NJDEP GIS Enterprise Data Standards
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New Jersey Department of Environmental Protection
Geographic Information System

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I. Introduction

The NJDEP Enterprise Geospatial Database (GDB) is the centralized database managed by the BGIS that houses all geospatial feature classes, raster files and other data sets that exist on all GIS applications in NJDEP. These applications include DEPView, DEPExplorer, NJ-GeoWeb (intranet and internet versions), and ArcGIS Online (DEP Organization). In order to ensure that the same data are used in all of these applications, the "official" data is housed and secured in the Enterprise.

The BGIS is implementing a workflow policy for all new GIS data to be submitted to the NJDEP Enterprise. Additionally, this policy will provide the instructions for editing data that currently exist in the NJDEP Enterprise requiring modifications to either the structure of the attribute table or geospatial features and/or tabular records.

II. Preliminary Requirements for NJDEP Enterprise GDB Data

When contemplating the submission of data into the DEP Enterprise, or if a feature class already exists in the NJDEP Enterprise and requires edits, the following are preliminary steps that must be undertaken prior to any action taken with the feature class(es) in question:

A. **Data Stewardship** – Each feature class in the NJDEP Enterprise must be assigned a Data Steward. The Data Steward will be the point of contact for the BGIS and will be responsible for all updates, changes, edits, and metadata with regard to that feature class. Additionally, the Data Steward will be responsible for obtaining any necessary approvals for the use and/or publication of that feature class from that Steward's program management.

B. **Training** – All Data Stewards are required to take the one-day Geodatabase and DEP Enterprise Training course offered by BGIS in order to participate in the Enterprise. An exception can be made to this policy when Data Stewards have changes that must occur prior to a training course being offered.

C. **Data Submittal Form (DSF)** – Whenever a new feature class is to be added to the Enterprise, or an attribute table structure change will be occurring to an existing feature class in the Enterprise, a Data Submittal Form must be completed by the Data Steward.   The DSF is a document used to relay information about the data in question to BGIS. The DSF must be signed by the Data Steward's supervisor to ensure that program management is aware of the request. The completed DSF should be emailed to the BGIS Data Manager. Simple feature class updates that do not require an attribute table change and are comprised of only adding/deleting geospatial features or tabular records do not require a DSF; unless those new or removed features are considered by the Data Steward and/or the BGIS Data Manager to be "sensitive" in nature. Multiple feature classes can be listed in one DSF. The

DSF must be completed with as much information as possible, and should include a deadline date for the feature class(es) in question to appear on the requested application(s). The DSF can be obtained by contacting the BGIS Data Manager, but may eventually be available on the DEP intranet.

D. **Publication** – For each feature class to be submitted to the DEP Enterprise, a determination for publication must be made either to the public, certain limited partners/constituents, or restricted to internal DEP only. A decision on the availability of the feature class(es) must be indicated on the DSF.

1. **Public-facing Data** - If public availability is considered, all new and existing structure-modified feature classes (that are considered "sensitive" by either the Data Steward and/or the BGIS Data Manager) must be reviewed and approved by the Assistant Commissioner of the program requesting publication. The approval by the Assistant Commissioner must be in written format and will be requested as proof by the BGIS Data Manager prior to releasing the data for publication. No "sensitive" feature class may be added to a public-facing application or be made available on the internet without consent of the Assistant Commissioner of the program requesting publication.

2. **Partners/Constituents** – In the event that a program considers certain project partners or constituents required to access the feature class(es) in question, and that data is considered "sensitive", the feature class(es) will be subject to Assistant Commissioner approval as stipulated in Section I.C(1) above. Certain applications can be utilized that allow a limited amount of users to view data. Those applications will be discussed at the meeting between the Data Steward and the BGIS Data Manager/Team.

3. **DEP-Only Data** – Feature classes that are restricted to internal use only by Departmental staff will be housed in the DEP Enterprise GDB but will not be made available on any public-facing websites or applications. These feature classes will not be subject to evaluation by the Assistant Commissioner of the program.

E. **Metadata** – The Data Steward responsible for the feature class(es) in question is also responsible for the creation and maintenance of metadata for that feature class(es). The BGIS Data Manager is the contact for metadata management in the Department and can assist in training and suggestions for proper metadata creation and maintenance.

F. **Data Quality** – The Data Steward is responsible for ensuring that the data they intend to submit to the DEP Enterprise is topologically accurate, all attributes have been checked for errors and are normalized, and field widths are assigned appropriately. Data will be checked by BGIS and may be returned to the Data Steward if any of the above quality assurance/quality control checks have not been performed, or if numerous errors exist in the data. Strong data quality is a reflection on the professionalism of the employees in the NJDEP and, therefore, is incumbent upon all data creators to ensure proper adequate data quality for the feature class(es) they publish.

Once these steps are completed, the Data Steward assigned to the feature class(es) to be submitted to, or edited in, the NJDEP Enterprise must consider the type of submission and follow the next steps accordingly:

III. **Procedure for Submitting Data for the DEP Enterprise:**

A. **New Data:**

New data is defined as GIS data that has never existed in the NJDEP Enterprise before. Since the NJDEP Enterprise is comprised of multiple file geodatabases, all data therein must exist in Geodatabase/Feature Class format. All data must be submitted to the BGIS Data Manager in Geodatabase/Feature Class format (all other files such as shapefiles, coverages, and/or KMLs must be converted to and maintained in the Geodatabase/Feature Class format). The procedure for submitting new data to the DEP Enterprise is as follows:

1. **Contact the BGIS Data Manager** – A representative of the program that created the feature class(es) must contact the BGIS Data Manager with the intention of the program. That representative may or may not be declared the Data Steward, depending on the results of the meeting between the program and the BGIS Data Team (see Section III: A(3), below).

2. **Complete the DSF** – The BGIS Data Manager will respond to the Data Steward with an attached DSF form (see Section II: C above). The Data Steward is mandated to fill out the DSF including a supervisor's signature and return it to the BGIS Data Manager before any feature class(es) can be submitted into the NJDEP Enterprise.

3. **Meeting** - The BGIS Data Team will schedule a meeting with the Data Steward (and any of the Steward's staff who may participate in editing the data) to discuss the various options for including the feature class(es) into the NJDEP Enterprise; as well as review the submission of the DSF.   The meeting will also entail discussions on data maintenance and timelines and a mutually agreeable name for the feature classes) based on ESRI's data model best practice recommendation adopted by NJDEP.

4. **Enterprise Implementation** - Depending on the workflow agreed upon by the BGIS Data Team and the Data Steward, the BGIS Data Team will set up the Enterprise feature class(es) in the Enterprise and load the data into that feature class(es).

5. **Data Maintenance** - Once the feature class(es) is loaded into the NJDEP Enterprise, the BGIS Data Team will replicate/copy the data and metadata to all locations in the NJDEP Enterprise where the data must exist for various applications to use it. Unless otherwise specified by a pre-determined workflow, these replications/copies/synchronizations will occur once a week on Wednesday nights, whereby all applications will display the new data during work hours on Thursday. Once completed and confirmed that the feature class(es) has been added to all necessary locations in the NJDEP Enterprise, the BGIS Data Manager will notify the Data Steward that the procedure is complete, and will provide instructions for versioning and data maintenance as necessary.

B. **Modified Data (Structure/Schema Edits):**

Modified Data is defined as GIS data that exists (or at one point had existed in the NJDEP Enterprise) and requires edits to the columns of the attribute table associated with that data. These edits include attribute column name changes, field type changes (eg. string to short integer), new columns, or deleted columns. These modifications are not considered standard data updates, since the changing structure affects the replication and synchronization of the data to the other locations in the NJDEP Enterprise GDB. The procedure for submitting modified data to the NJDEP Enterprise is as follows:

1. **Contact the BGIS Data Manager** – when the Data Steward decides to modify the structure of an existing feature class(es) in the NJDEP Enterprise, that Data Steward must first notify the BGIS Data Manager prior to making any changes to that feature class(es). Depending on the type of modifications being considered, the BGIS Data Manager will make certain recommendations for properly modifying the structure of that feature class(es).

2. **Complete the DSF** - The BGIS Data Manager will respond to the Data Steward with an attached DSF form (see DSF Section above). The Data Steward is mandated to fill out that form including a supervisor's signature and return it to the BGIS Data Manager before the feature class can be modified in the NJDEP Enterprise. It is essential for the DSF to be completed in the case of a structure modification to ensure that the Data Steward's management is aware of the changes being made to that feature class(es).

3. **Meeting** – Depending on the modifications being made to the data, a meeting may be scheduled to include the BGIS Data Team and the Data Steward (and any of the Steward's staff who may participate in editing the data). The meeting would entail a discussion of how the modifications should be made and whether any of those changes would affect certain applications (I.E. labeling, symbology, definition query, scale dependencies, etc).

4. **Archiving –** All data removed from the NJDEP Enterprise will be archived as stipulated by NJDEP's Data Retention Policy. Archiving will take place whenever a data set is deemed obsolete, has been updated, or replaced.

5. **Enterprise Implementation** - Depending on the procedure agreed upon by the BGIS Data Team and the Data Steward, the BGIS Data Team will set up the permissions and policies for editing via versioning and object load; or potentially by other methods deemed appropriate by the BGIS Data Team.

6. **Data Maintenance** - Once the altered feature class(es) is loaded into the NJDEP Enterprise, the BGIS Data Team will replicate/copy/synchronize the data and metadata to all locations on the NJDEP Enterprise GDB where the data must exist for various applications to use it. Unless otherwise specified by a pre-determined work flow , these replications/copies/syncs will occur once a week on Wednesday nights, whereby all applications will display the new data during work hours on Thursday. Once completed and confirmed that the feature class(es) has been modified in all necessary locations on the NJDEP Enterprise GDB, the BGIS Data Manager will notify the Data Steward that the procedure is complete, and will provide instructions for versioning and data maintenance as necessary.

C. **Updated Data:**

Updated data is defined as data that requires only changes to the geospatial features or records of the attribute table; but no modifications to the columns of that table. These feature updates are the fastest to implement in the NJDEP Enterprise GDB and will be implemented mainly through the versioning process. The procedure for editing and submitting updated data to the NJDEP Enterprise is as follows:

1. **Contact the BGIS Data Manager** – when a feature class(es) that currently exists in the NJDEP Enterprise requires feature/record updates only, the Data Steward must contact the BGIS Data Manager notifying him/her of the feature class(es) that will be edited.

2. **Editing the Data** – The BGIS Data Team will recommend the best way to perform the required edits through versioning. The core methods to update data are:

a. **Versioning:**
   i. **Enterprise Versioning** - the Data Steward is given permissions to edit a version that has been assigned from the Enterprise feature class by the BGIS Data Team. The Data Steward will then have permissions to create child versions for potential editors in his/her program that may be tasked with editing/maintaining that same feature class. The Data Steward is responsible for reconciling all child versions and posting his/her version back to the parent. Once those versions have been reconciled and posted to the parent, the Data Steward must contact the BGIS Data Manager that updates have been completed. The BGIS Data Manager will then post the updated feature class version to the NJDEP Enterprise GDB.

   ii. **Disconnected Editing/Versioning** – The BGIS Data Team will create a version of the feature class(es) that requires editing, and create a disconnected version for editing (disconnected from direct access to the NJDEP Enterprise). That disconnected version will be placed in a shared folder for the Data Steward to access. Once accessed, the version should not be modified in any way other than with feature/record edits; it should not be exported, or renamed. Once edits are completed, the Data Steward must contact the BGIS Data Manager and alert him/her that all edits are complete; and to post the data to the NJDEP Enterprise GDB.

b. **Feature Class Builders** – Builders are SQL programs created to process and mine spatial data from an existing database (eg. NJEMS, COMPASS, etc.) into a feature class(es) on a pre-determined schedule. If a Data Steward determines their program's geospatial data comes directly from an existing database accessible by NJDEP, a builder can be created that will consume and convert that data into a feature class usable by the NJDEP Enterprise. The workflow for how often that builder would consume the data would be decided by the Data Steward and the BGIS Data Team.

3. **Enterprise Implementation** – Once the parent version has been posted to the NJDEP Enterprise, it can then be synchronized to the other locations on the NJDEP Enterprise GDB where that data resides for application use. This synchronization can take place during regular office hours thereby making this type of data update the most efficient and timely of all.

4. **Archiving** – All data removed from the NJDEP Enterprise will be archived as stipulated by NJDEP's Data Retention Policy. Archiving will take place whenever a data set is deemed obsolete, has been updated, or replaced.