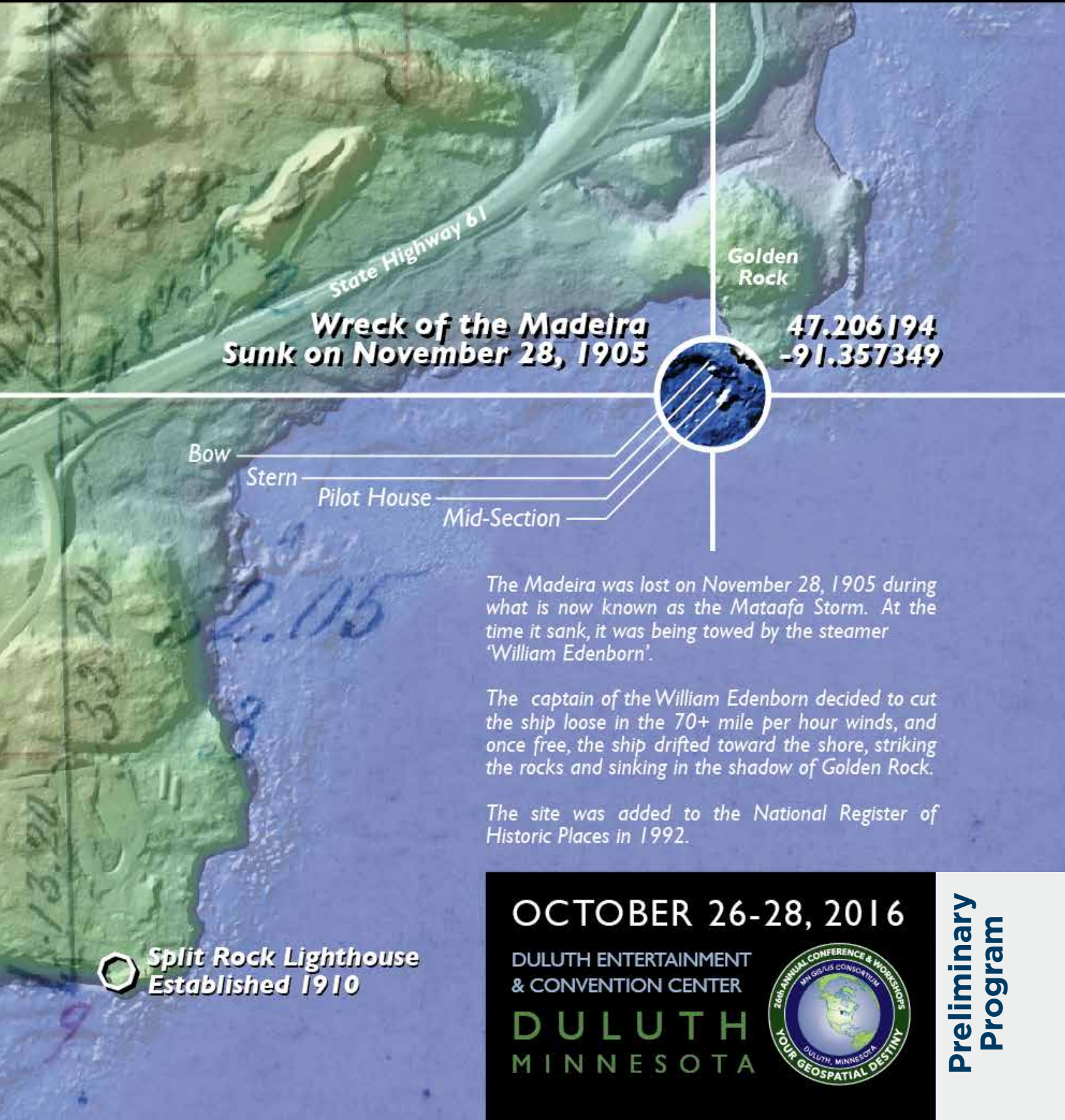




# MINNESOTA GIS/LIS CONSORTIUM TWENTY-SIXTH ANNUAL CONFERENCE & WORKSHOPS



**Wreck of the Madeira  
Sunk on November 28, 1905**

**47.206194  
-91.357349**

Bow  
Stern  
Pilot House  
Mid-Section

The Madeira was lost on November 28, 1905 during what is now known as the Mataafa Storm. At the time it sank, it was being towed by the steamer 'William Edenborn'.

The captain of the William Edenborn decided to cut the ship loose in the 70+ mile per hour winds, and once free, the ship drifted toward the shore, striking the rocks and sinking in the shadow of Golden Rock.

The site was added to the National Register of Historic Places in 1992.



**Split Rock Lighthouse  
Established 1910**

**OCTOBER 26-28, 2016**

DULUTH ENTERTAINMENT  
& CONVENTION CENTER

**DULUTH  
MINNESOTA**



**Preliminary  
Program**

## CONFERENCE HIGHLIGHTS

This program announces the 26th Annual Minnesota GIS/LIS Consortium Conference and Workshops, "Your Geospatial Destiny," October 26 to 28, 2016 in Duluth, Minnesota. The event will feature national and local keynote speakers, 17 instructor-led workshops, technical sessions, panel discussions, technology demonstrations and project updates. All are geared toward students and professionals interested in learning more about geographic information systems and land information systems technology in Minnesota and beyond.

### Highlights include:

- 17 instructor-led workshops that feature a variety of topics.
- Esri Hands on Lab: The HOLL (Hands-On Learning Lab) is a training resource provided and developed by Esri Training Services. The lab is an excellent way to introduce ArcGIS® software users to a variety of Esri® solutions and training opportunities while learning to use Esri software.
- GIS instruction and workshops for K-12 teachers, followed by a Networking event that will bring GIS professionals and teachers together for a chance to become Geo-Mentors.
- A vendor reception featuring complimentary hors d'oeuvres, a cash bar and a variety of prizes.
- Redesigned conference session and discussion groupings to reflect the geographic and land information systems industry including: technical, asset management, custom applications, web maps, data collection, data visualization, demographics, lightning presentations, parcels, process improvement, project management, Python and much more.
- The student assistantship program that allows students to attend the conference in exchange for their assistance throughout the conference.
- The student scholarship competition for undergraduate and graduate student competitors.
- Industry and regional-specific user groups, previously named Birds of a Feather meetings.
- Networking opportunities, including entertainment events and the Thursday evening event.
- The Geolounge will be available to sit back, relax, check email and network with other attendees.

Please join us and spread the word about **Your Geospatial Destiny** because the 2016 Minnesota GIS/LIS Conference and Workshops will be packed with quality learning, networking and socializing experiences!

## WHO SHOULD ATTEND?

### The conference program is designed to address the needs of:

- Government officials who implement GIS/LIS for a variety of applications
- Surveyors, engineers and land management specialists who use GIS/LIS technology
- Professionals who want to utilize 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 professionals who use GIS/LIS technology for infrastructure management
- Consultants who provide GIS/LIS services, hardware or software
- Professionals in precision agriculture, health care or other fields beginning to use GIS/LIS in their careers
- K-12 students, undergraduate and graduate students interested in the application of GIS/LIS technology
- University faculty interested in new GIS/LIS technology and research applications
- Professionals or organizations concerned with homeland security and emergency preparedness
- Managers who supervise GIS/LIS technology or staff members
- GIS/LIS professionals in any discipline

## EXHIBITORS TO DATE

*(as of August 9, 2016)*

- Aerial Services, Inc.
- Applied Imagery
- Ayres Associates, Inc.
- Bolton & Menk, Inc.
- Cartegraph
- CES Imaging
- Esri
- Frontier Precision, Inc.
- Geospatial Analysis Center, University of Minnesota Duluth
- GIS Workshop, LLC
- Houston Engineering, Inc.
- Lake Superior National Estuarine Research Reserve
- Latitude Geographics Group Ltd.
- Moore Engineering
- MSPS
- North Point Geographic Solutions
- Panda Consulting
- Pro-West & Associates, Inc.
- Surdex
- WSB & Associates, Inc.

## ABOUT THE MN 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, educational institutions, business and industry. Membership is FREE. The Consortium hosts a statewide conference each year and establishes committees that are responsible for 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, please visit our website, [www.mngislis.org](http://www.mngislis.org), or stop by our booth during the conference.

## 26TH MN GIS/LIS ANNUAL CONFERENCE AND WORKSHOPS

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

To register for the conference, please visit our conference site at [www.mngislis.org/conference](http://www.mngislis.org/conference) and click on the "Registration" link. We accept payment by credit card (Visa and MasterCard), purchase order and check.

### For Payment by Credit Card:

The registration process will allow you to enter credit card information directly into a secure system for payment. Both Visa and MasterCard are accepted.

### For Payment by Purchase Order or Check:

Alternatively, you can include a purchase order number with the registration or pay by check separately. Upon completion of the registration process, an invoice will be prepared based on your registration selections. For purchase order registrations, please provide a copy of this invoice to your accounts payable department. Also include a copy of the registration invoice with your check or signed purchase order (made payable to MN GIS/LIS) and mail it to:

**MN GIS/LIS Consortium**  
**1000 Westgate Drive, Suite 252 • St. Paul, MN 55114**

**Please note:** Registrations based on purchase orders are considered complete when the purchase order number is received.

## REGISTRATION FEES WILL BE AS FOLLOWS:

### Half-day Workshops

Payment received by Oct. 7 .....	\$135
Payment received after Oct. 7 .....	\$170
Payment On-Site .....	\$180

### Conference

Payment received by Oct. 7 .....	\$275
Payment received after Oct. 7 .....	\$310
Payment On-Site .....	\$330

### Presenter

Payment received by Oct. 7 .....	\$230
Payment received after Oct. 7 .....	\$310
Payment On-Site .....	\$330

### Student

Payment received anytime .....	\$45
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## KEY DATES:

- Online registration opens 8/10
- Hotel Conference rates end 9/25
- Early registration ends 10/7
- Online registration closes 10/21
- Pre-Conference Workshops: 10/26
- Conference days: 10/27 and 10/28

### Refunds:

Full refunds (less \$40 administrative charge) will be issued with a written cancellation notice received by Oct. 12. To send a cancellation notification via fax to the MN GIS/LIS Consortium, please use 651-290-2266. Notifications received after Oct. 12 will NOT receive a refund, nor will no-shows at the conference.

### Problems with Registration:

If you encounter problems registering for this event via the website, please contact us at [conference@mngislis.org](mailto:conference@mngislis.org) or call 651-203-7242.

**On-site registration will be available at the conference.**

# 2016 GIS/LIS CONFERENCE AT-A-GLANCE

WEDNESDAY, OCTOBER 26

**7:30 a.m.** Conference registration and materials pickup; refreshments in lobby

**8:00 – 10:30 a.m.** Half-Day Morning Workshops

<b>WK0001</b> Intro to Collector for ArcGIS (Ballroom L)	<b>WK0002</b> Get Started Using Python with GIS (Ballroom M-N)	<b>WK0003</b> Using Geoprocessing Services with JavaScript API (Ballroom O)	<b>WK0004</b> Parcel Fabric 101 (French River Rm 1)	<b>WK0005</b> Making a Web Map Like That (French River Rm 2)	<b>WK0006</b> Designing a Long-Term GIS Vision & Implementation Plan (St. Louis River Rm)	<b>WK0007</b> Creating Simple GIS applications with Python (Horizon Rm 202)	<b>WK0008</b> CAD and GIS Collaboration (Horizon Rm 203)	<b>WK0009</b> Running Enterprise GIS Systems in God Mode (Horizon Rm 204)
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**10:30 a.m.** Refreshment break, lobby

**10:45 a.m. – 12:15 p.m.** Half-Day Morning Workshops Continued

**12:15 p.m.** Lunch – Denfield High School Teacher and 2 Students

**1:15 – 2:45 p.m.** Half-Day Afternoon Workshops

<b>WK0010</b> Intermediate Collector for ArcGIS (Ballroom L)	<b>WK0011</b> Advanced Python: Build Your Own Classes and Modules (Ballroom M-N)	<b>WK0012</b> ArcGIS Web AppBuilder: Basics of Creating Custom Themes and Widgets (Ballroom O)	<b>WK0013</b> Parcel Fabric 601 (French River Rm 1)	<b>WK0014</b> Q Is the Bees' Knees (French River Rm 2)	<b>WK0015</b> SQL 101: Spatial Data Revealed (Horizon Rm 202)	<b>WK0016</b> Open Data Portals: What, Why, How? (Horizon Rm 203)	<b>WK0017</b> ArcGIS for Server: Administration and Advanced Topics (Horizon Rm 204)
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**2:00 – 5:00 p.m.** Vendor Hall open

**2:45 p.m.** Refreshment break, Vendor Hall

**3:00 – 4:30 p.m.** Half-Day Afternoon Workshops Continued

**4:30 – 6:00 p.m.** Wednesday Welcome Reception, Geolounge

**6:00 – 9:30 p.m.** Wednesday Welcome Reception Continued, Grandma's Saloon

THURSDAY, OCTOBER 27

**7:30 a.m.** Conference registration and materials pickup; refreshments in Vendor Hall

**7:30 a.m.** Conference Mentor Meet and Greet at the Geolounge

**8:00 a.m.** Conference Welcome – Ryan Stovern, Conference Chair

**8:15 a.m.** State of the State – Dan Ross

**8:30 a.m.** Opening Keynote Session: Carrie Sowden

**10:00 a.m.** Morning Break (Vendor Hall), Exhibit Hall Open, Geolounge Open and Web Map & Poster Gallery Open

**10:30 a.m. – Noon** Concurrent sessions:

<b>SESSION 1</b> K-12 Panel (Gooseberry Falls 1)	<b>SESSION 2</b> Survey 1 (Gooseberry Falls 2)	<b>SESSION 3</b> A Little of This, A Little of That (Gooseberry Falls 3)	<b>SESSION 4</b> Product Demo 1 (Split Rock Rm 1)	<b>SESSION 5</b> Coding (Split Rock Rm 2)	<b>SESSION 6</b> Crowd Sourcing (Lake Superior L)	<b>SESSION 7</b> Great Lakes 1 (Lake Superior M-N)	<b>SESSION 36</b> Remote Sensing (Lake Superior O)	<b>SESSION 37</b> Web Map Creation 1 (St. Louis River Rm)	<b>SESSION 38</b> LiDAR/Hydrology (French River Rm 1)
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**Esri Hands On-Lab** (Board Room)

**Noon** Awards Luncheon

# 2016 GIS/LIS CONFERENCE AT-A-GLANCE

THURSDAY, CONTINUED

**1:30 – 3:00 p.m.** Concurrent sessions:

<b>SESSION 8</b> Emergency Management (Gooseberry Falls 1)	<b>SESSION 9</b> Survey 2 (Gooseberry Falls 2)	<b>SESSION 10</b> Mobile Imagery (Gooseberry Falls 3)	<b>SESSION 11</b> Government GIS 1 (Split Rock Rm 1)	<b>SESSION 12</b> Data Sharing 1 (Split Rock Rm 2)	<b>SESSION 13</b> Product Demo 2 (Lake Superior L)	<b>SESSION 14</b> Great Lakes 2 (Lake Superior M-N)	<b>SESSION 40</b> Open Source (Lake Superior 0)	<b>SESSION 41</b> UG Comp (St. Louis River Rm)	<b>SESSION 42</b> MN Geospatial Adv Comm (French River Rm 1)
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**Esri Hands On-Lab** (Board Room)

**3:00 p.m.** Afternoon break; refreshments in Vendor Hall

**3:30 – 5:00 p.m.** Last Call: Poster Gallery; People's Choice Vote

**3:30 – 5:00 p.m.** Concurrent Sessions and User Group Meetings

<b>SESSION 15</b> Government GIS Collaboration (Gooseberry Falls 1)	<b>SESSION 16</b> Survey 3 (Gooseberry Falls 2)	<b>SESSION 17</b> Utilities (Gooseberry Falls 3)	<b>SESSION 18</b> K-12 (Split Rock Rm 1)	<b>SESSION 19</b> Lightning 1 (Split Rock Rm 2)	<b>SESSION 21</b> Great Lakes 2 (Lake Superior M-N)	<b>SESSION 44</b> Web Map Creation 2 (Lake Superior 0)	<b>SESSION 45</b> UG Comp (St. Louis River Rm)	<b>SESSION 46</b> Grad Comp (French River Rm 1)
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**Esri Hands On-Lab** (Board Room)

**5:00 – 7:00 p.m.** Exhibitor Reception, Exhibition Hall

**6:45 – 7:00 p.m.** Exhibitor and GIS/LIS Raffle (**must be present to win**), Exhibition Hall

**7:15 p.m.** Thursday Night Social Event, Holiday Inn

## FRIDAY, OCTOBER 28

**6:15 a.m.** 5k Fun Run/Walk

**7:30 a.m.** Conference registration and materials pickup; refreshments in Vendor Hall

**8:00 a.m.** Exhibit Hall, Geolounge; Open and Refreshments in Vendor Hall

**8:30 – 10:00 a.m.** Concurrent sessions:

<b>SESSION 22</b> Data Sharing 2 (Gooseberry Falls 1)	<b>SESSION 23</b> Field Data Collection - Collector (Gooseberry Falls 2)	<b>SESSION 24</b> Web Map Creation 3 (Gooseberry Falls 3)	<b>SESSION 25</b> Lightning 2 (Split Rock Rm 1)	<b>SESSION 26</b> Hydrology (Split Rock Rm 2)	<b>SESSION 27</b> Photogrammetry Panel (Lake Superior L)	<b>SESSION 28</b> Interviewing Panel (Lake Superior M-N)
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**Esri Hands On-Lab** (Board Room)

**10:00 a.m.** Morning Break; exhibit hall closes at 10:30 a.m.

**10:30 a.m. – Noon** Concurrent sessions:

<b>SESSION 29</b> Data Sharing Panel (Gooseberry Falls 1)	<b>SESSION 30</b> Field Data Collection (Gooseberry Falls 2)	<b>SESSION 31</b> Government GIS 2 (Gooseberry Falls 3)	<b>SESSION 32</b> Higher Ed (Split Rock Rm 1)	<b>SESSION 33</b> Workflows (Split Rock Rm 2)	<b>SESSION 34</b> Remote Sensing - Landcover (Lake Superior L)	<b>SESSION 35</b> ArcGIS Online (Lake Superior M-N)
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**Esri Hands On-Lab** (Board Room)

**Noon** Special Presentation by Dana Starkell

**2:00 p.m.** MN GIS/LIS Annual Business Meeting – Tami Maddio, Board Chair

## KEYNOTE SPEAKERS

**8:30 a.m., Thursday, Oct. 27, 2016****Carrie Sowden**

Archaeological Director  
Peachman Lake Erie Shipwreck Research Center  
MAST Coordinator



Carrie Sowden graduated from Emory University with a BS in Chemistry; after deciding against medical school, she entered Texas A&M University. She graduated from the Nautical Archaeology

Program there with a Master of Arts in Anthropology. Her areas of specialty are historical archaeology and waterlogged artifact conservation. During her career as a nautical archaeologist, she has worked on shipwreck projects in Maine, Florida, Alabama, Virginia, Portugal, the Azores, Turkey, and Ohio. She is currently the Archaeological Director for the Peachman Lake Erie Shipwreck Research Center at the Great Lakes Historical Society. She has worked on many archaeological projects in Lake Erie, including co-directing the excavation of the Anthony Wayne, and PI for the Survey of the Battle of Lake Erie and Vessel Anchorage Project.

**Noon, Friday, Oct. 28, 2016****Dana Starkell**  
**Paddle to the Amazon**

*Dana Starkell grew up in Winnipeg, Canada, a city known for warm summers and long bitter cold winters. From the time Dana was a young boy, his life was filled with adventure. Dana's father, Don*

*Starkell, who had an extensive background in canoe racing, made plans to involve his two sons in some form of challenging event each year. Summer holidays included canoe trips, hiking, sand-dune treks, rock climbing, and swimming. Learning how to be self-sufficient in the wilderness was a common thread to these experiences.*

*Nearly every summer the trio would take long canoe trips — primarily around the lakes of southern Ontario, and a few times in the remote lakes of northern Manitoba. The longest of these trips lasted a month and was planned specifically to prepare for their voyage from Canada to Brazil. Specifically, they wanted to test the food-carrying capacity of their canoe, physical endurance and their ability to be self-sufficient for at least one month at a time.*

*A year after completing high school, Dana undertook the now famous two-year canoe trip his father had been planning since Dana was 9 years old. Altogether, they paddled through 13*

## ENTERTAINMENT

**Tuesday, October 25**

Once you've arrived in town, join your colleagues for networking and great brews at 7 West Taphouse, located at 7 W Superior Street, which is within walking distance from the local hotels. 7 West Taphouse is a laid back bar and restaurant with a large beer selection and variety of food options.

**Wednesday, October 26**

After a long day of workshops, stop by the Geolounge for some drinks and food. This event will be open to all, with a special welcome to our educator attendees. After the Geolounge, feel free to wander over to Grandma's Saloon, 522 S Lake Ave, for a welcome reception with food and drinks and more networking opportunities.

**Thursday, October 27**

Once the sessions are over, be sure to stop by the vendor reception in the DECC exhibit hall. Afterward, join us for the conference social at the Holiday Inn, located in downtown Duluth. The festivities include a craft beer tasting event, featuring craft brews from across the Northland region!

**Friday, October 28**

The conference may be over, but the weekend is just beginning in Duluth! Feel free to explore and visit one of the many scenic sites, enjoy the craft brews, restaurants and entertainment in Canal Park or downtown. Don't forget your MN GIS/LIS Conference discount card!

*countries from Winnipeg to Belem, Brazil and were awarded the Guinness world record for the longest canoe trip in history. In the course of the journey, Dana cured his asthma and honed his skills as a classical guitarist.*

*More recently Dana completed two separate canoe adventures with his dad. The first was along the Mississippi and Gulf Coast from Princeton, Iowa, to Key West, Florida. The second, in 2003, followed the intracoastal waterway and open Atlantic coast from New York city harbor to Key Largo, Florida. The later trip was a significant challenge due to constant inspections by coastal officials following the 9/11 attacks.*

*Dana now lives in the Quad Cities, Iowa, with his wife Stacey and son Davey. Dana's next adventure will be a reunion with Gabriel Delgado and others for a two-month canoe trip down the Mississippi River to New Orleans in 2017.*

# SCHOLARSHIP PROGRAM AND COMPETITION

The Consortium's scholarship program recognizes graduate, undergraduate, and community college students for their excellence in GIS studies. The annual conference provides an opportunity to highlight their achievements and showcase their work through a scholarship competition. Each year the scholarship program invites qualifying schools to name one Student Scholar per degree program (undergraduate / graduate / community college).

## Student Scholars receive the following:

- 1 free registration to the annual MN GIS/LIS conference
- A certificate recognizing the student as a GIS/LIS Student Scholar
- An invitation to participate in the Student Scholarship Competition

## The Student Scholarship Competition consists of three separate events:

- Community College Poster Presentation Competition
- Undergraduate Oral Project Presentation Competition
- Graduate Formal Paper and Oral Presentation Competition

## The 2016 student scholars (as of press time) are:

### GRADUATE GIS PROGRAMS

Timila Bajracharya – St. Cloud State University  
 Tobias Fimpel – University of Minnesota, Twin Cities  
 Caleb Mackey – Minnesota State University, Mankato  
 Joshua Stanley Cook – Saint Mary's University of Minnesota

### UNDERGRADUATE GIS PROGRAMS

Jacob Arndt – University of Minnesota, Twin Cities  
 Dallas Jacobs – University of Minnesota, Duluth  
 Maddie Johnson – Gustavus Adolphus College  
 Kathryn Jurenka – Macalester College  
 Kathryn D. Macey – Minnesota State University, Mankato  
 Kelli Moe – Minnesota State University, Moorhead  
 Jacob Pauna – University of St. Thomas  
 Nathan Porttiin – St. Cloud State University  
 Aaron Thompson – Bemidji State University

### COMMUNITY COLLEGE GIS PROGRAMS

Kyleleen Cullen – Itasca Community College  
 Logan Harms – South Central College  
 Greg Oberg – Fond du Lac TC

## MENTOR PROGRAM

The Mn GIS/LIS Consortium Conference Mentor Program is in its 6th year! Each year, we match willing GIS professionals with students or early professionals who wish to connect with someone personally at the conference for conference navigation, career advice, resume review and professional stories. Students' early introductions to local organizations and employers go a long way to making sure our Minnesota graduates are successful and that many are the future GIS professionals of Minnesota.

From a mentor: "I always learn something new from the mentees, and it is a rewarding experience."

From a student: "This was my first MN GIS/LIS conference and having a mentor willing to introduce you to his/her colleagues is a tremendous asset while networking."

The mentor program involves a small commitment of time on Thursday of the conference. You will meet your mentee in the Geolounge at 7:30 am on Thursday for ½ hour. Then we ask that you please invite your mentee to sit with you and your colleagues at the welcome/plenary and again at the Thursday lunch. We provide some optional conversation starters to aid in discussion. What you do beyond this initial networking is up to you both to decide!

For more information or to sign up, please contact Stacey Stark: [slstark@d.umn.edu](mailto:slstark@d.umn.edu).

## POSTER GALLERY

- **MinnesotaView: Remote Sensing Education, Research and Geospatial Applications** – Marvin Bauer, University of Minnesota; Joseph Knight, University of Minnesota
- **Sunnydale's Hellmouth** – Kitty Hurley
- **Phantom Islands of Lake Superior** – Geoff Maas, Tessera Design
- **The CIC Geospatial Data Discovery Project: A Multi-Institution Project to Create an Open-Source Discovery Portal for Geospatial Data Resources** – Ryan Mattke, Borchert Map Library; Karen Majewicz, Borchert Map Library
- **Open Land Analysis Using LiDAR to Help with Planning Efforts** – Jamie Schulz, MN.IT @ DNR Fisheries; John Jereczek, Department of Natural Resources, Ecological and Water Resources
- **A Ridiculously Large 1:54,000 (7 ft by 18 ft) St. Louis County, Minnesota Map** – Jeff Storlie, St. Louis County Planning & Development
- **Mapping and Analyzing Stream Network Changes in Watonwan River Watershed** – Fei Yuan, Roman Mulvihill, Philipp Larson, Devon Libby and Zachary Hilgendorf of Minnesota State University, Mankato
- **Multi-criteria Selection for a Healthy Food Restaurant Location in Grand Forks, ND, Using Analytic hHierarchy Process** – Sergey Gulbin, University of North Dakota
- **Incorporating Ecosystem Services of a Natural Capital to Perform Relative Valuation of Households' Storm-inflicted Health Outcomes under Optimal Private Defensive Strategies A Case Study Analysis of the Coastal Areas of Bangladesh using Household Survey and GIS Mapping Analysis** – Sakib Mahmud, University of Wisconsin-Superior

## WEB MAP GALLERY

- **Metropolitan Transitways with Population Density of Ethnic Minority Groups 2000-2010** – Andra Bontrager, Minnesota Center for Environmental Advocacy
- **World Travels!** – Kitty Hurley
- **Rice County Highway Asset Map** – Michelle Trager, Rice County

## K-12 TEACHERS EVENTS

At the GIS/LIS conference this fall the GIS/LIS Board, Conference committee and Minnesota Department of Education are sponsoring a full day of GIS instruction and workshops for K-12 teachers. This will happen the same day as the conference workshops on Wednesday, October 26. Not only will teachers get a great day of instruction but they will be able to get free lunch, 6 contact hours, as well as interaction with YOU! Yes, if you are interested in K-12 geo-mentoring, there will be an opportunity for you to sign up, or if you are there on Wednesday, speak to teachers about GIS. If you know of teachers that may be interested in attending please forward the registration link below.

[www.mngislis.org/K12\\_form](http://www.mngislis.org/K12_form)





# PRE-CONFERENCE WORKSHOPS

Workshop check-in begins at 7:30 am Wednesday morning in the lobby of the DECC where refreshments will be provided. Workshop registration includes lunch and will be provided at the DECC at 12:15 pm. All data and materials for the workshops will be provided by the instructors.

All hands-on workshops will be Bring Your Own Laptop and some hands-on workshops are Bring Your Own Mobile Device. If you would like to attend one of these workshops, you will need to have a laptop that you can bring to the workshop. We will be working closely with the instructors of the hands-on workshops to ensure materials for those workshops are available before October 1 for installation on attendees' laptops.

◆ workshops are Hands-on, ● workshops are Lecture style.

## ESRI HOLL

Format: Hands-On

The HOLL (Hands-On Learning Lab) is a training resource provided and developed by Esri Training Services. The lab is an excellent way to introduce ArcGIS® software users to a variety of Esri® solutions and training opportunities while learning to use Esri software.

See the listing of course at the end of this document, page 16.

## AM WORKSHOPS

### ◆ WK0001 – Intro to Collector for ArcGIS (Ballroom L)

Presenters: Jacqueline Kovarik, MN DNR; Chris Pouliot, MN DNR

Audience: Beginner

Format: Hands-On

Software Required: Laptop w/ ArcGIS Desktop 10.2 or above (Stand Alone License), Mobile Device w/ Collector for ArcGIS Installed.

Curious about how to configure a mobile Collector app? This course will walk you through the necessary steps, from beginning to end. In 4 hours, you'll learn how to take a paper data entry form and turn it into a user-friendly mobile data collection app using ArcGIS Online, a File Geodatabase, and a smart phone or tablet. We'll spend time discussing, developing and testing our end product: a Collector for ArcGIS application. Familiarity with geodatabase design and global positioning systems will be beneficial. In addition to the noted hardware requirements for this class, please bring a mobile phone or tablet if possible (cellular connectivity is not required). Please ensure your mobile device meets the following requirements: Android: Android 4.0 or later, Armv7 processor, OpenGL ES 2.0 support, Precise location (GPS & Network-based support). iOS: iOS 7 or later, iPhone, iPad, iPod touch.

### ◆● WK0002 – Get Started Using Python with GIS (Ballroom M-N)

Presenter: Zeb Thomas, MN DNR

Audience: Beginner

Format: Hands-On and Lecture

Software Required: ArcGIS 10+

This class is for those with little to no experience with Python. We will cover how to use Python snippets in a field calculator, commands in the interactive window, and stand-alone scripts using arcpy. This includes cursors and other arcpy objects and basic programming logic. Students will also learn some general programming and setup tips, including how to install other Python packages.

### ● WK0003 – Using Geoprocessing Services with JavaScript API (Ballroom O)

Presenters: Caleb Mackey, Bolton & Menk, Inc.; Nate Christ, Bolton & Menk, Inc.

Audience: Advanced

Format: Lecture

Software Required: N/A

This workshop will demonstrate how to consume and publish Geoprocessing Services written in Python to perform analysis and tasks in an HTML5/JavaScript application. It will cover beginner to advanced level Python scripts to build GP Services. The workshop will also focus on providing nice user interfaces to gather input to pass parameters into a Geoprocessing Service.

### ◆● WK0004 – Parcel Fabric 101 (French River Rm 1)

Presenter: Frank Conkling, Panda Consulting

Audience: Intermediate

Format: Hands-On and Lecture

Software Required: ArcGIS for Desktop 10.3 or above, Standard or Advanced License

This 4 hour workshop will provide an introduction to the Esri ArcGIS Parcel Editing Solution (the Parcel Fabric). The topics covered include how the Parcel Fabric works, the tools available in the Parcel Fabric, and procedures and workflows for maintaining parcels in the Parcel Fabric.

### ◆● WK0005 – Making a Web Map Like That (French River Rm 2)

Presenter: Kitty Hurley, State of Minnesota

Audience: Beginner

Format: Hands-On and Lecture

Software Required: The course will be taught with the Atom text editor (<https://atom.io>), but any text editor will do (e.g. Notepad++, Sublime). No previous experience is needed with text editors prior to enrolling in the workshop.

We will start from the beginning — why programming is so powerful, what we can do with a few lines of code, and key resources available to us. Then, we'll get our hands on the Leaflet and Esri Leaflet libraries to understand the basics of web mapping technologies, how they work, and how we can add in the “bells and whistles” to make an interactive map.

While course content will focus on open source libraries, basic programming concepts and terms will be used that apply to all languages and libraries. You will leave the workshop with the tools to get you started, and some web map starting points to bring back home, and/or to the office.

### ◆● WK0006 – Designing a Long-Term GIS Vision & Implementation Plan (Saint Louis River Rm)

Presenter: Kim Sundeen, MN Power

Audience: Intermediate

Format: Hands-On and Lecture

Software Required: Laptop with a spreadsheet and word processing software installed.

As GIS team members, managers, supervisors, and users, we all want a more robust GIS program that is resilient to policy and funding changes. Of course our main GIS editors and database admins understand how critical a robust and well-funded GIS program is, but does our administration or do other policy-makers understand how critical the GIS system and infrastructure is to our organization's long-term GIS goals and GIS end-users?

In this workshop, we'll describe strategies to take your organization's GIS program from a good plan to a great plan with detailed workplan of specific goals, timelines, marketing ideas, and priorities for drafting a longer range GIS Implementation Plan. Finally, despite our expertise in GIS, IT, and the like, we could always use a refresher on using business and marketing tactics to promote our amazing ideas to our GIS users and administration, or other policy-makers. We hope to prepare you to transform your solid GIS program to a resilient and thriving GIS program backed by your administration, policy-makers, and GIS users.

### ◆● WK0007 – Creating Simple GIS Applications with Python (Horizon Rm 202)

Presenter: Sam Giebner, North Point Geographic Solutions

Audience Level: Intermediate

Format: Hands-On and Lecture

Software Required: Python and ArcMap

Using a stand-alone graphic user interface (GUI) allows for the development of powerful apps that can utilize a wide variety of GIS software and can be easily shared cross-platform. This workshop will teach you the basics of creating stand alone GUIs for your Python scripts using the Tkinter native Python package. In this workshop, you will learn the necessary Python concepts for creating Tkinter GUIs, including classes and modules, as well as how to utilize the many widgets available in the Tkinter package. We will also create several simple GIS tools with the Tkinter GUI and discuss tool sharing best practices. You'll leave with the skills and knowledge necessary for creating your own stand-alone Python app!

### ● WK0008 – CAD and GIS Collaboration (Horizon Rm 203)

Presenter: Kyle Heideman, Krech Ojard & Associates, Inc.

Audience Level: Intermediate

Format: Lecture

Software Required: N/A

The ArcGIS and AutoDesk platforms occupy an important role in a variety of organizations. Collaboration between these two platforms is often mandatory. In this workshop we'll focus on leveraging your GIS data within the Civil3D platform including the free plugin: ArcGIS for AutoCAD. We'll review using ArcGIS for AutoCAD to access ArcGIS Online services, and edit enterprise geodatabases. Alternative methods for using GIS data within the AutoDesk platform will be highlighted as well.

### ● WK0009 – Running Enterprise GIS Systems in God Mode (Horizon Rm 204)

Presenter: Jessica Fendos, Ramsey County Information Services

Audience Level: Intermediate

Format: Lecture

Software Required: N/A

This workshop introduces major building blocks of an enterprise GIS system (Spatial Database Engine, ArcGIS Server, and ArcGIS Online), how these components work to complement each other, and the power of a behind-the-scenes GIS System Administrator running these sub-systems in safe mode to deliver efficient GIS solutions across the enterprise. This class will be helpful for all levels of GIS professionals, ranging from those who wish to pursue a career in managing a GIS system to anyone who leverages the offerings from such a system and wants to understand the scope of its capabilities. Based on real-life scenarios, instructor will demonstrate Ramsey County's enterprise GIS system at work and highlight system monitoring tools and automated tasks used to tackle user issues and system bottlenecks through the lens of an Enterprise GIS System Administrator.

## PM WORKSHOPS

### ◆ WK0010 – Intermediate Collector for ArcGIS (Ballroom L)

Presenters: Jacqueline Kovarik, MN DNR; Chris Pouliot, MN DNR

Audience: Intermediate

Format: Hands-On

Software Required: Laptop w/ ArcGIS Desktop 10.2 or above (Stand Alone License), Mobile Device w/ Collector for ArcGIS Installed.

Building on foundational Collector for ArcGIS concepts, this course will teach students custom configuration techniques such as Collector database best practices, ArcGIS Online tips and tricks, and service, app, and custom basemap optimization techniques. Familiarity with subjects covered in Introduction to Collector for ArcGIS course or equivalent knowledge is suggested. In addition to the noted hardware requirements for this class, please bring a mobile phone or tablet if possible (cellular connectivity is not required). Please ensure your mobile device meets the following requirements: Android: Android 4.0 or later, Armv7 processor, OpenGL ES 2.0 support, Precise location (GPS & Network-based support).

### ◆● WK0011 – Advanced Python: Build Your Own Classes and Modules (Ballroom M-N)

Presenter: Zeb Thomas, MN DNR

Audience: Advanced

Format: Hands-On and Lecture

Software Required: Python

Learn how to write python classes and use the classes or functions you write to build your own python modules. Use this to build a library of utility scripts to reuse your code more effectively to help build more complex readable scripts.

### ◆● **WK0012 – ArcGIS Web AppBuilder: Basics of Creating Custom Themes and Widgets (Ballroom O)**

Presenter: Vikrant Krishna, WSB & Associates Inc.

Audience: Beginner

Format: Hands-On and Lecture

Software Required: ArcGIS Web AppBuilder.

Beginner level Hands-on Workshop on ArcGIS Web App Builder. Learn basic tools and techniques for Web App Builder, customizing themes, and developing custom widgets.

### ◆● **WK0013 – Parcel Fabric 601 (French River Rm 1)**

Presenter: Frank Conkling, Panda Consulting

Audience: Advanced

Format: Hands-On and Lecture

Software Required: ArcGIS for Desktop 10.3 or above, Standard or Advanced License

This 4 hour workshop provides an in-depth review of advanced techniques, tools, add-ins and concepts for the Parcel Fabric, including Qa/Qc in the Parcel Fabric, Cartographic Point Management, Fixing Topology Errors, Advanced Construct from Parent Techniques, Adjustments and Other Topics.

### ◆● **WK0014 – Q Is the Bees' Knees (French River Rm 2)**

Presenter: Cory Richter, City of Saint Paul

Audience: Intermediate

Format: Hands-On and Lecture

Software Required: QGIS

A hands-on workshop that explores using QGIS and QField. The case study we'll use to explore the world of Q is helping out local beekeepers determine areas to seed queens to maximize desirable genetic crosses based on flight patterns, and helping monitor overall hive health. There will be a short discussion of bee behavior and working with local apiarists.

### ◆● **WK0015 – SQL 101: Spatial Data Revealed (Horizon Rm 202)**

Presenter: Len Kne, University of Minnesota

Audience: Beginner

Format: Hands-On and Lecture

Software Required: Web browser with internet access

We work with Geodatabases and shapefiles every day, but have you ever wondered about how the data is stored in a Geodatabase? Or did you know you can use SQL to perform spatial queries such as buffering, clipping, and measuring distances? This workshop will look under the hood of the Geodatabase to see how spatial data is stored and how to work with spatial data directly. This three-hour, hands-on workshop will look at the different standards for storing spatial data (shapefiles, databases, and file formats) and will assess the advantages and disadvantages of each format. We will use SQL commands within CartoDB to query and visualize vector data. With this information, you will be able to better manage and work with your spatial data.

### ● **WK0016 – Open Data Portals: What, Why, How? (Horizon Rm 203)**

Presenter: Kyle Wikstrom, Pro-West & Associates, Inc.

Audience: Beginner

Format: Lecture

Software Required: The workshop will not be specifically designed for attendees to follow along, but some may wish to. If so, they should come with an ArcGIS Online organization account and should have administrative privileges.

The use of open data portals (ODPs) has exploded! Many organizations are sharing their authoritative data with the public, and we're often asked the question, "How do we put our data 'out there'? And what are the advantages of doing so?"

Learn about ArcGIS Open Data, how and why it's being used, and the user response. We will consider out-of-the-box and fully branded options, looking at case studies of both models in local government.

### ● **WK0017 – ArcGIS for Server: Administration and Advanced Topics (Horizon Rm 204)**

Presenter: Justin Hansen, WSB & Associates, Inc.

Audience: Advanced

Format: Lecture

Software Required: N/A

This course serves as an advanced look into ArcGIS for Server from both the IT and GIS management perspective. Existing users of ArcGIS for Server will find the most benefit from this course as topics will range from installation recommendations, system architecture guidelines, security best practices, load testing and more. In addition, we will discuss how ArcGIS Server fits within Esri's evolving Web GIS platform and how you can best integrate it with your GIS portal: ArcGIS Online or Portal for ArcGIS. We will also discuss what's new at ArcGIS for Server 10.4 and its impact on your organization. This course will benefit both IT professionals and GIS Managers seeking to understand how to best manage their ArcGIS for Server deployment and related resources. While this workshop is targeted at advanced users with ArcGIS Server experience, it will provide a solid introduction to core ArcGIS for Server concepts.

# SESSIONS

◆ sessions are Individual Presentations (including 12-minute Lightning Presentations).

● sessions are Panel Discussions (including User and Regional groups).

THURSDAY, 10:30 a.m. – Noon

- **Session 1: K-12 Panel (Gooseberry Falls 1)**
  - MNGIS/LIS Involvement with K-12 Education; Past, Present and Future – Scott Freburg, Minnesota Department of Education
- ◆ **Session 2: Survey 1 (Gooseberry Falls 2)**
  - Quality Control for the Parcel Fabric: Identifying and Correcting Problem Parcels – Frank Conkling, Panda Consulting
  - The Difference Between a Survey and a Map – Preston Dowell, St. Louis County, Survey Division
- ◆ **Session 3: A Little of This, A Little of That (Gooseberry Falls 3)**
  - Dealing With Density – Brad Neuhauser, Office of Minnesota Secretary of State
  - A Geographer in the Wilderness: Navigating Durango to Moab – David Brandt, Washington County IT Department
  - USGS National Map Highlights – Ronald Wencl, US Geological Survey
- ◆ **Session 4: Product Demo 1 (Split Rock Room 1)**
  - 60min: Portals for Your Web GIS - Portal for ArcGIS and ArcGIS Online – Jordan Miller, Esri; Sarah Schrader, Esri
  - Advance Your Desktop Capabilities with ArcGIS Pro – Mike Koutnik, Esri; Matt Taraldsen, Esri
- ◆ **Session 5: Coding (Split Rock Room 2)**
  - A Gridded Approach to Improving Probable Maximum Precipitation (PMP) Studies Using ArcGIS and Python – Jake Rodel, Applied Weather Associates
  - Creating Standalone Data Processing Applications with Python and Tkinter: What You Need to Know (But Were Afraid to Ask) – Sam Giebner, North Point Geographic Solutions
  - MySQL: The Right Database for GIS ... Sometimes – Michael Moore, Cimbura.com
- ◆ **Session 6: Crowd Sourcing (Lake Superior Room L)**
  - Crowdsourcing Development for the Minnesota Buffer Map – Steve Kloiber, Department of Natural Resources
  - Crowdsourcing as a Novel Approach to Mapping Ecosystem Services in a Great Lakes Area of Concern – Kathleen Williams, USEPA; Jonathan Launspach, CSRA (USEPA Contractor)
- ◆ **Session 7: Great Lakes 1 (Lake Superior Room M-N)**
  - Bird and Amphibian – Jerry Niemi, National Pollutant Release Inventory (NPRI)
  - Fish Habitat – Lucinda Johnson, National Pollutant Release Inventory (NPRI)
  - Aquatic Plant Communities – Carol Reschke, National Pollutant Release Inventory (NPRI)
- ◆ **Session 36: Remote Sensing (Lake Superior Room O)**
  - Conditioning Terrain Data for MnDOT's Archaeological Predictive Model (MnModel) – Elizabeth Hobbs, MN DOT; Jeffery Walsh, Peregrin Aerspatial LLC
  - A Comparison of LiDAR and Stereo-pair Derived Surface Models – Andrew Walz, Cimbura.com

- ◆ **Session 37: Web Map Creation 1 (St. Louis River Room)**
  - Managing GIS Infrastructure at the DNR – Chris Pouliot, MN DNR; Jessica Schuler, MN DNR
  - Esri JavaScript API: Taking it to the Next Level – Jesse Adams, North Point Geographic Solutions
  - How Accessibility Can Make Us Better Cartographers – Kitty Hurley

- **Session 38: LiDAR/Hydrology (French River 1)**
  - TBD

THURSDAY, 1:30 p.m. – 3:00 p.m.

- ◆ **Session 8: Emergency Management (Gooseberry Falls 1)**
  - Minnesota's Next Generation 9-1-1 GIS Project – Adam Iten, State of Minnesota
  - Visualizing Hazus Flood Analysis Results with Interactive Web Maps – Micaella Penning, Geospatial Analysis Center
- ◆ **Session 9: Survey 2 (Gooseberry Falls 2)**
  - Patterns of GIS Usage in the Hennepin County Surveyors' Division – Chris Mavis, Geospatial Analysis Center
  - The Surveyor and the Parcel Fabric – Frank Conkling, Panda Consulting
- ◆ **Session 10: Mobile Imagery (Gooseberry Falls 3)**
  - How Can I Use a Drone? – Brian Fischer, Houston Engineering, Inc.; Dave Kirkpatrick, Houston Engineering, Inc.
  - Capture the World Around You with Mobile Imaging – Dylan Jones, Frontier Precision, Inc.
- ◆ **Session 11: Government GIS 1 (Split Rock Room 1)**
  - GIS in the Assessor's Office: Emerging Tools, Trends, and Applications – Daniel Fasteen, Dakota County
  - Building a Future-Ready GIS: Steps to Success – Justin Lutterman, LeSueur County, MN; Brandon Crissinger, Pro-West & Associate
  - Capabilities of the Minnesota National Guard GIS program – David Bendickson, MN Army National Guard; Jessica Campbell, MN Army National Guard
- ◆ **Session 12: Data Sharing 1 (Split Rock Room 2)**
  - Thanks for Sharing! – Jeff Reinhart, MN DNR Forestry PFM, MFRC
  - Becoming a Publisher on the Minnesota Geospatial Commons – Mike Dolbow, Minnesota Geospatial Information Office
- ◆ **Session 13: Product Demo 2 (Lake Superior Room L)**
  - mapFeeder Connect: A Lightweight, Geospatial Crowd Sourcing Web Application – Blaine Hackett, RESPEC
  - Leverage Mobile GIS and Cityworks to Manage Public Infrastructure – Bridget Suda, Cityworks | Azteca Systems
  - Now in Beta Testing: Moore Engineering's Custom Web Map – Thomas Sayward, Moore Engineering
- ◆ **Session 14: Great Lakes 2 (Lake Superior Room M-N)**
  - Great Lakes Remote Sensing: Coastal Wetlands – Brian Huberty, US Fish & Wildlife Service
  - Mapping the Great Lakes Coastal and Nearshore Realm: NOAA's Lake Level Viewer – Brandon Krumwiede, The Baldwin Group at NOAA Office for Coastal Management; Doug Marcy

- ◆ **Session 40: Open Source (Lake Superior Room 0)**
  - Introduction to Mapping with OpenStreetMap – David Bitner, dbSpatial LLC
  - The Grass is Greener with Turf.js – Andrew Walz, Cimbura.com

◆ **Session 41: Students — Undergraduate Competition (St. Louis River Room)**

- **Session 42: MN Geospatial Advisory Council (French River Room 1)**
  - Minnesota Geospatial Advisory Council – Outreach Committee Efforts: Free and Open Data and Narratives of Geospatial Success – Kari Geurts, MN Dept of Natural Resources; Len Kne, U-Spatial, University of Minnesota; Michelle Trager, Rice County; Brad Anderson, City of Moorhead; Geoff Maas, MetroGIS

THURSDAY, 3:30 p.m. – 5:00 p.m.

◆ **Session 15: Government GIS Collaboration (Gooseberry Falls 1)**

- Managing Collaborative Geospatial Projects Across Organizations: What I Have Learned – Mark Kotz, Metropolitan Council
- Collaborating Across Institutions to Facilitate Access & Discovery of Geospatial Resources – Ryan Mattke, John R. Borchert Map Library; Karen Majewicz, John R. Borchert Map Library
- Adventures in IT: A Guide for GIS People – Lucas Scharenbroich, Pro-West & Associates, Inc.; Eric McPhee, St Louis County, MN

◆ **Session 16: Survey 3 (Gooseberry Falls 2)**

- Mayhem in Minneapolis – Chris Mavis, Hennepin County
- Modernizing Land Records: Order Upon Chaos – Earl Epstein, School of Environment and Natural Resources, The Ohio State University

◆ **Session 17: Utilities (Gooseberry Falls 3)**

- 360 Approach to Underground Utilities – Curt Fakler, Utility Mapping Services, Inc.
- Fiber Optic Network Management in GIS – Andrew King-Scribbins, Hennepin County
- Soil Types Relation to Distribution Utility Poles – Timothy Tabor, Pennsylvania State University

◆ **Session 18: K-12 (Split Rock Room 1)**

- Teaching GIS in a STEM Curriculum – Kyle Tredinnick, Saint Paul Preparatory School
- Bringing GIS to the Classroom, a Personal Journey on the Long Road – John Wirries, Kadrmas, Lee & Jackson, Inc.

● **Session 19: Lightning 1 (Split Rock Room 2)**

- The Use of Drones in an Undergraduate GIS Course to Chronicle Prairie Restoration – Dr. David Kelley, Geography and Environmental Studies - University of St. Thomas; Dr. Paul Lorah
- Looking Out for Our Health: Uses of GIS at MDH- WIC – Deborah Grundmanis, Minnesota Department of Health
- Multi-criteria Selection for a Healthy Food Restaurant Location in Grand Forks, ND Using Analytic Hierarchy Process – Sergey Gulbin, University of North Dakota
- Use of Supervised Classification for Riparian Buffer Analysis Using Four Band Aerial Imagery – Ethan Mooar

- Mosquito Species Maps: from Aedes to Zika – Nancy Read, Metro Mosquito Control; Kirk Johnson, Metro Mosquito Control District
- Connecting Students with the Duluth Community: Engagement and GIS at the Geospatial Analysis Center – Stacey Stark, University of Minnesota Duluth

◆ **Session 21: Great Lakes 3 (Lake Superior Room M-N)**

- Developing a Community Sense of Place: The One River Many Stories Map – Thomas Hollenhorst, EPA, Mid-Continent Ecology Division; Matt Kania, Map Hero, Inc.
- Mapping Water Quality in the SLRE – Richard Axler, National Pollutant Release Inventory (NPRI)

◆ **Session 44: Web Map Creation 2 (Lake Superior Room 0)**

- Different Approaches to Showcase Maps on the Web – Kitty Hurley
- Designing User-friendly GIS Apps – John Nerge, City of Brooklyn Park
- Off the Grid: Creating a Custom Web Map from Scratch – Thomas Sayward, Moore Engineering; Kyle Volk, Moore Engineering

◆ **Session 45: Students — Undergraduate Competition (St. Louis River Room)**

◆ **Session 46: Students — Grad Student Competition (French River Room 1)**

FRIDAY, 8:30 a.m. – 10:00 a.m.

◆ **Session 22: Data Sharing 2 (Gooseberry Falls 1)**

- Open Data Licensing: Making it Clear – David Fawcett, Minnesota Pollution Control Agency
- Open Data Portals: What, Why, How? – Kyle Wikstrom, Pro-West & Associates, Inc.

◆ **Session 23: Field Data Collection – Collector (Gooseberry Falls 2)**

- ArcGIS Collector at the DNR – Jacqueline Kovarik, MN DNR; Chris Pouliot, MN DNR
- From Data Collection to Analysis: Pairing Collector for ArcGIS with Custom ArcGIS Addin Toolbars to Create a Controlled Process for Multiple Users – Josh Knopik, MN DNR; Jacqueline Kovarik, MN DNR

◆ **Session 24: Web Map Creation 3 (Gooseberry Falls 3)**

- Leveraging Web Usage Statistics for Better Web Applications – Michael Terner, Applied Geographics, Inc.
- Showcasing UMD's Global Engagement Through the Use of Story Maps – Zachary Vavra, University of Minnesota Duluth

● **Session 25: Lightning 2 (Split Rock Room 1)**

- Collaborative Geodesign – Peter Wiringa, University of Minnesota
- Free and Open Geospatial Data: Resources for Practitioners – Geoff Maas, MetroGIS/Metropolitan Council
- Transform the Parcel History Search – Lucas Scharenbroich, Pro-West & Associates, Inc.
- Can GIS and WordPress Be Friends? – Michael Moore, Cimbura.com
- Using ArcGIS Online as a Form of Communication & Record Keeping – Allan Schafer, KLJ

### ◆ **Session 26: Hydrology (Split Rock Room 2)**

- Conservation Irrigation Water Management – Paul Senne, RESPEC Consulting & Services
- Drainage Records Modernization Geodatabase Template – Brian Fischer, Houston Engineering, Inc.; Jim Krumrie, MnGeo
- Developing a GIS Tool to Prioritize, Target and Measure Water Quality Conservation Practices – Kiah Sagami, Houston Engineering, Inc.; Drew Kessler, Houston Engineering, Inc.

### ● **Session 27: Photogrammetry Panel (Lake Superior Room L)**

- The Role of Photogrammetry in Geospatial Education – Benjamin Richason III, SARC-SCSU

### ● **Session 28: Interviewing Panel (Lake Superior Room M-N)**

- Finding, Applying and Interviewing for Jobs in GIS – Andrew King-Scribbins, Hennepin County; Bontrager, Adams

## FRIDAY, 10:30 a.m. – Noon

### ● **Session 29: Data Sharing Panel (Gooseberry Falls 1)**

- Building Minnesota: A Multifaceted Discussion About Data Sharing and the Vision for Foundational Statewide Geospatial Data – Dan Ross, Minnesota Geospatial Information Office

### ◆ **Session 30: Field Data Collection (Gooseberry Falls 2)**

- Incorporating the Web Appbuilder, Collector, Python, and a Geoprocessing Service into a Survey Workflow – Chad Nunemacher, Houston Engineering, Inc; Paul Hedlund, Houston Engineering, Inc
- Utilizing GIS for Improved Efficiency and Decision Making at SPRWS – Renee Huset, St. Paul Regional Water Services; Rich Rowland, St. Paul Regional Water Services
- Solving High Accuracy GNSS (GPS) Data Collection Problems with a Cloud Based Real Time Solution – Katherine Meixell, Owatonna Public Utilities; Roger Schulz, Frontier Precision

### ◆ **Session 31: Government GIS 2 (Gooseberry Falls 3)**

- Minnesota's New Aerial Imagery Master Contract Program – Christopher Cialek, MN.IT Central; Projects and Initiatives Division
- The Metro Regional Centerlines Collaborative: Progress to Date – Geoff Maas, MetroGIS/Metropolitan Council; Ann Houghton, Hennepin County; Matt Koukol, Ramsey County

### ◆ **Session 32: Higher Ed (Split Rock Room 1)**

- Regional Lake Water Quality Measurements Beyond Water Clarity Using New Enhanced Satellite Remote Sensing Systems – Leif Olmanson, Patrick Brezonik, Jacques C. Finlay and Marvin E. Bauer of University of Minnesota
- WindWorks: The UMN UAS Program – Keith Pelletier, Dan Heins, Trevor Host and Dr Joseph F. Knight of University of Minnesota
- Re-Designing Online GIS Education: The UW-Madison Professional Master's Project – Ian Muehlenhaus and I-Pang Fu of University of Wisconsin - Madison

### ◆ **Session 33: Workflows (Split Rock Room 2)**

- Utilizing Real-Time GIS: The GeoEvent Extension – Mike Koutnik, Esri; Mark Taraldsen, Esri
- Overview of New ESRI Solutions for a Complete Mobile Workflow – Mike Koutnik, Esri; Mark Taraldsen, Esri

# CONFERENCE PLANNING COMMITTEE

Thank you to everyone who has helped shape the 26th Annual Conference into a success – and a special thank you to the Conference Planning Committee; without their help, this event would not be possible.

- |                             |                        |
|-----------------------------|------------------------|
| • Aaron Menza               | • Kelvin Maki          |
| • Andrew King-Scribbins     | • Kiah Sagami          |
| • Ashley Ignatius           | • Kim Sundeen          |
| • Carolyn Adams             | • Kitty Hurley         |
| • Eric Kopras               | • Leah Sperduto        |
| • Geoff Maas                | • Michelle Trager      |
| • Gerry Sjerven             | • Molly Shoberg        |
| • Heidi Gaedy               | • Rebecca Foster       |
| • Jackie Kovarik            | • Ryan Bergstrom       |
| • Jake Rodell               | • Ryan Stovern (CHAIR) |
| • Jane Mueller (VICE CHAIR) | • Scott Freburg        |
| • Jared Hovi                | • Stacey Stark         |
| • Jeff Storlie              | • Tami Maddio          |

**A big thank you to the staff at Ewald Consulting, who skillfully help manage the MN GIS/LIS Consortium and this conference**

### ◆ **Session 34: Remote Sensing – Landcover (Lake Superior Room L)**

- High-Resolution Land Cover Classification for Selected Areas in Minnesota – Lian Rampi, University of Minnesota - Twin Cities; Trevor Host, University of Minnesota - Twin Cities
- The New Minnesota Statewide Land Cover Classification – Joseph Knight, University of Minnesota - Twin Cities; Lian Rampi, University of Minnesota - Twin Cities

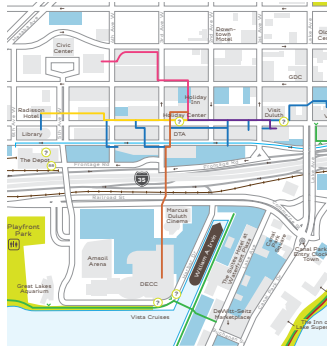
### ◆ **Session 35: ArcGIS Online (Lake Superior Room M-N)**

- Adding Value to GIS and Land Sales: The Beltrami Story – Jane Mueller, Beltrami County, MN; Kyle Wikstrom, Pro-West & Associates
- Goodhue County Custom Web Apps Using Esri Web AppBuilder for ArcGIS (Developer Edition) – Leanne Knott, Goodhue County

# GENERAL INFORMATION

## Location:

Duluth Entertainment Convention Center  
350 Harbor Drive  
Duluth, MN 55802  
(218) 722-5573



## Meals:

Conference registration includes lunch and refreshment breaks on Thursday and Friday and the vendor reception on Thursday evening. Pre-Conference Workshop registration, including half-day workshops, includes lunch and refreshment breaks on Wednesday. All conference and workshop attendees are invited to both the Wednesday evening and Thursday evening networking events.

## 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. The information contained in this program should be considered preliminary and as such, could be subject to change in the final proceedings.

# DIRECTIONS

## FROM TWIN CITIES/SOUTHERN MN

- Follow I-35 North to Duluth
- Take Lake Avenue exit (#256B)
- At stoplights, turn right onto Harbor Drive

## FROM THE IRON RANGE

- Follow Hwy 53 to Duluth
- Continue to go straight past the mall and through many stoplights until you can see the lake
- Turn right onto Mesaba Avenue
- Get into the left lane and turn left at first stoplight
- Immediately turn right onto Lake Avenue
- Follow Lake Avenue to the bottom of the hill and over I-35
- Turn right onto South Lake Avenue
- After first set of stoplights, turn left onto Harbor Drive

## FROM WISCONSIN

- Follow Hwy 53/Hwy 2 to Superior, WI
- Continue on Hwy 53 North over the John A. Blatnik Bridge
- Merge onto I-35 North (exit to right after bridge)
- Take Lake Avenue exit (#256B)
- At stoplights, turn right onto Harbor Drive

## FROM THE NORTH SHORE

- Follow Hwy 61 South to Duluth
- Take I-35 South exit (left at stoplights by Holiday gas station)
- Take Lake Avenue exit (#256B)
- At stoplights, turn left
- Immediately get into right lane
- Turn right onto South Lake Avenue
- After first set of stoplights, turn left onto Harbor Drive

## FROM THE AIRPORT

- Follow road to stop sign
- Take right onto Haines Road
- At second set of stoplights (1.5 miles), take left onto Hwy 53/194
- Go straight, through many stoplights until you see the lake
- Turn right onto Mesaba Avenue
- Get into the left lane and turn left at first stoplight
- Immediately turn right onto Lake Avenue
- Follow Lake Avenue to the bottom of the hill and over I-35
- Turn right onto South Lake Avenue
- After first set of stoplights, turn left onto Harbor Drive

# LODGING ACCOMMODATIONS

For all hotels, please reference the Minnesota GIS/LIS Consortium Room Rate.

For more information please contact **Ashley Crunstedt** at [ashleyc@mngisllis.org](mailto:ashleyc@mngisllis.org)

## Holiday Inn & Suites:

### Duluth Downtown

200 West First Street  
Duluth, MN 55802

**Reservations: 218-722-1202**

Rates: \$84/night

Online Reservations

Group Code: GIS

*Cut-off Date: Sept. 25, 2016*

## Canal Park Lodge

250 Canal Park Drive  
Duluth, MN 55802

**Reservations: 218-279-6000**

Rates: \$99/night

*Cut-off Date: Sept. 25, 2016*

## The Inn on Lake Superior

350 Canal Park Drive  
Duluth, MN 55802

**Reservations: 218-726-1111**

Rates: \$125/night

Online Reservations

Group ID: 4621

Password: 37000033

*Cut-off Date: Sept. 25, 2016*

# Esri Hands-On Learning Lab Fact Sheet

## What is the Hands-On Learning Lab?

The HOLL (Hands-On Learning Lab) is a training resource provided and developed by Esri Training Services. The lab is an excellent way to introduce ArcGIS® software users to a variety of Esri® solutions and training opportunities while learning to use Esri software.

## How does the HOLL work?

The HOLL consists of a group of laptops with headphones where students can work through lessons at their own pace. A lesson consists of a recorded presentation followed by a hands-on exercise. Each lesson typically takes from about 45 minutes to one hour to complete, and students can generally come and go as they please. Training Services instructors are on hand to answer questions and discuss Esri products, other training opportunities, and Esri Technical Certification.

## How often is the HOLL updated?

The lesson topic choices are updated on a schedule matching the Esri software release schedule in order to provide new and up-to-date content when it becomes available.



## Interested in having the Hands-On Learning Lab at your next event?

Contact your Esri account manager for more information. To find the Esri office that serves you visit [esri.com/offices](http://esri.com/offices).

## Lessons offered at the HOLL (subject to change)

1. Getting Started with GIS 1: Understanding the ArcGIS Platform
2. Getting Started with GIS 2: Using ArcMAP™ to Explore GIS Data
3. Getting to Know ArcGIS® Pro
4. Advantages to Storing Your GIS Data in the Geodatabase
5. Creating Presentation Quality Maps in ArcMap
6. Editing GIS Data in ArcMap
7. Multi-user Editing Using Versioning
8. Editing and Maintaining Parcels Stored in a Parcel Fabric
9. Geocoding Street Addresses to Create Map Points
10. Importing and Preparing CAD Data for Use in ArcGIS
11. The Importance of Spatial Reference in Tactical Applications
12. Exploring Health and Epidemic Patterns Using Spatial Statistics Tools
13. Optimizing Transportation Routing Using ArcGIS® Network Analyst
14. Modeling Time and Distance Along Networks Using Linear Referencing
15. Working with Geometric Networks to Manage Utilities and Water Runoff
16. Interpolating Sample Points to Create Rasters Using Spatial Analyst Tools
17. Geoprocessing GIS Data Using Python
18. Sharing Maps and GIS Content Using ArcGIS<sup>SM</sup> Online
19. Understanding Web Services Using ArcGIS® for Server
20. Generating Web Applications for the GIS Novice
21. Getting Started with the Community Maps Data Preparation Tools
22. Mapping Excel Data Using Esri® Maps for Office®





October 26-28, 2016  
 26th MN GIS/LIS ANNUAL CONFERENCE REGISTRATION



Please fill out the registration form completely.

Name: \_\_\_\_\_  
 Organization: \_\_\_\_\_  
 E-mail: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Special diet needs: \_\_\_\_\_

**Attendance Options**

**Evening Events**

I will attend the Tuesday evening event:  Yes  No  
 I will attend the Wednesday evening event:  Yes  No  
 I will attend the Thursday evening event:  Yes  No

**Fun Walk/Run**

I plan to participate in the Fun Run on October 28 at 6:30 a.m.:  
 Yes  No  
 Fun Run T-Shirt Size: S M L XL XXL  Men's  Women's

**Regional/User Group**

I would like to host a Regional/ User Group:  Yes  No If yes, please list the Regional/ User Group Topic: \_\_\_\_\_

**Esri Hands-On Learning Lab**

I am interested in attending the Esri Hands-On Learning Lab (during sessions):  Yes  No

October 26, 2016	
AM Workshops (choose one) (\$135/\$170 after 10/7/16)	PM Workshops (choose one) (\$135/\$170 after 10/7/16)
<input type="checkbox"/> WK0001 Intro to Collector for ArcGIS <input type="checkbox"/> WK0002 Get Started Using Python with GIS <input type="checkbox"/> WK0003 Using Geoprocessing Services with JavaScript API <input type="checkbox"/> WK0004 Parcel Fabric 101 <input type="checkbox"/> WK0005 Making a Web Map Like That <input type="checkbox"/> WK0006 Designing a Long-Term GIS Vision & Implementation Plan <input type="checkbox"/> WK0007 Creating Simple GIS Applications with Python <input type="checkbox"/> WK0008 CAD and GIS Collaboration <input type="checkbox"/> WK0009 Running Enterprise GIS Systems in God Mode	<input type="checkbox"/> WK0010 Intermediate Collector for ArcGIS <input type="checkbox"/> WK0011 Advanced Python: Build Your Own Classes and Modules <input type="checkbox"/> WK0012 ArcGIS Web AppBuilder: Basics of creating Custom Themes and Widgets <input type="checkbox"/> WK0013 Parcel Fabric 601 <input type="checkbox"/> WK0014 Q Is the Bees' Knees <input type="checkbox"/> WK0015 SQL 101: Spatial Data Revealed <input type="checkbox"/> WK0016 Open Data Portals: What, Why, How? <input type="checkbox"/> WK0017 ArcGIS for Server: Administration and Advanced Topics

**Payments/Fees**

Annual Conference (\$275 | \$310 after 10/7/16 | \$330 onsite) \$ \_\_\_\_\_  
 \*To register for workshop(s), please select the workshop you wish to attend above. Fee varies.  
 Annual Conference - Student (\$45) \$ \_\_\_\_\_  
 Pre-conference Workshops only (Prices are above) \$ \_\_\_\_\_

**Payment Info:**

Payment:  Check (payable to MN GIS/LIS)  Visa  Mastercard **Total:** \$ \_\_\_\_\_  
 Cardholder (please print) \_\_\_\_\_ Cardholder Phone: \_\_\_\_\_  
 Credit Card Number: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ 3-Digit Sec. Code: \_\_\_\_\_  
 Billing Address: \_\_\_\_\_  
 Cardholder Signature: \_\_\_\_\_  
 Purchase order number: \_\_\_\_\_

**Please remit with payment to:**

MN GIS/LIS, 1000 Westgate Drive, Suite 252, St. Paul, MN 55114 or fax to 651-290-2266

**Refunds:**

Full refunds (less \$40 administrative charge) will be issued with a written cancellation notice received by Oct. 12. To send a cancellation notification via fax to the MN GIS/LIS Consortium, please use 651-290-2266. Notifications received after Oct. 12 will NOT receive a refund, nor will no-shows at the conference.

(For office use only)

initials		acctg.
date		
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bal. due		

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Admission to all Mn GIS/LIS events requires advance registration either by mail, online, or in person. Individuals will not be admitted to an event without payment. Failure to attend an event does not constitute a cancellation of event registration and you will be charged for registering.



## MINNESOTA GIS/LIS CONSORTIUM

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**Register for the conference online at [www.mngislis.org](http://www.mngislis.org)!**