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:
2012 USGS NRCS Somerset and Wicomico Lidar

1.2. Summary description of the data:
Aerial Cartographics o America, Inc. collected LiDAR for over 681 square miles in Accomack, Dorchester, Somerset, Sussex, Wicomico, and Worchester Counties in Maryland, Deleware and Virginia. The nominal pulse spacing for this project was no greater than 0.7 meters. This project was collected with a Riegl LMS-Q680i Full Waveform LiDAR Sensor which collects an intensity value, GPS Week Time, Flightline and echo number attributes for each discrete pulse . Dewberry used proprietary procedures to classify the LAS into an initial ground surface. Dewberry used proprietary procedures to classify the LAS and then performed manual classifications according to project specifications: 1-Unclassified, 2-Ground, 7-Noise, 9-Water, and 10-Ignored Ground due to breakline proximity. Dewberry produced 3D breaklines and combined these with the final LiDAR data to produce seamless DTMs, DSMs and hydro flattened DEMs, for 833 tiles (1500 meters x 1500 meters) that cover the project area.

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:
2012-02-14 to 2012-03-13

1.5. Actual or planned geographic coverage of the data:
W: -76.07223, E: -75.441299, N: 38.565659, S: 37.90508

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

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:

- 2012-03-01 00:00:00 - Data for the NRCS Maryland LiDAR project was acquired by Aerial Cartographics of America, Inc. A Riegl LMS-Q680i Full Waveform LiDAR sensor was utilized to collect the data. A calibration flight was flown on February 15, 2012 to obtain current boresight misalignment angles defining the relationship between the scanner and the Inertial Measurement Unit (IMU). A site was selected in Salisbury, Maryland. The 1320 ft X 1320ft site was surveyed to provide twelve (12) horizontal and vertical control locations for assessing the calibration. The area was flown at 1,600 feet AGL at 400 kHz with 50 percent sidelap in the recommended configuration of four (4) north south lines flown in alternating directions and four (4) east west lines flown in alternating directions. Refer to document NCRS Maryland Riegl Calibration.docx for additional information. The project laser data were collected on February 17, 18, 23, 24 and March 12, 2012 utilizing a Riegl LMS-Q680i full waveform laser scanner (Serial Number 9997848) mounted in a Cessna 208 Grand Caravan aircraft at an approximate altitude of 3,300 feet above ground level (AGL) with a ground speed of 120 knots per hour, 30 percent sidelap, a pulse rate repetition (PRR) of 320 kHz, a scan half angle of 30 degrees resulting in a point spacing of 0.64 meters. The data were collected under cloud-, fog-, and snow-free conditions with no unusual flooding. No data were collected within 72 hours of rainfall that measured more than 0.25 inches. All data were acquired within 2 hours of low tide as predicted by tidal stations located on the bay and inland rivers. Tidal Stations used to determine tidal activity are Sharptown, Vienna, Salisbury, Roaring Point, Whitehaven, Great Shoals Light, Chance, Teague Creek, Long Point, Ewell, Crisfield, Ape Hole, and Shelltown
- 2012-03-01 00:00:00 - The GPS data from the ground base stations and the airborne platform were processed using Applanix POSPac 4.4 software module POSGPS. The Inertial Measurement Unit (IMU) solution was processed to provide information regarding the attitude of the sensor platform using the Applanix POSPac 4.4 software module POSProc. This solution was integrated with the Airborne GPS and adjusted using a Kalman filter in a forward/reverse solution to provide a Smoothed Best Estimate of Trajectory (SBET). The ground base stations were set up at the Salisbury-Ocean City Wicomico Regional Airport (ACA001) and on control point 111 enabling the aircraft to be within 25 miles of ground base station at all times. Receivers for base station during Airborne Data Capture: 1. Leica GX123 464483 Dual frequency reciever 2. Leica AX1220GG 0632001 Dual Frequency GPS Antenna 3. Leica GX1230 464495 Dual Frequency GPS Reciever 4. Leica AX1220GG 0632002 Dual frequency GPS Antenna Two base stations locations were used for the ABGPS processing 111 and ACA001, located at the Salisbury Municipal airport. 1. station 111 easting 426121.404 northing 4216147.508 height 0.627 2. station ACA001 easting 343022.014 northing 4185037.17 height 38.948 Coordinate information for 13 aerial targets distributed throughout the project site was provided by Greenman Pedersen Incorporated, Annapolis Junction, MD for ground validation. The validation is for

the acquisition portion of this project only. The control points were taken in flat, open areas to determine a fundamental vertical accuracy. Horizontal and vertical was established at the calibration site in Salisbury, Maryland and throughout Somerset and Wicomico Counties on the Eastern Shore of Maryland. The horizontal datum for the project is referenced to NAD 83 (2007), Maryland State Plane Coordinate System, U.S. survey feet and UTM Zone 18, meters. The vertical datum for the project is referenced to NAVD 88, U.S. survey feet and meters. Geoid 2009 was used as the reference model for all GPS computations. Using TerraSolid Ltd. software, an output control report was produced by comparing a triangulated irregular network of the laser points at the horizontal location of the known ground control points and measuring the vertical difference. The Vertical Root Mean Square Error (RMSEz) is 0.0246 meters. Accuracyz (RMSEz*1.96) is calculated at 0. 048meters at 95% confidence level with no outliers.
- 2012-04-01 00:00:00 - Dewberry utilizes a variety of software suites for inventory management, classification, and data processing. All LiDAR related processes begin by importing the data into the GeoCue task management software. The swath data is tiled according to project specifications (1,500 m x 1,500 m). The tiled data is then opened in Terrascan where Dewberry uses proprietary ground classification routines to remove any non-ground points and generate an accurate ground surface. The ground routine consists of three main parameters (building size, iteration angle, and iteration distance); by adjusting these parameters and running several iterations of this routine an initial ground surface is developed. The building size parameter sets a roaming window size. Each tile is loaded with neighboring points from adjacent tiles and the routine classifies the data section by section based on this roaming window size. The second most important parameter is the maximum terrain angle, which sets the highest allowed terrain angle within the model. Once the ground routine has been completed a manual quality control routine is done using hillshades, cross-sections, and profiles within the Terrasolid software suite. After this QC step, a peer review and supervisor manual inspection is completed on a percentage of the classified tiles based on the project size and variability of the terrain. After the ground classification corrections were completed, the dataset was processed through a water classification routine that utilizes breaklines compiled by Dewberry to automatically classify hydrographic features. The water classification routine selects ground points within the breakline polygons and automatically classifies them as class 9, water. During this water classification routine, points that are within 1 meter of the hydrographic features are moved to class 10, an ignored ground due to breakline proximity. In addition to classes 1, 2, 9, and 10, there is a Class 7, noise points . This class was only used if needed when points could manually be identified as low/high points. The fully classified dataset is then processed through Dewberry's comprehensive quality control program. The data was classified as follows: Class 1 = Unclassified. This class includes vegetation, buildings, noise etc. Class 2 = Ground Class 7= Noise Class 9 = Water Class 10=Ignored The LAS header information was verified to contain the following: Class (Integer) GPS Week Time (0.0001 seconds) Easting (0.

003 m) Northing (0.003 m) Elevation (0.003 m) Echo Number (Integer 1 to 4) Echo (Integer 1 to 4) Intensity (8 bit integer) Flight Line (Integer) Scan Angle (Integer degree)
- 2018-03-07 00:00:00 - NOAA OCM downloaded the point cloud data from the Maryland iMAP (imap.maryland.gov). Data were reprojected to geographic coordinates and vertical values were transformed to meters above the ellipsoid. Vertical transformation used the geoid09 model. Data were then compressed to LAZ format using the laszip program. Data were ingested into the Digital Coast Data Access Viewer for custom download.

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:
- 1.7. 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/51961

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=8487
https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/8487/index.html

7.3. Data access methods or services offered:
Data is available online for custom downloads

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.