

*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:**

2020 - 2021 USGS Lidar: Ohio Statewide - Phase 2

**1.2. Summary description of the data:**

Product: Processed, classified lidar point cloud data tiles in LAS 1.4 format.

Geographic Extent: Approximately 12,101 square miles in southern Ohio

Dataset Description: The OH Statewide Phase 2 2020 B20 lidar project called for the planning, acquisition, processing, and production of derivative products of QL1 lidar data to be collected at a nominal pulse spacing (NPS) of 0.35 meters. Project specifications were based on the U.S. Geological Survey National Geospatial Program Base Lidar Specification, Version 2021 revision A. The data was developed based on a horizontal reference system of NAD83 (2011) State Plane Ohio North (FIPS 3401) (EPSG 6549) and South (FIPS 3402) (EPSG 6551) and a vertical reference system of NAVD88 (GEOID18) US Survey Feet. Lidar data was delivered as processed LAS 1.4 files formatted to 1,250-feet by 1,250-feet tiles. Lidar was collected while no snow was on the ground and rivers were at or below normal levels. In order to post process the lidar data to meet task order specifications and meet ASPRS vertical accuracy guidelines, Woolpert established ground control points that were used to calibrate the lidar to known ground locations established throughout the entire project area. Additional independent accuracy checkpoints (NVA and VVA points), were collected throughout the entire project area and used to assess the vertical accuracy of the data. These checkpoints were not used to calibrate or post process the data.

Block 1 (Work Unit 197533)

Counties included: Fairfield, Gallia, Morgan

Formatted to 19,553 tiles, covering approximately 1096 square miles.

Lidar was collected from Dec 11, 2020 through April 11, 2021.

Woolpert established 73 ground control points and an additional 89 independent accuracy checkpoints (50 NVA points and 39 VVA points)

**Block 2 (Work Unit 224682)**

Counties included: Athens, Hocking, Meigs, Perry, Pickaway, Ross, Vinton, Washington

Formatted to 28,701 tiles, covering approximately 1609 square miles.

Lidar was collected from March 7 through April 13, 2021.

Woolpert established 20 ground control points and an additional 48 independent accuracy checkpoints (27 NVA points and 21 VVA points)

**Block 3 (Work Unit 224906)**

Counties included: Athens, Belmont, Monroe, Muskingum, Noble, Washington

Formatted to 27,537 tiles, covering approximately 1544 square miles.

Lidar was collected from Jan 23 through March 29, 2021.

Woolpert established 18 ground control points and an additional 47 independent accuracy checkpoints (23 NVA points and 24 VVA points)

**Block 4 (Work Unit 224909)**

Counties included: Licking, Muskingum, Perry

Formatted to 27,476 tiles, covering approximately 1540 square miles.

Lidar was collected from March 10 through April 3, 2021.

Woolpert established 26 ground control points and an additional 46 independent accuracy checkpoints (27 NVA points and 19 VVA points)

**Block 5 (Work Unit 224912)**

Counties included: Guernsey, Belmont

Formatted to 19,255 tiles, covering approximately 1080 square miles.

Lidar was collected from March 21 through April 22, 2021.

Woolpert established 12 ground control points and an additional 42 independent accuracy checkpoints (24 NVA points and 18 VVA points)

**Block 6 (Work Unit 224915)**

Counties included: Coshocton, Holmes, Knox, Tuscarawas

Formatted to 26,822 tiles, covering approximately 1503 square miles.

Lidar was collected from Nov 19, 2020 through April 5, 2021.

Woolpert established 17 ground control points and an additional 49 independent accuracy checkpoints (26 NVA points and 23 VVA points)

**Block 7 (Work Unit 224919)**

Counties included: Carroll, Harrison, Jefferson, Tuscarawas

Formatted to 24,656 tiles, covering approximately 1382 square miles.

Lidar was collected from Nov 24, 2020 through April 19, 2021.

Woolpert established 14 ground control points and an additional 48 independent accuracy checkpoints (25 NVA points and 23 VVA points)

Block 8 (Work Unit 224925)

Counties included: Carroll, Columbiana, Holmes, Mahoning, Stark, Tuscarawas, Wayne

Formatted to 42,505 tiles, covering approximately 1503 square miles.

Lidar was collected from May 19, 2020 through April 19, 2021.

Woolpert established 45 ground control points and an additional 77 independent accuracy checkpoints (52 NVA points and 25 VVA points)

This metadata record supports the data entry in the NOAA Digital Coast Data Access Viewer (DAV). For this data set, the DAV is leveraging the Entwine Point Tiles (EPT) hosted by USGS on Amazon Web Services.

### **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:**

2020-12-11 to 2021-04-11, 2021-03-07 to 2021-04-13, 2021-01-23 to 2021-03-29, 2021-03-10 to 2021-04-03, 2021-03-21 to 2021-04-22, 2020-11-19 to 2021-04-05, 2020-11-24 to 2021-04-19, 2020-05-19 to 2021-04-19

### **1.5. Actual or planned geographic coverage of the data:**

W: -82.87, E: -81.57, N: 39.97, S: 38.83

Block 1 (Work Unit 197533) - Includes Fairfield, Gallia, and Morgan counties

W: -82.77, E: -81.68, N: 39.75, S: 38.87

Block 2 (Work Unit 224682) - Includes Athens, Hocking, Meigs, Perry, Pickaway, Ross, Vinton, Washington counties

W: -81.85, E: -80.78, N: 39.91, S: 39.26

Block 3 (Work Unit 224906) - Includes Athens, Belmont, Monroe, Muskingum, Noble, and Washington counties

W: -82.81, E: -81.72, N: 40.28, S: 39.73

Block 4 (Work Unit 224909) - Includes Licking, Muskingum, and Perry counties

W: -81.74, E: -80.7, N: 40.23, S: 39.82

Block 5 (Work Unit 224912) - Includes Belmont and Guernsey counties

W: -82.78, E: -81.55, N: 40.6, S: 40.12

Block 6 (Work Unit 224915) - Includes Coshocton, Holmes, Knox, Tuscarawas counties

W: -81.56, E: -80.59, N: 40.6, S: 40.15

Block 7 (Work Unit 224919) - Includes Carroll, Harrison, Jefferson, Tuscarawas counties

W: -82.21, E: -80.51, N: 41.13, S: 40.57

Block 8 (Work Unit 224925) - Includes Carroll, Columbiana, Holmes, Mahoning, Stark, Tuscarawas, and Wayne counties

**1.6. Type(s) of data:**

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*

Model (digital)

**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?

Yes

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

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):*

Lineage Statement:

The NOAA Office for Coastal Management (OCM) ingested references to the USGS Entwine Point Tile (EPT) files hosted on Amazon Web Services (AWS) into the Digital Coast Data Access Viewer (DAV). The DAV accesses the point cloud as it resides on AWS under the usgs-lidar-public-container.

Process Steps:

- 2022-05-20 00:00:00 - Lidar Point Cloud Classification: The point cloud underwent a classification process to determine bare-earth points and non-ground points utilizing "first and only" as well as "last of many" lidar returns. This process determined Processed, but Unclassified (Class 1), Bare Earth Ground (Class 2), Low Noise (Class 7), Water (Class 9), Bridge Decks (Class 17), High Noise (Class 18), and Ignored Ground (Class 20). The bare-earth (Class 2 - Ground) lidar points underwent a manual QA/QC step to verify the quality of the DEM as well as a peer-based QC review. This included a review of the DEM surface to remove artifacts and ensure topographic quality. After the bare-earth surface is finalized, it is then used to generate all hydro-breaklines through a semi-automated process. All ground (Class 2) lidar data inside of the Lake Pond and Double Line Drain hydro flattening breaklines were then classified to water (Class 9) using TerraScan/LP360 macro functionality. A buffer of 0.7 meters was also used around each hydro-flattened feature to classify these ground (Class 2) points to Ignored Ground (Class 20). All Lake Pond Island and Double Line Drain Island features were checked to ensure that the ground (Class 2) points were reclassified to the correct classification after the automated classification was completed. These processes were reviewed and accepted by USGS through numerous conference calls and pilot study areas. All data was manually reviewed and any remaining artifacts removed using functionality provided by TerraScan and TerraModeler. Global Mapper was used as a final check of the bare earth dataset. GeoCue was then used to create the deliverable industry-standard LAS files. Woolpert proprietary software and LP360 was used to perform

final statistical analysis of the classes in the LAS files, on a per tile level to verify final classification metrics and full LAS header information.

- Original point clouds in LAS/LAZ format were restructured as Entwine Point Tiles and stored on Amazon Web Services. The data were re-projected horizontally to WGS84 web mercator (EPSG 3857) and no changes were made to the vertical elevations in NAVD88 (GEOID18).

- 2023-06-06 00:00:00 - The NOAA Office for Coastal Management (OCM) created references to the Entwine Point Tile (EPT) files that were ingested into the NOAA Digital Coast Data Access Viewer (DAV). No changes were made to the data. The DAV will access the point cloud as it resides on Amazon Web Services (AWS) under the usgs-lidar-public container. These are the AWS URLs being accessed: [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH\\_Statewide\\_Phase2\\_1\\_2020/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH_Statewide_Phase2_1_2020/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH\\_Statewide\\_Phase2\\_2\\_2020/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH_Statewide_Phase2_2_2020/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH\\_Statewide\\_Phase2\\_3\\_2020/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH_Statewide_Phase2_3_2020/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH\\_Statewide\\_Phase2\\_4\\_2020/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH_Statewide_Phase2_4_2020/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH\\_Statewide\\_Phase2\\_5\\_2020/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH_Statewide_Phase2_5_2020/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH\\_Statewide\\_Phase2\\_6\\_2020/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH_Statewide_Phase2_6_2020/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH\\_Statewide\\_Phase2\\_7\\_2020/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH_Statewide_Phase2_7_2020/ept.json) [https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH\\_Statewide\\_Phase2\\_8\\_2020/ept.json](https://s3-us-west-2.amazonaws.com/usgs-lidar-public/OH_Statewide_Phase2_8_2020/ept.json)

**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
- 5.2. Quality control procedures employed
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.4. Approximate delay between data collection and dissemination
- 8.3. Approximate delay between data collection and submission to an archive

facility

**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/70095>

**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](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?**

Yes

**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=9845/details/9845>

[https://rockyweb.usgs.gov/vdelivery/Datasets/Staged/Elevation/LPC/Projects/OH\\_Statewide\\_Phase2\\_2](https://rockyweb.usgs.gov/vdelivery/Datasets/Staged/Elevation/LPC/Projects/OH_Statewide_Phase2_2)

**7.3. Data access methods or services offered:**

Data is available online for bulk and 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)*

NCEI\_CO

**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*

Data is backed up to tape and to cloud storage.

**9. Additional Line Office or Staff Office Questions**

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