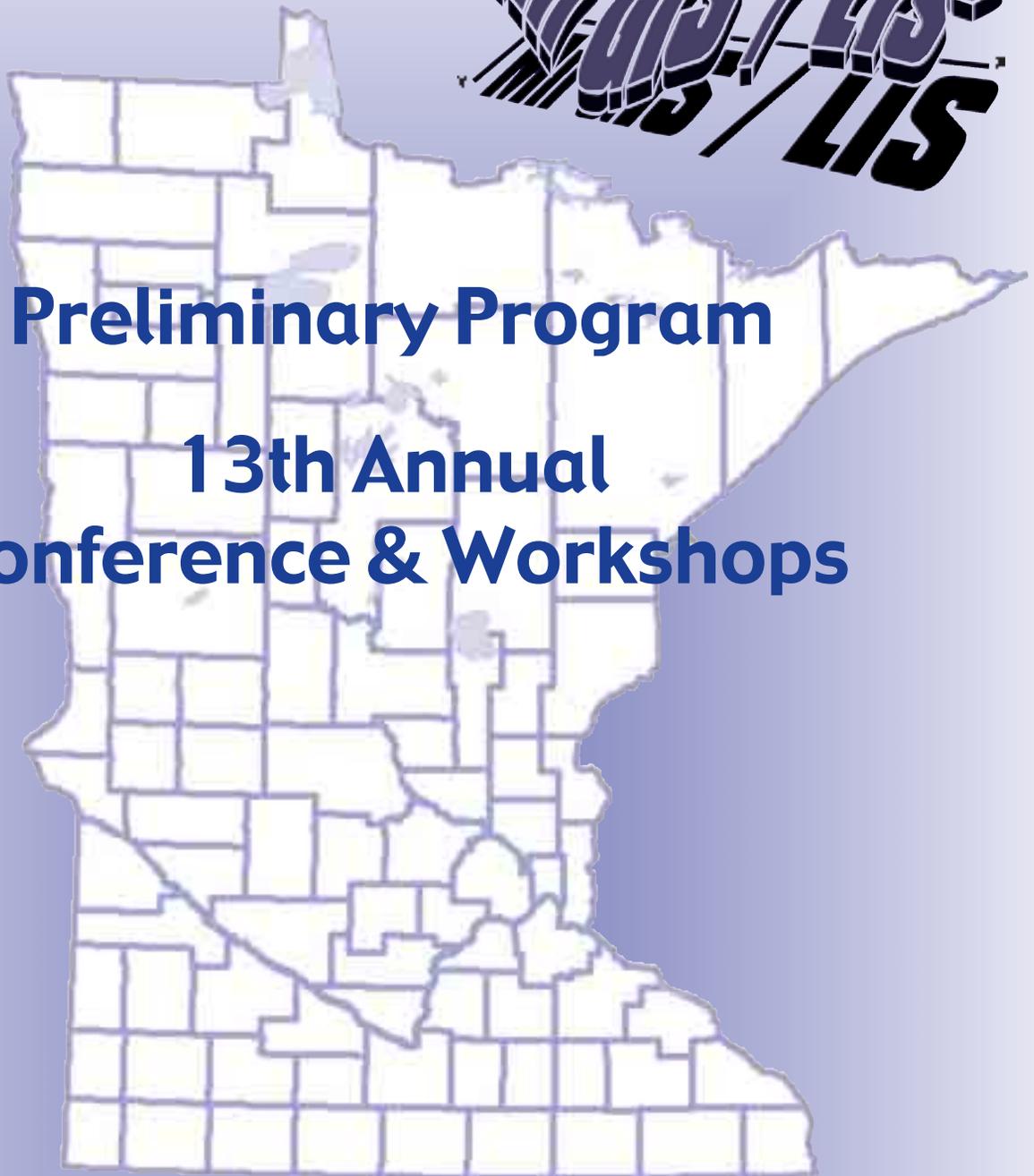




# Preliminary Program

## 13th Annual Conference & Workshops



# MINNESOTA GIS/LIS CONSORTIUM

**October 8-10, 2003**

**Touchstone Energy® Place, RiverCentre  
St. Paul, Minnesota**

**[www.mngislis.org](http://www.mngislis.org)**



## Conference Highlights

The Minnesota GIS/LIS Consortium will hold its 13th Annual Conference and Workshops on Geographic Information Systems (GIS) and Land Information Systems (LIS) on October 8-10, 2003, at Touchstone Energy®Place, RiverCentre, in downtown St. Paul.

Workshops will be held on Wednesday, October 8. Some will be familiar, and others are new this year. A complete listing of workshops begins on page 6 of this brochure. This year's workshops will be held at the Touchstone Energy®Place, RiverCentre, and at the Minnesota Science Museum located directly across the street. After the workshops, we will all get together at the Science Museum for a Welcome Reception. Here, you can catch up with GIS colleagues you haven't seen since last year's conference! There will be hors d'oeuvres and a cash bar. We will then head into the Omnitheater for a special showing of Coral Reef Adventure, presented exclusively to Conference attendees and their guests. There are a limited number of seats, so please register early. There is no cost to registered conference attendees for this reception and movie; tickets may be purchased for guests of registered conference attendees at a cost of \$15 each.

Conference materials may be picked up at Touchstone Energy®Place, RiverCentre during the workshops, or during the Welcome Reception at the Science Museum.

Thursday's opening keynote speakers are Joni Mines, Manager of E-Business and Wendy Ritchie, Applications Architect for the City of Edmonton, Alberta, Canada. Their talk will be followed by concurrent sessions that will address numerous subjects of interest to GIS/LIS practitioners. A complete listing of sessions, project demonstrations, product demonstrations and posters begins on page 11 of this brochure. Thursday's lunch will feature awards given to your colleagues. This year's awards ceremony will introduce the new Polaris Award, recognizing three 'shining stars' in the GIS community.

The Exhibit Hall will feature numerous vendors showcasing the latest GIS-related hardware, software, products and services, and will be open Thursday and Friday. The Vendors' Reception and Poster Gallery will be held in the Exhibit Hall Thursday following the concurrent sessions. The reception will feature complimentary hors d'oeuvres and a cash bar. Door prizes will be given away at 5:30 p.m. and 6:30 p.m. After the poster session, please join us for a bootlegger gathering in the Ramsey County Room at the historic Landmark Center, just steps away from the Touchstone Energy®Place, RiverCentre. Space for this event is limited, so get your tickets early! All proceeds will be dedicated to the GIS/LIS Consortium Scholarship Fund.

Concurrent sessions will continue on Friday, October 10, followed by the closing luncheon speaker. This year's closing speaker is William Holland from GeoAnalytics, which is headquartered in Madison, Wisconsin. We will then have a short business meeting, followed by door prizes.

## Who Should Attend?

The conference program is designed to address the needs of:

- Government officials who implement and use GIS/LIS for a variety of applications.
- Surveyors, engineers, and land management specialists who use GIS/LIS technology.
- People who want to utilize and/or publish GIS/LIS data over the web.
- Business, real estate, banking, and insurance specialists who need to understand and access GIS/LIS data.
- Public and private utility representatives who use GIS/LIS technology for infrastructure management.
- Consultants who provide GIS/LIS services, hardware or software.
- People in precision agriculture, health care and other fields just starting to use GIS/LIS.
- University faculty and students interested in new GIS/LIS technology and research applications.
- People concerned with homeland security or emergency preparedness.
- Managers who supervise GIS/LIS technology or staff.
- Individuals interested in learning more about GIS/LIS in Minnesota.

## Job Fair Board

Are you an employer with an open GIS position? Are you an individual looking for a job in GIS? A Job Fair Board will be located next to the registration desk at the conference where employers can post job descriptions and individuals can post their resumes. Bring several copies and check the board throughout the conference for updates.

## Outstanding Keynote Speakers!

Thinking about serving GIS/LIS data on the web? Have you ever wondered what our neighbors to the North are doing with their GIS/LIS? This is your chance to find out. Thursday's opening keynote speakers, Joni Mines and Wendy Ritchie, are from Edmonton, Alberta, Canada ([www.edmonton.ca](http://www.edmonton.ca)).

Joni Mines is the Manager of E-Business for the City of Edmonton. Her work has been recognized at home and abroad, and has been the recipient of several national and international awards, including recognition by the Smithsonian Institute in Washington D.C., the Bertelsmann Institute in Europe, and Canada's ITX award for excellence in information technology.

From 1998 until taking over the e-business portfolio, Joni was the Manager of Land Applications and Manager of the Corporate Geographic Base Information System (GBIS) Office. In that dual role, she played a major part in the development of new business and operations models for the City's Information Technology Branch. Edmonton's enterprise geographic information system, Spatial Land Inventory Management System (SLIM), which became operational in 2001, was created under her leadership. SLIM revolutionized the way Edmonton created, stored, and accessed spatial data, providing virtually instant updating and access as well as powerful analytical tools. Prior to 1998, Joni was the Director of Information Systems, Planning and Development Department. In that capacity, Joni was the Project Director of the Public One-Stop Service System, better known as POSSE. Originally custom built for the City of Edmonton, POSSE is marketed under license and is now used by over 20 public and private sector organizations.

Wendy Ritchie is the Architect of Edmonton's SLIM system, one of the most complex and sophisticated inventory management systems in the world. This database provides the fuel for the extensive analysis and planning that characterize the department's work. As soon as Edmonton City departments discovered the potential of SLIM, they initiated a raft of projects that challenged even the City's achievement-addicted IT development team. Together, Joni and Wendy will tell us about the triumphs and pitfalls they experienced while developing these systems, and share some valuable 'lessons learned.'

The closing luncheon speaker on Friday is William Holland from GeoAnalytics, in Madison, Wisconsin. GeoAnalytics is an IT consulting firm that specializes in the planning, design, and implementation of custom, enterprise-level information systems to support spatial analysis and decision-making needs. Mr. Holland will present a light-hearted look at GIS issues.

## Exhibitors

The Exhibit Hall will be open to conference participants on Thursday and Friday. The Vendors' Reception and Poster Session will take place Thursday evening beginning at 5:00 p.m. and will include hors d'oeuvres and a cash bar. Vendor participation in this conference has always been strong, with as many as 34 vendors showcasing their products and services. This year will be no exception. At this time, participating vendors already include:

Ayres Associates  
Crabtree Companies, Inc.  
Engineering Repro Systems  
ESRI  
Frontier Precision, Inc.  
Horizons, Inc.  
Intergraph Mapping & Geospacial Solutions  
LMIC—Land Management Information Center  
Minnesota Department of Transportation  
PMC—ProMap Corporation  
Pro-West & Associates  
Rowekamp Associates, Inc.  
S.E.H—Short Elliot Hendrickson, Inc.

St. Mary's University of Minnesota  
University of Minnesota Remote Sensing Lab  
URS Corporation-BRW



## Conference Planning Committee

Tara Bauer, University of Minnesota  
Steve Benson, Minnesota Department of Natural Resources  
Jerry Bourbonnais, Minnesota Department of Natural Resources  
Mike Dolbow, Metropolitan Council  
Rebecca Foster, City of Edina  
Joella Givens, Minnesota Department of Transportation  
Matt Koukol, Minnesota Department of Transportation  
Al Laumeyer, CenterPoint Energy  
Eric Marquardt, Minnesota Department of Transportation  
Thomas Martin, Minnesota Department of Transportation  
Chad Martini, Minnesota Department of Transportation  
Peter Morey, Minnesota Department of Transportation  
Charlie Parson, Bemidji State University  
Crystal Phillips-Mustain, Minnesota Department of Transportation  
Cynthia Sweet, Ayres Associates  
Ben Verbick, Local Government Information Systems  
Sally Wakefield, Land Management Information Center

## About the Minnesota GIS/LIS Consortium

The Minnesota GIS/LIS Consortium is a forum for communicating information to, and improving cooperation among, those interested in Geographic Information Systems (GIS) and Land Information Systems (LIS) in the State of Minnesota. Members include GIS users in local, state and federal government agencies, business and industry, and educational institutions. Membership is free.

The Consortium hosts a statewide conference each year and establishes committees that deal with specific GIS/LIS-related issues in Minnesota. Opportunities to participate in Consortium activities are available through volunteer work with committees, conferences and workshops. For more information on current Consortium activities and volunteer opportunities, visit our web site, [www.mngislis.org](http://www.mngislis.org), or stop by our booth during the conference.



### **Minnesota GIS/LIS Consortium**

26 East Exchange Street, Suite 500

St. Paul, MN 55101

Phone: 651-203-7242

Fax: 651-290-6279

**[www.mngislis.org](http://www.mngislis.org)**

# 2003 GIS/LIS Conference At-A-Glance

7:30 a.m. Conference Registration and Materials Pick-Up – Refreshments in Ballroom Foyer

8:30 a.m. Opening Plenary Session – Ballroom  
 Joni Mines, Manager of E-Business & Wendy Ritchie, Applications Architect;  
 City of Edmonton, Alberta, Canada

10:00 a.m. Refreshment Break  
 Exhibit Hall Opens and Poster Display Begins

## 10:30 a.m.—Concurrent Sessions

|                                  |                                 |                                       |                                |                                  |                                 |                         |
|----------------------------------|---------------------------------|---------------------------------------|--------------------------------|----------------------------------|---------------------------------|-------------------------|
| Session 1<br>Data<br>Development | Session 2<br>Data<br>Management | Session 3<br>Management<br>Strategies | Session 4<br>Remote<br>Sensing | Session 5<br>Spatial<br>Analysis | Project Demos<br>Web<br>Mapping | Product Demos<br>S.E.H. |
|----------------------------------|---------------------------------|---------------------------------------|--------------------------------|----------------------------------|---------------------------------|-------------------------|

Noon Awards Luncheon

## 1:30 p.m.—Concurrent Sessions

|                                  |                                 |                                       |                                |                                  |                                     |                          |
|----------------------------------|---------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------------------|--------------------------|
| Session 6<br>Data<br>Development | Session 7<br>Data<br>Management | Session 8<br>Management<br>Strategies | Session 9<br>Remote<br>Sensing | Session 10<br>Water<br>Resources | Project Demos<br>Data<br>Management | Product Demos<br>Trimble |
|----------------------------------|---------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------------------|--------------------------|

3:00 p.m. Refreshment Break

## 3:30 p.m.—Concurrent Sessions

|                                    |                                  |                        |                                 |                                  |                                      |                                   |
|------------------------------------|----------------------------------|------------------------|---------------------------------|----------------------------------|--------------------------------------|-----------------------------------|
| Session 11<br>Natural<br>Resources | Session 12<br>Data<br>Management | Session 13<br>Metadata | Session 14<br>Remote<br>Sensing | Session 15<br>Water<br>Resources | Project Demos<br>Local<br>Government | Product Demos<br>Kunde<br>Company |
|------------------------------------|----------------------------------|------------------------|---------------------------------|----------------------------------|--------------------------------------|-----------------------------------|

5:00 p.m. Vendors' Reception and Poster Session – Exhibit Hall  
 Prize Drawings (must be present to win), Complimentary Hors d'oeuvres and Cash Bar

7:30 p.m. Bootlegger Gathering – Ramsey County Room, Landmark Center

7:30 a.m. Conference Registration and Materials Pick-Up

8:00 a.m. Exhibit Hall Opens – Refreshments Served

## 8:30 a.m.—Concurrent Sessions

|                                    |                                    |  |                         |                              |                                      |  |
|------------------------------------|------------------------------------|--|-------------------------|------------------------------|--------------------------------------|--|
| Session 16<br>Natural<br>Resources | Session 17<br>Homeland<br>Security | Session 18<br>Management<br>Strategies | Session 19<br>Education | Session 20<br>Web<br>Mapping | Project Demos<br>Spatial<br>Analysis | Product Demos<br>Crabtree<br>Companies |
|------------------------------------|------------------------------------|--|-------------------------|------------------------------|--------------------------------------|--|

10:00 a.m. Refreshment Break

## 10:30 a.m.—Concurrent Sessions

|                                    |                              |                                |                         |                              |                                      |                       |
|------------------------------------|------------------------------|--------------------------------|-------------------------|------------------------------|--------------------------------------|-----------------------|
| Session 21<br>Natural<br>Resources | Session 22<br>Web<br>Mapping | Session 23<br>Community<br>GIS | Session 24<br>Utilities | Session 25<br>Web<br>Mapping | Project Demos<br>Data<br>Development | Product Demos<br>ESRI |
|------------------------------------|------------------------------|--------------------------------|-------------------------|------------------------------|--------------------------------------|-----------------------|

Noon Closing Luncheon (Exhibit Hall closes)  
 William Holland, GeoAnalytics—A Light-hearted Look at GIS Issues

1:30 p.m. Minnesota GIS/LIS Consortium Business Meeting and Year-End Review

2:00 p.m. Prize Drawings (must be present to win)  
 Adjournment

Thursday, October 9

Friday, October 10

## Wednesday Workshops

All workshops will be held on Wednesday, October 8, either at the Touchstone Energy®Place, RiverCentre, or at the Science Museum across the street. Your registration fee includes lunch, snacks and refreshments. Lunch will be provided at the location of your morning workshop. Space is limited for workshops, so please register early.

Check-in for workshop participants begins at 7:30 a.m. on Wednesday morning at the Touchstone Energy®Place, RiverCentre. All workshop participants should check-in for their workshop by 8:30 a.m. so that workshops can start promptly at 9:00 a.m.

- The morning workshops begin at 9:00 a.m. and will conclude by 12:15 p.m.
- The afternoon workshops begin at 1:15 p.m. and will conclude by 4:30 p.m.

Conference materials can be picked up at the Touchstone Energy®Place, RiverCentre from 7:30 a.m. - 4:30 p.m. on Wednesday, or at the Welcome Reception between 5:00 p.m. and 7:00 p.m. at the Science Museum.

## Full-Day Workshops

### 1. Turning Imagery Into Information (Hands-On)

This workshop will give participants an overview of Remote Sensing and Photogrammetric techniques using the ERDAS IMAGINE product suite. We will start the workshop by discussing the sources and availability of geographic imagery. Participants will then perform automatic feature extraction, vector editing and do a simple land cover analysis. The second portion of the workshop will include a hands-on project. This project will allow the student to walk through a 'real world' example of how imagery can be used in the everyday functions of a GIS project. To conclude the workshop, we will visualize the results in a 3-D environment.

**Audience:** Beginner

**Instructor:** Amy Zeller and Suzie Noble, Leica Geosystems GIS and Mapping

### 2. Applying Visual Basic for Applications (VBA) (Hands-On)

Visual Basic for Applications has been licensed by many vendors and imbedded into their software applications (such as ArcGIS 8.x). Topics covered will include error handling, debugging, data access components, the object browser and several built-in VBA functions. Students will use the VBA development environment in Microsoft Access to create a simple GIS application with the MapObjects™ Custom Control. This workshop assumes you understand basic programming concepts and will not cover advanced programming of MapObjects or ArcGIS objects.

**Audience:** Intermediate

**Instructor:** Rose Erickson, Pro-West & Associates, Inc.

### 3. Multi-Criteria Decision-Making in GIS Using ArcView 3.x and Spatial Analyst (Hands-On)

Everyone who uses a GIS knows about its map-making capabilities. A far smaller percentage of users are able to harness the true power of the GIS as a complex decision-making tool. Where is the best place to locate a new store and what plots of land should be focused on for wetland restoration? Answers to these questions must take into consideration a countless number of factors, many of which can be analyzed spatially. This class will give a hands-on approach to various methods for using a GIS as a decision-making tool. Vector and raster-based techniques will be demonstrated and the class will gain experience using the following extensions: Geoprocessing Wizard, Spatial Analyst, and Model Builder.

**Audience:** Advanced

**Instructor:** Chris Pouliot, MN DNR

### 4. Customizing ArcIMS HTML Viewer (Hands-On)

Introduction to Customizing ArcIMS is intended for ArcIMS users who are familiar with the basics of ArcIMS but are struggling with the next step of creating an interface that works for their particular needs. Topics to be covered include: an introduction to ArcIMS, its architecture and how it works; creating and editing map services with ArcXML; ArcXML, and the Server/Client request and response cycle; Customizing Map Services to get the most performance; discussion of the ArcIMS HTML Viewer and how it is built; a basic review of HTML and JavaScript coding; several examples of customizing the HTML Viewer; and a discussion on optimizing customizations and setup of your ArcIMS web site.

**Audience:** Advanced

**Instructor:** Suzanne Fliege, PlanSight LLC

### 5. Introduction to GIS Theories and Concepts (Lecture)

This is a seminar on the basic fundamentals of GIS. Material will be presented in a lecture/demonstration format using examples in ESRI's ArcView software. Information to be covered will include basic definitions of terminology, introduction to data types and models, the capture and conversion of digital data, spatial data analysis, and data display. In addition, such topics as data sources and remote sensing data integration will be covered.

**Audience:** Beginner

**Instructor:** Benjamin F. Richason III, Ph.D., St. Cloud State University

## 6. Exploring ArcView 8.3 and Topology in ArcEditor and ArcInfo (Lecture)

This workshop will explore the latest version of ESRI's desktop GIS offering, ArcView 8.3. Its place within the ArcGIS suite of products, including a comparison of applications versus functional product levels, will be discussed. Examples of using ArcView 8.3 for data display, query and analysis (ArcMap), and for data management (ArcCatalog and ArcToolbox) will be covered. The technical portion of the workshop will focus on the recent introduction of topological relationships in 8.3, and how they can be used to improve the integrity and accuracy of GIS databases.

**Audience:** Beginner to Intermediate

**Instructor:** Ron Bruder, Applied Data Consultants, Inc.

## 7. Professional Airborne Digital Mapping Camera Systems (Lecture)

This course gives an overview of current professional airborne digital mapping camera systems which are emerging as a new tool for mapping the Earth's surface. All technical aspects will be covered, ranging from different sensor configurations to integration of GPS and IMU navigation systems. Participants will leave with a better understanding of the capabilities and limits of these new systems as well as how to outsource your future projects.

**Audience:** Beginner to Advanced

**Instructor:** Brian Huberty, U.S. Fish and Wildlife Service

## 8. Project Management for GIS Techies (Lecture)

For those who are not traditionally in project management positions—but need to manage GIS projects—this course offers a humble and practical approach to planning and managing GIS business matters. Discover strategies, philosophy, and organizational techniques that will lead to effective planning for project scope, budget, resources allocation, scheduling, equipment and software needs, and marketing plans specific to GIS. Interactive discussion will include the use of project management software and applied case exercises.

**Audience:** Intermediate

**Instructor:** Ed Krum, Mn/DOT

## 9. Applications of GPS Data: Using GPS Data in a GIS (Lecture/Tour)

This intermediate level workshop will examine collection issues using GPS equipment with the end intent of display and analysis within a GIS. All GIS data types will be given consideration for collection techniques, and GIS scripts and extensions for data manipulation will be presented. Data dictionaries for attribute collection will be developed, in addition to an exposure to a fully-integrated GPS/GIS application. This workshop will have an afternoon session walking tour to examine common GPS use in the field. The walking tour will be a minimum of 3 miles walking and numerous stairs.

**Audience:** Intermediate

**Instructor:** Thomas P. Martin, Mn/DOT

## 10. GIS/GPS Field Tour (Tour)

This full-day workshop departs from the Touchstone Energy®Place, RiverCentre to examine GIS and GPS use in the Metro area. The day begins with a tour of Mn/DOT's new RTMC (Regional Traffic Management Center). This stop features demos of GPS vehicles, including the Mn/DOT GPS Safe Plow, State Patrol GPS Unit, Metro Transit Technobus, Mn/DOT Videolog Van and others. Other stops include the City of Minneapolis to view their Code 4 crime mapping process, the Transit Control Center to see real-time tracking of transit services, and the City of St. Paul with several GIS stations showing various applications and processes. The bus returns to the Touchstone Energy®Place, RiverCentre by 4:30 p.m.

**Audience:** Beginner to Advanced

**Instructor:** Peter Morey, Mn/DOT

# Morning Workshops

## 11. Introduction to ArcView GIS 3.x (Hands-On)

This half-day workshop provides a hands-on approach to understanding the major functionality of ESRI's ArcView GIS 3.x. Topics covered include: getting around the ArcView documents (views, tables, charts and layouts), queries and geographic analysis functions. A question-and-answer period provides opportunity to discuss functionality and implementation issues. The workshop is appropriate to those with no prior experience.

**Audience:** Beginner

**Instructor:** Becky Cooper, Rowekamp Associates

## 12. Leveraging Enterprise Data with GIS (Hands-On)

For enterprises, the potential gains of sharing data from the corporate Geographic Information System (GIS) with employees are compelling. Now, GIS professionals can take full control of this process via an interface that requires no conversion. This workshop will instruct users how to combine a multitude of datasets for analysis. Some of the basic functionality of Geographic Information Systems will be discussed. Students will input new data and connect to existing data to see maps of geographical locations; perform spatial analyses using spatial and attribute data; quickly gain access to enterprise data with no conversion; and display the results of the analyses in the form of maps and tables.

**Audience:** Beginner

**Instructor:** Jeffrey J. Fiore, Intergraph Mapping and Geospatial Solutions

## 13. A Quick Overview of ArcMap and ArcCatalog in ArcGIS 8.x. (Hands-On)

The ArcCatalog application within ArcGIS is a GIS data manager, allowing you to preview geographic data and data tables, document your data and more. ArcMap is used to create maps with multiple layers of geographic data that can be queried, analyzed, symbolized, printed and more. Hands-on exercises will familiarize you with some of the basic concepts and uses of the two applications. Because of the power and complexity of the ArcGIS, more training than can be provided in this workshop is required to become a proficient user of ArcGIS.

**Audience:** Beginner

**Instructor:** Catherine Hansen, Rowekamp Associates

## 14. AutoCAD—Tips and Tricks (Hands-On)

This workshop is designed for the current AutoCAD (2000 or 2002) user for data creation and maintenance in a GIS. It will entail tips and tools to assist with everyday procedures and help increase productivity by eliminating steps and keystrokes for some of the most common tasks. A manual and CD are provided for each attendee.

**Audience:** Beginner

**Instructor:** Lisa Schaefer, Pro-West & Associates, Inc.

## 15. Surveying Survey (Lecture)

A general survey workshop designed to acquaint the GIS/LIS practitioner with the field of surveying. Combining lecture and discussion, the workshop will explore what surveying is and is not, as well as tools and techniques employed by the survey professional. Potential survey data types of use to the GIS/LIS community will be discussed. Lastly, the evolving role of the surveyor in the GIS/LIS world will be examined, to include a brief examination of the NCEES proposed Model Law.

**Audience:** Beginner

**Instructor:** Rick Morey, Mn/DOT

## 16. Environmental Atlas (Lecture)

The Atlas is an electronic textbook with over 300 of Minnesota's best GIS data layers, integrated with software to retrieve and analyze information. Attendees will learn how to explore the interrelationships between climate, soils and geology in shaping Minnesota's landscape over time. The enhanced land use/land cover navigators will then be used to access topographic maps, aerial photos and parcel data to identify and quantify flood prone areas, wetlands and development trends. Educators and government staff will receive a free copy of the Atlas that integrates data, software, tutorials and lesson plans that are all hyperlinked to the Internet.

**Audience:** Beginner

**Instructor:** Ken Pekarek, LMIC

## 17. Cartography and Visualization (Lecture)

This workshop is designed for practitioners who want a better understanding of the potential for GIS-based maps. Topics will include basic principles of cartographic symbolization, classification and generalization. There will be an emphasis on principles of design and the graphic hierarchy, and also on color theory and application to mapping. The workshop will also review multivariate symbolization and advanced techniques of data visualization.

**Audience:** Intermediate

**Instructor:** Robert B. McMaster, University of Minnesota

## 18. Expanding ArcGIS with Geodatabases (Lecture)

The Geodatabase is ESRI's latest and most advanced structure for storing and managing spatial and related non-spatial data in a GIS. Though the Geodatabase has been available for quite some time, many organizations have not yet migrated from their legacy data formats such as shapefiles and coverages. The purpose of this workshop is to define the Geodatabase and demonstrate the advanced capabilities that can be implemented with it. Capabilities such as data subtypes, geometric networks, attribute domain rules and Geodatabase topology rules—new in ArcGIS 8.3—will be explained and demonstrated.

**Audience:** Intermediate

**Instructor:** John Schiebold, EMA, Inc.

### 19. Delivering GIS Functionality and Geospatial Data with Map Services (Lecture)

Advancements in technology and the growing acceptance of online services have presented new options to make GIS data and functionality available over the Internet. A well-designed map service can significantly reduce the burden on staff responsible for responding to routine requests, while improving service delivery to customers, whether those customers are citizens or other government agencies. The ability to use and view data 'on-the-fly' from various organizations without having to actually download the data has made map services very appealing. To develop successful map services requires upfront consideration of a variety of technical, policy and organizational issues. In this workshop, we will work through these issues through discussion of best practices, demonstrating tools and exploring real-world examples.

**Audience:** Intermediate to Advanced

**Instructor:** Dick Chronowski, ESRI

### 20. Spatial Databases (Lecture)

This workshop explains basic concepts of SDBMSs to GIS professionals and researchers interested in modeling, querying, and analyzing large spatial datasets. It uncovers SDBMS at three levels: conceptual, logical, and physical. Trends will be briefly discussed.

Familiarity with a GIS or a RDBMS is useful but not required.

**Audience:** Advanced

**Instructor:** Shashi Shekhar, University of Minnesota

## Afternoon Workshops

### 21. Raster Analysis with Spatial Analyst in ArcView 8.x (Hands-On)

This workshop will introduce students to raster analysis with an emphasis on the raster data model and the management of raster data using ArcGIS. Topics covered include an overview of the raster data model, where raster data comes from, comparing vector and raster data and setting up a GIS project, and fundamental raster data management techniques, including copying, merging, clipping and windowing raster data sets.

**Audience:** Intermediate

**Instructor:** Tim Loesch, MN DNR

### 22. Customizing Arc GIS 8.x (Hands-On)

The power of ArcGIS can be expanded through simple customization. For example, you can create your own toolbar and fill that toolbar with the particular buttons you frequently use, currently found on a variety of separate toolbars. If you've been frustrated because the Clear Selected Features option is only available through the Selection menu, add Clear Selected Features as a button on your custom toolbar. You can also expand the capabilities of ArcGIS by adding functions freely available on the Internet. Get an introduction to the possibilities by attending this workshop.

**Audience:** Intermediate

**Instructor:** Terese Rowekamp, Rowekamp Associates

### 23. Auto CAD-GIS Applications in CAD (Hands-On)

This workshop is intended to give existing Autodesk Map users new functionality by exploring innovative ways of using the tools already at their fingertips. Topics covered will include combining external queries, creating dynamic reports from queries, advanced annotation using range tables and much more.

**Audience:** Intermediate

**Instructor:** Scott Hameister, Taylor Technologies

### 24. Web Mapping with OGC/WMS Using Existing Map Services (Hands-On)

This workshop for web developers will demonstrate how to add web maps to your own web pages from existing map servers, using OGC/WMS protocols. Attendees will participate in exercises that will build a working model web site to demonstrate how this is done. Exercises will be done using HTML and Javascript. Prior experience with HTML and knowledge of programming languages will be necessary.

**Audience:** Intermediate

**Instructor:** James R. Dickerson, LMIC

### 25. GIS for Homeland Security (Lecture)

This year, both the Governor's Council on GIS and MetroGIS created workgroups focused on GIS for Emergency Preparedness. This is a significant development and represents the creation of focused efforts in Minnesota to coordinate the development of data and strategies to address this important application area. This workshop will explore the specific developments and strategies of these workgroups and related national efforts. It will also explore data, software, and techniques for enhancing emergency management and response.

**Audience:** Beginner

**Instructor:** Randy Knippel, Dakota County

#### 26. Minnesota MapServer and PostGIS (Lecture)

This workshop is intended to provide an introduction to the University of Minnesota MapServer web mapping system. Topics to be covered include system requirements and installation, capabilities, including support for open standards, and basic application development. The workshop is intended for users interested in cost-effective, standards-based web mapping solutions. Familiarity with web application development is helpful but not required.

**Audience:** Intermediate

Instructor: Steve Lime, MN DNR

#### 27. GIS for Public Works (Lecture)

This workshop will demonstrate the advantages of using GIS as an asset management tool for public works, including sewer, water, storm, signs, pavement maps and data. How can GIS help meet the requirements for GASB34, CMOM and NPDES permitting? We will discuss options for getting started, data accuracy issues, new technologies, hardware and software requirements, and successful tips. We will tour a couple of different software options—from robust to the simple application.

**Audience:** Intermediate

Instructor: Becky Blue, S.E.H.

#### 28. National Hydrography Dataset (Lecture)

The National Hydrography Dataset (NHD) is a national program that provides an integrated GIS dataset of all hydrologic features within the United States. Minnesota agencies have been working to translate 1:24,000 scale DNR stream coverage information into the NHD data structure. When this is complete, some new applications may be possible. This workshop is for managers and GIS technicians interested in these emerging opportunities. First, the NHD data structures and functionality will be presented. Next, a few examples of applications will be presented by linking NHD with other existing or emerging datasets. Finally, an open discussion will be conducted about these and other opportunities for using NHD in Minnesota.

**Audience:** Intermediate

Instructor: Terry Bixby and Jim Ellickson, St. Cloud State University

#### 29. Efficient Implementation and Integration with ArcGIS (Lecture)

This workshop will focus on helping users learn how to integrate ArcGIS, ArcSDE with the Geodatabase and ArcIMS in a cost-effective GIS Implementation. Topics discussed in this workshop include standard GIS Implementation process, Geodatabases and Data Models, integrating ArcSDE and the Geodatabase with ArcIMS and ArcGIS, strategies to deal with resource constraints, and the next steps for moving forward with the Implementation Plan.

**Audience:** Intermediate to Advanced

Instructor: Chuck Leppert, ESRI

#### 30. Minnesota Land Cover Classification System (MLCCS) (Lecture)

The MLCCS has become the standard in the Twin Cities metropolitan area for creating detailed land cover data. It is based on the National Vegetation Classification System, and thus complies with the Federal Geographic Data Committee (FGDC) standards. This hierarchical classification system can be used to interpret land cover at a variety of scales. The MN DNR has developed protocols and ArcView tools to help standardize detailed land cover inventories using the MLCCS.

**Audience:** Advanced

Instructor: Bart Richardson, MN DNR

#### 31. Spatial Statistics (Lecture)

This workshop covers both descriptive and inferential methods that are used for the analysis of geographically-referenced data. Descriptive methods covered include basic geostatistics, measures of central tendency and dispersion, and cartometrics. Spatial interpolation, including distance-based methods and kriging, will be covered. Inferential methods include point-pattern analysis, joint count statistics, and spatial autocorrelation. Methods of testing spatial significance using Monte Carlo methods are also reviewed. For this advanced workshop, participants should have a basic knowledge of both statistics and geographic information science systems.

**Audience:** Advanced

Instructor: Robert B. McMaster, University of Minnesota

# Thursday Conference Program

7:30 a.m. **Conference Registration and Materials Pick-Up**

8:30 a.m. **Opening Plenary Session**

Joni Mines, Manager of E-Business & Wendy Ritchie, Applications Architect; City of Edmonton, Alberta, Canada

10:00 a.m. **Refreshment Break**  
**Exhibit Hall Opens and Poster Display Begins**

10:30 a.m. **Concurrent Sessions**

Session 1 – Data Development

- Base Mapping Fundamentals~ *Mark Steward, Ayres Associates*
- Integrating Various Data Formats into the Geodatabase Structure~ *Martha Kelty Roldan, St. Mary's University*
- LiDAR—What is it and How is it Used?~ *John Erickson, Ayres Associates*

Session 2 – Data Management

- Transferring GIS Data Between Geodatabases and ArcPad~ *Richard Bunten, City of Duluth*
- Standardizing Land Cover Mapping with the Minnesota Land Cover Classification System~ *Bart Richardson, MN DNR*
- Errors and Error Propagation Associated with Land Use/Land Cover Data in GIS Analyses~ *Ryan W. Kirk, University of Minnesota*

Session 3– Management Strategies

- From Maps to Information Systems~ *William S. Holland, GeoAnalytics*
- Managing Address Data in an Enterprise GIS Environment~ *Peter G. Thum, GeoAnalytics*
- Automating the County Surveyor Office~ *Jay Wittstock, Wright County*

Session 4 – Remote Sensing

- Solar Radiation Estimates Using Digital Elevation Models~ *Stacey L. Stark, University of Minnesota—Duluth*
- Aquatic Vegetation Surveys Using High Resolution IKONOS and QuickBird Imagery~ *Leif G. Olmanson, University of Minnesota*
- Floodplain Mapping: Legislative Update~ *Ogbazbhi Sium, MN DNR*

Session 5 – Spatial Analysis

- Breast and Prostate Cancer Incidence in a Population Exposed to Organochlorine/Dioxin Contaminants via Point Source Incinerator Emissions, 1995-1999~ *John Gabbert, St. Mary's University*
- Spatial Analysis of Archaeological Sites in Central Iraq~ *Benjamin F. Richason III, St. Cloud State University*
- Using GIS to Determine Density Estimates of Herbivores in Madikwe Game Reserve in South Africa~ *Andrea Sampson, University of Minnesota*

Project Demonstrations – Web Mapping

- An Internet Street Atlas Companion~ *Jim Maxwell, The Lawrence Group*
- Web Based Data Distribution~ *Bob Basques, City of St. Paul*
- Web Based Application for Providing Land Information~ *Bonnie Foster, Todd County*

Product Demonstrations – S.E.H.

- DataView~ *Wayne Becker, S.E.H.*

Noon **Awards Luncheon**

1:30 p.m. **Concurrent Sessions**

Session 6 – Data Development

- Dakota County Right-of-Way Information System~ *Joe Sapletal, Dakota County*
- GPS for GIS Data Collection: Accuracy, Cost~ *Paul Bolstad, University of Minnesota*
- Minnesota Plat Book Creation Using GIS~ *Scott Marlin, Stearns County*

#### Session 7 – Data Management

- An Effective Project Management Approach Using Tools, Techniques, and Software Packages for GIS Projects Designed by GeoSpatial Services of St. Mary's~ *John Ebert, St. Mary's University*
- Mn/DOT Geotechnical Boring Database and ArcIMS~*Gary Person, Mn/DOT*
- GIS Infrastructure: Inventorying Structures Statewide~ *Jim Ramstrom, LMIC*

#### Session 8 – Management Strategies

- A Closer Look at the City of Fairmont's Digital Ortho Project~ *Mark Steward, Ayres Associates*
- Best Practices in GIS Implementation~ *Chuck Leppert, ESRI*
- Providing Comprehensive GIS Product Development and Distribution Services~ *Robert Maki, MN DNR*  
(This is a companion presentation to "The MN DNR Extended Data Dictionary," presented in session 13.)

#### Session 9 – Remote Sensing

- Analysis of a Multi-year Water Quality Atlas on Minnesota's 10,000 Lakes~ *Leif G. Olmanson, University of Minnesota*
- Mapping Forest Disturbance Severity Using High Resolution Satellite Imagery~ *Brian Loeffelholz, University of Minnesota*
- 2002 Twin Cities Metropolitan Area Cover Type Classification—Utilizing Landsat Imagery to its Full Potential~ *Marvin Bauer, University of Minnesota*

#### Session 10 – Water Resources

- Parcel Prices and Water Quality on Lakes in Northern Minnesota~ *Charlie Parson, Bemidji State University*
- Using GIS to Evaluate Nitrate Leaching and Wellhead Protection in the Verdi Wellfield, Lincoln County, Minnesota~ *David Kelley, University of St. Thomas*
- Utilizing GIS to Estimate the Quantity and Distribution of Nitrate-Nitrogen and Chloride in Olmsted County Groundwater~ *Khalid E. Mubarak, St. Mary's University*

#### Project Demonstrations – Data Management

- Using ArcCatalog's Minnesota Geographic Metadata Guidelines Editor~ *Nancy Rader, LMIC*
- Precision Storm Sewer Inventory for the City of Minneapolis~ *Paul S. Johnson, URS Corporation*
- Minnesota Environmental Atlas: Adding Your Own Data~ *Ken Pekarek, LMIC*

#### Product Demonstration – Trimble

- Mobile GIS~ *Chad Hall, Trimble Field Solutions Division*

3:00 p.m.        **Refreshment Break**

3:30 p.m.        **Concurrent Sessions**

#### Session 11 – Natural Resources

- Implementation of an Integrated Environmental Data Management System—"Lessons Learned" ~ *Sbalene Derouard, AMEC*
- Environmental Quality Assurance: Utilization of GIS Technologies to Assess Environmental Risk Factors for Livestock Producers~ *Steve Roos, University of Minnesota*
- Using GIS and GPS Systems in an Evaluation of Pheasant Winter Habitat Provided by Farm Programs~ *Tonya Rogers, MN DNR*

#### Session 12 – Data Management

- Best Practices for Sharing and Coordinating Geographic Information in Local Governments: Results of a Nationwide Survey~ *Dr. Francis Harvey, University of Minnesota*
- GIS Ethics~ *Will Craig, University of Minnesota*

#### Session 13 – Metadata

- The MN DNR Extended Data Dictionary: Integrating Data Documentation and Distribution~ *Hal Watson, MN DNR*  
(This is a companion presentation to "Providing Comprehensive GIS Product Development and Distribution Services," presented in session 8.)
- Tips and Tricks for Making Metadata Easier~ *Nancy Rader, LMIC*
- The Geospatial One-Stop Portal~ *Pat Cummens, ESRI*

#### Session 14 – Remote Sensing

- Refining Graining Samples—Some New Directions~ *Ranga Raju Vatsavai, University of Minnesota*
- Visualization—Extravagant or Essential in the Era of Budget Cuts~ *Brad Henry, URS Corporation*
- Advantages and Disadvantages of the Next Generation of Digital Orthophotography~ *James W. O'Loughlin, ImageAmerica*

#### Session 15 – Water Resources

- NHD: Digital Hydrography and its Potential Applications in Minnesota~ *Jim Ellickson, St. Cloud State University*
- National Wetland Inventory Update~ *Brian Huberty, U.S. Fish and Wildlife Service*
- Historic Surface Hydrology Pilot Study of Nicollet County, Minnesota~ *Crystal Phillips-Mustain, Mn/DOT*

#### Project Demonstrations – Local Government

- GIS and All-hazard Mitigation Plan: Goodhue County, Minnesota~ *Sarah Midler, Goodhue County*
- Legacy Data Capture/Conversion Methods~ *Bob Basques, City of St. Paul*

#### Product Demonstrations

- Leica Professional Data Mapper—Field Demo~ *Steve Nicholson, Kunde Company*

#### 5:00 – 7:00 p.m. **Vendors Reception and Poster Session**

- Prize Drawings (must be present to win)
- Complimentary hors d'oeuvres and cash bar

#### 7:30 – 10:30 p.m. **Bootlegger Gathering at the Landmark Center**

## Friday Conference Program

#### 7:30 a.m. **Conference Registration and Materials Pick-Up**

#### 8:00 a.m. **Exhibit Opens**

#### 8:30 a.m. **Concurrent Sessions**

#### Session 16 – Natural Resources

- Minnesota Wildlife Management Area GIS Program~ *Steve Benson, MN DNR*
- GIS and Emergency Monitoring for Chronic Wasting Disease in White-tailed Deer~ *Robert Wright, MN DNR*
- Minnesota Chronic Wasting Disease Surveillance Program~ *Steve Benson, MN DNR*

#### Session 17 – Homeland Security

- GIS and Homeland Security~ *William S. Holland, GeoAnalytics*
- A Strategy to Organize GIS Support for Homeland Security in Minnesota~ *Randy Knippel, Dakota County*
- The Role of GIS in the Columbia Shuttle Recovery~ *Greg Liknes, USDA Forest Service*
- Automatic Location Identification for Wireless 911 Calls~ *David Brandt, Washington County*

#### Session 18 – Management Strategies

- The "GIS Personality:" A Critical Success Factor~ *Dr. Linda Tomaselli, GISRDC*
- Using GIS to Develop an Integrated Land Records Management System~ *Charlie Magruder, NovaLIS*
- Mapbooks Made Easy~ *Kendis Scharenbroich, Pro-West & Associates*

#### Session 19 – Education

- A System-wide ESRI Site License for MnSCU~ *Mark R. Thomas, MnSCU*
- Integrating GPS and GIS Techniques in Training Future GIS Professionals: A Student Case Study~ *Richard Moore, Mankato State University*
- Connecting GIS with K-12 Education in Minnesota~ *Sara Damon, Stillwater High School*

#### Session 20 – Web Mapping

- Panel Discussion~ *Bill Swing & Will Craig: University of Minnesota; Jeff Coate & Jay Wittstock: Wright County*

## Project Demonstrations – Spatial Analysis

- Doorway Constellation Topology: A 3-D Spatial Reference Infrastructure for Location-Aware Indoor Applications~ *James R. Beal Jr., DataPlanIT Consulting*
- Serving Up Surface Water Data: The Environmental Data Access System~ *John Seaberg, MPCA*
- Ecological Model for MLCCS in ArcView 3.x/Spatial Analyst~ *Siobhan Boylan, MN DNR*

## Product Demonstration

- Integrating GIS and Document Imaging and Retrieving~ *Clayton Baer, Crabtree Companies*

10:00 a.m.      **Refreshment Break**

10:30 am        **Concurrent Sessions**

## Session 21 – Natural Resources

- Classification of Forest Area Based on Multi-date NLCD for Forest Change Estimation~ *Dale D. Gormanson, USDA Forest Service*
- Modeling Development Influence on Oak Forests—Making the Link Between Land Use and Forest Disturbance~ *Brian Loeffelholz, University of Minnesota*
- Peltigera, a Genus of Nitrogen-fixing, Terricolous Lichens: Its Nitrogen Contribution to the Forests of Northern Minnesota~*Rebecca Knowles, University of Minnesota*

## Session 22 – Web Mapping

- Indexing a Spatial Database for Increased Efficiency of Web-based GIS Delivery~ *Matt Johnson, St. Mary's University*
- Taking the Process of Finding a Home to the Next Level—The Geographic Level~ *Richard Moore, University of Minnesota*
- Server/Internet-based GIS Solutions~ *Galen Neste, Pro-West & Associates*

## Session 23 – Community GIS

- Using AVL and GIS Technologies to Support Real-Time Fleet Monitoring and Tracking~ *Peter G. Thum, GeoAnalytics*
- GIS at Work in St. Paul~ *Karen Johnson, City of St. Paul*
- GIS in the Community: The Minneapolis Neighborhood Information System~ *Jeff Matson, University of Minnesota*

## Session 24 – Utilities

- Utilities on the Move~ *Kendis Scharenbroich, Pro-West & Associates*
- Sanitary Sewer Flow Model and Storm Water Analysis for the Meadow Hills Subdivision in Rochester, Minnesota~ *Jason Schuster, St. Mary's University*
- "Breaking the GIS Data Bottleneck"—Advancements in Field Data Collection~*Steve Gilkey, Geospan*

## Session 25 – Web Mapping

- The Dakota County Solution for Mass Deployment of Data and Customizations~ *Mary Hageman, Dakota County*
- Experimenting with the Web Mapping Client~ *Bob Basques, City of St. Paul*
- The Lake Browser: Providing the Minnesota Lake Clarity Online Information Service~ *Kali E. Sawaya, University of Minnesota*

## Project Demonstrations – Data Development

- GeoIntegrator: Using Web Mapping Services to Access GIS Data~ *Chris Cialek, LMIC*
- DNR Garmin Software—A Tool for Integrating Garmin GPS with ArcView~ *Chris Pouliot, MN DNR*
- GIS Wireless Communication~ *Josh Marsh, Pro-West & Associates*

## Product Demonstrations

- Geoprocessing with ArcGIS Desktop 9.0~ *Dick Chronowski, ESRI*
- Publishing and Using GIS Web Services~ *Jason Grootens, ESRI*

Noon            **Closing Luncheon** (Exhibit Hall closes)  
William Holland will present a light-hearted look at GIS issues.

1:30 p.m.      **Minnesota GIS/LIS Consortium Business Meeting and Year End Review**

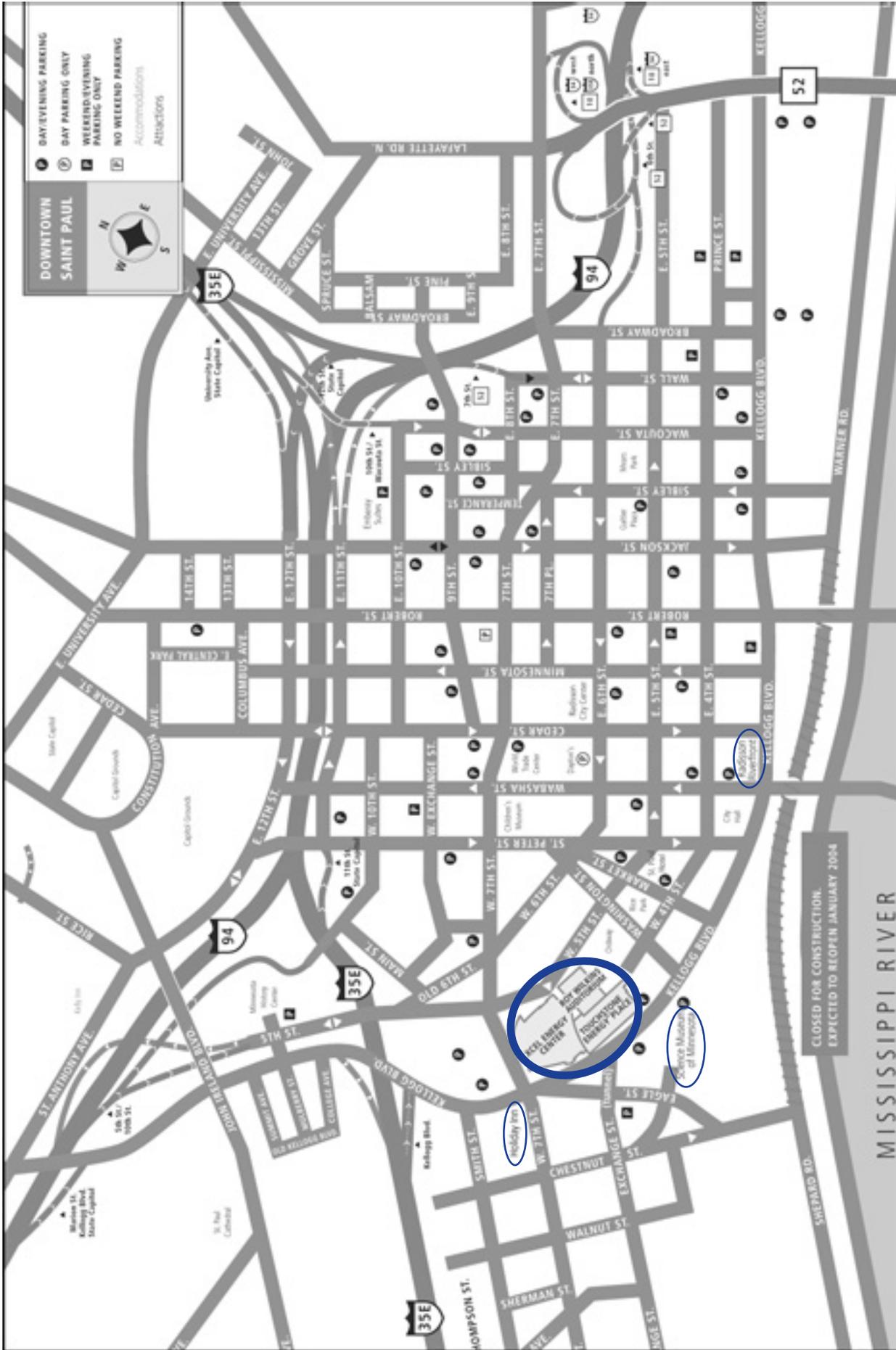
2:00 p.m.      **Prize Drawings** (must be present to win)  
**Adjournment**

# Poster Gallery

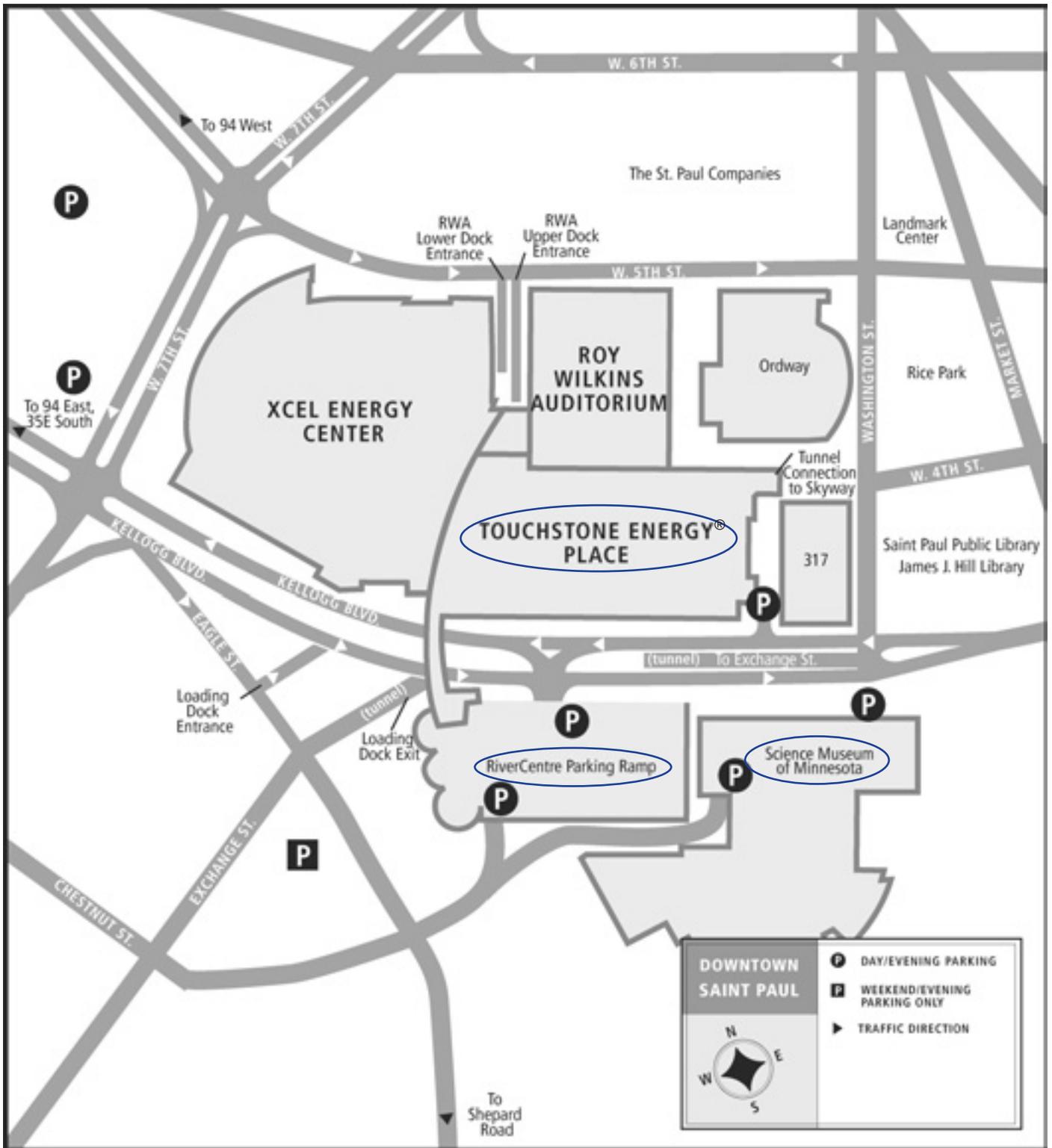
The following posters will be on display in the Exhibit Hall throughout the conference. Poster presenters will be on-hand to answer questions regarding their posters during the Vendors Reception and Poster Gallery on Thursday, October 9 between 5:00 p.m. and 7:00 p.m.

- Using GIS to Evaluate Business Trade Area Models~ *Peter Rieke, University of St. Thomas*
- First-stop to Find GIS Data~ *Nancy Rader, LMIC*
- A Coordinated Approach to Web Mapping and Data Sharing in Minnesota~ *Jim Dickerson & Chris Cialek: LMIC*
- The Who's Who of Parcel Mapping in Minnesota~ *Jay Krafthefer, Mn/DOT; William J. Craig, University of Minnesota; Annette Theroux, ProWest & Associates*
- Minnesota Chronic Wasting Disease Surveillance Mapping~ *Steve Benson, MN DNR*
- Minnesota Wildlife Management Area GIS Program~ *Steve Benson, MN DNR*
- GIS Emergency Monitoring for Chronic Wasting Disease in White-tailed Deer~ *Tom Engel & Robert Wright: MN DNR*
- Village of Pine Grove: A Customized GIS Interface Developed with Visual Basic 6.0 and ESRI MapObjects 2.1~ *Bradley Chopp, Ayres Associates*
- Mapping Urban Heat Island Effects Using Satellite Remote Sensing~ *Marvin Bauer & Nathan Heinert: University of Minnesota*
- 2002 Twin Cities Metropolitan Area Cover Type Classification—Utilizing Landsat Imagery to its Full Potential~ *Marvin Bauer, Brian Loeffelholz, & Andrew Finley: University of Minnesota*
- Modeling Development Influence on Oak Forests—Making the Link Between Land Use and Forest Disturbance~ *Brian Loeffelholz, Gary Johnson, & Marvin Bauer: University of Minnesota*
- Using GIS and GPS Systems in an Evaluation of Pheasant Winter Habitat Provided by Farm Programs~ *Tonya Rogers & Jiyeong Lee, Ph.D.: MN DNR*
- Conquering 30m Elevation Data as it Pertains to the Red River Valley in Minnesota~ *Mark T. Reineke, JOR Engineering, Inc.*
- Analysis of a Multi-year Water Quality Atlas of Minnesota's 10,000 Lakes~ *Leif G. Olmanson, Marvin E. Bauer, & Patrick L. Brezonik: University of Minnesota*
- Aquatic Vegetation Surveys Using High Resolution IKONOS and QuickBird Imagery~ *Leif G. Olmanson, Marvin E. Bauer, & Patrick L. Brezonik: University of Minnesota*
- National Hydrography Dataset: Overview of Data in Minnesota~ *Sandi Kuitunen & Susanne Maeder: LMIC*
- A GIS-based Street Tree Inventory for the City of Minneapolis~ *Jim Hermann, Minneapolis Park & Recreation Board*
- Quality Assurance/Quality Control of National Wetland Inventory Digital Data~ *Mara May & Tracy Herrera: St. Mary's University*
- Using the ArcScan Extension in ArcGIS 8.3~ *Jeff Knopf & Kristen Knopf: St. Mary's University*
- Orthorectification Using OrthoMapper~ *Travis Ludwig & Jeff Knopf: St. Mary's University*
- Habitat Analysis of a Minnesota Blufflands Forest Landscape: Scarlet Tanager (*Piranga olivacea*)~ *David C. Wilson, St. Mary's University*

- Teen Smoking, Schools, Tobacco Outlets, and Behavior: A Geodatabase~ *John Gabbert, St. Mary's University*
- What If?: F5 Tornado Scenarios in Dakota County~*Todd Lusk, Dakota County*
- Land Cover Classification Using High-Resolution Satellite Data with CITYgreen to Determine the Economic Benefits of Urban Forests~*Xiaoting Sun & Marvin E Bauer, University of Minnesota*
- Evaluating Spatial Aspects of Disease Risk, Based on West Nile Virus Activity Indicators~ *Kirk Johnson & George Xenos, Metropolitan Mosquito Control District*
- Metro Stormwater Catch Basin Inventory for Mosquito Control~ *Nancy Read & Chris Stevens, Metropolitan Mosquito Control District*
- Using IKONOS High-Resolution Satellite Imagery for Oak Wilt Detection in Eagan, Minnesota~ *Geoff Holden, USDA North Central Research Station*
- Minnesota Railroad Map Conversion Project: A Joint Partnership of the Minnesota Department of Transportation and St. Cloud State University~ *Jay Kraftbefer, Mn/DOT*
- Developing a Digital Image Distribution Mechanism (A Mn/DOT White Paper)~ *John Harrison & Mike Leegard: Mn/DOT*
- Joseph Nicollet's Map and GIS~ *Bob Douglas, Gustavus Adolphus College*
- Mapping Forest Disturbance Severity Using High Resolution Satellite Imagery~ *Brian Loeffelholz, Roy Rich, Marvin Bauer & Peter Reich: University of Minnesota*
- Lakeshore Property Values and Water Clarity, GIS and GPS Combined for Economic Analysis of a \$100,000,000,000 Asset~ *Kristofor Parson, Bemidji State University*

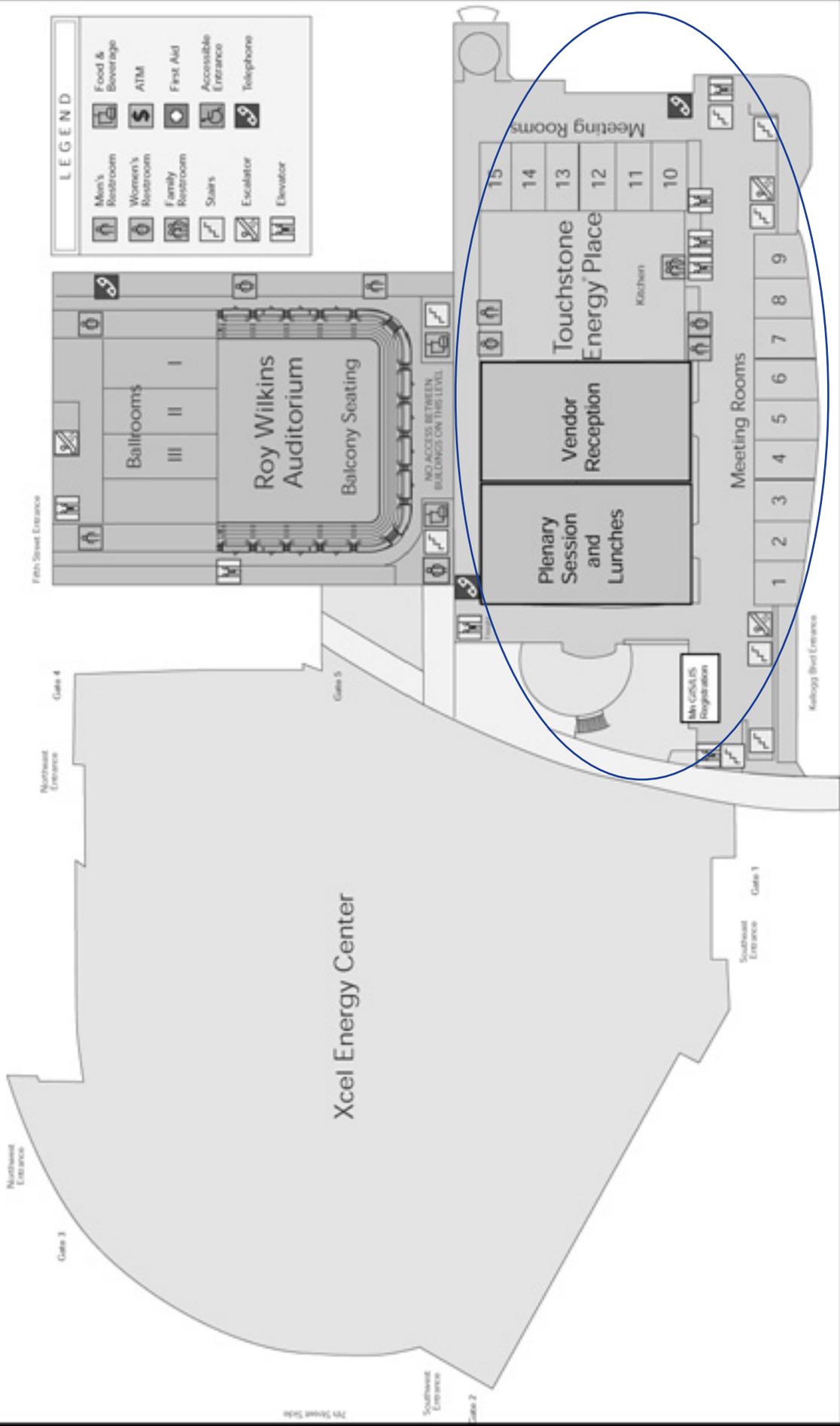


# Downtown St. Paul

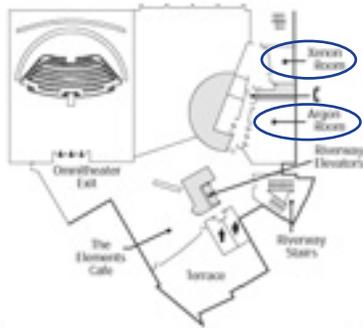


## Touchstone Energy® Place, RiverCentre

# Touchstone Energy Place/Roy Wilkins Auditorium — Upper Level

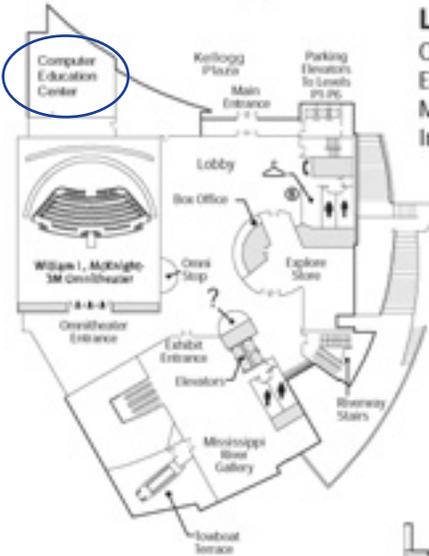


# Touchstone Energy®Place, RiverCentre—Conference Layout



**Level 6**  
 Omnitheater exit  
 Elements Café

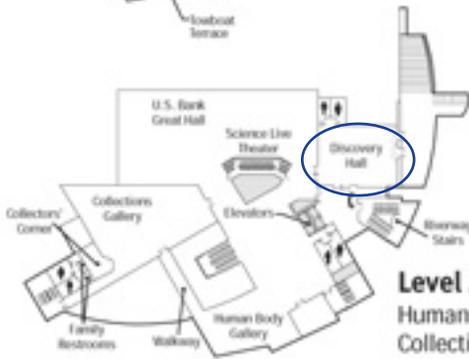
**Level 3**  
 Dinosaurs and Fossils Gallery  
 Experiment Gallery  
 Auditorium/3D Laser Theater Entrance



**Level 5**  
 Omnitheater entrance  
 Explore Store  
 Mississippi River Gallery  
 Information Kiosk



**Level 2**  
 Education Entrance  
 School Group Lunch Space  
 (Reservations required)  
 Classrooms  
 Youth Science Center  
 Auditorium/3D Laser Theater exit



**Level 4**  
 Human Body Gallery  
 Collections Gallery  
 Collectors' Corner  
 Special Exhibit Gallery  
 Science Live Theater

-  **Information/First Aid**  
Level 5 and any staff member
-  **Restrooms** every level
-  **Stairways** three sets of stairs
-  **Elevators** Every level

# Science Museum of Minnesota

# 2003 Minnesota GIS/LIS Annual Conference & Workshops

## Attendee Registration

One attendee per registration form. Please photocopy for additional registrants.

A list of participants will be provided to our vendors at the conclusion of the conference. Please check here if you DO NOT want your name listed on the conference roster.

Name \_\_\_\_\_  
 Organization \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_  
 Phone \_\_\_\_\_ Fax \_\_\_\_\_  
**E-MAIL** \_\_\_\_\_  
 Dietary Requirements \_\_\_\_\_

### Wednesday Workshops Registration—includes workshop(s), lunch, and Welcome Reception

|   |   |                             |
|---|---|-----------------------------|
|   | Register by September 12                          | Register after September 12 |
| <input type="radio"/> Full-Day Workshop         | \$170   | \$195                       |
| First choice for full-day workshop # _____      | Second choice (if first workshop is full) # _____ |                             |
| <input type="radio"/> Half-Day Workshops (each) | \$105   | \$130                       |
| First choice for morning workshop # _____       | Second choice (if first workshop is full) # _____ |                             |
| First choice for afternoon workshop # _____     | Second choice (if first workshop is full) # _____ |                             |

### Conference Registration—includes lunch Thursday and Friday Concurrent Sessions and Activities, and Wednesday's Welcome Reception

|                                      |                          |                             |
|--------------------------------------|--------------------------|-----------------------------|
|                                      | Register by September 12 | Register after September 12 |
| <input type="radio"/> Standard Rate  | \$210                    | \$235                       |
| <input type="radio"/> Student Rate   | \$40                     | \$50                        |
| <input type="radio"/> Presenter Rate | \$147                    | N/A                         |

*limited to two presenters per presentation. You must register by September 12 to receive this discounted rate.*

Total Amount Enclosed \$ \_\_\_\_\_

#### Payment Information

Check (made payable to MN GIS/LIS)     VISA     MasterCard     Purchase Order

Credit Card Number \_\_\_\_\_

Cardholder Name (print) \_\_\_\_\_

Cardholder Phone \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Purchase Order Number \_\_\_\_\_

*Attach completed Purchase Order to this form*

Send completed registration form, with payment to:  
**MN GIS/LIS**  
 26 East Exchange Street, Suite 500  
 St. Paul, MN 55101  
 or fax to 651-290-6279  
 Phone: 651-203-7242  
[www.mngislis.org](http://www.mngislis.org)

**Registration:** Please complete this registration form and mail or fax to the address or number indicated. You can also download the registration form from the web site. Full payment or purchase order must accompany your registration form and be postmarked by October 1 to be pre-registered. Registrations received after October 1 will be considered on-site registrations; payment or purchase order must be presented at the time of registration.

**Refunds:** With written cancellation notice, received by September 12, you will receive a full refund, less a \$35 administrative charge. Cancellations after September 12 are non-refundable. Notices of cancellation must be faxed to the Minnesota GIS/LIS office at 651-290-6279. No shows will not receive a refund.

# 2003 Minnesota GIS/LIS Annual Conference & Workshops Entertainment Registration

One attendee per registration form. Please photocopy for additional registrants.

## See the Great Barrier Reef!

After Wednesday's workshops, the GIS/LIS Consortium will host a registration and welcome reception at the Science Museum of Minnesota. Starting at 4:30 p.m., there will be food and a cash bar available until the 7:00 p.m. showing of the Coral Reef Adventure in the Omnitheater. Explore the Great Barrier Reef, Fiji, Tahiti, the mysterious depths of the Rangiroa atoll and see the beauty, magic, and value of coral reefs in the world community. Space is limited, so please register for this event early to reserve your seat. There is no cost to registered conference attendees for this reception and movie; tickets may be purchased for guests of registered conference attendees at a cost of \$15 each.

## Bootlegger Gathering at the Landmark Center

Please join us for a bootlegger gathering in the Ramsey County Room at the historic Landmark Center, just steps away from the Touchstone Energy®Place, RiverCentre. From 1902 through the 1960s, Landmark Center served as the Federal Courts Building for the Upper Midwest, and the Ramsey County Room was the site of many infamous gangster trials during the 1930s. The GIS/LIS Consortium has reserved this room for the evening of Thursday, October 9, when we will hold our own 'trial': the annual beer tasting event, sponsored by the Boreal Brewers Club of Bemidji. Home brewers are encouraged to bring beer or other fermented beverages to share—all brought-in beverages must be poured by a designated GIS/LIS tasting host. A cash bar will also be available, offering additional beer, wine, and pop. Light hors d'oeuvres will be included with the \$15 admission.

The Ramsey County Room is reserved for us from 7:30-10:30 p.m. Space for this event is limited, so get your tickets early! All proceeds beyond the cost of the event will be donated to the GIS/LIS Consortium Scholarship Fund. You must be at least 21 years of age to attend this event, and identification will be checked at the door. Hope to see you there!

Name \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

E-mail \_\_\_\_\_

I would like to attend:  Great Barrier Reef (no charge for conference attendees)  Bootlegger Gathering \$15 (attendees and guests)  
# of guests \_\_\_\_\_ (\$15 for attendee guests)

### Payment Information

Check (made payable to MN GIS/LIS)  VISA  MasterCard  
(VISA or MasterCard only, please)

Credit Card Number \_\_\_\_\_

Cardholder Name (print) \_\_\_\_\_

Cardholder Phone \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Send completed registration form,  
with payment to:  
**MN GIS/LIS**  
26 East Exchange Street, Suite 500  
St. Paul, MN 55101  
or fax to 651-290-6279  
Phone: 651-203-7242  
[www.mngislis.org](http://www.mngislis.org)

**Registration:** Please complete this registration form and mail or fax to the address or number indicated. You can also download the registration form from the web site. Full payment or purchase order must accompany your registration form and be postmarked by October 1 to be pre-registered. Registrations received after October 1 will be considered on-site registrations; payment or purchase order must be presented at the time of registration.

**Refunds:** With written cancellation notice, received by September 12, you will receive a full refund, less a \$35 administrative charge. Cancellations after September 12 are non-refundable. Notices of cancellation must be faxed to the Minnesota GIS/LIS office at 651-290-6279. No shows will not receive a refund.

## Lodging Accommodations

A block of rooms has been reserved for conference participants at the following hotels. Room blocks will be released on September 5. Reservations made after the room blocks have been released are still eligible for the discounted conference rates listed below if MN GIS/LIS is mentioned when making the reservation. Please make your reservation early.

### **Radisson Riverfront Hotel**

11 East Kellogg Boulevard

St. Paul, MN 55101

For reservations - 651-292-1900

\$105.00 Single/Double

From I-94 E: Exit on 241A toward Marion/Kellogg; merge onto Concordia Avenue; make a slight right turn onto Kellogg; turn right on East Kellogg Boulevard.

The Radisson Riverfront is on the corner of Wabasha Street and Kellogg Blvd.

### **Holiday Inn RiverCentre**

175 West 7th Street

St. Paul, MN 55101

For reservations - 651-225-1515

Single: \$95.00 Double: \$110.00

From I-94 E: Exit on 241A toward Marion/Kellogg; merge onto Concordia Avenue; make a slight right turn onto Kellogg; turn right onto West 7th Street.

The Holiday Inn River Centre is on the corner of West 7th Street and Kellogg Blvd.

## General Information

**Location:** The conference will be held at the Touchstone Energy®Place, RiverCentre in St. Paul, Minnesota. See map on page 17.

**Meals:** Conference registration (standard, student and presenter) includes the Wednesday Welcome Reception, lunch and refreshment breaks Thursday and Friday, and the Vendor Reception on Thursday. Workshop registration includes lunch and refreshment breaks on Wednesday and the Wednesday Welcome Reception.

**Materials:** Conference attendees will receive a copy of the conference proceedings, which will include abstracts for all presentations. Workshop attendees will receive workshop materials for each workshop attended.

**Continuing Education:** Forms for Continuing Education Units will be available at the registration desk.

**Fees:** All registration fees are to be made payable to Minnesota GIS/LIS. Payment can be made by check, credit card, or purchase order. Remember to register before September 12 to receive the lowest registration rate for the conference.

**Registration:** Please complete this registration form and mail or fax to the address or number indicated. You can also download the registration form from the web site. Full payment or purchase order must accompany your registration form and be postmarked by October 1 to be pre-registered. Registrations received after October 1 will be considered on-site registrations; payment or purchase order must be presented at the time of registration.

**Refunds:** With written cancellation notice, received by September 12, you will receive a full refund, less a \$35 administrative charge. Cancellations after September 12 are non-refundable. Notices of cancellation must be faxed to the Minnesota GIS/LIS office at 651-290-6279. No shows will not receive a refund.