Version date: Jan 3, 2013

Type of information	File type	Download source Use an FTP client (e.g. FileZilla*), not a web browser. Go to: ftp://ftp.lmic.state.mn.us/pub/data/elevation/lidar	Notes for use
DEM 1m (raster) DEM 3m (raster) DEM 3m with hillshade (raster) [county mosaic only] Contours 2 ft (vector) hydro breaklines (edge-of-water polygons) [county mosaic only] building footprints (polygons) [not available everywhere] Bare earth (point data) (A single point with an elevation value for each laser shot) validation points (point data) (a feature class of the points used in the vertical accuracy assessment) Index of quarter-quarter quadrangle tiles (polygons) (in the TILE_INDEX layer, see field labeled DNR_QQQ_ID) QA/QC (a table summarizing all of the tiles and various attributes about them)	.gdb The .gdb, or geodatabase, includes many different types of files including .shp files (vector) and ArcGRID files (raster). See below for more detail.	**Mosaic of entire county:** lidar/county/[county name]/elevation_data.gdb (Notice that the file has the same name for each county. This can be a problem if you download more than one county.) **Quarter-quarter quadrangle tiles:** lidar/county/[county name]/geodatabase/ See the tile index below to determine which tile(s) you need. Tiles do not include the hillshade DEM or the hydro breaklines. For tiles in the Arrowhead: lidar/projects/arrowhead/[block name]/geodatabase	Requires ESRI (ArcMAP) software. This is the format that most Minnesota LiDAR data is delivered in. Use ArcCatalog to move files around. Don't move items within folders separately -- maintain complete hierarchy. Derived products can be stored within or outside of these folders. See the readme file for information about projection and coordinate sytem. If you have problems unzipping the county mosaic, try using a different zipping software.
Hillshade (1m, B&W)	image layer	Available as part of MnGeo's WMS image service; link to it without downloading. See http://www.mngeo.state.mn.us/chouse/wms/geo_image_server.html	Access using ArcMAP or the free ArcGIS Explorer or Google Earth
Contours 1 ft (vector)			
Index of quarter-quarter quadrangle tiles	.pdf (also part of the geodatabase described above)	lidar/county/[county name]/tile_index_map.pdf or for the Arrowhead: lidar/projects/arrowhead/[block name]/tile_index_map.pdf	
Point cloud (LAS) data: - number of returns - x/y/z values of points - return intensity - point classification	.las and .laz (LAZ files are compressed LAS files and one tenth the size -- download these.)	lidar/county/[county name]/laz/ or for the Arrowhead: lidar/projects/arrowhead/[block name]/laz	Need 3rd party extension (e.g. LASTOOLS) or stand-alone software to utilize. Use laszip.exe to uncompress the files. (See pdf listed below.) LAS files can be converted to Shapefiles and ASCI files. LAS files can be used to generate DEMs. LAS files can be exported to a .txt file **Directions for working with LAZ files is at:** **ftp://ftp.lmic.state.mn.us/pub/data/elevation/lidar/tools/lastools/LAS_File_Processing_Using_LASTOOLS.pdf**

*FileZilla is available at: http://filezilla-project.org/download.php

ArcGRID files are the most widely used raster format, dating back to the 1970's. They are used for the 1m, 3m, and hillshaded information. Use this raster data to derive many other products (e.g. terrain analyses).
Raster data provides a surface of elevation information between contours.
Always use Arc Catalog to copy, move or rename the files. While .adf files are the core of the raster DEM, they do not stand alone. They are part of the linked set of folders and files called ArcGRIDs.
Use Spatial Analyst in ArcGIS (not Civil 3D) to convert elevations to feet.
ADF is the file extension for the Arc/Info Binary Grid format. It is one of the two raster GIS file formats developed by ESRI, the other being the ARC/INFO ASCII Grid format. Whereas the ASCII format is used exclusively as an exchange or export format, the binary format is mainly used within the ESRI programs, like ArcGIS and ArcView.