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:

2018 Miami-Dade ITD Lidar: Miami-Dade County, FL

1.2. Summary description of the data:

GPI Geospatial Inc., operating under the authority of Miami-Dade County Aviation Department, as per contract number E15-MDAD-01, has been tasked by Miami Dade County's Information Technology Department (ITD) to provide LiDAR data for 615 square miles, including the classification of the data and the creation of hydro-enforced Digital Elevation Model (DEM). GPI Geospatial has created a file geodatabase named GPI_LIDAR_2018_GDB.

The project deliverables included fully compliant LAS v1.4 with georeferenced information included in LAS header. The LAS files have 16-bit intensity values with GPS times recorded as Adjusted GPS Time, at a precision sufficient to allow unique timestamps for each return. The LiDAR classification followed the ASPRS Standards LIDAR Point Classes: 1 = Unclassified; 2 = Ground (or Bare Earth); 3 = Low Vegetation 0 - 5 ft; 4 Medium Vegetation 5 - 25 ft; 5 = High Vegetation 25 ft-above; 6 Building; 7 = Low Point (noise); 8 = Model Key-point (mass point); 9 = Water; 10 = Ignored Ground; 17 = Bridges; 18 = High Noise.

Mass points deliverable LAS v1.4 with georeferenced information included in LAS header. The mass point files have 16-bit intensity values with GPS times recorded as Adjusted GPS Time, at a precision sufficient to allow unique timestamps for each return. The mass points are produced at a 5ft grid of the class 2 bare earth data. Mass points files are delivered as standalone files outside the geodatabase

The LAS files and mass points were tiled, without overlap, following FDOR tiling grid with 16 sub-tiles provided by Miami Dade County's Information Technology Department (ITD).

The Bare-earth 5-foot DEM is a 32-bit floating point raster format in ARCGIS GRID Raster format in compliance with USGS LIDAR Base Specifications as derived from mass points. The DEM file is a large mosaic delivered as one ARCGIS GRID file covering the entire area of interest. The DEM file is named DEM_5ft_2018 and will be located under the

delivery folder named: GPI_DEM_2018.

The GPI_LIDAR_2018_GDB.gdb file includes Breaklines (WATERBODIES, HYDROGRAPHICFEATURE) FLIGHTLINES, FOOTPRINT, CONTROL AND CHECKPOINTS.

Extracted terrain breaklines in NAVD88, to be delivered in line feature class, part of GPI_LIDAR_2018_GDB.Digital and paper copies of Surveyor's Report signed and sealed.

The lidar point, DEM, and breakline data were provided to the Office for Coastal Management (OCM) by the Miami-Dade Information Technology Department (ITD) for inclusion in the Data Access Viewer (DAV). In addition to this lidar point data, the DEM data that were created from the lidar point data and the breaklines are also available. These data are available for custom download at the links provided in the URL section of this metadata record.

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:
2018-04-25 to 2018-12-05

1.5. Actual or planned geographic coverage of the data:
W: -80.88252, E: -80.105244, N: 25.978256, S: 25.391896

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):
Process Steps:
- 2018-01-01 00:00:00 - The project was divided in two phases: Collection and classification of LiDAR data; and creation of 5-foot cell spaced hydro enforced mosaic DEM of the project area. The LiDAR data was collected utilizing a Riegl VQ-1560i in a Cessna 206 from an approximate altitude of 4,200 feet above ground level, at an approximate ground speed of 110 knots at a pulse rate repetition of 2000 kHg, resulting in an average of 15.2 points per square meter single swath and 20 plus with the 55% overlap. To get under the cloud ceiling some flight lines were collected at 2,000 feet agl at 110 knots. These lines were collected at 29.12 points per square meter single swath. The sensor used a 60-degree field of view. The project was flown to have 55 percent overlap between swaths. The Global Positioning System (GPS) data were processed using Applanix POSPac Mapping Suite version 8.3 using Smart Base method and single base methods. A fixed bias carrier phase solution was computed in forward and reverse directions. The LiDAR collection took place

when Positional Dilution of Precision (PDOP) was at or below 3. Occasionally, the PDOP rose slightly above 3. This had no effect on the data. The GPS trajectory was combined with the IMU data using the Applanix POSPac software. The resulting Smoothed Best Estimate of Trajectory (SBET) was exported and used in Riegl RiProcess software to compute the laser mass point positions in Northing, Easting, and Elevations coordinates. The raw laser data were merged with the SBET using Riegl RiProcess software. The data set was processed using RiProcess, RiAnalyze, and RiWorld software where each flight line was processed to a point cloud. The data was adjusted flight line to flight line using Riegl's Scan Data Adjustment tool to ensure a proper relative calibration match between flight lines. Each flight was checked for project coverage, data gaps between overlapping flight lines, point density and then exported in LAS 1.4 format. The entire project was collected without gaps. The LAS files were projected to the NAD_1983_2011_StatePlane_Florida_East_FIPS_0901_Feet and North American Vertical Datum of 1988 (NAVD88). Ellipsoidal heights were converted to orthometric heights using the current Geiod12B. The LAS files were imported to TerraSolid, LTD TerraScan software to be classified to bare earth ground and later feature coded to USGS specifications. The LAS files contain 12 classifications: 1 = unclassified; 2 = ground; 3 = low veg; 4 = med veg; 5 = high veg; 6 = building; 7 = noise points; 9 = water; 10 = buffered ground points surrounding breaklines; 12 = overlap; 17 = overpass and bridges; 18 = high noise. The LiDAR data was run through an automated ground and building classification using terrascan software. A manual check of the building classification was done. The vegetation heights were assigned by an automated process after the bare-earth and buildings were classified. No manual classification of the vegetation class was performed on this data set. Breaklines were digitized from the LiDAR data in Microstation and elevations were assigned using LP360 and ArcGIS. The double line linear hydrographic features were hydro-enforced with downhill constraints to model correct flow patterns. Water bodies were hydro-flattened to ensure uniform elevation across the feature. DEMs were created using QCoherent LP360 software. The bare-earth LAS data was loaded into the software along with the tile layout and hydro shapefile collected from the LAS data set. DEMS were produced at a 5ft cell size and hydro-flattened. To QC the DEMs Global Mapper was used to check for completeness of the tiles and that the hydro features were flattened and represented correct elevations. Once the QC was complete the files were exported out of ArcGIS to create Arc DEM. COLLECTION DATES: 4/25/18, 4/26/18, 4/29/18, 4/30/18, 5/01/18, 6/05/18, 6/06/18, 6/22/18, 12/05/18 173 flight lines of data were collected.

- 2021-03-28 00:00:00 - The NOAA Office for Coastal Management (OCM) received 10,904 files in las format from the Miami-Dade Information Technology Department (ITD). The lidar data had elevation and intensity measurements. The data were in FL State Plane East, Zone 0901, NAD83 (2011), US survey foot coordinates and NAVD88 (GEOID12B) elevations in feet. The data were classified as: 1 - Unclassified, 2 - Ground, 3 - Low vegetation (0 -5 ft), 4 - Medium Vegetation (5 - 25 ft), 5 - High Vegetation (above 25 feet), 6 - Buildings, 7 - Noise, 9 - Water, 10 - Buffered Ground

surrounding breaklines, 17 - Overpasses and Bridges, 18 - High Noise. Although the accompanying metadata and report indicated that there were class 12 - Overlap points, an internal OCM script did not find any points with this classification. OCM processed the 1, 2, 3, 4, 5, 6, 7, 9, 10, 17, and 18 point classes to the Digital Coast Data Access Viewer (DAV). OCM performed the following processing on the data for Digital Coast storage and provisioning purposes: 1. The data were converted to laz format using laszip 2. Internal OCM scripts were run to check the number of points by classification and by flight ID and the gps, elevation, and intensity ranges. 3. Internal OCM scripts were run on the laz files to: a. Convert from orthometric (NAVD88) elevations to ellipsoid elevations using the Geoid12B model b. Convert from FL State Plane East Zone 0901 (NAD83 2011), US survey foot coordinates to geographic coordinates c. Convert from vertical units of feet to meters d. Filter points outside the elevation range of -100 to 2000 feet e. Filter points outside the geographic range of the bounding coordinates of -82, 24, -79, 28 degrees f. Assign the geokeys, to sort the data by gps time and zip the data to database and to http.

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/64464

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?
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=9271/details/9271
https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/9271/index.html

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.