West Central Regional Advanced LiDAR Workshop
Hosted by Mid-America Regional Council (MARC)
Lunch sponsored by the Missouri GIS Advisory Council (MGISAC)
Breaks sponsored by:
Missouri Mappers Association and the Kansas Association of Mappers
Agenda – July 29th, 2013
Location: MARC Offices, 600 Broadway, Suite 200, Kansas City, MO, 64105

Location map: http://goo.gl/maps/bIadx

Advanced LiDAR Workshop
Check in: 8:00-8:30am
Workshop: 8:30 am – 4:00 pm

8:30 – 9:00am – **Welcome, acknowledgements and introductions** (Coffee provided by the MARC), **Steve Marsh, MARC, MGISAC**

9:00 – 10:00am - Making and Delivering Basic LiDAR Derivatives
Your LiDAR data have been purchased, delivered, and quality assessed. So now you are ready to use them! We will cover the formats of data typically delivered by contractors and how to process these into the information required by you and your user community (both GIS and CAD). We will discuss making contours, hill shades, and slope maps, as well as how to exploit the information beyond "bare earth" provided in the point cloud (LAS files). Lastly, a few strategies for archiving and delivery of data will be covered.
Elizabeth Cook, USDA, MGISAC

10:00 – 10:15am - Break – provided by MO MAPPERS and Kansas Association of Mappers

10:15 – 10:45am – Watershed Delineation Using LiDAR Data - Delineation of watersheds using LiDAR data will be discussed. The process outlined will include steps for delineating watersheds using ESRI's ArcGIS Desktop 10 Hydrology Toolset and how to calculate statistics for various purposes. **Drew Lane, MOARNG**

10:45 – 11:15am - Make like a tree and leaf: Turning your unclassified LiDAR into a tree canopy dataset - By using a variety of tools available in GIS in conjunction with FME, we were able to transform our unclassified, leaf-off LiDAR data into a countywide tree canopy dataset. The project converted nearly 2 Billion points into approximately 550,000 thousand polygon features that we can now use for a variety of analyses. The initial computing time required to generate the tree canopy polygons took approximately 20 hours while the QA/QC process for our entire county (about 480 square miles) is estimated to take about 40 hours**. Aaron Baumgarden, DTI**

11:15 – 11:45pm LiDAR specifications and products –
Mr. Legleiter will provide an overview of LiDAR specifications that are common in today's LiDAR projects including point densities, breaklines, and hydro flattening. Mr. Legleiter will also discuss typical LiDAR deliverables and associated products. **Kenny Legleiter (Sanborn)**

11:45 – 12:45pm Lunch provided by MGISAC & KAM (catered on-site)

12:45 – 1:15pm Kansas LiDAR Data Acquisition – Since 2006, the State of Kansas, along with other state, local, and federal partners has conducted several LiDAR acquisition projects with the goal of developing a statewide, high-resolution elevation database. This presentation will cover project funding, data collection specifications, quality assurance testing, product deliverables, project areas, and data discovery and access methodologies.
Ken Nelson or Eileen Battles, KU Data Access and Support Center

1:15 – 1:45pm Using LiDAR Data for Engineering Projects.
We will cover three uses of LiDAR for engineering projects, including preliminary studies, floodplain mapping and design projects. The discussion will focus on the cost savings realized when using LiDAR data in lieu of or to supplement detailed survey data. The preferred format for delivering GIS data for design projects will also be discussed. **Chet Belcher, Phelps Engineering, Inc.**

1:45 – 2:15pm LiDAR in ArcGIS 10.1
Point-cloud visualization, Data conversion (creating rasters from points using ArcGIS geo-processing) LiDAR in mosaic datasets, LiDAR image services. **Greg Brunner (ESRI)**

2:15 – 2:30pm Break – provided by MOMAPPERS and Kansas Association of Mappers

2:30 – 3:00pm The 3D Elevation Program - Contracting for LiDAR in Missouri –
Where is LiDAR available in Missouri, where did it come from, and how can I get it? While more than a third of Missouri has LiDAR today, the resolution of that data varies, from very high such as that collected in Greene County, to much lower as in Wright or Dent Counties. The LiDAR Stakeholders Consortium consisting of federal and state agencies has been taking advantage of SEMA funding for lower resolution LiDAR by adding funding to achieve LiDAR that will meet the requirements of those agencies for data that supports their programs. The consortium has further worked with MSDIS to make that data available to the public through a partnership with Washington University in St Louis. Contracting can be done through two federal contracts, - the U.S. Army Corps of Engineers – St Louis Technical Center of Expertise for Photogrammetric Mapping, or the USGS Geospatial Product and Service Contracts (GPSC); or by contracting on your own. **Ray Fox, USGS Missouri State Liaison**

3:00-3:30pm USGS QA - How the LiDAR is evaluated
The USGS NGTOC co-located in Rolla and Denver completes a Quality Assessment Report for every project prior to its inclusion in the National Digital Elevation Dataset (NED), the national repository of digital elevation data, and the USGS Center for LiDAR Information Coordination and Knowledge (CLICK), a repository for publically available LiDAR point cloud data. The assessment includes ensuring that all deliverables are included, compliance with the LAS file specifications, the checkpoints are well distributed both geographically and by class, vertical accuracy, metadata, and an in-depth review of the bare earth DEM. Presentation will include discussion on how the assessment is done along with examples of a final report.
Lori Phillips, USGS – National Geospatial Technical Operations Center (NGTOC)

3:30pm – 4:00pm Closing comments. Workshop Survey reminder…