaluation with LRS Data Reviewer	Ryan Blum Works Consulting LLC Gilbert, AZ	Joe Breyer Works Consulting LLC Gilbert, AZ

The  symbol indicates a session from Iowa, the Host State.

CONCURRENT SESSION 4




1:30PM TUESDAY, April 21

4.1 Multi-Level Road Networks			Salons A-C
Moderator: Kevin Hunt – NYS Office of Information			
4.1.1	(WisDOT) (ARNOLD): Enhancing the Spatial Resolution with an Active Linear Referencing System (LRS)	Mark Simpson The University of Alabama Tuscaloosa, AL	Kelly Schieldt Wisconsin Department of Transportation Madison, Wisconsin
4.1.2	New Jersey's Enhanced Road Centerline Data Model	Kenneth Contrisciane Michael Baker International Hamilton, NJ	
4.1.3	NCDOT Roads and Highways RoadMap	Tim Sheldon Timmons Group Richmond, VA	John Farley NCDOT Raleigh, NC
4.2 Data Modelling			Salon D
Moderator: Phil Mescher – Iowa Department of Transportation			
4.2.1	 Overview of the Second Generation of Iowa Statewide Traffic Analysis Model (iTRAM)	Eric Wilke Iowa Department of Transportation Ames, Iowa	Jeff von Brown Iowa Department of Transportation Ames, Iowa
4.2.2	Developing interactive mapping for supporting county roads improvement and transportation planning	EunSu Lee, GISP Upper Great Plains Transportation Institute Fargo, ND	Bradley Wentz Fargo, ND
4.2.3	Developing Travel Shed TAZ Using ArcGIS	Erich Rentz RSG Salt Lake City, UT	
4.3 Data Management and Visualization			Salon E
Moderator: Jesse Jay – Transcend Spatial Solutions			
4.3.1	Tennessee Department of Transportation's Straight Line Diagram Application	Brian Terrell Tennessee Department of Transportation Nashville, Tennessee	Bruce Aquilla Intergraph Corporation Huntsville, AL
4.3.2	New Jersey Department of Transportation Pedestrian Safety Analysis Tool	Justin Furch, MCTS Michael Baker International Hamilton, NJ	
4.3.3	CTPP Crash Course - Emphasis on new mapping capabilities	Penelope Weinberger AASHTO Washington, DC	
4.4 Applied Geospatial Science			Salon F-H
Moderator: Patrick Broussard – PMG Software			
4.4.1	A Viable Solution for Curvature and Gradient Calculation	Joe Breyer Works Consulting LLC Gilbert, AZ	
4.4.2	Enabling elevation information on a road network for routing applications	Dr. Jay Sandhu Esri, Inc. Redlands, CA	
4.4.3	Coastal Surge Inundation Mapping on the New Jersey Turnpike and Garden State Parkway	Thomas Tiner Michael Baker International Hamilton, NJ	

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CONCURRENT SESSION 5





3:30PM TUESDAY, April 21

5.1 Photolog, Imagery, LiDAR		Salons A-C	
Moderator: Michael Umansky – Applied Imagery			
5.1.1 	Automated Enforcement of High Resolution Terrain Models	Brian Gelder Iowa State University Ames, IA	
5.1.2	Tennessee Department of Transportation's Image Viewer Application	Jeff Murphy Tennessee Department of Transportation Nashville, Tennessee	Bruce Aquila Intergraph Corporation Huntsville, Alabama
5.1.3 	Managing Remote Sensing Data With Erdas Apollo	Tom Samson Iowa Department of Transportation Ames, Iowa	
5.2 Federal Initiatives		Salon D	
Moderator: John Farley – North Carolina Department of Transportation			
5.2.1	Geospatial Data Collaboration	Paige Colton U.S. DOT Volpe National Transportation Systems Center Cambridge, MA	Alisa Fine U.S. DOT Volpe National Transportation Systems Center Cambridge, MA
5.2.2	Utilizing ARNOLD to Support National Performance Management Initiatives	Tom Roff FHWA Washington, DC	
5.2.3	The All Public Roads Geospatial Study (ARNOLD) Final Report and Pooled Fund Study Status	Joseph Hausman US DOT - FHWA Washington, DC	
5.3 Web Planning Tools		Salon E	
Moderator: Mary Gail Broussard – PMG Software			
5.3.1	Exploring Varied Uses of ArcGIS Online within the WSDOT Online Map Center	Heath Brackett Washington State Department of Transportation Olympia, WA	
5.3.2	Integration of GIS and EDMS at Ohio DOT	Walter (Terry) Cline tsaADVET New Providence, PA	
5.3.3	North Jersey Transportation Planning Authority Asset Management Model	Nick Hutton Michael Baker International Hamilton, New Jersey	
5.4 Performance Management		Salon F-H	
Moderator: Brian Andersen – Montana Department of Transportation			
5.4.1	Improving Safety Programs through Spatial Data Governance and Business Planning	James Hall University of Illinois Springfield Springfield, IL	
5.4.2	PennDOT Bridge Scour Initiatives	Frank DeSendi Pennsylvania Department of Transportation Harrisburg, Pennsylvania	
5.4.3 	Paint Reflectivity Analysis for Decision Making	Shawn Blaesing-Thompson Iowa Department of Transportation Ames, IA	Joseph Drahos Iowa Department of Transportation Ames, IA

The  symbol indicates a session from Iowa, the Host State.

CONCURRENT SESSION 6




8:30 AM WEDNESDAY, April 22


6.1 Mobile GIS		Salons A-C	
Moderator: Brad Adams – Transcend Spatial Solutions			
6.1.1 	The use of tablet technology for roadside feature condition reporting and decision making	Shawn Blaesing-Thompson Iowa Department of Transportation Ames, IA	Brad Cutler Iowa Department of Transportation Ames, IA
6.1.2	RoadMap Collector for ArcGIS	Matt McCracken Timmons Group Richmond, VA	
6.1.3 	Mobile GIS for signal and sign management	Ben McConville, GISP City of Ames Iowa Ames, IA	Dominic Roberge City of Ames Ames, IA
6.2 SHRP2		Salon D	
Moderator: Jonathan Croft – Vermont Agency of Transportation			
6.2.1	GIS Linkages with the SHRP2 Roadway Information Database	Bruce D. Spear, PhD Cambridge Systematics Cambridge, MA	Michael Dimaiuta, P.E. Genex Systems McLean, VA
6.2.2	FHWA Support of SHRP2 Safety Data Analysis	Craig Thor Federal Highway Administration McLean, VA	Charles Fay Federal Highway Administration McLean, VA
6.2.3 	SHRP 2 Roadway Information Database: Data and Applications	Zachary Hans Institute for Transportation, Iowa State University Ames, Iowa	Skylar Knickerbocker Institute for Transportation, Iowa State University Ames, Iowa
6.3 Open Data and Crowdsourcing		Salon E	
Moderator: Doug Argall - Geodecisions			
6.3.1	New TDOT SmartWay Solutions and Open Data	Van Colebank TN Dept. of Transportation Nashville, TN	
6.3.2	Data Transparency for Collaboration	Becky Hjelm Utah Department of Transportation Salt Lake City, Utah	
6.3.3 	Crowdsourcing Strategies Involving Users In Pedestrian System Inventory and Analysis	Christopher J. Seeger Iowa State University Ames, IA	
6.4 Developing a Comprehensive Network		Salon F-H	
Moderator: Lori Judge – Iowa Department of Transportation			
6.4.1	The Past, Present and Future of Manitoba's Road Network	Andrew Lindsay Manitoba Infrastructure and Transportation (MIT) Winnipeg, Manitoba, Canada	
6.4.2	Managing Pavement Information with LRS	Mark Yerington MAGIC Muscatine, IA	Randy Hill City of Muscatine
6.4.3	Calculating Cumulative Non-Negative Elevation Gain for Bicycle Route Choice Modelling	Erich Rentz RSG Salt Lake City, UT	

The  symbol indicates a session from Iowa, the Host State.

CONCURRENT SESSION 7

10:30 AM WEDNESDAY, April 22

7.1 Data Integration		Salons A-C	
Moderator: Darryl Spears – Alabama Department of Transportation			
7.1.1	Arkansas vs. ARNOLD - Creating an All Public Roads LRS in Razorback country	Sharon Hawkins Arkansas State Highway and Transportation Department Little Rock, Arkansas	Jonathan Duran Arkansas Geographic Information Office (AGIO) Little Rock, Arkansas
7.1.2	Mississippi Dept. of Transportation - Crash Edit Tool (CET)	Chris Kimbrell Mississippi Dept. of Transportation - MDOT Jackson, MS	Bruce Aquila Intergraph Madison, AL
7.1.3 	Transforming 511 GIS with FME	David Runneals Iowa Department of Transportation Nevada, Iowa	Sinclair Stolle Iowa Department of Transportation Ames, Iowa
7.2 Local Roads and HPMS		Salon D	
Moderator: Russell Minich – Timmons Group			
7.2.1	Visualize and Analyze Your LRS Data	Bo Guo Gistic Research Inc. Tempe, AZ	
7.2.2	Michigan's Geospatial Enterprise Information Management	Joshua Ross State of Michigan, Department of Technology, Management & Budget, Center for Shared Solutions Lansing, MI	
7.2.3	Modernizing the HPMS Process at ALDOT	Jeremy Barnes Alabama Department of Transportation Montgomery, Alabama	Troy Marsh PMG Software Professionals Marietta, Georgia
7.3 Transportation Dashboards/Visualization		Salon E	
Moderator: Becky Hjelm – Utah Department of Transportation			
7.3.1	ITMS: Information Inside and Out	Donny McElveen South Carolina DOT Columbia, South Carolina	Mitch Stephens PMG Software Professionals Cumming, Georgia
7.3.2 	The Iowa DOT Interstate Condition Evaluation (ICE) Tool	Adam Shell Iowa DOT Ames, Iowa	Kyle Barichello Iowa DOT Ames, Iowa
7.3.3 	Iowa Pavement Management Program: Towards a more interactive asset management paradigm for local agencies	Inya Nlenanya Intrans, Iowa State University Ames, Iowa	
7.4 Traffic Data		Salon F-H	
Moderator: Patrick Whiteford – Arizona Department of Transportation			
7.4.1	Automated Turning Movements and Traffic Counts Using Video Analytics	Connie Gurchiek Transcend Spatial Solutions Sarasota, FL	Bill Schuman Transcend Spatial Solutions Sarasota, FL
7.4.2	Improving Traffic Data Collection and Analysis using innovative technologies	Greg Ulp GeoDecisions Camp Hill, PA	
7.4.3	Transferability of Activity-Based Travel Demand Model to Small/Medium Size Region	Mohammad M. Molla North Dakota State University Fargo, North Dakota	

The  symbol indicates a session from Iowa, the Host State.

GIS-T Attendee Registration Form

Please use our easy On-line Registration at: <http://www.gis-t.org>, available on 1/12/15

ONE REGISTRATION PER PAGE PLEASE

NOTICE: IF YOU HAVE GUEST(S) ATTENDING, PLEASE SEE OUR GUEST REGISTRATION FORM

Name (Mr. Ms.) _____ Nickname _____
First Last

Address _____
Street City State ZIP

Business Name _____

Business Phone _____ Fax _____

Email: _____ GIS-T Attendee

FEES	Before/on 4/03/15	After 4/03/15	Total
GIS-T 2015 Symposium	\$295	\$350	\$
GIS-T 2015 Workshops	\$125	\$150	\$
Student - Symposium ³ & Workshops	\$100	\$125	\$
One Day-Symposium ⁴ <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thurs	\$150	\$175	\$
AMOUNT ENCLOSED			\$

Note on Fees

1. Does not include workshop fees.
2. Workshop fee covers entire day (Sunday, April 19th, 2015) and includes Breakfast and Lunch. This is not a per-workshop fee. Please select choice of workshops below.
3. Student Fee covers attendance at the Symposium, Workshops, Lunches, and Exhibit Hall Receptions. **Does not cover the Tuesday Social.** Please select choice of workshops below.
4. One Day Registration Fee covers attendance for one day at the Conference, Lunch, and Exhibition Hall Reception. **It does not include the Tuesday Social.**

Workshops (IMPORTANT: REGISTRATION FEE FOR THE SYMPOSIUM DOES NOT INCLUDE WORKSHOPS, SEE FEE LIST ABOVE)

Morning Session - Pick One	Afternoon Session - Pick One
<input type="checkbox"/> Mapping and Visualization of Transportation Assets	<input type="checkbox"/> Data Governance
<input type="checkbox"/> Leveraging ARNOLD to Locate Federal-Aid Projects	<input type="checkbox"/> Best Practices in GIS-Based Snow Removal Management Systems
<input type="checkbox"/> GIS & Safety Analysis Review Panel	<input type="checkbox"/> Enhancing the Use of GIS to Support Asset Management Requirements Under MAP-21
<input type="checkbox"/> Open Source in Three Easy Movements	<input type="checkbox"/> ARNOLD: Beyond HPMS

REGISTRATION WILL OPEN ON Monday, April 19th, AT 7:00 AM and CONTINUES THROUGHOUT THE SYMPOSIUM

PAYMENT BY CHECK, MONEY ORDER OR REGISTER ON-LINE USING CREDIT CARD

Send Registration & Check to
 Rose Braun
 Nebraska Department of Roads
 Materials and Research Division
 PO Box 94759
 Lincoln, NE 68509
 Phone: 402-479-3696
 Fax: 402-479-3884

Make checks Payable to "GIS-T". Check <http://www.gis-t.org> for the most up to date information.

Refund Policy: All cancellations and refunds are subject to a \$50.00 processing fee. No refunds will be provided after April 15, 2015. To qualify for a full refund, a written cancellation notice must be sent to Rose Braun, 1400 Highway 2, PO Box 94759, Lincoln, NE 68509.

Guest(s) Registration Form

Please use our easy On-line Registration at:

<http://www.gis-t.org>, available on 1/12/15

This registration is for Guest(s) of Symposium Participants

Symposium Participant's Name (Mr. Ms.) _____
First Last

ADULT GUEST REGISTRATION (Includes Guest Tours, Breakfasts, Receptions, Tuesday Social, and Wednesday Boxed Lunch.)

Adult Guest Name (Mr. Ms.) _____
First Last

Address _____
Street City State ZIP

Business Name _____

Business Phone _____ Fax _____

E-mail: _____

Fees include continental breakfast each morning, day trips on Monday and Tuesday, and Social on Tuesday night. Lunch will also be provided on the Tuesday day trip.

FEES

	Number of Registrants	Total
\$165.00		\$
TOTAL AMOUNT*		\$

CHILD(REN) REGISTRATION (Under age of 18)

Child(ren)'s Name(s)/Age(s) _____
M/F _____ M/F _____

M/F _____ M/F _____

FEES

		Number of Registrants	Total
Children Ages 6 & under	Free		\$
Age 7 - 18	\$35.00 for Each Child		\$
TOTAL AMOUNT			\$

GRAND TOTAL ENCLOSED FOR ALL REGISTRANTS	\$
--	----

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Rose Braun
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PO Box 94759
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Des Moines, Iowa – Lodging and Logistics

Hotel Information

[Des Moines Marriott Downtown](#)

700 Grand Avenue.
Des Moines, Iowa 50309 USA
515-245-5500

Internet: Included with rooms and in public spaces in the conference hotel.

Weather in Des Moines: The average high temperature in Des Moines for this week in April is 62F, the average low temperature is 40F. Spring can bring afternoon thunderstorms.

Travel: Airport Maps and Directions
Des Moines International Airport (DSM)
5800 Fleur Drive, Suite 207
Des Moines, Iowa 50321-2854
(515) 256-5050
<http://www.dsmairport.com/>

Car Rentals: Rental cars are available from the DSM. Go to this link for more details:

<http://www.dsmairport.com/at-the-airport/ground-transportation/car-rentals.aspx>

Hotel Shuttles

A number of hotels/motels provide their customers with transportation to and from the DSM International Airport. Direct phones for reservations and shuttle service can be found inside the terminal in the baggage claim area.

GIS in Transportation Symposium 2015



GIS-T

Crossroads in the Heartland

DES MOINES, IOWA ■ APRIL 19-22, 2015

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- **Federal Highway Administration**
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GIS-T 2015 - Local Host Contact

Iowa DOT

[Shawn Blaesing-Thompson](#)

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