Photogrammetric mapping

Description

Mapping from photogrammetric and remote sensing data. The methodology by which precision aerial imagery and\or LiDAR, accurate camera and ground control data are combined to produce design grade planimetric and topographic maps to meet MnDOT standards. This work type includes the following:

- Evaluation of project control to ensure adequate control is present to produce mapping within the specified accuracy requirements.
- Production of an aero-triangulation solution/LiDAR registration.
- Collection of planimetric features.
- Production of a Digital Terrain Model (DTM) in accordance with American Society for Photogrammetry and Remote Sensing (ASPRS) standards to meet MnDOT accuracy requirements.
- Production of digital ortho-rectified mosaic.

Standards and specifications

May include the following:

- Production and delivery of 100% clean, edited digital data in MicroStation Design File format is required. See CADD Standards: http://www.dot.state.mn.us/caes/index.html
- MnDOT Photogrammetric specifications: http://www.dot.state.mn.us/surveying/pdf/mappingmanual.pdf

Provided by Hennepin County

Information to be supplied by Hennepin County for a project may include the following:

- Project designation, location, limits and match file requirements.
- Coordinate Datum/Projection/Adjustment.
- Mapping limits, photo index, control, digital images, GNSS/IMU data, camera calibration.

Typical services

Project deliverables may include the following:

- LiDAR: Collect or process Airborne LiDAR (Light Detection & Ranging), Static Laser Scanner, and High-Definition Mobile Laser Scanner using minimal ground control for MnDOT and local governmental units of Minnesota projects.
- Aero-triangulation solution files, QA/QC data and error residual files.
- Final camera station positions from least squares adjustment, along with orientation parameters ω, ϕ, κ.
- Aero-triangulation report containing narrative about the project and list of ground control points not used or identified as being suspect.
- Raster files (JPEG compressed with embedded overviews) of project orthophotos.
- A "File Limits Diagram" showing the limits, boundary, and name for each project file.
- All contact prints, annotated with control data, which were utilized as part of the project.
- Copy of photo index with all control points, used in project, marked on it.
- Final Submittal Stage:
  - A signed letter of completeness by an in-house certified photogrammetrist
  - A Digital Terrain Model (DTM) only file
  - A 2D and a 3D plan file
  - A model diagram file
  - LiDAR data files in LAS format
  - LAS tile boundary index
  - All Summit Evolution files
  - Orthophoto files
  - Orthophoto Index
  - Map content, feature portrayal, format and level placement

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