A footpath from time immemorial in use by the Native Americans, the Leech Lake-Red Lake trail was mandated to be improved into a supply route by the Treaty of 1863 between the U. S. Government and the Red Lake Nation. The road connected Leech Lake and Red Lake and was used by lumbermen, surveyors and settlers into the early 1900s until road and railway networks began to emerge as the dominant travel routes.

A detail of the route is shown here from the Government Land Office map from 1891 to the north and west of Bemidji.
This program announces the 27th Annual Minnesota GIS/LIS Consortium Conference and Workshops, “Navigating the North,” October 4–6, 2017 in Bemidji, Minnesota. The event will feature national and local keynote speakers, 15 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:**

- 15 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 **Navigating the North** because the 2017 Minnesota GIS/LIS Conference and Workshops will be packed with quality learning, networking and socializing experiences!
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, or stop by our booth during the conference.

27TH MN GIS/LIS ANNUAL CONFERENCE AND WORKSHOPS

Register online at www.mngislis.org.

To register for the conference, please visit our conference site at 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:

<table>
<thead>
<tr>
<th></th>
<th>Half-day Workshops</th>
<th>Conference</th>
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<tbody>
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<tr>
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KEY DATES:

- Online registration opens 7/7
- Hotel Conference rates end 9/4
- Early registration ends 9/8
- Online registration closes 9/29
- Pre-Conference Workshops: 10/4
- Conference days: 10/5 and 10/6

Refunds:
Full refunds (less $40 administrative charge) will be issued with a written cancellation notice received by Sept 25. To send a cancellation notification via fax to the MN GIS/LIS Consortium, please use 651-290-2266. Notifications received after Sept. 25 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 or call 651-203-7242.

On-site registration will be available at the conference.
## 2017 GIS/LIS Conference At-a-Glance

### Wednesday, October 4

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 a.m.</td>
<td>Conference Registration Desk Open; Light Refreshments in Vendor Hall</td>
</tr>
<tr>
<td>9:00 – 10:30 a.m.</td>
<td>Half-Day Morning Workshops</td>
</tr>
<tr>
<td>10:30 a.m.</td>
<td>Refreshment Break</td>
</tr>
<tr>
<td>10:45 a.m. – 12:00 p.m.</td>
<td>Half-Day Morning Workshops Continued</td>
</tr>
<tr>
<td>12:00 p.m.</td>
<td>Lunch – Special Presentation by Kyle Tredinnick, Zoo Academy for Omaha Public Schools in Omaha, NE</td>
</tr>
<tr>
<td>1:30 – 3:00 p.m.</td>
<td>Half-Day Afternoon Workshops</td>
</tr>
<tr>
<td>2:00 – 5:00 p.m.</td>
<td>Vendor Hall open</td>
</tr>
<tr>
<td>3:00 p.m.</td>
<td>Refreshment Break in Vendor Hall</td>
</tr>
<tr>
<td>3:15 – 4:30 p.m.</td>
<td>Half-Day Afternoon Workshops Continued</td>
</tr>
<tr>
<td>4:30 – 5:30 p.m.</td>
<td>Wednesday Welcome Reception, Geolounge</td>
</tr>
<tr>
<td>7:00 – 9:00 p.m.</td>
<td>Reception at the Hampton Inn</td>
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### Thursday, October 5

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:45 a.m.</td>
<td>Conference Registration Desk Open; Light Refreshments in Vendor Hall</td>
</tr>
<tr>
<td>7:45 a.m.</td>
<td>Conference Mentor Meet and Greet at the Geolounge</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Conference Welcome — Jane Mueller, Conference Chair</td>
</tr>
<tr>
<td>8:45 a.m.</td>
<td>Opening Drumming Ceremony</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>Opening Keynote Session: “The Great River Road”</td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>Morning Break: GeoLounge. Poster Gallery, and Web-Maps Open</td>
</tr>
<tr>
<td>10:30 a.m. – Noon</td>
<td>Concurrent sessions:</td>
</tr>
<tr>
<td>Noon</td>
<td>Awards Luncheon</td>
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### 2017 GIS/LIS Conference At-A-Glance

#### Thursday, October 5

**1:30 – 3:00 p.m.**

Concurrent sessions:

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Room #</th>
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</thead>
<tbody>
<tr>
<td>9</td>
<td>Student Competition</td>
<td>#1</td>
</tr>
<tr>
<td>10</td>
<td>Student Competition</td>
<td>#2</td>
</tr>
<tr>
<td>11</td>
<td>Damage Assessment Panel</td>
<td>#3</td>
</tr>
<tr>
<td>12</td>
<td>Emergency Management</td>
<td>#4</td>
</tr>
<tr>
<td>13</td>
<td>Land Records 2</td>
<td>#5</td>
</tr>
<tr>
<td>14</td>
<td>Lightning 1</td>
<td>#6</td>
</tr>
<tr>
<td>15</td>
<td>Web Applications</td>
<td>#7</td>
</tr>
<tr>
<td>16</td>
<td>Product Demo</td>
<td>#8</td>
</tr>
</tbody>
</table>

**3:00 p.m.**

Afternoon Break

**3:30 – 5:00 p.m.**

- Last Call: Poster Gallery; People's Choice Vote
- Concurrent Sessions and User Group Meetings

**5:00 – 7:00 p.m.**

- Exhibitor Showcase in Vendor Hall
- Exhibitor and GIS/LIS Raffle *(must be present to win)*, Exhibition Hall

**6:15 – 6:45 p.m.**

Thursday Night Social Event at the Bemidji Eagles Club (complimentary transportation provided)

#### Friday, October 6

**6:15 a.m.**

5k Fun Run/Walk

**7:30 a.m.**

Conference Registration Desk Open; Light Refreshments in Vendor Hall

**8:30 – 10:00 a.m.**

Concurrent sessions:

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Room #</th>
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<tbody>
<tr>
<td>25</td>
<td>Open Source</td>
<td>#1</td>
</tr>
<tr>
<td>26</td>
<td>Data Access 2</td>
<td>#2</td>
</tr>
<tr>
<td>27</td>
<td>Geo Adv Counc Panel</td>
<td>#3</td>
</tr>
<tr>
<td>28</td>
<td>Forestry</td>
<td>#4</td>
</tr>
<tr>
<td>29</td>
<td>Lighting 2</td>
<td>#5</td>
</tr>
<tr>
<td>30</td>
<td>Wildlife 1</td>
<td>#6</td>
</tr>
<tr>
<td>31</td>
<td>Mobile GIS</td>
<td>#7</td>
</tr>
</tbody>
</table>

**10:00 a.m.**

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

**10:30 a.m. – Noon**

Concurrent sessions:

<table>
<thead>
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<th>Session</th>
<th>Title</th>
<th>Room #</th>
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<tr>
<td>32</td>
<td>Data Collection</td>
<td>#1</td>
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<tr>
<td>33</td>
<td>Geo Adv Counc Panel</td>
<td>#2</td>
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<tr>
<td>34</td>
<td>Census Panel</td>
<td>#3</td>
</tr>
<tr>
<td>35</td>
<td>GIS Admin</td>
<td>#4</td>
</tr>
<tr>
<td>36</td>
<td>LiDAR/Water Resources</td>
<td>#5</td>
</tr>
<tr>
<td>37</td>
<td>Wildlife 2</td>
<td>#6</td>
</tr>
<tr>
<td>38</td>
<td>Web AppBuilder</td>
<td>#7</td>
</tr>
</tbody>
</table>

#### Lunch and Special Presentation

MN GIS/LIS Annual Business Meeting – Scott Freburg, Board Chair
Kyle Tredinnick has been active in teaching geography since graduating from St. Cloud State University with a degree in social studies education. He has taught geography at a number of public and private high schools in China, Minnesota, and now Nebraska. Along with teaching he has been active as a member of the Minnesota Alliance for Geographic Education (MAGE), a steering committee member of the Geography Educators of Nebraska (GEON), and an Education committee member of the Minnesota GIS/LIS Consortium. Recently Kyle was selected as a National Geographic Grosvenor Teacher Fellow, and awarded the K-12 Distinguished Educator Award by the National Council of Geographic Education (NCGE). Kyle is currently teaching social studies for Omaha Public Schools and completing a Masters in Human Geography at the University of Nebraska Omaha.

Bemidji is centrally located among three of the largest reservations in Minnesota (Red Lake, Leech Lake, and White Earth Bands of Ojibwe Indians). Today, many tribes celebrate together their Native American culture and history with pow wow events involving feasting, singing, and honoring their culture around the Dewe’iganag (Drum). The drum is the heartbeat of the indigenous people. It carries the heartbeat of Mother Earth and calls the spirits and nations together. The drum is referred to as both the instrument and the group of people gathered around it to play and sing. Native Americans believe the drum often helps bring the physical and mental side of a person back in touch with his or her spiritual side. Different tribes have different traditions about the drum and how to use it, but the basic construction is very similar in most tribes: a wooden frame or a carved and hollowed-out log, with finely tanned buckskin or elk skin for the cover.

Carol Zoff is a Senior Landscape Architect at the Minnesota Department of Transportation in the Office of Environmental Stewardship. She is the Coordinator of the Great River Road Program and technical liaison to the Minnesota’s Mississippi River Parkway Commission (MN-MRPC). She has managed 12 historic roadside property restoration projects along the Great River Road, as well as development of 26 interpretive panels and 14 Mississippi River Trail Host Community panels, and roadside landscape designs. Carol has also been a technical advisor for bridge, road, research and partner projects; including the Environmental Quality Board’s “Tool to Assist Local Governments in Planning for and Regulating Silica Sand Projects,” and the National Advisory Committee on Travel and Tourism Infrastructure.

Anne Lewis has a bachelor’s degree in political science from Macalester College in St. Paul, MN and a master’s degree in communication from Rensselaer Polytechnic Institute in Troy, NY and is accredited by the Public Relations Society of America. She serves Rensselaer Polytechnic Institute in Troy, NY and is accredited by the Public Relations Society of America. She serves as volunteer leader for numerous nonprofit organizations throughout her professional career.
12:00 p.m.  
Friday, Oct. 6, 2017  
History of the Red Lake — Leech Lake Trail  
Leo Soukup, Andy Mack & Margaret Carlson  
Beltrami County Historical Society  

The historic Red Lake — Leech Lake Trail runs from the northern edge of Leech Lake to the southern shore of Red Lake and has existed for hundreds of years. The Red Lake/Pembina Treaty of 1863 initiated its expansion and upgrade from a foot trail to a wagon road and was necessary to ship supplies from the Leech Lake Agency to the Red Lake Agency. The road was finished by the time the surveying was completed in the 1870s and is recorded in most of the original Government Land Office survey notes and displayed on the corresponding original maps. The trail was still in use up until the early 1900s when roads and railroads became the dominant travel routes. Remnants of this trail’s historic existence can still be seen across the countryside today.

Leo Soukup retired from teaching English at Red Lake, MN in 2005. Since then he has become involved in local history as a board member of the Beltrami County Historical Society. His main interest has been Minnesota and the Native American history in our state. He has edited a book for the Beltrami County Historical Society entitled “Ojibwe Imprints on Northern Minnesota.”

Andy Mack was born and raised in Central North Dakota on a small diversified farm. He always had an profound interest in history, especially railroading. He has been a resident of Beltrami County, MN for 50 years and has an engineering and licensed land surveyor background. For the last 10 years of employment he worked for the City of Bemidji Public Works Department. He is a former board member for Habitat for Humanity and has served on the Beltrami County Historical Society for the past 12 years.

Dr. Margaret Carlson, taught in grades kindergarten-second grade for twenty-five years and at Bemidji State University for eleven years. She received her EdD from the University of North Dakota with a focus on experiential education. Her interest in the Red Lake Leech Lake Trail is inspired by her desire to teach children in northern MN about our history and natural resources. Currently she is working with the 4H club of Turtle River, exploring the trail and the history of Turtle River as an early logging town.

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 2017 student scholars (as of press time) are:

**GRADUATE GIS PROGRAMS**
Jonathan Graves – Minnesota State University, Mankato
Melissa Gearman – St. Cloud State University
Kevin Ehrman-Solberg – University of Minnesota, Twin Cities

**UNDERGRADUATE GIS PROGRAMS**
Brianna Graner – Bemidji State University
Hanna Albers – Gustavus Adolphus College
Asia Sagemen – Macalester College
Alexander Orum – Minnesota State University, Mankato
Jacob Larson – Minnesota State University, Moorhead
Angela Mundis – St. Cloud State University
Coleman Shepard – University of Minnesota, Twin Cities
Alexander Nelson – University of Minnesota Duluth
Emma Rin – University of St. Thomas

**COMMUNITY COLLEGE GIS PROGRAMS**
Matt Weske – Fond du Lac Tribal Community College
Kathleen Scanlan – Itasca Community College
POSTER GALLERY

• Habitat Fragmentation in Western North Dakota after the Introduction of Hydraulic Fracturing – Richard Bohannon, St. Cloud State University

• We Are Water MN: Collecting and Sharing Water Stories – Ashley Ignatius, Minnesota Pollution Control Agency

• The Big Ten Academic Alliance Geospatial Data Project: Maintaining a Multi-Institutional Geoportal – Melinda Kernik, University of Minnesota; Karen Majewicz, University of Minnesota; Ryan Mattke, University of Minnesota

• Object-based Feature Analysis of High-Resolution Multi-temporal and Multi-source Data for Locating World War II Era Unexploded Bombs – Cindy Miller, Department of Geography Minnesota State University, Mankato; Bryan P. Byholm, Minnesota State University, Mankato; Fei Yuan, Minnesota State University, Mankato; Anna K. Brand, Karlsruhe University of Applied Sciences

• The Great East Japan Earthquake - The City That Experienced Triple Disaster – Hitomi Nakamura, University of Minnesota - MGIS

• The Minnesota Geospatial Commons: More Publishers, More Resources – Nancy Rader, Minnesota Geospatial Information Office (MnGeo)

• Dakota County Damage Assessment – Joe Sapletal, Dakota County

• Using Remote Sensing to Analyze 2007 Tornado Forest Regeneration – Adam Derringer, Ayres Associates

WEB MAP GALLERY

• 2016 Medicaid Beneficiary Survey - State of North Dakota – Stephanie Boyum, North Point Geographic Solutions

• Using ArcGIS Online to Develop Interactive Maps of College Campuses – David Kelley, University of St. Thomas

• Bringing Forest Plan Implementation Proposed Actions to the Public Via Webmap Services on the Superior National Forest – Tom McCann, USDA Forest Service

• Creating an Interactive Geologic Map: Wah Wah Mountains North and Tule Valley, Utah – Nicholas Rolstad

K-12 TEACHERS EVENTS

Back by Popular Demand:

The MN GIS/LIS Board, Conference Planning Committee, and the Minnesota Department of Education will sponsor 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 4. 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. Online registration coming soon!

ENTERTAINMENT

MN GIS/LIS Conference Discount Cards

Several area business have offered discounts to conference attendees who use their discount cards while in Bemidji. Attendees will receive the card at the time you pick up your name badge from the registration desk. Please visit these businesses during your visit to Bemidji and take advantage of the great discounts they are offering.

Tuesday, October 3

Kick back, relax and enjoy some networking, refreshments, and appetizers at Bemidji Brewery and Taproom located at 211 America Ave NW in downtown Bemidji from 7-9:30pm. Tours of their craft brewery production will also be given. They have a variety of beer selections as well as non-alcoholic beverages to choose from.

Wednesday, October 4

Whether you’re just arriving to Bemidji or after a long day of workshops, stop by the Geolounge on the second floor of the Sanford Center for some light refreshments from 4:30pm – 5:30pm. Join us later for a welcome reception being held at the Hampton Inn’s Ballroom located at 1019 Paul Bunyan Dr S in Bemidji from 7:00 – 9:00pm for more networking and socializing opportunities.

Thursday, October 5

Immediately following the afternoon sessions, please stop by the vendor reception located in the exhibit area in the main arena. Afterwards, hop on one of the complimentary shuttles to the Conference Social at the Bemidji Eagles Club located at 1270 Neilson Ave SE from 7:15-9:30 p.m. There will be games, raffle prizes, and more to benefit the MN GIS/LIS Scholarship Fund.
PRE-CONFERENCE WORKSHOPS

Workshop check-in begins at 7:30 am Wednesday morning in the lobby of the Sanford Center where refreshments will be provided. Workshop registration includes lunch and will be provided at the Sanford Center 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. Instructors will reach out to registered participants prior to the workshop if there are any additional materials or software requirements necessary.

♦ workshops are hands-on  ♦ workshops are lecture style.

ESRI HOLL
Form: 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. The Esri HOLL will be located in the Country Inn & Suites connected by walkway from the Sanford Center.

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

AM WORKSHOPS

♦ ♦ WK0001 – Forestry and Mobile Technology (Room #5)
Presenters: Darryl Holman, USDA Forest Service; DJ Bakken, Beltrami County Natural Resources
Audience: Beginner
Format: Hands-On and Lecture
Hardware Required: Laptop or mobile device with GPS capabilities (iOS or Android)
Software required: Avenza PDF Maps

DJ Bakken, Forrester for Beltrami County and Darryl Holman, GIS mobile technology specialist from the Chippewa National Forest will be presenting some of their uses of mobile technology in Forestry. They will be showing examples of how mobile technology has evolved over the years. This will include use of Garmins, Trimbles, and ArcPad. They will show examples of using TerraSync for establishing property lines as well as different viewing different Bluetooth GPS units. They will focus primarily on Avenza PDF maps showing tips, tricks, and techniques to help develop efficiencies in the field while using this app. This will cover the basic setup, managing Maps, collection of data in the field, setting up attribute schemes, moving data between the PC and mobile devices, and making better maps for Avenza. There will be a hands-on activity using Avenza near the end of the session.

♦ ♦ WK0002 – Understanding the Public Land Survey System (PLSS) and Legal Descriptions (Green Room)
Presenter: Heather Vernlund and Neal Adams, Beltrami County
Audience: Beginner
Format: Lecture

Review of the PLSS, commonly used terminology, and how legal descriptions are produced. Learn how to interpret and draw out legal descriptions through lecture and hands-on exercises.

♦ ♦ WK0003 – Get Started Using Python with GIS (Room #3)
Presenters: Zeb Thomas and Jessica Schuler, MN.IT @ DNR
Audience: Beginner
Format: Hands-On
Hardware Required: Bring your own laptop
Software Required: ArcGIS 10+ preferably 10.2+

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. Software requirement: ArcGIS 10+ preferably 10.2+.
WK0004 – Introduction to Collector for ArcGIS (Room #6)
Presenter: Chris Pouliot and Mike Tronrud, MN.IT @ DNR
Audience: Beginner
Format: Hands-On
Hardware Required: Bring your own laptop and device (Android, iPhone, iPad, iPod Touch, Windows)
Software Required: ArcMap 10.2+ Advanced (ArcInfo), or Standard (ArcEditor) license level
On mobile device:
- Collector for ArcGIS
- Android: Android 4.0 (Ice Cream Sandwich or later, Armv7 or x86 processor, precise location (GPS and network-based) support
- iOS: iOS 7 or later
- Windows: Windows 10

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).

WK0005 – Introduction to QGIS (Room #2)
Presenter: David Bitner, Boundless Spatial
Audience: Beginner
Format: Hands-On
Hardware Required: Bring your own laptop
Software Required: QGIS 2.18

QGIS provides a competitive alternative to the ESRI ARCGIS desktop environment. This workshop will describe many of the distinct advantages (and not just that it’s free!) of QGIS along with a hands on introduction to using QGIS.

WK0006 – An Introduction to ArcGIS Pro (Room #7)
Presenter: Jacob Hartle, University of Minnesota, Twin Cities
Audience: Beginner
Format: Hands-On
Hardware Required: Bring your own laptop
Software Required: ArcGIS Pro 2.0 installed on laptop

This hands-on workshop will introduce Esri’s newest Desktop offering, ArcGIS Pro. Participants will become familiar with the new interface by completing various exercises and learn about some of the differences between ArcMap and ArcGIS Pro.

WK0007 – Parcel Fabric 101 – Introduction to the Parcel Fabric (Room #4)
Presenter: Frank Conkling and Brian Kelly, Panda Consulting
Audience Level: Beginner
Format: Hands-On
Hardware Required: Bring your own laptop
Software Required: ArcGIS 10.3 or higher with ArcGIS for Desktop standard or advanced license installed

This half day workshop will let attendees learn about the fundamentals of the data model and experience the editing procedures behind ESRI’s ArcGIS Parcel Editing Solution (aka the Parcel Fabric) prior to actually making the commitment to convert their data. Panda Consulting will provide a sample data set of a county that has already been converted and will review the new tools and procedures for performing consolidations (combines), splits, adjustments and inputting a subdivision (time permitting).

WK0008 – Intro to ArcGIS Online (Room #1)
Presenter: Sharvari Sangle, SRF Consulting
Audience Level: Beginner
Format: Lecture and Hands On (optional)
Hardware Required: Bring your own laptop (for hands on)
Software Required: Access to ArcGIS Online organization account

Learn about Basic concept of ArcGIS Online, leveraging the power of templates, best practices and introduction to how to take your online application to next level using web application builder.

WK0009 – Exploring the Utility Network & Tools with ArcGIS Pro (Room #5)
Presenter: Kim Sundeen, RAMTeCH Software Solutions
Audience Level: Intermediate
Format: Hands-On
Hardware Required: Bring your own laptop
Software Required: ArcGIS Pro 2.X Network Management and ArcGIS online login

The new Esri Utility Network is the next generation and replacement for the older geometric network technology. In this workshop, we’ll overview the basics of using ArcGIS Pro and what the Utility Network is all about. Digging in a little deeper, you’ll learn about viewing a geometric network in Pro and seeing it alongside a Utility Network of your choosing: electric or natural gas. We’ll practice tracing, cleaning up “dirty” areas, running custom geoprocessing tools, and building your own Utility Network within Pro. Finally, we’ll discuss some tools and what you need to know to facilitate the data migration process from non-geometric data and geometric network data to the UN. We will be using ArcGIS Pro on your laptop, and as such, you’ll need an ArcGIS Online user profile to login and use Pro.
WK0010 – Configuring Solutions for ArcGIS Online (Room #1)
Presenter: Kyle Wikstrom, Pro-West & Associates, Inc.
Audience Level: Beginner
Format: Hands-On
Hardware Required: Bring your own laptop

Every organization has the opportunity to unleash the full value of its data. Understanding data from the vantage point of location and visualizing information enables users of all kinds to make decisions that impact organizations and communities. ArcGIS Online apps are tools that help visualize and interact with data. In this workshop, participants will learn how to configure ArcGIS Online apps that engage users by sharing information effectively. You will learn how to use information to tell a story that shapes the way we view, interact with, and make decisions in the world around us. Participants must have an active ArcGIS Online organizational account with a Publisher or Administrator role and know how to access it. ArcGIS Online organizational accounts and necessary account roles will not be provided by the instructor. ArcGIS Online organizational accounts and necessary account roles will not be provided by the instructor. Participants must have the necessary access listed in the description in order to participate in any hands-on activities.

WK0011 – Web AppBuilder for ArcGIS: Knowing Your Options (Room #2)
Presenters: Chad Nunemacher and Paul Hedlund, Houston Engineering
Audience: Intermediate
Format: Hands-On
Hardware Required: Bring your own laptop with admin permissions
Software Required: text editor installed, latest version of Web AppBuilder for ArcGIS (Developer Edition) installed

In this session you will become familiar with the components that make up the Web AppBuilder (WAB) framework. App creation using the integrated ArcGIS Online version of the Web AppBuilder as well as the installation, configuration, and deployment the developer’s version will be explained and demonstrated. We will also show how to incorporate shared widgets into the Web AppBuilder development software. Last but not least, we will provide instructions and guidance in creating a custom widget for use in the WAB development software.

WK0012 – Intermediate Collector for ArcGIS (Room #6)
Presenter: Chris Pouliot and Mike Tronrud, MN.IT @ DNR
Audience: Intermediate
Format: Hands-On
Hardware Required: Bring your own laptop, Android or iOS device
Software Required: ArcMap 10.2+ (Advanced (ArcInfo), or Standard (ArcEditor) license level).

On mobile device:
- Collector for ArcGIS
- Android: Android 4.0 (Ice Cream Sandwich or later, Armv7 or x86 processor, precise location (GPS and network-based) support
- iOS: iOS 7 or later
- Windows: Windows 10

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).

WK0013 – High Accuracy Mapping with Esri’s Collector (Room #3)
Presenter: Roger Schultz, Frontier Precision
Audience: Beginner
Format: Hands-On
Hardware Required: Bring your own Laptop, Android or iOS device

This learning session will include information and hands on exercises using Esri’s Collector for ArcGIS V10.4 and support for high accuracy GNSS receivers like the Trimble R1 and R2. Topics covered will include, real-time corrections setup, best field practices and publishing (new and modifying existing) layers to record the high accuracy metadata from your Trimble R1 and R2 GNSS Receivers. We will also discuss the value of high accuracy data collection and how metadata can assist with record keeping and confidence with your high accuracy GIS. A device with collector is optional. This is both lecture and hands on.

SESSION DETAILS:
Publish a map with required metadata fields.
High Accuracy GNSS receiver integration (Trimble R1, Trimble R2).
Best field data collection practices (hands-on exercises).
Accuracy vs. Precision (Understanding datums).
WK0014 – ArcGIS Server: Administration and Advanced Topics (Room #7)
Presenter: Justin Hansen, WSB & Associates, Inc.
Audience: Advanced
Format: Lecture

This workshop serves as an advanced look into ArcGIS Server from both the IT and GIS management perspective. Existing users of ArcGIS 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 Enterprise 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 Server 10.5 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 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 Server concepts.

WK0015 – Parcel Fabric 601 – Advanced Parcel Fabric (Room #4)
Presenter: Frank Conkling and Brian Kelly, Panda Consulting
Audience: Advanced
Format: Hands-On
Hardware Required: Bring your own Windows laptop

This half day workshop will explore the more advanced topics associated with implementing and using the ESRI ArcGIS Parcel Editing Solution (aka the Parcel Fabric). Topics include: quality control in the Parcel Fabric, Cartographic Point Management, Control Points, identifying and fixing topology errors, advanced construction techniques, associated layers, ETL Procedures, updating control points and its impact and an exploration of adjustment techniques. Since the topics covered in this workshop are advanced in nature and not familiar to users not using the Parcel Fabric, it is highly recommended that attendees be familiar with the Parcel Fabric prior to attending this workshop. While not necessary, if the attendees wish to follow along with the demonstrations, they need to bring their own computer with ArcGIS 10.3 or higher with ArcGIS for Desktop standard or advanced license installed. Panda will provide a copy of the data used for all demonstrations.
THURSDAY, 10:30 a.m. – Noon

♦ Session 1: Student Competition (Room #1)

♦ Session 2: GNSS Panel (Room #2)
  • MnDOT’s CORS/RTRN GNSS Network — Nathan Anderson, Minnesota Department of Transportation; Peter Jenkins, Minnesota Department of Transportation

♦ Session 3: Standards Panel (Room #3)
  • Taking the Pain out of Geospatial Data Standards — Geoff Maas, MetroGIS
  • The Parcel Data Transfer Standard — Geospatial Advisory Council Parcel and Land Records Committee

♦ Session 4: ArcGIS Online (Room #4)
  • Leveraging Web AppBuilder Developer Edition: Themes, Widgets and Workflows — Lucas Scharenbroich, Pro-West & Associates
  • Winning with Story Maps — Kyle Wikstrom, Pro-West & Associates
  • Storymaps, Public vs. Organizational Accounts — John Wirries, KLJ

♦ Session 5: Land Records 1 (Room #5)
  • The Benefits of the Esri ArcGIS Parcel Editing Solution — Frank Conkling, Panda Consulting
  • 24/7 – The Stearns County Surveyor’s Office is Always Open! — Mike Pooler, Stearns County; Scott Marlin, Stearns County; Justin Hansen, WSB & Associates

♦ Session 6: Drones (Room #6)
  • Drones: Benefits, Risks & Making it Work For Your Organization — Katie Gilmore, PAAP Drones
  • Drone Aerial Photography - Accuracy and Practical Applications — Randy Knippel, Dakota County Office of GIS
  • Integrating Drones & GIS — Vikrant Krishna, WSB & Associates

♦ Session 7: Local/County Gov (Room #7)
  • Property Assessment On A Mobile Device — Brad Bolton, Morrison County, MN
  • Guns, Geography and Data — Cory Richter, City of Blaine

♦ Session 8: Esri Product Demo (Room #8)
  • Overview of ArcGIS 10.5 — Matt Taraldsen, Esri
  • Highlights from the 2017 Esri User Conference — Matt Taraldsen, Esri
  • Insights for ArcGIS — Matt Taraldsen, Esri

THURSDAY, 1:30 p.m. – 3:00 p.m.

♦ Session 9: Student Competition (Room #1)

♦ Session 10: Student Competition (Room #2)

♦ Session 11: Damage Assessment Panel (Room #3)
  • Damage Assessment and the GIS Connection — Ryan Smith, The Schneider Corporation

♦ Session 12: Emergency Management 1 (Room #4)
  • GIS/GPS Technologies in Wildfire Suppression Management - Red Lake Reservation — Scott Abel, Red Lake DNR
  • Understanding the Local Government Information Model — Brandon Crissinger, Data Development Manager
  • GIS in the County Emergency Operation Center (EOC) — Randy Knippel, GIS Manager

♦ Session 13: Land Records 2 (Room #5)
  • The Rectangular Land Surveys in Minnesota — Rod Squires, Dept of Geography, Environment and Society, University of Minnesota
  • Mapping of PILT Lands in St. Louis County — Ryan Stovern, St. Louis County
  • Beltrami County Remonumentation Efforts — Heather Vernlund, Beltrami County; Neal Adams, Beltrami County

♦ Session 14: Lightning 1 (Room #6)
  • Tracking and Managing Emerald Ash Borer Infestation with Open-Source Web GIS — Patrick Baldwin, Respec Consulting and Services
  • Converting Lidar into 3D Models for 3D Printing — Rebecca Barney, University of Minnesota
  • Geo-anonymizing Sensitive Records while Maintaining Functional Accuracy — Laure Charleux, University of Minnesota Duluth
  • High Frequency Mapping of Canopy Change in the Great Lakes Basin from Space — James Klassen, SharedGeo
  • MN DNR GeoPDF Downloader Application — Mike Tronrud, Minnesota Department of Natural Resources; Kitty Hurley, MN DNR
  • Using Remote Sensing to Analyze 2007 Tornado Forest Regeneration — Adam Derringer, Ayres Associates

♦ Session 15: Web Applications (Room #7)
  • TroutSpotr: Safe and Legal Fishing for Trout. — Stuart Anderson, TroutSpotr
  • Creating Native GIS Apps — Caleb Mackey, Bolton & Menk, Inc
  • Minnesota Spring Inventory System — Craig Perreault, Minnesota Department of Natural Resources; Bart Richardson, Minnesota Department of Natural Resources

♦ Session 16: Product Demo (Room #8)
  • DrainageDB — Comprehensive Public Drainage System Management Portal — Brian Fischer, Houston Engineering
  • Portal, before it was cool — Heidi Gaedy, ddms inc.
  • Overcoming GIS Challenges of Transitioning to Next Generation 9-1-1 — Peter White, West Corporation, Safety Services Division
THURSDAY, 3:30 p.m. – 5:00 p.m.

✦ Session 17: A Little of This (Room #1)
  • Daily Extreme Snowfall Events in the Midwest during the Historical Record – Christopher Atkinson, University of North Dakota
  • Give `Em Map Envy - How to Stylize Your Map in Inkscape to Make It Down-Right Amazing – Stephanie Boyum, North Point Geographic Solutions
  • TBA – Preston Dowell, St. Louis County

✦ Session 18: Emergency Management 2 (Room #2)
  • Minnesota’s Next Generation 9-1-1 GIS Project – Adam Iten, ECN and MnGeo
  • Introduction to the U.S. National Grid – Randy Knippel, Dakota County Office of GIS
  • Where are My Socks? – Cory Richter, City of Blaine

✦ Session 19: Jobs Panel (Room #3)
  • Seeking a Career in the GIS Profession? – Stacey Stark, University of Minnesota Duluth

✦ Session 20: Data Access 1 (Room #4)
  • Using the MN DNR Quick Layers and Geospatial Data Resource Site (GDRS) Manager to Access Public GIS Data – Catherine Hansen, MNIT Services Partnering with Department of Natural Resources; Katie Rossman, Region 1; Sherry Watson, Region 2; Naoko Meyer, Region 4
  • Creating Custom Web Services with Python – Caleb Mackey, Bolton & Menk; Nate Christ, Bolton & Menk
  • Keeping a Geoportal Alive & Healthy: Lessons from the Big Ten Academic Alliance Geospatial Data Project – Karen Majewicz, Big Ten Academic Alliance Geospatial Data Project; Melinda Kernik, John R. Borchert Library, University of Minnesota Duluth

✦ Session 21: GIS Admin/Local Gov (Room #5)
  • What is ArcGIS Enterprise? – Jesse Adams, North Point Geographic Solutions
  • Connected Infrastructure - Considerations for Effective Municipal Asset Management – Joe Francica, Pitney Bowes
  • GeoEvent Server: Applications for Public Safety – Lucas Scharenbroich, Pro-West & Associates

✦ Session 22: Remote Sensing (Room #6)
  • Application of Non-NIR Vegetation Indices to a Standard UAS Platform – David Kramar, Minnesota State University Moorhead
  • Challenges and options for change detection using high-resolution NAIP imagery – Greg Liknes, U.S. Forest Service; James Garner, U.S. Forest Service
  • Comparing classification of NAIP and UAS imagery using object-based image analysis methods – Valquiria Quirino, Minnesota State University; David E. Kramar, Minnesota State University Moorhead

✦ Session 23: Utilities (Room #7)
  • Aerial Survey Using Collector for Arcgis – Peter Metzger, Minnkota Power Cooperative Inc.
  • Migrating Historic Data Sources to One for ArcGIS Online – Allan Schafer, KLJ
  • Streamlining the One-Call Ticket Management Process – Kendis Scharenbroich, Pro-West & Associates

✦ Session 24: Frontier Product Demo (Room #8)
  • Coordinate Systems, Projections, and Datums, Oh My! – Roger Schulz, Frontier Precision
  • Getting to Know TerraFlex – Roger Schulz, Frontier Precision
  • Optimizing your Field-to-Office Workflow and Directly Push TerraSync Data to a Geodatabase with an ArcMap Plugin – Roger Schulz, Frontier Precision

FRIDAY, 8:30 a.m. – 10:00 a.m.

✦ Session 25: Open Source (Room #1)
  • Creating Historic Bike Maps Using Open Source GIS Platforms – Alan Launey, Goodhue County
  • GeoMoose 3.0: React! OpenLayers! XML? – Dan Little, dbSpatial
  • Managing GIS Infrastructure at the DNR with GI Tracker: An overview – Jessica Schuler, MN DNR; Chris Pouliot, MN DNR

✦ Session 26: Data Access 2 (Room #2)
  • Land Cover Summary Tool – A New tool in MN DNR’s ArcGIS Toolbox – Ben Gosen, Minnesota Department of Natural Resources
  • Isn’t That Spatial? Digital & Interactive Projects at the Borchert Map Library – Ryan Mattke, University of Minnesota Libraries
  • Building collaborative geodesign systems in agricultural contexts – Peter Wiringa, University of Minnesota, U-Spatial

✦ Session 27: Geo Adv Council Panel — Overview (Room #3)
  • What is the MN Geospatial Advisory Council and Why is it so Fabulous? — Mark Kotz, Metropolitan Council; Kari Geurts, MN DNR; Len Kne, University of Minnesota; Randy Knippel, Dakota County; Geoff Maas, Metropolitan Council; George Meyer, Ottertail County; Dan Ross, MnGeo; Gerry Sjerven, Minnesota Power

✦ Session 28: Forestry (Room #4)
  • Promoting Sustainable Forest Resource Management through Collaboration and Credible Science: Applying GIS Solutions through the Minnesota Forest Resource Landscape Program – Lindberg Ekola, Minnesota Forest Resources Council
  • USDA Forest Service’s Forest Inventory and Analysis Engagement Portfolio: Applications and tools for accessing forest reports and data. — James Garner, USDA Forest Service Northern Research Station
  • One Click Access for vegetation data — Darryl Holman, USDA Forest Service, Chippewa National Forest

✦ Session 29: Lightning 2 (Room #5)
  • Deluge, Display, Decision: Automating Rain Data – Nancy Read, Metro Mosquito Control District; Andrew Sheppard, Houston Engineering Inc.
  • I’m Not a Hipster – Cory Richter, City of Blaine
  • U.S. Geological Survey Site-specific Water-use Data System (SWUDS) tracking and reporting water-use for the nation. — Christopher Sanocki, U.S. Geological Survey
  • Geospatial Programming: Multi-language GIS integration using JSON – Thomas Sayward, Moore Engineering
  • Adventures in GIS with Elementary and Middle School Students – Michelle Trager, Rice County
  • Mobile-friendly on a budget: How Dakota County is using free & easy solutions and you can too – Beth Koch, Dakota County
**MENTOR PROGRAM**

The Mn GIS/LIS Consortium Conference Mentor Program is in its 7th 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.

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**FRIDAY SESSIONS**

**Session 30: Wildlife 1 (Room #6)**
- Moose on the Edge: An Examination of Environmental Determinants in the Variation of Moose Edge Populations in North America – Sarah Anderson, Bemidji State University
- Forestry and GIS: Analyzing Ruffed Grouse Activity Areas Using an ArcGIS Model – Jacqueline Brockman, Beltrami County NRM; DJ Bakken, Beltrami County NRM
- Using Image recognition software, GIS, and teamwork to tackle AIS – Chad Nunemacher, Houston Engineering

**Session 31: Mobile GIS (Room #7)**
- Have Your (Raspberry) Pi, and Map with It Too. – Bob Basques, City of Saint Paul; Jim Klassen, City of Saint Paul
- Flood Infrastructure Inspection Using Survey 123 and Collector – Dave Kirkpatrick, Houston Engineering Inc; Brad Anderson, City of Moorhead
- Goodhue County Environmental Permitting and Tracking Suite: A Case Study for the Esri-Leica Smart Communities Innovation Challenge Grant – Leanne Knott, Goodhue County; Chad Hanson, Goodhue County

**Session 32: Data Collection (Room #1)**
- Using Mobile Imaging Solutions to Collect Asset Information – Dylan Jones, Frontier Precision; Heather Albrecht, City of Maple Grove
- Spatial Data Collection With WordPress – Michael Moore, LuminFire
- Drones: Making Engineering Tasks Easier – Erik Nelson, Houston Engineering Inc

**Session 33: Geo Adv Counc Panel — Damage Assessment (Room #2)**
- Minnesota Geospatial Advisory Council Priority Project: Damage Assessment Data Standard – Brad Anderson, City of Moorhead; Cory Richter, City of Blaine; John Mackiewicz, WSB & Associates; Matt Taraldsen, Esri; Darryl Holman, U.S. Forest Service

**Session 34: Census Panel (Room #3)**
- Locals Know Their Data Best: How Minnesota’s GIS Community Can Help Improve the 2020 Census – Susan Bower, State of Minnesota; Craig Best, U.S. Census Bureau

**Session 35: GIS Admin (Room #4)**
- How Metrics Can Save Your Map – Kitty Hurley, Minnesota Department of Natural Resources
- GeoloT - Bringing GIS and IoT together – Tyler Prahl, GISinc

**Session 36: LiDAR/Water Resources (Room #5)**
- Different Hydrologically Corrected DEM’s and how to use them – Kiah Sagami, Houston Engineering, Inc.
- What to do when your lidar is out of date: a modeling perspective – Michael Talbot, Emmons & Olivier Resources, Inc.; Etoile Jensen, Emmons & Olivier Resources, Inc.
- What’s Old is New Again: USGS Mapping and Geospatial Data Highlights – Ron Wencel, USGS

**Session 37: Wildlife 2 — Landcover (Room #6)**
- Spatial Analysis of Aquatic Invasive Species in St. Louis County – Kristi Nixon, Natural Resources Research Institute (NRRRI)
- Wolf Management on the Lands of the Red Lake Band of Chippewa Indians – Dave Price, Red Lake DNR
- Deploying Survey123, GIS and AGOL in Support of Chronic Wasting Disease Surveillance – Bob Wright, MNIT Services @ DNR; Bruce Anderson, MNIT Services @ DNR Wildlife; Julie Hines, MNIT Services @ DNR Wildlife

**Session 38: Web App Builder (Room #7)**
- Restorable Wetlands and Developing a Custom Web AppBuilder Widget – Brian Fischer, Houston Engineering; Scott Salsbury, Blue Earth County
- Transitioning to Web AppBuilder for ArcGIS: Lessons Learned – Jacqueline Kovarik, Carver County; Craig Prisland, Carver County
- Using ArcGIS Online Web AppBuilder to Create Dynamic Applications – Jason Menard, St Olaf College
GENERAL INFORMATION

Location:
Sanford Center
1111 Event Center Drive NE
Bemidji, MN 56601
(218) 441-4000

Conference Web Map

SANFORD CENTER

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 evening networking events on Tuesday, Wednesday, and Thursday.

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 THE SOUTH
• Take 371 from Brainerd and turn left onto Hwy 2. Take 1st exit into Bemidji and follow to 1st St South.
• From Motley or Park Rapids take Highway 71 north.
• Find the Sanford Center on the south shore of Lake Bemidji off of 1st St South or Event Center Dr NE. (by the Green Mill and Hampton Inn).

FROM THE NORTH
• From Highway 71 N or Highway 2 E follow Highway 197 (Paul Bunyan Drive) from the Airport/Mall area towards Bemidji State University and Lake Bemidji.
• Continue south through downtown Bemidji and follow the south shore to 1st St South or Event Center Dr NE (by the Green Mill and Hampton Inn).

FROM HIGHWAY 71 NW OR HIGHWAY 2 NW
• Follow Paul Bunyan Dr NW/Bemidji Ave N towards Bemidji State University and Lake Bemidji.
• Continue South through downtown Bemidji and follow the south shore to 1st St South, or Event Centre Dr NE (by the Green Mill and Hampton Inn).

DIRECTIONS

LODGING ACCOMMODATIONS

For all hotels, please reference the Minnesota GIS/LIS Consortium Room Rate. For more information please contact Ashley Crunstedt at ashleyc@mngislis.org

Country Inn & Suites Bemidji
927 Lake Shore Drive NE
Bemidji, MN 56601
Reservations: 218-441-4800
Rates: $110/night
Online Reservations
Click here for group discount
Cut-off Date: Sept. 4, 2017

Hampton Inn & Suites Bemidji
1019 Paul Bunyan Drive South
Bemidji, MN 56601
Reservations: 218-751-3600
Rates: $110/night
Online Reservations
Group Code: MN GIS/LIS
Cut-off Date: Sept. 4, 2017

Candlewood Suites Bemidji
401 Paul Bunyan Drive SE
Bemidji, MN 56601
Reservations: 218-497-3000
Rates: $85/night
Online Reservations
Group Code: MG1
Cut-off Date: Sept. 4, 2017
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.

Lessons offered at the HOLL (subject to change)
1. Getting Started with GIS
2. Learning the Fundamentals of ArcMap
3. Getting Started with ArcGIS Pro
4. Storing Data in the Geodatabase
5. Constructing Points from Address Data
6. Importing CAD Data
7. Spatial Reference and Data Alignment
8. Editing GIS Data
9. Multi-user Editing Using Versioning
10. Maintaining Land Records Using Parcel Fabric
11. Modeling Transportation Networks
12. Performing Image Classification
13. Finding the Best Location
14. Examining Patterns in Your Data
15. Displaying Data in 3D
16. Creating Maps for Presentation
17. Sharing GIS Content Using ArcGIS Online
18. Generating Custom Web Applications
19. Telling Your Story with Story Maps
20. Performing Analysis with Model Builder
21. Using Tasks in ArcGIS Pro
22. Automating Workflows Using Python
23. Using Business Analyst Web
24. Getting started with ArcGIS Earth
October 4–6, 2017
27th 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 6 at 6:15 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 4, 2017

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<thead>
<tr>
<th>AM Workshops (choose one)</th>
<th>PM Workshops (choose one)</th>
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<td>($135/$170 after 9/8/17)</td>
<td>($135/$170 after 9/8/17)</td>
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<tr>
<td>☐ WK0001 Forestry and Mobile Technology</td>
<td>☐ WK0009 Exploring the Utility Network &amp; Tools with ArcGIS Pro</td>
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<td>☐ WK0002 Understanding the Public Land Survey System and Legal Descriptions</td>
<td>☐ WK0100 Configuring Solutions for ArcGIS Online</td>
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<td>☐ WK0005 Introduction to QGIS</td>
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<td>☐ WK0006 An Introduction to ArcGIS Pro</td>
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<td>☐ WK0007 Parcel Fabric 101 — Introduction to the Parcel Fabric</td>
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<td>☐ WK0008 Intro to ArcGIS Online</td>
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Payments/Fees
☐ Annual Conference ($275 | $310 after 9/8/17 | $330 onsite) $ ____________
☐ Presenter Rate ($230 | $310 after 9/8/17 | $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) $ ____________

Total: $ ____________

Payment Info:
Payment: ☐ Check (payable to MN GIS/LIS) ☐ Visa ☐ Mastercard
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 Sept. 25. To send a cancellation notification via fax to the MN GIS/LIS Consortium, please use 651-290-2266. Notifications received after Sept. 25 will NOT receive a refund, nor will no-shows at the conference.

Due to PCI Compliance, MN GIS/LIS will only accept this form via fax or mail. Emails with this completed form attached will not be accepted. Please note: Your completion of registration indicates your permission to be recorded/photographed.

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.

(initials) (ctr. acctg.)
(date) (amt. paid)
(bal. due)