Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed

1.1. Name of the Data, data collection Project, or data-producing Program:

2008 USGS New Jersey Lidar: Somerset County

1.2. Summary description of the data:

These data support the general geospatial needs of the USGS and other federal agencies. LiDAR data is remotely sensed high-resolution elevation

data collected by an airborne collection platform. By positioning laser range finding with the use of 1 second GPS with 200hz inertial measurement

unit corrections, Airborne 1's LiDAR instruments are able to make highly detailed geospatial elevation products of the ground, man-made structures

and vegetation. The LiDAR flightlines for this project were planned for a 50% acquisition overlap. The nominal resolution of this project without

overlap is 1.203m, with a 0.90m resolution with the 50% overlap, assuming a normal distribution. Two returns were recorded for each pulse in addition

to an intensity value. GPS Week Time, Intensity, Flightline and number attributes were recorded for each LiDAR point. Positional values were recorded

to the centimeter level, while GPS is recorded to a 10th of a millisecond. Scan angle was recorded to the nearest angle, Intensity is recorded as a

12 Bit dynamic range value and echo is recorded as a numeric value from 0 to 256.

The data was originally provided as random points, in LAS v1.1 format, classified according to the following codes:

Class 1 Non-ground/Extracted Features Last Pulse

Class 2 Bare Earth Ground Features Last Pulse

Class 3 Extracted Features First Pulse

Class 4 Bare Earth Ground Features First Pulse

It should be noted that Class 3 and 4 are not ASPRS classes but since this data is a two

pulse system, this is the most efficient format to

separate the pulses and classification process.

The data was reclassified into 2 distinct classifications:

Class 1 Non-ground/Extracted Features First and Last Pulse

Class 2 Bare Earth Ground Features First and Last Pulse

1.3. Is this a one-time data collection, or an ongoing series of measurements?
One-time data collection

1.4. Actual or planned temporal coverage of the data:
2008-02-01

1.5. Actual or planned geographic coverage of the data:
W: -74.798045, E: -74.499545, N: 40.758506, S: 40.373106

1.6. Type(s) of data:
(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)

1.7. Data collection method(s):
(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

1.8.1. If data are from another observing system, please specify:

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name:
NOAA Office for Coastal Management (NOAA/OCM)

2.2. Title:
Metadata Contact

2.3. Affiliation or facility:
NOAA Office for Coastal Management (NOAA/OCM)

2.4. E-mail address:
coastal.info@noaa.gov

2.5. Phone number:
(843) 740-1202

3. Responsible Party for Data Management

Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:

3.2. Title:

Data Steward

4. Resources

Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

5. Data Lineage and Quality

NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

(describe or provide URL of description):

Process Steps:

- 2008-02-01 00:00:00 - > Airborne GPS Kinematic Airborne GPS kinematic data was post processed at Airborne 1 facilities using POS-GNSS kinematic On-The-Fly (OTF) software. Flights were flown with a minimum of 6 satellites in view (13o above the horizon) and with a PDOP of better than 3.5. Distances from base station to aircraft (differential baselines) were kept to a maximum of 31 km while the mean is 16 km, to ensure a strong OTF (On-The-Fly) solution. For all flights, the GPS data can be classified as excellent, with GPS residuals of 5cm average but no larger than 10 cm being recorded. >Generation and Calibration of laser points (raw data) The initial step of calibration is to verify availability and status of all needed GPS and Laser data against field notes and compile any data if not complete. Subsequently the mission points are output using Optech's REALM, initially with default values from Optech or the last mission calibrated for system. The initial point generation for each mission calibration is verified within Microstation/Terrascan for calibration errors. If a calibration error greater than specification is observed within the mission, the roll pitch and scanner scale corrections that need to be applied are calculated. The missions with the new calibration values are regenerated and validated internally once again to ensure quality. All missions are validated against the adjoining missions for relative vertical biases and collected GPS kinematic ground truthing points for absolute vertical accuracy purposes. On a project level, a

coverage check is carried out to ensure no slivers are present. >Data Classification and Editing The data was processed using the software TerraScan, and following the methodology described herein. The initial step is the setup of the TerraScan project, which is done by importing client provided tile boundary index (converted to the native UTM zone for processing)encompassing the entire project areas. The 3D laser point clouds, in binary format, were imported into the TerraScan project and divided in 409 Tiles as specified by 133 Urban Area Ortho tiles in LAS 1.0 format. Once tiled, the laser points were classified using a proprietary routine in TerraScan. This routine removes any obvious outliers from the dataset following which the ground layer is extracted from the point cloud. The ground extraction process encompassed in this routine takes place by building an iterative surface model. This surface model is generated using three main parameters: building size, iteration angle and iteration distance. The initial model is based on low points being selected by a "roaming window" with the assumption is that these are the ground points. The size of this roaming window is determined by the building size parameter. The low points are triangulated and the remaining points are evaluated and subsequently added to the model if they meet the iteration angle and distance constraints. This process is repeated until no additional points are added within an iteration. A second critical parameter is the maximum terrain angle constraint, which determines the maximum terrain angle allowed within the classification model. The data is then manually quality controlled with the use of hillshading, cross-sections and profiles. Any points found to be of class vegetation, building or error during the quality control process, are removed from the ground model and placed on the appropriate layer. An integrity check is also performed simultaneously to verify that ground features such as rock cuts, elevated roads and crests are present. Once data has been cleaned and complete, it is then by a supervisor via manual inspection and through the use of a hillshade mosaic of the entire project area.
- 2008-02-01 00:00:00 - >Deliverable Product Generation -Deliverable Tiling Scheme All files were converted to LAS 1.1, in the specified projection and units and were delivered in the client provided tiling scheme with a total of 409 tiles. -LAS 1.1 Files LiDAR point data in LAS 1.1, classified according to the following classification scheme: Class 1 Non-ground/Extracted Features Last Pulse Class 2 Bare Earth Ground Features Last Pulse Class 3 Extracted Features First Pulse Class 4 Bare Earth Ground Features First Pulse The data contains the following fields of information (Precision reported in brackets): Class (Integer), GPS WeekTime (0.0001 seconds), Easting (0.01 meter), Northing (0.01 meter), Elevation (0.01 meter), Echo Number (Integer 1 to 2), Echo (Integer 1 to 2), Intensity (12 Bit Dynamic), Flightline, Scan Angle (Integer Degree) All points outside project area were assigned to Class 1 - Non-Ground. -GPS Trajectory Files GPS Trajectory Files were provided in digital copy -ABGPS/IMU Positions ABGPS/IMU combined files containing time,x,y,z,kappa, phi,omega were provided in ASCII format. All positions were provided in NAD83 UTM18, NAVD88(Geoid03), GPS seconds (reported to a 10th of a millisecond), meters (reported to a centimeter) for the XYZ and degrees for the kappa,phi,omega (

reported to 6 decimals of a degree).
- 2010-08-27 00:00:00 - The NOAA Office for Coastal Management (OCM) received the files in las format. The files contained Lidar elevation and intensity measurements. The data were in projected in UTM coordinates, Zone 18 (NAD83), and referenced to the orthometric datum of NAVD88 utilizing Geoid 03. OCM performed the following processing to the data to make it available within the Digital Coast: 1. The data were converted from UTM Zone 18 (NAD83) coordinates to geographic coordinates (NAD83). 2. The data were converted from NAVD88 (orthometric) heights to GRS80 (ellipsoid) heights using Geoid 03. 3. The LAS data were reclassifed from 4 to 2 classes: - Class 1, Non-ground/Extracted Features Last Pulse; Extracted Features First Pulse - Class 2, Bare Earth Ground Features Last Pulse; Bare Earth Ground Features First Pulse 4. The LAS data were sorted by latitude and the headers were updated.

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:
- 1.6. Type(s) of data
- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility

- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

6.2. Name of organization or facility providing metadata hosting:
NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:
https://www.fisheries.noaa.gov/inport/item/49857

6.4. Process for producing and maintaining metadata
(describe or provide URL of description):
Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access
NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:
NOAA Office for Coastal Management (NOAA/OCM)

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:
https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=545
https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/545/index.html

7.3. Data access methods or services offered:
This data can be obtained on-line at the following URL: https://coast.noaa.gov/

dataviewer;

7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:
(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):
Office for Coastal Management - Charleston, SC

8.3. Approximate delay between data collection and submission to an archive facility:

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?
Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.