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Increasing Resilience Together

Using LiDAR Data to Support Letters of Map Amendment (LOMAs): What Submitters Need to Know

Presented by:
Matt Richards, CFM
Dave Burkholder, CFM

FEMA NORTH WIND A CIRI COMPANY Michael Baker INTERNATIONAL

LOMA: Letter of Map Amendment

- A letter from FEMA stating that an existing structure or parcel of land that has not been elevated by fill would not be inundated by the 1-percent-annual-chance flood
- FEMA removes subject from the Special Flood Hazard Area (SFHA) and removes federal requirement for flood insurance
- Lender can still require flood insurance


Federal Emergency Management Agency
LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

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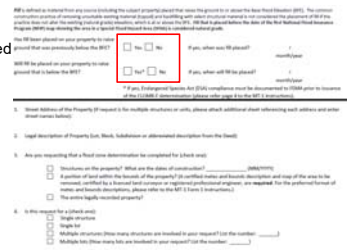
Submitting a Standard LOMA

Required documents:

- Copy of effective FIRM panel showing property accurately plotted
- Tax Assessors map
- Copy of recorded deed or plat
- Elevation Form
  - In lieu of certificate
- Property Information Form



FEMA responds within 60 days – after notification that ALL information has been received.

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LiDAR LOMA
Program Standard # 627

Letter of Map Amendment (LOMA)	Program Standard	For Letters of Map Amendment (LOMAs), submitters may use elevation data (typically LiDAR) to document the lowest adjacent grade for a structure or lowest lot elevation for a parcel of land that complies with the USGS National Geospatial Program LiDAR Base Specification Quality Level 3 (QL3) or better and is provided by a federal, state or local government agency.

Light Detection and Ranging (LiDAR)

- Remote sensing technology
- Efficiently creates accurate topographic data
- Large Scale

New February 2018 Program Standard

- Modeled after Minnesota
- Allows applicants to submit a LiDAR exhibit to meet the elevation requirements for LOMA
- Assist with removals in areas where structures are definitely above BFE by elevation. Where comparison in close, certified elevations required.

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LiDAR LOMA: Updated Standard SID 199

Original:

- **LOMC submittals must include certifications by a licensed professional authorized to certify the data under state law**

Updated:

- **LOMC submittals must include certifications by a licensed professional authorized to certify the data under state law, except when LiDAR is provided to satisfy the lowest adjacent grade (LAG) requirements for LOMAs.**

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USGS LiDAR Base Specification

- Quality Level 3 was selected
  - to help ensure the LiDAR data is accurate without being so restrictive that most existing data sets cannot be used
  - As to not invalidate much LiDAR purchased by FEMA previously

https://pubs.usgs.gov/tm/11b4/pdf/tm11-B4.pdf

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What Submitters Need to Know: LiDAR Exclusions

- **Requests involving fill**
- **Conditional requests**
- **Requests involving subjects mapped in the regulatory floodway**
- **Requests involving Coastal High Hazard Areas**
- **Requests involving Zones AO, AR, or A99 Zones**
- **Requests involving PVs as identified through LOMC process**
- **Requests involving physical changes to the flooding source/SFHA that require revision to the FIRM**
- **eLOMA requests**
- **Requests to supersede LOMCs based on certified elevation data**

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What Submitters Need to Know: Exhibit Requirements

- **The applicant requesting that a LOMA determination be evaluated based on LiDAR data must submit an exhibit that displays either:**
  - an overlay of the LiDAR contours
  - an overlay of the LiDAR points
  - both of which must be with an accurate aerial image of the structure/property in question.
- **Exhibit must also contain:**
  - Vertical Datum
  - Address or Parcel Number for PIQ, and PIQ clearly identified
  - Name & Organization of map creator (with contact info)
  - Date LiDAR was collected
  - Source of the LiDAR data
  - LiDAR accuracy information (Accuracy Report)
  - Location of the data archive or metadata file (must be available for independent verification through a publicly available website or metadata)
    - LiDAR must be publicly available & accessed free of charge on web
    - Data owner must be a Federal, State, Local or Tribal Government entity

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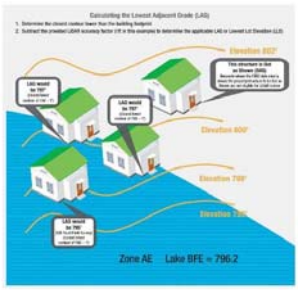
Contour Exhibits



- Identify the lowest contour immediately adjacent to the subject but not going through it
- Subtract ½ the contour interval or 1 foot (whichever is greater) from this identified contour to get LAG / LLE
- Compare to BFE
- Non-removal = request elevations

Point Cloud Exhibits

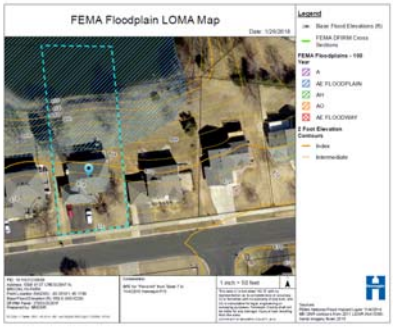
- The analyst will identify the lowest point immediately adjacent to the structure or on the property
- Subtract two feet to determine the LAG or the LLE.
- Compare to BFE
- Non-removal = request elevations

Accuracy Report

Omaha COE
Colorado Watersheds

LiDAR Mapping Report
State of Colorado

Exhibit Sample



LiDAR LOMA Report

Certification of Minnesota LiDAR Data Quality

Project Area: Arrowhead Region

Counties covered: Carlton, Cook, Lake and St. Louis.

Date of acquisition: April 12 to June 2, 2011

Horizontal Positional Accuracy: All these data products were acquired at 2400 meters above mean terrain (AMT) and have a horizontal accuracy of 0.40 meters, with a nominal point spacing of 1.5 meters.

Vertical Positional Accuracy: Accuracy of the dataset was verified by a second set of ground control points provided and tested by the State of Minnesota. The Consolidated Vertical Accuracy (CVA) of the TIN as tested by the State of Minnesota of all land cover categories covering the 5 land classes as defined by ASPRS and NDEP were used in this evaluation. The vertical RMSE, the 95% confidence level and sample count per acquisition delivery block as tested by the State of Minnesota is as follows: Block 1, 0.083m (RMSE), 0.158m (95%), 379 points; Block 2, 0.124m (RMSE), 0.242m (95%), 92 points; Block 3, 0.114m (RMSE), 0.243m (95%), 109 points; Block 4, 0.137m (RMSE), 0.269 (95%), 201 points; Block 5, 0.091m (RMSE), 0.179m (95%), 226 points. Block 1 encompasses the City of Duluth and the North Shore of Lake Superior to Cook County. Block 2 is the northern portion of St. Louis County and northwest Lake County. Block 3 is all of Cook County and the eastern and southwestern portion of Lake County except the North Shore. Block 4 is all of Carlton County and the southern portion of St. Louis County and western portion of Lake County. Block 5 is the central portion of St. Louis County.

This is to certify that the work summarized above was completed in accordance with sound and accepted surveying practices and meets the accuracy requirements in the USGS's Lidar Guidelines and Base Specifications.

Peter Jenkins, PLS, CPotS

MN PLS # 22683

Photogrammetric Unit Supervisor

Minnesota Department of Transportation

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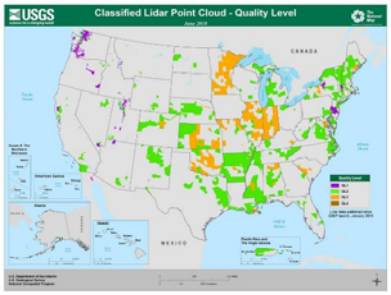
Resource: USGS 3D Elevation Program (3DEP)



https://www.usgs.gov/media/images/lidar-point-cloud-lpc-3dep-quality-level

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Questions?

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