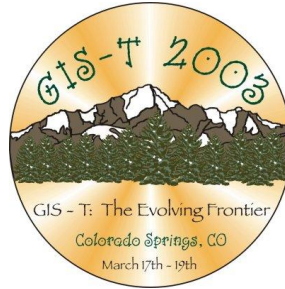


# Final Program



## ***THE EVOLVING FRONTIER***

Sixteenth Annual

## ***GEOSPATIAL INFORMATION SYSTEMS FOR TRANSPORTATION SYMPOSIUM***

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

**March 17-19, 2003**

**Workshops – March 16, 2003**

**DOUBLETREE HOTEL– World Arena  
Colorado Springs, Colorado**

[www.GIS-T.org](http://www.GIS-T.org)

### **Sponsored by:**

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Urban & Regional Information  
Systems Association

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## Moderator Chair

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The sixteenth annual GIS-T Symposium – *The Evolving Frontier* — provides a forum for professionals interested in the design and use of Geographic Information Systems for transportation. It brings together individuals from education, the private sector, and all levels of government for a full day of workshops March 16, 2003, and three full days of conference activity, March 17-19, 2003.

## GIS-T 2003 PLANNING COMMITTEE

Diane Pierzinski, Chair

Debra Alfonso  
Michigan DOT

Larry Miller  
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Kansas DOT

Ben Williams  
FHWA

### General Schedule

- o The **TIME** column is divided into 15-minute increments. **Not to scale.**
- o Sessions begin at the time shown on the line at the top of their time blocks. For example, on Tuesday, the Keynote Speaker session begins at 8:15, and lasts until 9:15.

**Saturday, 3/15 5-7pm- Early Bird Registration**

TIME	Sunday, 3/16	Monday, 3/17	Tuesday, 3/18	Wednesday, 3/19	
7:00 A.M.	<b>Registration Open</b> Continental Breakfast	<b>Registration Open</b> Continental Breakfast			
7:30			<b>Registration Open</b> Continental Breakfast	<b>Registration Open</b> Continental Breakfast	
8:00	<b>Workshops</b> <b>Half-Day Sessions</b> 1.1 Continuity of GIS Operations 1.2 Accessing Census Transportation Planning Pkg. Data 1.3 Methods for the Development and Implementation of Environmental Assessment Techniques 1.4 <b>CANCELLED</b> Breaks at instructors' discretion	<b>Welcome and Introductions</b> <b>Jennifer Finch</b> Director, Division of Transportation Development, Colorado Dept. of Transportation	<b>Morning Announcements</b>  <b>Keynote Speaker</b> <b>Xavier Lopez, Ph. D.</b>	<b>Session 6</b> 6.1 Advances in Road Modeling 6.2 Improving the Planning Process 6.3 Data Integration 6.4 LRS	
8:15					<b>Keynote Speaker</b> <b>Harvey J. Miller, Ph. D.</b>
8:30		<b>Break/ Exhibits Open</b>	<b>Break/ Exhibits Open</b>		
9:00					<b>State Summary</b> <b>Roll Call of States</b>
9:15		<b>Short Break</b>	<b>Session 3</b> 3.1 Alternate Modes 3.2 Envir. Planning 3.3 Asset Management 3.4 Routing	<b>Short Break</b>	
9:30					<b>Lunch – Workshop Attendees Only</b>
9:45		<b>Workshops (cont.)</b> <b>Half-Day Sessions</b>	<b>Lunch</b>	<b>Lunch</b>	
10:00					<b>Vendor Wrap-up Meeting</b>
10:30		<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>	
10:45					<b>Vendor Wrap-up Meeting</b>
11:00	<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>		
11:30				<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>
11:45	<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>		
12:00 P.M.				<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>
1:00	<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>	<b>Vendor Wrap-up Meeting</b>		

1:30	2.1 Agency Level Highway Data Collection, Integration and Analysis	<b>Session 1</b>	<b>Session 4</b>	<b>Short Break</b>
1:45	2.2 Using the Freight Analysis Framework	1.1 Update on State Enterprise Applications	4.1 TRB - Rethinking Geospatial Data	<b>Session 8</b> 8.1 Freight 8.2 Transportation Analysis 8.3 Data Sharing 8.4 Road Data Maintenance
2:00	2.3 Using Grid Analysis to Support Corridor Planning	1.2 Highway Planning	4.2 Traffic	
	2.4 Good Cartographic Display Design for GIS Users	1.3 Geospatial One-stop Activities for Trans.	4.3 Document Management	
	Breaks at instructors' discretion	1.4 Public Transportation	4.4 Data Development	
		<b>Break</b>	<b>Break</b>	
3:00		<b>Technical Tours</b>		<b>Short Break</b>
3:15		<i>Bus Loading</i>		<b>Session Wrap-Up</b> Come join us for a debriefing of this year's symposium and planning for the next. <b>Refreshments Provided!</b> [Meet in <b>Windows</b> ]
3:30		1. Colorado Springs TMC	<b>Session 5</b>	
	2. Colorado Springs Street Division	5.1 TRB - Rethinking Geospatial Tech. 5.2 ITS 5.3 MPO Applications 5.4 Data Collection		
	3. El Paso Teller E 9-1-1 Authority			
4:00	4. Colorado Springs Utilities			
	5. Merrick & Company			
5:00	<b>Break</b>		<b>Exhibits Closed</b> <b>Registration Closed</b> <b>Tuesday Night Social</b>	<b>End of Conference</b>
			Flying "W" Ranch Chuckwagon Supper and Western Show	
5:30		<b>Poster Session</b> <b>Vendor Reception</b>		
		<b>Registration Closed</b>		
6:00	<b>Exhibits Open - Vendor Reception and Vendor Showcases</b>			
7:00	<b>Registration Closed</b>			
8:00	<b>Exhibits Closed</b> <b>Individual Receptions Open</b>	<b>Exhibits Closed</b> <b>Individual Receptions Open</b> <b>D J - at Maxi's</b>	<b>Individual Receptions Open</b>	

## GIS-T Workshops – Sunday, March 16

	<b>Workshop Name</b>	<b>Instructor(s)</b>	<b>Time</b>	<b>Room</b>
1.1	Continuity of GIS Operations	Pamela Fromhertz National Geodetic Survey	8 am- Noon	Park
1.2	Accessing Census Transportation Planning Package Data	Clara Reschovsky, US Census Bureau Nandu Srinivasan, Cambridge Systematics Ed Christopher, FHWA Resource Center	8 am- Noon	Teller
1.3	Methods for the Development and Implementation of Environmental Assessment Techniques	Bob Fuhler Arkansas Highway & Transportation Department	8 am- Noon	Fremont
1.4	On-Line Data Sources for Transportation Agencies: Current Data and Directions	<i>Cancelled</i>		
2.1	Agency Level Highway Data Collection, Integration and Analysis	Simon Lewis ITIS, Inc. & Ron Cihon Washington DOT	1 -5 pm	Park
2.2	Using the Freight Analysis Framework	Bruce Lambert FHWA	1 -5 pm	El Paso
2.3	Using Grid Analysis to Support Corridor Planning	David Kingsbury Intergraph	1 -5 pm	Teller
2.4	Good Cartographic Display Design for GIS Users	Joel Morrison The Ohio State University Center for Mapping Barbara Buttenfield of the University of Colorado	1 -5 pm	Fremont

## GENERAL SESSIONS - MONDAY, MARCH 17 GRAND BALLROOM

### WELCOME TO THE GIS-T SYMPOSIUM

**Monday 3/17 – 8:15 – 8:30 am**

**Jennifer Finch**

Director, Division of Transportation Development  
Colorado Department of Transportation

Jennifer Finch is the Director of the Division of Transportation Development with the Colorado Department of Transportation. This Division is responsible for planning issues affecting Colorado's economy, developing long and short-range statewide transportation plans, modal programs, geographical information systems, and research. In her 24 years with the Department, Jennifer has gained unique knowledge and respect, which has served her well in bringing her to this challenging role of Director. Ms. Finch holds a Bachelor's Degree in Environmental Design and is a graduate from the University of Colorado at Boulder.

Before Jennifer became Director, she was Manager of the Planning and Environmental Section of CDOT's Region 6 office, which includes five counties in the metropolitan Denver area. As manager, she was instrumental in reorganizing planning and early consideration of environmental issues.

### KEYNOTE SPEAKER

**Monday 3/17 – 8:30 – 9:30 am**

**Harvey J. Miller, Ph. D**

Professor of Geography  
University of Utah

Harvey J. Miller received his PH.D in geography from The Ohio State University in 1991. Since 1989, he has published over thirty papers in journals, books and conference proceedings on GIS topics. Harvey is a recipient of several awards, including the Hewings Award for Outstanding Young Scholar from the North American Regional Science Council (1997), and ESRI Award for Best Scientific Paper in GIS from the American Society for Photogrammetry and Remote Sensing (1996), the Springer-Verlag Award from the Western Regional Science Association (1996), the Superior Research Award from the College of Social and Behavioral Science at the University of Utah (1994) and the Huntington Memorial Award from the Department of Geography at the Ohio State University (1991). Harvey serves on the editorial boards of *Geographical Analysis*, *Journal of Regional Science*, *Transportation* and *URISA Journal*. He is also a Councilor-at-Large of the North American Regional Science Council and a member of the Board of Directors of the University Consortium for Geographic Information Science.

### STATE SUMMARY / ROLL CALL OF STATES

Each year the AASHTO GIS-T Symposium conducts a state survey to determine the general status of GIS in DOTs, the changes that have occurred over time, and trends. **Bruce Spear**, of FHWA, conducted this survey and has completed the annual summary report on the state of GIS-T in the state transportation agencies. The registration packet contains this report.

The Roll Call of States will introduce each state's delegates. **Dick Genrich's** Power Point presentation will give the audience a short summary of each state's Recent Project(s)/Application(s) and Issues they are interested in. Following the states will be the Canadian provinces and other participants.

## TECHNICAL TOURS (MONDAY 3:00 PM TO 5:00 PM)

Tours will be offered for various locations in the Colorado Springs metro area to see GIS and geographic data in action. Limited space is available for these tours so you must reserve your space at on-site registration Saturday, Sunday or Monday morning. Transportation will be provided. **Buses will depart from 3-3:15 from outside the registration lobby for all technical tours.** The functions and choices are:

The **City of Colorado Springs Traffic Management Center (TMC)** is responsible for operating the city's traffic management system, which includes 35 miles of I-25 freeway management, from its 10,000 square-foot facility. Primary systems include 30 dynamic messaging signs (DMS), 25 live video cameras, a traffic signal system which controls 500 intersections, and an automated vehicle location (AVL) system. The latter will be a focus of demonstrations relating to GPS/GIS applications.

The **City of Colorado Springs Street Division** ensures safety for the citizens of Colorado Springs by providing quality maintenance and rehabilitation of public streets and drainage. The key services provided include: 1) Pavement rehabilitation, 2) Street sweeping / air quality control, 3) Snow and ice control, 4) Drainage maintenance, 5) Alley maintenance and dust abatement and 6) Storm mitigation. The recent implementation of the Pavement Degradation Program has emphasized the need to further utilize GIS technology to identify the degradation activities throughout our 1,486 miles of roadway. The Pavement Management Application is a computerized information system designed to assist decision-makers in the process of managing a network of pavements by analyzing current conditions, future performance and expected monetary needs. Street Division personnel are also working closely with Colorado Springs Utilities personnel to identify current and future road projects to assist in the preservation of the pavement network throughout the City. The Street Division also utilizes technologies such as Automatic Vehicle Location (AVL) to track and monitor vehicle location and communications. As well as, Road Weather Information System (RWIS), which utilizes atmospheric weather parameter monitoring devices that provide 24 / 7 weather information throughout Colorado Springs.

The **El Paso Teller E 9-1-1 Authority** is the agency responsible for providing, maintaining, and updating the equipment used for receiving and dispatching emergency 911 calls and supports nine Public Service Answering Points (PSAP's) covering a two county area in Central Colorado. The Authority's GIS staff develops, maintains, and distributes critical mapping data that is used to assist with the emergency response whenever a 911 call is received, as well as emergency response planning. Various databases and applications used to assist in fulfilling these missions will be demonstrated.

**Colorado Springs Utilities (CSU)** has been utilizing GIS technology since 1988 to improve its efficiency in providing electric, gas, water and wastewater services to its citizen owners. CSU staff will demonstrate a number of GIS applications:

- Data View – an intranet application used to locate any given address in CSU's combined service area.
- Project View – an intranet application that depicts construction activities and potential conflicts.
- Mobile Mapping – an application that provides Utility Locators with electronic utility information.
- Field Data Collection – a demonstration of how CSU gathers information about utility features.
- Public Counter – a tour of products and services Colorado Springs Utilities provides to the public.

**Merrick & Company** provides comprehensive, client-focused land information services, including image acquisition (aerial and satellite), GPS Surveying, digital photogrammetry, Light Detection and Ranging (LIDAR), digital orthophotography processing, cadastral mapping, utility network automation, GIS database design and application programming. The tour will focus on Merrick's LIDAR and imaging capabilities for transportation applications. Included will be demonstrations of data filtering, the advantages of simultaneous digital imaging, ortho rectification, MARS™ software, data formats and deliverables.

## POSTER SESSION (MONDAY 5:30 PM TO 8:00 PM)

The annual GIS-T Symposium provides the opportunity for attendees to display posters showcasing their work. It is an opportunity to share techniques and applications with peers in the transportation GIS community. A symposium attendee representing each poster will be available to answer questions during the poster session. Please submit posters by noon Monday, March 17, 2003. Awards will be given for the each of four categories - Analytical Application, Software/Data Integration, Cartographic, and State Highway Map.

State Highway Agencies are encouraged to submit an un-folded state highway map to be displayed at the symposium. They will be judged and an award for the best state highway map will be given.

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**GENERAL SESSIONS - TUESDAY, MARCH 18**  
**GRAND BALLROOM**

**KEYNOTE SPEAKER**

**Tuesday 3/18 – 8:15 – 9:15 am**

**Xavier Lopez, Ph. D**

Director of Location Services

Oracle Corporation

Xavier Lopez lead Oracle's efforts to incorporate spatial technologies across Oracle's database, application server, eBusiness applications. He has twelve years of experience in the area of GIS and spatial database. He holds advanced engineering and planning degrees from the University of Maine, MIT, and the University of California, Davis. Xavier is the author of a book on government spatial information policy and has authored over 50 scientific and industry publications in areas related to spatial information technology. He currently serves on the National Academies of Science, Transportation Research Board, the Geography Information Technology Association, the International Geographic Information Foundation, the Journal of Urban and Regional Information System and on the editorial board of GeoWorld.

**TUESDAY NIGHT SOCIAL**  
**FLYING W RANCH**  
**Chuckwagon Supper and Western Show**

***Buses begin loading at 5 pm outside the lobby***

The Flying W Ranch is a working, mountain cattle ranch that has specialized in western food and entertainment since 1953. The evening will begin with a bus tour of the Garden of the Gods. Upon arrival at the Ranch cocktails will be available followed by a western BBQ dinner. The Western Town will be open for shopping during the cocktail hour. After dinner at approximately 8:30 pm the Flying W Wranglers will entertain us with the very best western stage show in the country featuring **real** cowboy music with beautiful 3 and 4 part harmonies and bunkhouse comedy. Buses will depart immediately after the entertainment, at approximately 9:30 pm.



**CONCURRENT SESSION 1**

1:30 PM MONDAY, MARCH 17


<b>1.1 Update on State Enterprise Applications</b>			
Moderator: <b>David Kingsbury</b>			
1.1.1	<b>GRIP V2 Expanding the Enterprise – Getting a Better GRIP on Oklahoma’s Transportation Information</b>	Jay Adams Oklahoma DOT Oklahoma City, Okla.	Jesse Jay GeoDecisions Camp Hill, Penn.
1.1.2	<b>Visualizing the Enterprise: PENNDOT's Generic Mapping Interface (GMI) Architecture Design Project</b>	Joseph M. McGinnes, P.E. Pennsylvania DOT Harrisburg, Penn	Jim Knudson GeoDecisions Camp Hill, Penn.
1.1.3	<b>LRS Uses in a Municipality – All Aboard: Edmonton’s SLIM – A Magnet for New Projects</b>	Wendy Ritchie City of Edmonton Alberta, Canada	Paul Szczepanski City of Edmonton Alberta, Canada
<b>1.2 Highway Planning</b>			
Moderator: <b>John Sutton</b>			
1.2.1	<b>California Department of Transportation GIS / Level of Service Application</b>	Diane Pierzinski Caltrans Sacramento, Calif.	Carlos P. Yamzon Caltrans Stockton, Calif.
1.2.2	<b>Florida Interstate Highway System: Decision Support System 2000</b>	Vidya Mysore Florida DOT Tallahassee, Florida	Bob McCullough Florida DOT Tallahassee, Florida
1.2.3	<b>Using GIS for Transportation Planning</b>	Jeff Besse URS Corporation Colorado Springs, Colo.	
<b>1.3 Geospatial One-stop Activities for Transportation</b>			
Moderator: <b>Steve Lewis</b>			
1.3.1	<b>Update on Geospatial One-stop Activities for Transportation</b>	Steve Lewis USDOT/Bureau of Transportation Statistics Washington, DC Paul Scarponcini, PE, Ph.D Bentley Transportation Littleton, Colorado	Mark Bradford Derald Dudley
<b>1.4 Public Transportation</b>			
Moderator: <b>Wayne Sarasua</b>			
1.4.1	<b>Developing a Nationwide Fixed-Guideway Transit Database</b>	Amy N. Rose University of Tennessee Center for Transportation Research Knoxville, TN	Michael S. Schultze
1.4.2	<b>Determining Transit Schedule and Route Adherence Using a Single, Passive GPS device</b>	William Bachman, PhD GeoStats, LP Atlanta, Georgia	Jerome Evans GeoStats, LP Atlanta, Georgia
1.4.3	<b>Map-Based Transit Itinerary Planning</b>	Chris Cherry University of Arizona Tucson, Arizona	Dr. Mark Hickman University of Arizona Tucson, Arizona



The Columbine symbol indicates a session from Colorado, the Host State.

**CONCURRENT SESSION 2**

9:45 AM TUESDAY, MARCH 18



<b>2.1</b>	<b>Enterprise Strategic Planning</b>		
	Moderator: <b>Marina Havan</b>		
2.1.1	<b>Creation of an EGIS for the North Texas Tollway Authority (NTTA)</b>	James Hofmann HNTB Corporation Plano, Texas	
2.1.2	<b>Enterprise GIS Strategic Planning at the Ohio Department of Transportation: Promoting Buy-In and User Involvement</b>	David Blackstone Ohio DOT Columbus, Ohio	Don Kiel GeoDecisions State College, Penn
<b>2.2</b>	<b>Image Analysis</b>		
	Moderator: <b>Lonnie Hearne</b>		
2.2.1	<b>Geo-specific 3D Stereo Imagery for Rapid Low Cost GIS Data Collection</b>	John E. Matthews, PLS, PSM HSA Consulting Group, Inc. Tallahassee, Florida	
2.2.2	<b>Updating National Bridge Inventory (NBI) Locations Using Stereo and Ortho Photography in a Feature-based GIS</b>	Alan Vonderohe University of Wisconsin-Madison Madison, Wisconsin	
<b>2.3</b>	<b>Interagency</b>		
	Moderator: <b>Jim Knudson</b>		
	2.3.1 <b>Coordination and Integration of a Local Roads GIS Layer for Colorado</b>	Paul A. Tessar Colorado DOT Denver, Colo.	
	2.3.2 <b>Arizona's Traffic Data Repository</b>	Joe Breyer Works Consulting, LLC Gilbert, Arizona	Mark Catchpole Arizona DOT Phoenix, Arizona
<b>2.4</b>	<b>Travel Assistance</b>		
	Moderator: <b>David Loukes</b>		
2.4.1	<b>A Web-based Facility Locator and Driving Direction Generator</b>	Jim Sterling bdSystems, Spatial Division (formally GIS Trans, LTD) Costa Mesa, Calif.	
	2.4.2 <b>Automated Vehicle Tracking</b>	Timothy Burks Insite Consulting, Inc Colorado Springs, Colo.	Chris Bybee Insite Consulting Inc. Denver, Colorado



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**CONCURRENT SESSION 3**

11:00 AM TUESDAY, MARCH 18

<b>3.1</b>		<b>Alternate Modes</b>	
Moderator: <b>Art Kalinski</b>			
3.1.1	<b>Technical Analysis for Determining Statewide Bicycle and Pedestrian Needs</b>	Michael J. Flood Fitzgerald & Halliday, Inc Silver Spring, Maryland	Bob Schneider Sprinkle Consulting
3.1.2	<b>911 Spurred Uses of the FRA Rail Network GIS</b>	Carl Fischer Federal Railroad Administration Washington, DC	
<b>3.2</b>		<b>Environmental Planning</b>	
Moderator: <b>Sean Davies</b>			
3.2.1	<b>Grid-Based Travel Activity Estimates for Air Quality Planning Using GIS</b>	Anthony Kroon Cambridge Systematics Oakland, Calif.	
	3.2.2 <b>Using GIS for Corridor Studies: A Study of the Gaming Area Access EIS</b>	Rich Chamberlain URS Corporation Denver, Colo.	Tammy Goorman Colorado DOT Denver, Colo.
<b>3.3</b>		<b>Asset Management</b>	
Moderator: <b>Simon Lewis</b>			
3.3.1	<b>Development of a Prototype GIS-based Pavement Information and Management System for Illinois</b>	Jacob Walter ERES Consultants Champaign, Illinois	
3.3.2	<b>Meeting GASB-34: An Integrated Software Approach for Transportation Agencies</b>	Bill Elliott Exor Corporation Dover, New Hampshire	
<b>3.4</b>		<b>Routing</b>	
Moderator: <b>Tim Quinn</b>			
	3.4.1 <b>Implementation of an Automated System for the Movement of Overdimensional Vehicles in Colorado</b>	Jonathan Tarr Bentley Transportation Englewood, Colorado	Marion McLellan Colorado DOT Denver, Colo.
	3.4.2 <b>An Improved Trucking System In Kansas</b>	Jude Butler Kansas DOT Topeka, Kansas	Connie Gurchiek GeoDecisions Atlanta, Georgia



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**CONCURRENT SESSION 5**

3:30 PM TUESDAY, MARCH 18

<b>5.1</b>	<b>Transportation Research Board - Rethinking Geospatial Technology</b>		
	Moderator: <b>Simon Lewis</b>		
5.1.1	<b>GIS-T: Still Waiting After All These Years</b>	Simon Lewis	
5.1.2	<b>Taking the 'G' Out of GIS</b>	Graham Stickler Exor Corporation	
5.1.3	<b>Geospatial Innovations</b>	Tony Pietropola Geodecisions	
5.1.4	<b>GML, WFS and SVG: A New Frontier of Internet GIS</b>	Zhong-Ren Peng UW-Milwaukee	
5.1.5	<b>Incorporating Geospatial Concepts (Not Just Technology) in GIS Education</b>	Ann Johnson ESRI	
<b>5.2</b>	<b>Intelligent Transportation Systems</b>		
	Moderator: <b>Cecil Lamb</b>		
5.2.1	<b>Solving Weather-related Transportation Problems with GIS</b>	Dr. Clive Reece Meteorlogix, LLC Minneapolis, Minn.	
5.2.2	<b>Inventory, Implementation, and Planning of ITS using customized GIS Tools</b>	Craig Gresham Cary, N. Carolina	Mark Dunzo Kimley-Horn & Associates Raleigh, N. Carolina
5.2.3	<b>Distributing Automated Vehicle Location (AVL) using ArcIMS</b>	Louis Schoolkate GeoAnalytics, Inc. Madison, Wisconsin	
<b>5.3</b>	<b>MPO Applications</b>		
	Moderator: <b>Ed Christopher</b>		
5.3.1	<b>The Integrated Traffic Data and Video Exchange System: An Intelligent Transportation System for the Alameda County Congestion Management Agency</b>	Jim Tucker Bentley Transportation Englewood, Colorado	
5.3.2	<b>Sharing Transportation Improvement Information using a Linear Referencing System in GIS, the Snohomish County Arterial Network Method</b>	Christopher Hansen TerraLogic GIS, Inc. Stanwood, Washington	Joel Birchman Pertee Engineering Everett, Washington
5.3.3	<b>The Use of GIS in the 2000 Urban Area Boundary Update Process</b>	John M. Sharp Association of Central Oklahoma Governments Oklahoma City, Oklahoma	
<b>5.4</b>	<b>Data Collection</b>		
	Moderator: <b>Dan McQuarrie</b>		
5.4.1	<b>Highway Management Information System and Automated Inventory Collection</b>	Michael R. Deamer Enterprise Information Solutions, Inc Columbia, Maryland	Thomas N. Moen
5.4.2	<b>Roadway Maintenance Feature Inventory Using a PC-based Video Solution</b>	Jason Dong Enterprise Information Solutions, Inc. Columbia, Maryland	
5.4.3	<b>PENNDOT's Traffic Monitoring Sites Application: Improving Traffic Data Collection</b>	Chris Allison Pennsylvania DOT Harrisburg, Penn.	Greg Ulp CIBER, Inc Harrisburg, Penn.

**CONCURRENT SESSION 6**

8:00 AM WEDNESDAY, MARCH 19

<b>6.1</b>	<b>Advances in Road Modeling</b>		
	Moderator: <b>Tom Ries</b>		
6.1.1	<b>High Time to Move Beyond GIS-Centricity</b>	Paul Scarponcini, PE, Ph.D Bentley Transportation Littleton, Colorado	
6.1.2	<b>Improving Emergency Response - A Routable Master Address Data Model for the Sacramento Region</b>	Nisar Ahmed bd Systems Oakland, Calif.	Joe Concannon Sacramento Area COG Sacramento, Calif.
6.1.3	<b>Unifying LRS and Routing Networks</b>	Philip H. Hardy Intergraph Mapping & Geospatial Solutions Mission Viejo, Calif.	
<b>6.2</b>	<b>Improving the Planning Process</b>		
	Moderator: <b>Connie Gurchiek</b>		
6.2.1	<b>A MultiTechnology Approach to Public Involvement</b>	Art Kalinski Atlanta Regional Commission Atlanta, Georgia	
 6.2.2	<b>Using a Custom ArcIMS Application for CDOT Corridor Projects</b>	Lou Henefeld Colorado DOT Denver, Colorado	Rod Kuhns Kuhns and Assocs. Denver, Colorado
6.2.3	<b>Creating a GIS Portal for State Legislators</b>	Brian Smith GeoDecisions Camp Hill, Pennsylvania	
<b>6.3</b>	<b>Data Integration</b>		
	Moderator: <b>Jesse Day</b>		
6.3.1	<b>The Effective Use of GIS in Enterprise Integration</b>	Mitch Stephens Intergraph Solutions Group Lawrenceville, Georgia	
6.3.2	<b>Semi-Automated Matching for Network Database Integration</b>	Demin Xiong Oak Ridge Natl Lab Oak Ridge, Tennessee	Jon Sperling US Dept of Housing and Urban Development (HUD)
6.3.3	<b>MassHighway's Total Information Portal</b>	Matt von Wahlde Geonetics, Inc. Boston, Mass.	James Silveria MassHighway Boston, Mass.
<b>6.4</b>	<b>Linear Referencing Systems</b>		
	Moderator: <b>Dan Moreno</b>		
6.4.1	<b>Iowa's Statewide Road Centerline Cooperative Program</b>	William Schuman Iowa DOT Ames, Iowa	
6.4.2	<b>Moving Dynamic Segmentation to the Server: Linear Referencing for Web-Based Applications</b>	Graham Stickler Exor Corporation Bristol, UK	
6.4.3	<b>Towards Temporal Dynamic Segmentation</b>	Bo Guo Maricopa County Chandler, Arizona	Carl Kurt University of Kansas Lawrence, Kansas



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**CONCURRENT SESSION 7**

10:00 AM WEDNESDAY, MARCH 19

<b>7.1</b>	<b>Enterprise Data Servers</b>		
	Moderator: <b>Michael Manore</b>		
7.1.1	<b>Regional Transportation District - GIS Data Server</b>	Dan Jackson Idea Integration Denver, Colorado	
7.1.2	<b>Web-Distributed, Geo-temporal, Integrated Information Systems: The Apache County Experience</b>	Max M. Wyman, Ph.D. Terra Genesis, Inc. Tempe, Arizona	
7.1.3	<b>Developing a Transportation Spatial Database for GIS and Mapping Applications</b>	Kirk Divine Bentley Transportation Austin, Texas	Michael Deamer Enterprise Info. Solutions Columbia, Maryland
<b>7.2</b>	<b>3D Visualization and Analysis</b>		
	Moderator: <b>Bobby Harris</b>		
7.2.1	<b>Bridge Analysis and Permitting using Digital Terrain Modeling</b>	Todd Rottet Pennsylvania DOT Harrisburg, Penn.	Jon Pollack GeoDecisions
7.2.2	<b>Road Design using Structured Public Involvement and 3D Visualization</b>	Joel Brumm University of Kentucky Lexington, Kentucky	Ted Grossardt, Keiron Bailey
7.2.3	<b>Beyond Base Mapping - Construction and Application of a Complete 3D Model of the Kansas Highway Network Applications</b>	Stan Young Kansas DOT Topeka, Kansas	
<b>7.3</b>	<b>Access to Data</b>		
	Moderator: <b>Michael Dinan</b>		
7.3.1	<b>Enabling Enterprise Access to Traffic Information Through Web-Based GIS Applications</b>	Tony Pietropola Geodecisions	
7.3.2	<b>Vermont Agency of Transportation (VTrans) Automated Route Log System</b>	Johnathan Croft Vermont Agency of Transportation Montpelier, Vermont	Chris Markel GeoDecisions
7.3.3	<b>Developing a Web-Based GIS Analytical and Distribution Application for the National Park Services Road Inventory Program of FHWA</b>	Bobby Harris bd Systems, Spatial Division Silver Spring, Maryland	
<b>7.4</b>	<b>LRS Implementation and Validation</b>		
	Moderator: <b>Bruce Aquilla</b>		
7.4.1	<b>Benefits of a Bidirectional Route System</b>	Eric A. Herman NY State Thruway Authority Albany, New York	
7.4.2	<b>Validating Roadway Data against a Linear Datum</b>	James Scott Bentley Transportation Englewood, Colorado	
7.4.3	<b>Making Sure Your Linear Referencing System Meets Requirements - How to Test it!</b>	Tom Ries GeoAnalytics, Inc. Madison, Wisconsin	Scott Lueck



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**CONCURRENT SESSION 8**

1:45 PM WEDNESDAY, MARCH 19

<b>8.1</b>	<b>Freight</b>		
	Moderator: <b>Greg Yarbrough</b>		
8.1.1	 <b>GIS-based Modeling for Statewide and Corridor Freight Planning</b>	Erik Cempel Cambridge Systematics, Inc. Oakland, Calif.	
8.1.2	<b>Development of an Intermodal Facilities Database</b>	Mark Bradford USDOT/BTS Washington, DC	Patricia Solano Indus Corporation
8.1.3	<b>The Utilization of GIS-T in the Texas Truck Accommodation Design Guidance Project</b>	Dan Middleton Texas Trans. Inst. College Station, Texas	Kai Han University of Manitoba Manitoba, Canada
<b>8.2</b>	<b>Transportation Analysis</b>		
	Moderator: <b>Bruce Spear</b>		
8.2.1	<b>Least-Cost Transportation Corridor Analysis Using Raster Data</b>	Neil Ripley Keigan Systems Inc. London, Ontario Canada	David Kingsbury Intergraph Corp., Huntsville, Alabama
8.2.2	<b>Application of GPS and GIS with Household Travel Surveys: A Prompted Recall Pilot Study</b>	Marcelo G. Simas Oliveira GeoStats LP Atlanta, Georgia	Jean Wolf
8.2.3	<b>Journey to Work Trends in the United States</b>	Nanda Srinivasan Cambridge Systematics Inc. Chevy Chase, Maryland	Nancy McGuckin
<b>8.3</b>	<b>Data Sharing</b>		
	Moderator: <b>Daris Ormesher</b>		
8.3.1	<b>Technical Aspects of the Development of a Transportation GIS Data Model for the Delaware Valley Region</b>	Stephen H. Beck Johnson, Mirmiran, and Thompson, PA Baltimore, Maryland	Thomas Gergel TransDecisions, Inc. West Chester, Penn.
8.3.2	<b>A Feature-Level Transportation Data Sharing Using Geography Markup Language and Scalable Vector Graphics</b>	Zhong-Ren Peng University of Wisconsin - Milwaukee Milwaukee, Wisconsin	
8.3.3	<b>Implementing the New National Standards</b>	Al Butler MilePost Zero DeBary, Florida	
<b>8.4</b>	<b>Road Data Maintenance</b>		
	Moderator: <b>Jim Tucker</b>		
8.4.1	<b>A GIS-based Functional Classification Database and Maintenance and Reporting Tools</b>	Jim Sterling bdSystems, Spatial Division (formally GIS Trans, LTD) Costa Mesa, Calif.	
8.4.2	<b>Arizona's HPMS Editing on the World Wide Web</b>	Joe Breyer Works Consulting LLC Gilbert, Arizona	Mark Catchpole Arizona DOT
8.4.3	<b>Migrating Roadway Inventory to a NCHRP Linear Datum</b>	James C. Greetham Bentley Transportation Madison, Alabama	Michael Barnes Minnesota DOT

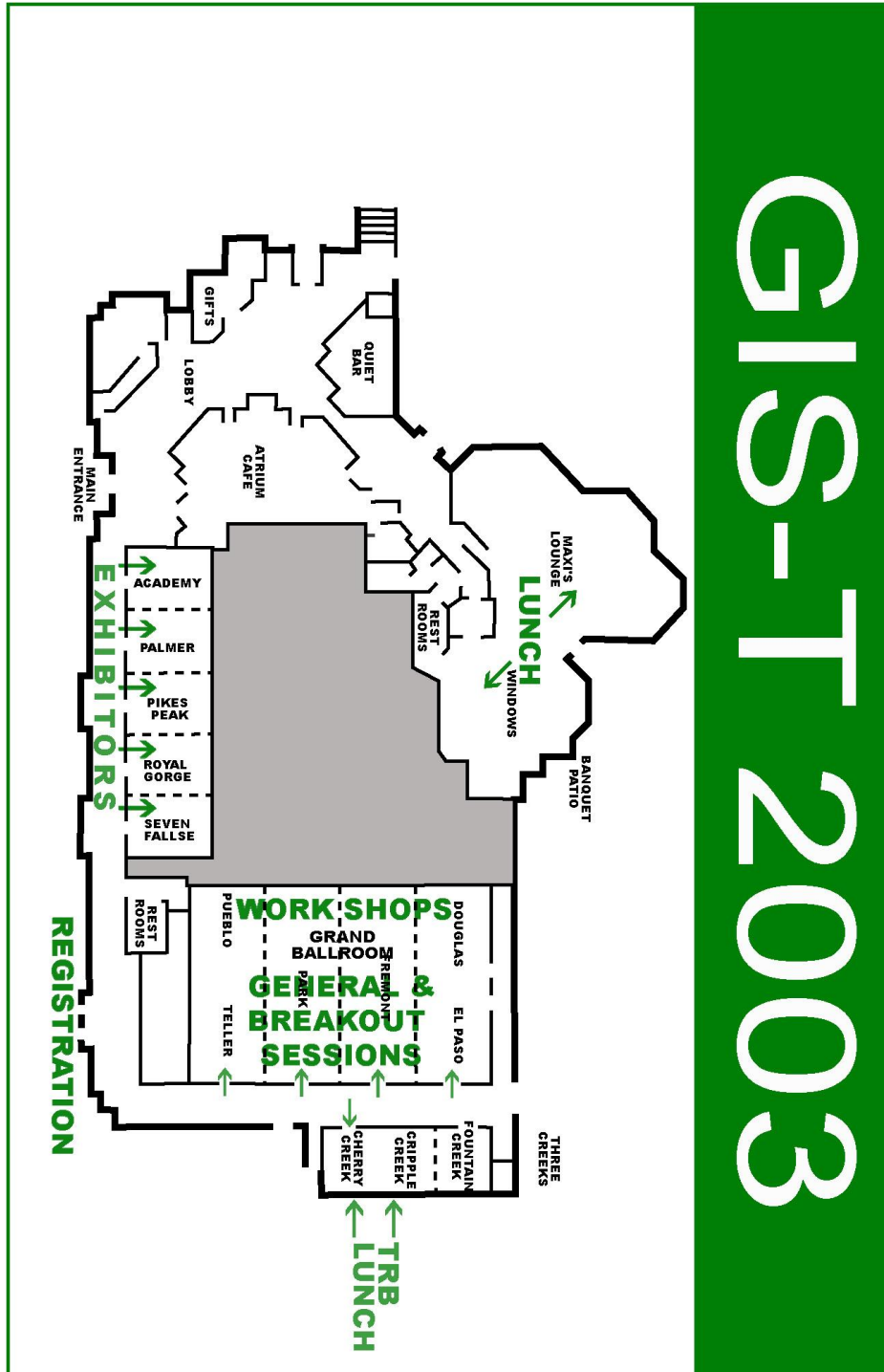


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# MEETING FACILITIES

## Doubletree Hotel Colorado Springs – World Arena Floor Plan



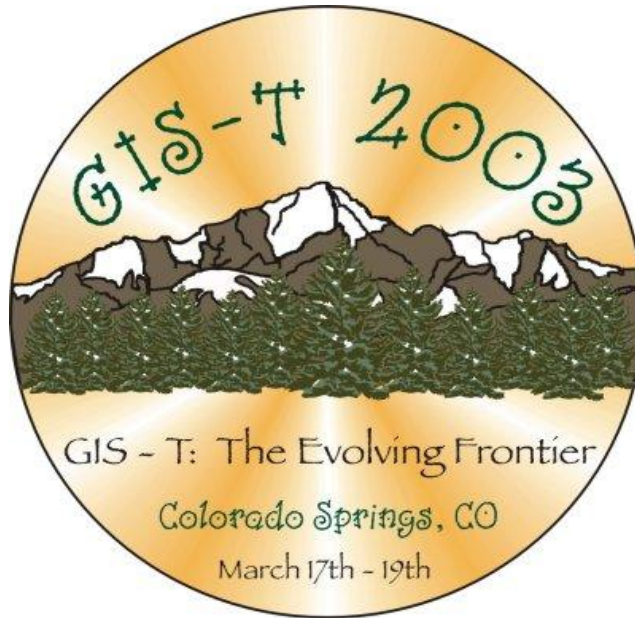
## VENDOR EXHIBITS

### Colorado Springs Ballroom

There will be 28 booths and 4 days of exhibits as part of the symposium. The vendor exhibit will include 2 receptions. This is a great opportunity for each exhibitor to get to know the transportation customer. The exhibits start on Sunday, March 16 at 6:00 pm with the first vendor reception and will end on Wednesday, March 19 at 12:00 pm. For more details, such as booth numbers and locations, see the handout in your registration packet.

### VENDOR LIST

- 3M
- Applanix Corporation
- bd Systems, Spatial Division
  
- Bentley System, Inc.
  
- Bureau of Transportation Statistics
- Caliper Corporation
- Cambridge Systematics, Inc.
- Carter & Burgess, Inc.
- Citilabs, Inc.
- Enterprise Information Solutions,
- ESRI
- GEO-3D, Inc.
- GeoAnalytics, Inc.
- GeoDecisions
  
- Geonetics, Inc.
- Hewlett-Packard
- HSA Consulting Group / SimWright, Inc.
- Intergraph Mapping and GIS Solutions
- Intergraph Solutions Group
- John Chance Land Surveyors
- Lambda Tech International
- Mandli Communications, Inc.
- Maptext, Inc.
- Meterologix
- Roadware Group
- U.S. Census Bureau
- URS Corporation



## The Evolving Frontier

1987	Tempe, Arizona
1989	Orlando, Florida
1990	San Antonio, Texas
1991	Orlando, Florida
1992	Portland, Oregon
1993	Albuquerque, New Mexico
1994	Norfolk, Virginia
1995	Sparks, Nevada
1996	Kansas City, Missouri
1997	Greensboro, North Carolina
1998	Salt Lake City, Utah
1999	San Diego, California
2000	Minneapolis, Minnesota
2001	Arlington, Virginia
2002	Atlanta, Georgia
2003	Colorado Springs, Colorado 
2004	Rapid City, South Dakota