

APPENDIX C - PROCESS SPECIFICATION REPORT

1.2.2 IMPORT AND MAINTAIN LAND THEMES

Capability:

The business of processing land and mineral record data spatially requires a georeferenced land data framework to which all A/N land and mineral record attributes can be linked. Associating A/N land and mineral record data with spatially referenced land data shall allow land and mineral record processing to analyze absolute relationships with other land and mineral record activities ongoing in the same geographic area. *[DONE RELEASE 1]*

Clarifications:

1. **The spatial land theme shall be a theme created from the GCDB data source.**
This Land Theme shall remain vertically integrated within itself and with L & M Record and Land Status themes at all times. *[DONE RELEASE 1]*
2. **GCDB coordinates and attributes shall only be added to Land Resource Information Systems (LRIS) with process 1.2.2.1.1. GCDB coordinates shall not be moved with any of the processes in the (LRIS). GCDB coordinate positions shall not be changed. *[DONE RELEASE 1]***
3. **Rectangular, Rectangularly-Based and Geopolitical, Geopolitically-Based Land Units imported from GCDB shall not be modified by any LRIS Record Maintainer. However, the spatial objects created from this data may be topologically divided by process 1.2.2, Import and Maintain Land Themes.**
4. **L&M Record-Based Land Units shall be modified by either the Geographic Data Maintainer or the LRIS Record Maintainer.**
5. **Import and Maintain Land Themes shall maintain features and geographic locations, but shall not assign symbolization to these. Symbolization occurs in sections 1.2.4 and 1.2.5.**
[DONE RELEASE 1]
6. **The user shall interactively display the appropriate Land and Reference themes, and all updates with process 1.2.4 while using processes in 1.2.2. *[DONE RELEASE 1]***
7. **The Geographic Data Maintainer shall be able to perform all of the functions listed in 1.2.2.**
[DONE RELEASE 1]

8. **The LRIS Record Maintainer shall be able to perform the following functions:**

1.2.2.2.3 CREATE LAND BY PARCEL SUBDIVISION

1.2.2.2.4 CREATE LAND BY AGGREGATION *[DONE]*

1.2.2.2.5 CREATE APH ASSOCIATIONS *[DONE]*

1.2.2.3.2 REPORT PARCEL IDENTIFIER CHANGE

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1.2.2.1.1 IMPORT & TRANSFORM GCDB LAND DATA

Capability:

Constructing the LRIS land data theme shall be the responsibility of the Geographic Data Maintainer. Land data theme construction shall use the LRIS external spatial data source known as Geographic Coordinate Data Base (GCDB) as the primary land data contributor. *[DONE RELEASE 1]*

This process shall be initiated after process 1.2.2.1.4 UPDATE LAND DATA BY TOWNSHIP has determined GCDB data availability on a township basis. *[DONE RELEASE 1]*

Only GCDB data shall be imported in this process. *[DONE RELEASE 1]*

This process shall read the SFF files and populate the appropriate LRIS entities and elements. *[DONE RELEASE 1]*

Canceled and suspended surveys shall be imported into LRIS, and shall be appropriately attributed within LRIS, if collected by GCDB. Generally, only canceled or suspended mineral surveys will not be collected by GCDB, but shall be imported if collected. *[DONE RELEASE 1]*

GCDB coordinates will be provided to LRIS using Latitude/Longitude in NAD27 or NAD83 horizontal datum and NAVD29 vertical datum. These shall be converted to the coordinate system, horizontal datum and vertical datum defined in Appendix J, Reference J-7, Part A. Data Storage Parameters. *[DONE RELEASE 1]*

This process shall accept the vertices along a curve (circular, spiral, parabolic), created by the GCDB, storing the curve elements in the LRIS. *[DONE RELEASE 1]*

This process shall create an LRIS Process History record (\APH) for GCDB Metadata and a second \APH record for LRIS Metadata. The \APH that points to source of LRIS shall have a time later than the \APH that points to source of GCDB, so that if the spatial objects are rebuilt in subsequent processes, the GCDB data can easily be recreated by going back to this instance in time. **((NOTE: Need to talk with Barb Kett regarding Township only metadata versus feature based metadata. Also need to update metadata from July 1993 draft standard to whatever the current standard is))**

This process shall pass all appropriate information back to 1.2.2.1.4 UPDATE LAND DATA BY TOWNSHIP for further processing. *[DONE RELEASE 1]*

Clarifications:

1. **The LRIS Record Maintainer shall be able to access spatial coordinates for land data even if the township contains canceled or suspended surveys.** *[DONE RELEASE 1]*
2. **The LRIS Record Maintainer shall not revert to another external land data spatial representation if the GCDB data is canceled or suspended.**
3. **The LRIS system shall be able to accommodate multiple land data versions through time for the same area due to GCDB updates and case processing requirements. (Talk with Brian Price on this.)**
4. **GCDB updates to the LRIS land data shall occur in two ways; on an as needed basis and in epochs. Both ways shall be accommodated by the same LRIS processes.** *[DONE RELEASE 1]*
5. **GCDB shall provide information for Rectangular, Rectangularly-Based, Geopolitical and Geopolitically-Based Land Units.**
6. **For GCDB, incoming spatial data shall be in Arc/Node structure with Area Points, or polygonal structure.** *[DONE RELEASE 1]*

7. **Incoming spatial data will associate many land descriptions to a single area point. Therefore, a single incoming area shall be associated with one or more parcel identifiers. [DONE RELEASE 1]**
8. **This process assumes that Metadata for LRIS source already exists.**
9. **This process assumes that Data Set Distribution and Data Set Contact Metadata for GCDB already exists, and at least one Data Set Source for GCDB is populated.**
10. **The SRS for the Alphanumeric DataBase will define how to convert Legal Land Description (LLD) data into LRIS module one. The Spatial Rules found in the SRS shall elaborate on how to match the GCDB to the converted LAND entities. [DONE RELEASE 1]**

1.2.2.1.4 UPDATE LAND DATA BY TOWNSHIP

Capability:

In areas where the Geographic Data Maintainer determines that an update is necessary for Rectangular, Rectangularly-Based, Geopolitical, and (or) Geopolitically-Based Land Units, this process shall be initiated.

Subprocesses shall determine the Area of Interest (AOI) to be updated, what information is available within the AOI and from what source, how to update the information, initiate processes to import and transform the data, update the features, spatial objects and metadata, and then initiate calls to process 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER as appropriate.

Clarifications:

1. **Process 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER shall notify L&M Records through a report of changed land and by the attribute PARCEL_ID_END_DATE in the PARCEL ID table.**
2. **Process 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER shall create the PARCEL IDs and report the PARCEL IDENTIFIERS of the newly created A/N Land back to the Geographic Data Maintainer.**

NOTES: Talk with Brian Price about number 1, related to when "Update Land Data" process is run all LRIS users shall be notified

APPENDIX C - PROCESS SPECIFICATION REPORT**1.2.2.1.4.1 DETERMINE UPDATE AOI BY DATA SOURCE****Capability:**

This process shall accept the Area of Interest (a block of one or more townships) from the Geographic Data Maintainer, determine GCDB availability, and initiate process 1.2.2.1.4.2 INITIATE TOWNSHIP IMPORT. *[DONE RELEASE 1]*

The concept is that GCDB data shall be stored in predefined areas, external to LRIS. This process shall initiate the external processes Cadastral Survey GCDB System and Land and Geopolitical Data Source to determine which of the existing data sets contain land information within the desired township(s) that have not been previously imported.

This process shall issue lists of all available GCDB township(s), not previously imported to 1.2.2.1.4.2 INITIATE TOWNSHIP IMPORT.

Clarifications:

1. **Process 1.2.2.1.4.1 shall define the AOI using the same functionality as Process 1.2.4.5.1.**

1.2.2.1.4.2 INITIATE TOWNSHIP IMPORT

Capability:

This process shall accept lists of GCDB available township(s) from process 1.2.2.1.4.1 DETERMINE UPDATE AOI BY DATA SOURCE, determine which source should be used for a particular township, issue requests to transform the data, accepts the data, determine update type, and initiates requests for updates to the applicable process (i.e. 1.2.2.1.4.3 - 1.2.2.1.4.4).

Type of update is determined by the following rules.

1. Updates should be performed if the incoming Source data is newer and of greater reliability than the existing data from GCDB.

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1.2.2.1.4.3 CREATE LAND DATA

Capability:

This process shall only be executed in areas where spatial data does not exist for Rectangular, Rectangularly-Based, Geopolitical and Geopolitically-Based Land Units. A township shall be the smallest work unit for geographic states covered by the rectangular land grid. *[DONE RELEASE 1]*

This process shall accept land data (including spatial objects and land description attributes) and its associated metadata from 1.2.2.1.4.2 INITIATE TOWNSHIP IMPORT. *[DONE RELEASE 1]*

This process shall create features and spatial objects from the external spatial objects and attributes, and link these to the metadata. During this process, the new spatial objects shall be topologically integrated with the existing spatial objects. *[DONE RELEASE 1]*

This process shall check for LRIS Rectangular, Rectangularly-Based, Geopolitical, and Geopolitical-Based Land Units associated with the township that do not exist in the incoming data. If so, the user shall be queried to determine whether the LRIS Land Units have been replaced by the incoming data, or if they are still valid. *[DONE RELEASE 1]*

This process shall sort the incoming land descriptions, according to the Land Model, in order for land to correctly build the land keys hierarchically. For example an Aliquot Part can not be created without knowing its associated township and sections. *[DONE RELEASE 1]*

This process shall calculate land associations and proportioned legal acres for all incoming land descriptions. *[DONE RELEASE 1]*

This process shall initiate 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIERS, and issue land description attributes and new feature_ids. Process 1.2.2.3 shall report the newly created parcel_ids for the input Land Descriptions to the Geographic Data Maintainer.

An error report shall go to the Geographic Data Maintainer, indicating errors from any source. *[DONE RELEASE 1]*

Clarification:

1. **This process shall accept incoming area points that are associated with many features (land descriptions).** *[DONE RELEASE 1]*

Note: Get notes from Dennis Walworth concerning this page

1.2.2.1.4.4 REPLACE LAND DATA

Capability:

This process shall only be executed in areas where spatial data already exists for Rectangular, Rectangularly-Based, Geopolitical and Geopolitically-Based Land Units. A township shall be the smallest work unit for geographic states covered by the rectangular land grid. *[DONE RELEASE 1]*

This process shall accept land data (including spatial objects and land description attributes) and metadata from 1.2.2.1.4.2 INITIATE TOWNSHIP IMPORT. *[DONE RELEASE 1]*

The original township data store shall be saved in the LRIS Database prior to performing 1.2.2.1.4.4 REPLACE LAND DATA.

This process shall create new spatial objects for those spatial objects that have new attributes or associations to other spatial objects. During this process, existing spatial objects shall be linked to new COORDINATE SETs. During this process, the new spatial objects shall be topologically integrated with the existing spatial objects.

If the coordinates for a spatial object have not changed, the original COORDINATE SET shall remain in tact, as well as the spatial object itself. The metadata association, shall change to reflect the incoming information.

This process shall rebuild all LRIS spatial objects that have been affected by coordinate changes. This shall be done by reportioning the LRIS coordinates along the new spatial objects.

This process shall check for LRIS Rectangular, Rectangularly-Based, Geopolitical, and Geopolitically-Based Land Units associated with the township that do not exist in the incoming data. If so, the user shall be queried as to whether the LRIS Land Units have been replaced by the incoming data, or if they are still valid.

This process shall sort the incoming land descriptions, according to the Land Model, in order for land to correctly build the land keys hierarchically. For example an Aliquot Part can not be created without knowing the associated township and section.

This process shall calculate land associations and proportioned legal acres for all incoming land descriptions.

This process shall create features from the external spatial objects and the reportioned spatial objects for those Features and (or) Land Descriptions that have changed. These shall be linked to the metadata.

(Note: Has the link to case been lost?)

For any new features, and (or) A/N land changes, this process shall then initiate 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER, issue land description attributes and new feature_ids. Process 1.2.2.3 shall report the newly created parcel_ids for the input Land Descriptions to the Geographic Data Maintainer.

An error report shall also go to the Geographic Data Maintainer, indicating errors from any source.

Clarifications:

1. **New Features shall not be created if the associated Land Descriptions and attributes have not changed. However, an attribute change, such as a new legal acreage or a change in land associations shall trigger the creation of a new feature, and subsequently a new Land Description and Parcel Identifier**
2. **This process shall accept incoming area points that are associated with land descriptions.**

Note: Have meeting with Barb Kett, Wendy, John and team to discuss this section

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1.2.2.1.5 UPDATE LAND DATA BY FEATURE

Capability:

In areas where the Geographic Data Maintainer or the LRIS Record Maintainer determines that an update is necessary for L&M Record-Based, Geopolitical and Geopolitically-Based Land Units, this process shall be initiated.

If the Geographic Data Maintainer or the LRIS Record Maintainer determines, by querying the database, that desired features do not already exist, then subprocesses shall be used to determine the Area of Interest (AOI) to be updated, what information is available within the AOI and from what source, initiate processes to import and transform the external data, construct the spatial objects, and initiate calls to process 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIERS.

Existing features shall also be modified by this process using basic COTS spatial editor capabilities within LRIS.

The Geographic Data Maintainer shall be appropriately notified of the update status.

Clarifications:

1. **The reason that a replace process does not exist for importing feature-based land data is that different types of L&M Record-Based, Geopolitical, and Geopolitically-Based Land Units shall come from different sources and each data source shall need to be vertically integrated with other LRIS Land Data. Vertically integrating coordinate data shall be supported by semi-automated processes that provide interactive mechanisms to move and snap lines/coordinates (after data is snapped the user shall be provided with tools for editing the adjacent lines/coordinates). Once this is done, subsequent updates to the geopolitical boundaries shall be handled by using the boundaries reference theme to view the updated boundary, and manually changing the geopolitical land data with the COTS editor.**
2. **Process 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIERS shall notify L&M Records through a report of changed land and by the attribute PARCEL_ID_END_DATE the Parcel ID table.**
3. **All create, replace, and update land processes shall update Alphanumeric data from the spatial processes. Examples of Alphanumeric updates include, but are not limited to land descriptions, and acreage.**

1.2.2.1.5.2 INITIATE FEATURE IMPORT

Capability:

This process shall accept lists of all available features by source from process 1.2.2.1.5.1 DETERMINE UPDATE AOI BY DATA SOURCE, interact with the Geographic Data Maintainer or the LRIS Record Maintainer to determine which of the available land units to import, and from which source, determine whether land units are Geopolitical, Geopolitically-Based, or L&M Record-Based, issue requests to transform the data to either process 1.2.2.1.2 IMPORT & TRANSFORM OTHER SOURCE LAND DATA or process 1.2.2.1.3 IMPORT & TRANSFORM OTHER SOURCE GEOP DATA depending on type, accept the data, and initiates process 1.2.2.1.5.3 CREATE LAND FEATURE.

This process shall then issue all land data, geopolitical data and metadata to process 1.2.2.1.5.3 CREATE LAND FEATURE.

Clarifications:

- 1. The Geographic Data Maintainer or the LRIS Record Maintainer may choose to not import a particular feature.**

NOTE: This section implies that feature level import will exist. Currently the metadata exists at the township level not for the feature level. Talk with Barb Kett about this.

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This process shall accept land and geopolitical data (including spatial objects) and metadata from 1.2.2.1.5.2 INITIATE FEATURE IMPORT.

This process shall determine if the particular feature already exists. If the particular L&M Record-Based, Geopolitical, or Geopolitically-Based Land Unit already exists spatially, this process shall not allow the feature to be recreated. Instead, the Geographic Data Maintainer and the LRIS Record Maintainer must use process 1.2.2.1.5.4 MODIFY EXISTING LAND.

This process shall create spatial objects from the external data and link these to the metadata. These spatial objects shall be topologically integrated with any existing spatial objects.

This process shall then create features from the external data and link these to the metadata.

This process shall calculate land associations and proportioned legal acres for all incoming land descriptions as well as those affected by the change. Those land descriptions that have changed land associations and/or acres shall be updated.

For any new features, and (or) A/N Land changes, this process shall initiate 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER, and issue land description attributes and new feature_ids. Process 1.2.2.3 shall report the newly created parcel_ids for the input Land Descriptions to the Geographic Data Maintainer.

An error report shall also go to the Geographic Data Maintainer, indicating errors from any source.

Note: The adjustment in coordinate data may affect Case Acreage in LRIS.

1.2.2.1.5.4 MODIFY EXISTING LAND

Capability:

Existing spatial objects and features, shall be modified by this process using functionality within the COTS spatial editor (see MOVE, EXTEND capabilities).

This process shall accept the desired COORDINATE SET to be moved from the Geographic Data Maintainer. The Geographic Data Maintainer and LRIS Record Maintainer shall also be able to indicate which of the features attached to the original spatial objects shall move with the new COORDINATE SET.

This process shall create an APH with LRIS as the source. The original coordinates shall remain in the data base, thus allowing spatial land portrayal through time.

This process shall rebuild all LRIS spatial objects that have been affected by coordinate changes. This shall be done by reportioning the LRIS coordinates along the new spatial objects.

This process shall check all features affected by the change in spatial objects for changes in land associations and changes in proportioned legal acres.

For any features with changes in land associations and (or) proportioned legal acres, this process shall then initiate 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER, and issue the updated feature_ids, as well as the new land associations and acres. Process 1.2.2.3 shall report the newly created parcel_ids for the changed Land Descriptions to the Geographic Data Maintainer.

Clarifications:

1. **If a Coordinate Set is associated with features that are associated with Rectangular and Rectangularly-based land units, then the Line Segment shall only be modified if the Coordinate Set only has a source of LRIS.**
2. **If a Coordinate Set is associated with features that are only associated with L&M Record-Based, Geopolitical and Geopolitically-Based Land Units, then the Coordinate Set shall be allowed to move, no matter what original source. In this case, the Coordinate Set and associated features shall receive an additional LRIS Process History record.**

Note: Talk with Barb Kett as to whether or not L&M Based is a separate coverage. How can Land be modified at a feature level when the Import GCDB process is only designed to run, at the lowest level, for a township. If needed, modify specifications for below the township level import. Why allow Geopolitical (and possibly Geopolitically-Based) to be moved when those relationships are also tied spatially (survey measurements) to the township.

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1.2.2.2 EXPAND LAND DATA THEME

Capability:

The activity of land and mineral record processing shall often dictate spatially, the need to further partition/aggregate land data into different geographic units, so that L&M Record events can be displayed and analyzed spatially. Partitioning the land data shall entail determining the appropriate division methodology based on the actual L&M Record descriptions.

Clarifications:

1. **External source data from GCDB listed in Appendix J, table J.2 shall take precedence over LRIS digitized coordinates.**
2. **The system shall be able to support multiple spatial objects for Right of Ways and their associative land descriptions (e.g., a ROW may have rectangular land description and/or a nominal description associated with "land" area spatial objects with a free format land description associated with a centerline and optionally a buffer zone).**
3. **Multiple case serial numbers with different offset widths shall be able to use the same centerline spatial object if their position is coincident.**
4. **Every individual line segment of a Right of Way shall have a constant width for each of its sides (right and left), therefore, LRIS module one shall be capable of supporting variable widths for the compound Right of Way feature.**
5. **The land that a linear case feature (e.g., Right of Way) passes through shall be determined in these processes.**
6. **In order to spatially resolve complex land status parcels, features shall be created for areas, even if a land description does not exist. For example, if a L&M Record-Based Land Unit divides an existing land unit, both divisions shall be considered a feature, even though a land description shall only exist for one of the divisions.**
7. **This process shall not provide the LRIS Record Maintainer with the capability to digitize the entire land spatial framework from scratch.**

1.2.2.2.1 CREATE LAND BY EXTRACTION FROM OTHER SOURCES

Capability:

Land and Mineral Record processing requirements shall often include an L&M Record-Based Land Unit that does not exist in the LRIS land data theme. However, LRIS Reference Themes shall typically have a spatial coordinate framework, or imagery, from which the LRIS land data can be expanded.

Expanding the LRIS land data theme shall require the capability to extract spatial objects for a natural or manmade feature from Reference Themes by one of five methods:

- 1) Copying spatial objects from one of the LRIS background reference themes.
- 2) Digitizing from imagery or other reference theme displayed in the screen background.
- 3) Digitizing from analog sources with the use of a digitizing table.
- 4) Entering coordinates via keyboard entry.
- 5) Entering coordinates via a digital file. (All standard data formats, see process 1.2.1)

This process shall be capable of being initiated in two ways. In the first option, Process 1.1 MAINTAIN LAND AND MINERAL RECORD INFORMATION shall initiate this process. It is assumed that L&M Record processing shall select the Area of Interest, using Process 1.2.4.5.1. If requested, L&M Record processing shall also select Parcel IDs that are associated with L&M Records and issue these to this process.

Geographic Data Maintainer and the LRIS Record Maintainer shall be able to initiate this process, after selecting an Area of Interest (AOI), using Process 1.2.4.5.1. The Geographic Data Maintainer and the LRIS Record Maintainer shall also have the option of selecting Parcel IDs associated with existing cases.

In either case, this process shall highlight the selected Parcel IDs and query the user for the extraction method, all appropriate Metadata, and LRIS Process History information.

This process shall then spatially generate the desired parcel, splitting the existing spatial objects. A list of COTS tools required for this process can be found in Appendix J.

This process shall ask the user to identify those areas where land descriptions and associated features are required. This process shall then create the required area sets and features.

This process shall calculate the land associations for the newly created features that require a Land Description.

This process shall calculate the proportioned legal acreage for newly created features that require a Land Description.

This process shall then initiate 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER, and issue land associations, proportioned legal acres and new feature_ids. Process 1.2.2.3 shall report the newly created parcel_id for the input Land Descriptions to the Geographic Data Maintainer.

Clarifications:

1. **The LRIS Record Maintainer and(or) Geographic Data Maintainer shall not extract coordinates nor digitize coordinates from the elevation shaded relief subtheme.**
2. **The LRIS system shall have the capability to subsequently retain and readjust the coordinates of spatial objects that were created by this process, with process 1.2.2.1.**
3. **This process shall not generate Land Descriptions, but shall flow the FEATURE_ID, land associations, and Proportioned Legal Acres to Process 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER, and subsequently to Process 3.0 MAINTAIN LAND DESCRIPTIONS.**
4. **This process shall also be used to create new features from existing areas.**

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1.2.2.2.2 CREATE LAND BY METES & BOUNDS TRAVERSE

Capability:

Land and Mineral Record processing requirements shall often include a land description that does not exist in the LRIS land data theme. However, the external data source for the LRIS land data theme shall typically have a spatial coordinate framework from which the LRIS land data can be expanded. Expanding the LRIS land data theme shall require the capability to create land parcels by Metes & Bounds survey descriptions. Partitioning land parcels using GMM or approved BLM Cadastral software that computes coordinates in the same datum, coordinate system, and from the same point of record, shall ensure that LRIS and GCDB both generate land parcels using the same methodology. As a result, the actual metes and bounds traverse shall be performed in accordance with methods that produces data that are the same as the data produced with CADASTRAL SURVEY GMM SYSTEM.

Expanding the land data theme using Metes & Bounds shall translate the record survey bearings and distances, along with control, into spatial objects in accordance with CADASTRAL SURVEY GMM SYSTEM.

This process shall be capable of being initiated in two ways. In the first option, Process 1.1 MAINTAIN LAND AND MINERAL RECORD INFORMATION shall initiate this process. It is assumed that L&M Record processing shall select the Area of Interest using Process 1.2.4.5.1. If desired, L&M Record processing shall have the option to select Geo Locations that are associated with L&M Records and issue these to this process.

Geographic Data Maintainer shall be able to initiate this process, After selecting an Area of Interest (AOI), using Process 1.2.4.5.1. The Geographic Data Maintainer shall also have the option of selecting Parcel IDs associated with case processing.

In either case, this process shall highlight the selected Parcel IDs and query the user for the beginning control point, and optionally the ending control point for the desired traverse, as well as all appropriate Metadata, and LRIS Process History information. If suitable coordinates do not exist in GCDB, then use on the the six methods listed below.

This process shall have the capability to extract coordinates by one of six methods:

- 1) Use GCDB as primary source, if available.
- 2) Copying the coordinates from one of the LRIS background reference themes.
- 3) Digitizing from imagery or other reference theme displayed in the screen background.
- 4) Digitizing from analog sources with the use of a digitizing table.
- 5) Entering coordinates via keyboard entry.
- 6) Entering coordinates via a digital file.

This process shall accept the record bearings and distances from the user, spatially calculate the desired traverse, build spatial objects, and create all appropriate metadata.

This process shall generate the additional required Metadata and LRIS Process History information.

This process shall ask the user to identify those areas were a land descriptions and associated features are required. This process shall then create the required area sets and features.

This process shall calculate the land associations for the newly created features that require a Land Description.

This process shall calculate the proportioned legal acreage for newly created features that require a Land Description.

This process shall initiate 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER and issue land associations, proportioned legal acres and new feature_ids. Process 1.2.2.3 shall report the newly created parcel_ids for the input Land Descriptions to the Geographic Data Maintainer.

This process shall issue an error report to the user, regarding traverse closures and any data errors encountered during this process.

Clarifications:

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1. **The LRIS Record Maintainer and (or) Geographic Data Maintainer shall provide feedback to Cadastral Survey regarding any data errors in the expanded Metes & Bounds land data.**
2. **Cadastral Survey's GMM software does not create Land Description attributes for L&M Record-Based Land Units.**
3. **The LRIS system shall have the capability to retain and readjust spatial objects created by this process during all subsequent updates by process 1.2.2.1.**

1.2.2.3 CREATE LAND BY PARCEL SUBDIVISION

Capability:

Case processing requirements shall often include a land description that does not exist in the LRIS land data theme. However, the external data source for the LRIS land data theme shall typically have a spatial coordinate framework from which the LRIS land data can be expanded. Expanding the LRIS land data theme shall require the capability to generate Aliquot Parts **and subdivisions of Government Lots?** based on subdivision rules established by Cadastral Survey. Land parcel subdivision using the rules of the rectangular based system shall ensure that both LRIS and GCDB generate land parcels using the same methodology. As a result, the actual subdivision process shall conform to methods used by GMM.

This process shall initiate land parcel subdivision of Sections, and Aliquot Parts.

This process shall be initiated in two ways. The Geographic Data Maintainer or the LRIS Record Maintainer may select a Parcel_Id, either by an Alphanumeric or spatial query.

The LRIS Record Maintainer or the Geographic Data Maintainer shall be able to initiate the request to subdivide land parcels within the land data theme during L&M Record processing. In this case, Process 1.1 MAINTAIN LAND AND MINERAL RECORD INFORMATION shall pass the parcel_id for the parcel to be subdivided.

This process shall spatially subdivide the desired land in accordance with methods and procedures in the Cadastral Survey GMM System. In addition, this process shall notify the GCDB O&M system of the subdivision, and issue all appropriate metadata, spatial objects, and land descriptions for the newly created land parcels.

This process shall generate the additional required Metadata and LRIS Process History information.

This process shall then create features from the newly created spatial objects. If a feature is partitioned by this process, features shall be created that account for all parts of the partitioned feature and the new features shall have A/N Land Descriptions. This will allow the system to spatially calculate Land Status, in areas that are complex in the A/N world.

This process shall calculate the land associations for the newly created features.

This process shall calculate the proportioned legal acreage for newly created features.

This process shall initiate 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER and issue land associations, proportioned legal acres and new feature_ids. Process 1.2.2.3 shall report the newly created parcel_ids for the input Land Descriptions to the Geographic Data Maintainer.

This process shall flag land parcels for Cadastral Survey resolution where the LRIS Record Maintainer has requested parcel subdivision below the 6th level and for situations in which regular subdivisions can not be performed.

A report shall be made and issued to the Cadastral Survey GCDB System. This report shall indicate error, or situations where subdivision could not be performed.

Clarifications:

1. **LRIS parcel subdivision of land shall be consistent with subdivisions performed in GMM. The set of rules to subdivide land shall be dynamic.**
2. **Land parcel subdivision process shall subdivide regular Sections and Aliquot Parts.**
3. **Expanded land data shall be retained even if the data is not used by case processing (e.g., if 'Land Parcel Subdivision partitions an aliquot into 4 minor aliquots because a case references one minor aliquot, then all 4 shall be saved).**
4. **Land Description attributes shall be generated in accordance with GMM for land parcel subdivision.**

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- 5. The LRIS system shall have the capability to retain and readjust spatial objects (e.g., snap data to coordinates from a more accurate source) created by this process during all subsequent updates by process 1.2.2.1.**
- 6. Parcel Subdivision shall be performed using subdivision rules as defined in the Manual of Surveying, BLM, 1973 and summarized in Subdivision of Sections an Overview, James D. Claffin, BLM.**
- 7. Parcel subdivision shall be automated. If attributes are needed, such as cor_use_purpose_cd, to perform a subdivision, then the user shall be queried. All such attributes shall be stored, so that subsequent iterations, due to updates, shall have the necessary information to automatically update the subdivision.**

1.2.2.2.4 CREATE LAND BY AGGREGATION

Capability:

This process shall accept two PARCEL_IDs for Aliquot Part quarters, create a new parcel and a new feature from the two existing features, and request Alphanumeric Land to create a new Land Description for the newly created Aliquot Part half.

This process shall have the capability of being initiated by the LRIS Record Maintainer, the Geographic Data Maintainer, or another process.

Clarifications:

- 1. The only land units that shall be allowed for aggregation are Aliquot Parts that both exist within the same parent feature of the Land Hierarchy. For example, the NW of Section 1 and the NE of Section 1 may be aggregated into the North Half of Section 1.**

APPENDIX C - PROCESS SPECIFICATION REPORT**1.2.2.2.5 CREATE APH ASSOCIATIONS**

Capability:

This process shall associate Reference Theme LRIS Process History records with entities in the spatial model.

This process shall have the capability of being initiated by the LRIS Record Maintainer, the Geographic Data Maintainer, or another process.

This process shall accept the id of those entities in the spatial model that can be associated with an LRIS Process History record. These are: FEATURE, POINT, LINE, AREA, NODE, LINE SEGMENT, and COORDINATE SET.

The user shall be queried for the LRIS Reference Theme to link to a particular spatial object. The Land Theme shall not be an option for this association.

The spatial id is linked to blank LRIS Process History records of the selected theme. If this blank record shall not be available, a new LRIS Process History record shall be created.

1.2.2.2.6 CREATE UNLAND FEATURES

Capability:

The process of spatially determining Land Status requires that a FEATURE and PARCEL IDENTIFIER exist for each unique occurrence of L&M Records. Generally a Land Description and PARCEL IDENTIFIER will exist and Land Status will make use to these. However, in areas where Land Status is complex for a particular Land Description, spatial shall be used to resolve the complex areas, by creating FEATURES (unland features) and Parcel IDs for the complex Land Status.

Process 1.5 DETERMINE LAND STATUS will determine when unland features are required and determine the PARCEL_ID for the area of concern. This process shall accept the PARCEL_ID from Process 1.5 DETERMINE LAND STATUS.

This process shall determine the AREA_ID of all areas within the accepted parcel Identifier. If a FEATURE does not already exist for a particular AREA, this process shall create a FEATURE and LRIS Process History Record for that AREA, and issue the FEATURE_ID to Process 1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER.

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1.2.2.3 BUILD AND UPDATE PARCEL IDENTIFIER

Capability:

This process shall link FEATURES to Alphanumeric Land Descriptions and insure that the parcel IDs remain current and correctly correlated between the original Alphanumeric Land, and the original features.

This will insure that any active cases affected by changes to Land Description are notified of changes to the underlying features.

The subprocess 1.2.2.3.2 REPORT PARCEL IDENTIFIER CHANGES shall initiate Process 1.5 DETERMINE LAND STATUS.

Future Enhancements:

Additional links to parcel id, such as links to other data, may be necessary.

Land Status should most likely resolve many complex situations using spatial in the future.

1.2.2.3.1 MAINTAIN PARCEL IDENTIFIER

Capability:

This process shall accept new land description attributes and new features from process 1.2.2.1 IMPORT AND MAINTAIN LAND AND MINERAL THEMES and process 1.2.2.2 EXPAND LAND DATA THEME. Process 3 .0 PROCESS LAND DESCRIPTION DATA shall also be able to initiate this process, but only when spatial data does not exist.

If all land description attributes are available, this process shall initiate process 3.0 PROCESS LAND DESCRIPTION DATA and issue the new land description attributes. This process shall accept \LAND_KEYS for the land descriptions created in process 3.

If only land association and acreage attributes are flowed in, this process shall initiate process 3.0 PROCESS LAND DESCRIPTION DATA and issue the new nominal locations, the new acreage, and the old \LAND_KEYS. This process shall accept \LAND_KEYS for the new land descriptions created in process 3.

If no land attributes are available, process 3 shall not be initiated, but Parcel IDs shall be created.

If a land description changes, this process shall populate PARCEL_ID_END_DATE on the original PARCEL ID, and create a new parcel identifier associated with the new Land Description.

If there is a request from Alphanumeric Land to delete a Parcel ID, the existence of spatial shall be checked. If spatial exists, then PARCEL_ID_SYS_END_DATE shall be populated with the current system data and \LAND_KEYS shall be set to NULL. If there is no spatial, then the Parcel ID record shall be deleted.

All updates Parcel IDs shall be issued to Process 1.2.2.3.2 REPORT PARCEL IDENTIFIER CHANGE.

Clarifications:

1. **It is assumed that only valid land updates will be issued to this process. Land Descriptions and associated attributes that have not changed shall not be issued to process 3.**

Note: Ask Barb Kett to review Sections 1.2.2.3, 1.2.2.3.1, and 1.2.2.3.2

APPENDIX C - PROCESS SPECIFICATION REPORT**1.2.2.3.2 REPORT PARCEL ID CHANGE****Capability:**

This process shall accept newly created and updated PARCEL_IDS as well as the type and the source of the update from Process 1.2.2.3.1, MAINTAIN PARCEL IDENTIFIER.

A list of new parcel_ids shall be displayed to the user, along with it's associated land description.

A report of all changed parcel IDs shall be issued to the LRIS Record Maintainer, and the Geographic Data Maintainer.

If this process was initiated as a result of a GCDB update, a report of the success shall be issued to Cadastral Survey GMM System.

This process shall issue to Process 1.5 DETERMINE LAND STATUS, the updated PARCEL_IDS and the type of update.

Clarifications:

1. **The new parcel_id shall be linked to L&M Records via L&M Record processing.**