FSA
HANDBOOK

Common Land Unit

To access the transmittal page click on the short reference.

For State and County Offices

SHORT REFERENCE

8-CM
(Revision 1)

UNITED STATES DEPARTMENT OF AGRICULTURE
Farm Service Agency
Washington, DC 20250

UNITED STATES DEPARTMENT OF AGRICULTURE
Farm Service Agency
Washington, DC 20250

Common Land Unit 8-CM (Revision 1)	Amendment 3

Approved by: Acting Deputy Administrator, Farm Programs

Amendment Transmittal

A Reason for Amendment

Exhibit 19 has been amended to show that individuals contracted by Federal or State agencies and certified appraisers performing appraisals of FSA direct or guaranteed farm loans are not charged for data.

Page Control Chart		
TC	**Text**	**Exhibit**
		19, page 3

...

Table of Contents

Page No.

Part 1 Purpose and Responsibilities

1 General Information 1-1
2 Authority and Related Handbooks 1-6
3-30 (Reserved)

Part 2 Managing CLU

Section 1 CLU Data Managers

31 Overview 2-1
32 CLU Data Responsibilities 2-2
33 CLU Service Center Managers 2-6
34-60 (Reserved)

Section 2 CLU Data Quality Control

61 Ensuring Quality Control 2-37
62 Quality Control in Digitizing Centers 2-39
63 Service Center Initial Quality Control Review 2-41
64 Maintaining CLU Quality 2-42
65-90 (Reserved)

Part 3 Delineating CLU's

Section 1 Rules for Delineation

91 Overview 3-1
92 Data Layers 3-3
93 Delineating Urban CLU 3-5
94 Delineating Cropland CLU 3-6
95 Delineating Rangeland CLU 3-8
96 Delineating Other Agricultural CLU 3-9
97 Delineating Forest CLU 3-10
98 Delineating Water Body CLU 3-12
99 Delineating Mined CLU 3-13
100 Delineating Barren CLU 3-14
101 Delineating Tundra CLU 3-15
102 Delineating Perennial Snow and Ice CLU 3-16
103-130 (Reserved)

Table of Contents

Page No.

Part 3 Delineating CLU's (Continued)

Section 2 Digitizing Standards

131 Introduction 3-69
132 Minimum Digitizing Scale 3-70
133 Minimum Precision 3-70
134 Standard Digitizing Defaults 3-71
135 Tract Digitizing Standards 3-72
136 Handling Existing Multi-Tracts 3-73
137 Land Physically Located Outside of County 3-74
138-160 (Reserved)

Part 4 Identifying CLU

161 Numbering and Labeling CLU 4-1
162 Attributing CLU's 4-3
163-190 (Reserved)

Part 5 Relationship With Other Data

191 Overview 5-1
192 Linking CLU to Customer 5-2
193 CLU and Other Data Layers 5-3
194 Wetland Point Layer 5-4
195 Conservation Management Units Layer 5-5
196-220 (Reserved)

Part 6 Releasing Data

Section 1 Rules for Release of Data

221 General Information..... 6-1
222 Releasing CLU Data..... 6-2
223-250 (Reserved)

Table of Contents (Continued)

Page No.

Part 6 Releasing Data (Continued)

Section 2 Servicing Requests

251 Basic Policy 6-55
252 Requests for Ortho-Imagery 6-56
253 Requests for CLU 6-57
254 Requests for Wetland Point Data 6-58.5
255 Requests for CRP Data 6-59
256-280 (Reserved)

Part 7 Metadata

281 General Information 7-1
282-310 (Reserved)

Exhibits

1 Reports, Forms, Abbreviations, and Redelegations of Authority
2 Definitions of Terms Used in This Handbook
3-5 (Reserved)
6 Example of DOQ
7 Example of Digitized CLU's on Top of DOQ
8 Example of Digitized CLU's With Soils Layer on Top of DOQ
9 Example of Digitized CLU's With Labels on Top of DOQ
10-12 (Reserved)
13 CLU Tools
14 Available Standards
15-16 (Reserved)
17 CLU Attributes
18 Land Classification Codes`
19 Charging for Data
20, 21 (Reserved)
22 Example of CLU Metadata

Part 1 Purpose and Responsibilities

1 General Information

A Handbook Purpose

This handbook provides:

- policy and standards for establishing and using CLU's
- specifications for developing a CLU geo-referenced data layer for use with GIS.

B CLU Initiative

The CCE initiative is providing FSA, NRCS, and RD with modern, windows-based computers that support the use of GIS, as well as local databases and other software tools.

The Agencies are taking advantage of this new environment through projects such as the spatial data initiatives and investing in a nationwide coverage of orthophotography. With the new CCE equipment, GIS software, and digital versions of the photographs, a new work environment is being created. The orthophotographs can be displayed on a computer screen, and additional layers of data can be displayed on top of the photograph to produce many new types of products for use in USDA offices and for USDA customers.

The CLU initiative described in this handbook is a major step in establishing an interagency standard for delineating the boundaries of a piece of land. A common definition established across agencies for the most basic divisions or segments of land will:

- improve data sharing
- make information provided to customers more complete and meaningful.

Transferring CLU polygons into GIS is called digitizing. Digitization is the creation of digital lines in GIS and is accomplished using heads-up digitizing methods. Heads-up digitizing is the process of tracing lines over an image displayed on the computer screen using a computer mouse. For Service Centers, these polygons will represent CLU boundary lines.

Note: See Exhibits 6 through 9 for examples of digital polygons.

Continued on the next page

C
CLU Link to Existing Data

In addition to the orthophotograph data, CLU's are currently being digitized to produce a CLU data layer. Digitizing involves using GIS to draw a border around a unit of land found on a photograph. This border forms a polygon (a many-sided shape) that can be processed by GIS.

GIS can:

- make these lines a particular color
- overlay the border lines on top of the original orthophotograph
- calculate the area of the polygon
- attach elements of data, such as a label or a field number or a record identifier, to this polygon shape.

In this way, the Agencies will build a framework for linking the vast stores of data currently held in files and databases to new data in the spatial dimension. This ties an agency's existing data to a specific point or area on the ground.

D
Definition of CLU

CLU is the smallest unit of land that has a:

- permanent, contiguous boundary
- common land cover and land management
- common owner
- common producer association.

It is difficult to define terms and boundary delineations for CLU that covers all land uses and earth covers. To accommodate this diversity, the definition in this subparagraph has been adopted with the understanding that the rules for delineation will vary slightly across land categories. The differences are noted in this handbook as each basic category of land use is discussed.

Note: CLU's are closely related to:

- FSA's definition of "fields", according to 2-CP
- lands units such as parcels, farmsteads, and lots, that are used by NRCS, RMA, and RD program administration.

Continued on the next page

E
Uses of CLU's

While the potential uses of CLU data are many, work is currently focused on:

- replacing current paper maps with digital images that can be updated and produce high-quality prints whenever needed
- using GIS to achieve greater accuracy in acreage calculations
- drawing the established boundaries of a field, and then using those boundaries as the basis for creating other data layers to show cropping patterns, subdivisions, and conservation plans
- establishing a central, national database of land unit boundaries, and linking these land units to customers
- building user-friendly tools to make the creation and maintenance of spatial data layers easier
- speeding the process for implementing disaster payment and other specialized systems.

Continued on the next page

F
Benefits

CLU's will:

- improve communication and data flow between Service Center Agencies, and with farmers and other customers
- improve communication between software applications by providing a common set of data elements to describe every CLU, establish common identifiers for units of land, and provide a common framework for spatially locating data in relation to the ground
- facilitate the creation of shared Service Center Agency data warehouses for land-related data
- provide for the incorporation of data from outside sources, including demographic data, satellite imagery, global position system data, and elevation data
- provide for consistent and more accurate land measurements, such as field acreage and riparian buffers and wetland areas
- provide for data summarizing to a county, watershed, regional, State, Congressional District, or national level.
- encourage the establishment of agreements with Federal, State, local, and private agencies, such as BLM, State GIS Policy Boards, property valuators, county appraisers, utility companies, etc., to facilitate the exchange of data and resource costs
- provide more efficient and timely program-specific data.

Continued on the next page

G
Replacing Paper Maps With GIS Technology

As GIS becomes established in the Service Centers, the current paper aerial photography used for planning program delivery, and for identifying land holdings, will be superseded by digital orthophotographs and digitized "layers" or "themes" of data. To give a digital equivalent of the current maps, the CLU layer will be viewed on top of an orthophotograph base. Attributes from CLU and other layers will be displayed in place of previously-handwritten notations.

H
Converting Data on Paper Maps

Before Service Centers can stop maintaining paper aerial photography, additional information, must be added to the descriptive information stored in the GIS system (wetland point data, easements, and HEL determinations). In addition, since subdivisions are not digitized in the initial transfer process, CLU's may need to be added for fields that were incorrectly numbered as subdivisions on the aerial photography. Other additional information may be added as sublayers at the option of the Service Center according to paragraph 92.

2 Authority and Related Handbooks

A
Source of Authority

Authority for the development of the CLU theme (data) was provided by the National Food and Agricultural Council. The USDA Service Center GIS Strategy, as approved by the National Food and Agricultural Council on August 18, 1998:

- designated FSA as the Data Steward for the CLU theme
- provided the initial funding and production schedule for CLU digitizing.

B
Related Handbooks

Service Center Agencies' handbooks related to CLU's are:

- 25-AS for recordkeeping requirements
- 1-CM for common management procedures
- 2-CM for reconstitutions procedures
- 3-CM for farm records
- 2-CP for compliance procedures and field definition
- 6-CP for HELC and WC procedures
- 2-CRP for Agricultural Resource Conservation Program procedures
- 2-INFO for information available to the public
- 3-INFO for Privacy Act operations
- NRCS's technical and policy manuals
- RMA's and RD's policy and procedure handbooks.

3-30 (Reserved)

Part 2 Managing CLU

Section 1 CLU Data Managers

31 Overview

A
Agency Responsibilities

The CLU layer is a shared geospatial dataset used by all agencies in the Service Center. FSA assumes primary responsibility at the national, State, and local level for the maintenance of the layer, with partner agencies collaborating on the content and standards for the layer.

B
CLU Data Managers

Data Managers, alternatively referred to as CLU Stewards for the CLU layer, will be appointed at national, State, and local levels, wherever CLU data is stored and maintained.

C
Role of Digitizing Centers

Digitizing centers are responsible for initially delineating CLU and entering CLU attribute data.

32 CLU Data Responsibilities

A Executive Sponsor Responsibilities

The Executive Sponsor is a high-level, business-area manager who is accountable for the collection, management, and use of data assets. The person has overall responsibility for:

- determining the potential business value of data
- overseeing the creation of software systems to collect and process data
- providing ongoing executive leadership over data content, validity, and usage
- designating national Data Manager and other critical data management roles and responsibilities as appropriate.

Note: Diane Sharp is the Executive Sponsor for CLU.

Continued on the next page

B
National Data Manager Responsibilities

The national CLU Data Manager, alternatively referred to as the national CLU Steward, is responsible for:

- acting as the designated authority and point of contact for all business-area decisions concerning the database
- establishing and maintaining business rules and consistent definitions for data elements
- establishing data quality and certification standards associated with the contents of the database
- ensuring that metabase is colleced, approved, and certified for release according to the adopted industry, Federal, and USDA metadata and data management standards
- establishing policy and procedures that ensure the validity, accuracy, and completeness of the physical data and supporting metadata
- establishing policy and procedures for certifying that data is ready for release for internal and/or public use
- establishing policy and procedures for ensuring that data meets quality standards
- ensuring that adequate stewardship of data occurs at each location where data is collected and stored
- delegating responsibilities as necessary to ensure the accuracy of new data and the ongoing protection of data assets
- providing training to the State Offices on CLU data stewarding roles and responsibilities.

Note: Sandy Bryant has been designated as the national Data Manager.

Continued on the next page

C
State Data Manager Responsibilities

The State CLU Data Manager, alternatively referred to as the State CLU Steward, and backup will be identified in each FSA State Office. Both the manager and backup are responsible for:

- establishing adequate CLU training procedures for Service Centers
- developing and implementing a certification process for Service Center CLU stewards
- maintaining a list at the State Office of certified local CLU Data Stewards and their backups at the State Office
- certifying that Service Center CLU's meet quality control standards before Service Center converts to GIS
- conducting annual reviews of CLU datasets for the State to ensure continued quality control
- knowing the standards and criteria for maintaining the official CLU layer
- ensuring that Service Centers maintain the data and metadata to meet the needs of the partner agencies and protect data from loss
- collecting, validating, and linking geospatial State data to related tabular data; distributing geospatial State level data.

Continued on the next page

D
Local Data Manager Responsibilities

The Service Center Data Manager, alternatively referred to as the local CLU Steward, is responsible for:

- knowing the standards and criteria for maintaining the official CLU layer
- ensuring that persons updating CLU have had adequate training
- clearing all changes to the official CLU layer
- performing periodic reviews of CLU to ensure continued quality control
- maintaining the data and metadata to meet the needs of the partner agencies
- collecting and validating new county level data
- linking county level geospatial data to related tabular data
- verifying that changes have been forwarded to the national database
- protecting the data from loss.

33 CLU Service Center Managers

A
Overview

The person assuming responsibility for the CLU delineations and data in each Service Center shall be designated the CLU Data Manager. One CLU Data Manager and at least one backup shall be identified in each Service Center. The manager and backup shall be responsible for knowing the standards and criteria for maintaining the official CLU layer and for making appropriate changes.

B
Certification of CLU Managers

The CLU Manager and backup at the Service Center must be certified by the State CLU Manager.

C
Delegation of Authority for Local CLU Manager

Personnel from other agencies may be assigned to manage the CLU data at the local level only when FSA, with mutual agreement of the partner agencies in the Service Center, designates another agency to handle the duties. The State CLU Manager must approve the delegation of authority.

A person from another agency may be assigned as the backup CLU manager, with the approval of the State CLU Manager.

D
Primary Responsibility

The manager's primary responsibility is maintaining the integrity and quality of the CLU boundaries and associated data for the partner agencies.

Continued on the next page

33 CLU Service Center Managers (Continued)

E
General CLU Maintenance

Maintaining CLU data in the Service Center includes:

- seeing that day-to-day updates are performed as necessary on CLU's
- adding CLU's for FSA or partner agency business needs
- correcting CLU boundaries
- updating CLU attributes
- performing regular backups of the data.

F
Service Center CLU Manager Training

State CLU Managers are responsible for establishment and training of CLU managers and certification of personnel.

34-60 (Reserved)

Section 2 CLU Data Quality Control

61 Ensuring Quality Control

A
Overview

Quality control is an essential part of managing the CLU data. Quality begins with the Service Center ensuring that the aerial photography used to prepare CLU are updated and correct. It continues with accuracy in digitizing and entry of CLU attributes. Once initial digitizing is completed, quality again depends on the Service Center reviewing, correcting, and maintaining CLU boundaries and attributes.

B
Preparing Base Maps

Service Centers shall follow 2-CP to ensure that all aerial photographs that will be used as base maps are correct before they are shipped for digitizing. This includes review and correction of areas that are not within the county boundaries, but cover farms administered by the Service Center. Sending base maps for all farms that a Service Center administers will reduce the amount of work that a Service Center has to do after CLU is digitized and returned.

C
Digitizing Centers

Digitizing centers are responsible for digitizing the CLU according to this handbook. They are also responsible for entry of the initial set of CLU attributes. See paragraph 62 for specific instructions on quality control in digitizing centers.

Continued on the next page

D
Replacing Official USDA Photography

Once the initial digitizing of CLU and entry of attributes is completed, the mosaicked orthophotography and CLU file are sent to the Service Center for a quality control review. This review includes the checking of returned CLU data and entry of additional information, such as wetland point data, CRP data, farm numbers, easements, and HEL determinations.

The review and entry of the additional information is necessary to ensure that no data from the aerial photographs is lost in the conversion to CLU. Once the conversion is complete, the Service Center is responsible for maintaining CLU's and the underlying orthophotography layer will become the official USDA photography.

E
Tools and Standards

Specialized tools and basic standards have been developed to assist digitizing centers and Service Centers in creating, maintaining, and using CLU. See Exhibit 13 for a list of the available tools and Exhibit 14 for a list of approved standards documents.

62 Quality Control in Digitizing Centers

A Overview

Digitizing centers use FSA's aerial photography as the "source" document or "base map" for initial delineations of CLU boundaries. Only existing field and tract lines will be transferred as CLU boundaries. Line work and data added by counties that is not required or provided as an option, such as subdivisions, will not be transferred. Attribute information from the base map will also be part of the initial transfer.

B Digitizing

Digitizing centers shall:

- follow this handbook for rules and procedures for digitizing
- use the Digitizing Tool to digitize CLU.

C Attribute Data

Digitizing centers shall enter the following CLU attribute data from the base maps:

Tract number in TRACTNBR
CLU number in CLUNBR
Farm number in FARMNBR
Highly erodible land type code in HELTYPECD
Official acreage in FSA_ACRES.

Note: Items in this subparagraph shall be left blank when not present on the base map.

D State and County Codes

Digitizing centers shall use the FIPS button in the Digitizing Tool to enter the following in the CLU attribute table:

- State code where land is physically located, in STATECD
- county code where land is physically located, in COUNTYCD.

Note: These are the FIPS codes, not the county code FSA uses to identify the Service Centers. In the future, the county code will be linked to the FIPS code to handle cases where the FIPS code does not match the county code.

Continued on the next page

E
Reasons for Entering Official Acreage

Digitizing centers shall enter the official field acreage from the aerial photographs in FSA_ACRES. This entry allows Service Centers to compare official acreage from the aerial photographs with the CLU calculated acreage. During the Service Center's initial quality review, at a minimum CLU's with differences that exceed the greater of 3 percent or 5 acres will be reviewed to determine whether the CLU boundaries were misinterpreted or whether the official acreage was incorrect.

The differences between official acreage and CLU calculated acreage will also be tracked to determine the general trend in acreage changes.

F
Running Quality Control Tools

Digitizing centers shall:

- run the set of quality control tools provided in the Digitizing Tool against the CLU file
- correct errors before file is sent to the Service Center.

63 Service Center Initial Quality Control Review

A Overview

Quality control is an essential part of managing the CLU data. Before Service Centers can stop maintaining the aerial photographs, additional information required by various handbooks, such as wetland point data, CRP data, farm numbers, easements, and HEL determinations shall be added as needed. This is necessary to ensure that no data from the aerial photography is lost in the conversion to CLU.

Once the initial digitizing of CLU's and the conversion of labels and other data from paper maps conversion is complete, the Service Center will be responsible for reviewing, correcting, and maintaining the CLU boundaries and attributes. CLU's and the underlying orthophotography layer will become the official USDA photography.

B Initial Certification of CLU's

A quality control review shall be performed on the CLU layer after digitizing is complete. This is necessary to ensure that no data from the paper maps is lost in the conversion process.

The Service Center CLU Data Manager is responsible for overseeing the initial quality control review. Once CLU's are considered complete, the State Office CLU Manager will perform a review and determine whether CLU's can be certified.

Note: See 2-CP, Part 5, Section 2 for how to get CLU and the underlying orthophotography layer initially certified as official USDA photography.

64 Maintaining CLU Quality

A
Overview

Quality is contingent on training and reviews of work completed. It also involves ensuring that a sufficient number of staff are trained and certified in each Service Center to manage the CLU layer.

Each employee allowed to modify CLU must demonstrate to the local CLU Data Steward that they have sufficient knowledge of the GIS software to conduct Agency business and maintain CLU as the official USDA photography for the partner agencies. Limiting the use of this software to only certified employees is intended to ensure that the quality of CLU is maintained to specifications.

B
Clearing Changes to CLU

All changes to the official CLU layer shall be cleared through the local CLU Data Manager or the backup.

C
Acreage Changes

GIS will automatically provide the calculated acreage of the digitized land unit polygon. This acreage may differ from the acreage calculated by other means and recorded as “official acreage” in historical records and program-delivery systems. Acreage changes in official acres or in tract acreage shall be handled according to 2-CP and 3-CM.

65-90 (Reserved)

Part 3 Delineating CLU's

Section 1 Rules for Delineation

91 Overview

A Key Information

Transferring CLU polygons is called digitizing. Digitization is the creation of digital lines in GIS and is accomplished using heads-up digitizing methods. Heads-up digitizing is the process of tracing lines over an image displayed on the computer screen using a computer mouse. For Service Centers, these polygons represent CLU boundary lines.

Service Centers shall delineate CLU at a level of detail and accuracy that matches or exceeds that used on 24" x 24" aerial photography. This includes not only the tract and field boundaries, but key information such as CRP data; HEL determinations; farm, tract, and field numbers; and easement identification. The information associated with CLU is entered by attributing (attaching) these characteristics to CLU.

B Land Classifications

The partner agencies have established 10 fundamental land classifications based on land cover and land use. These classifications are:

- Barren
- Cropland
- Forest
- Mined
- Other Agricultural
- Perennial Snow and Ice
- Rangeland
- Tundra
- Urban
- Water Body.

The specialized rules for delineating each of these land classifications are included in this section.

Continued on the next page

C
Rules for Delineating CLU

Land categories represent various combinations of land cover and land use, and are the basis for determining CLU boundaries. CLU delineations may change based on changes in land cover or land use. Delineating CLU's involves 3 steps.

Type of Boundary	Rules for Delineating
Visible	Determine the initial boundary for CLU using land cover, such as timber, range, or cropped, and physical boundaries, such as fences, roads, and waterways visible on aerial photographs or annual 35mm slides.
Management	Define land use, according to the delineation rules for the land category, to further divide the area according to management differences, such as pine trees verses hardwood timber. Management boundaries not visible on the aerial photograph or annual 35mm slide may be delineated according to information provided by the customer or other sources.
Ownership	Divide the area into CLU's based on ownership lines delineated according to the rules for the land category that applies to the area.

D
Inclusions

In all efforts to segregate spatial data into discrete units, such as soil map units, CLU's, and forest type maps, virtually every CLU delineation on the map includes areas that are not identified in the name of the unit. For example, although CLU might be labeled as a field, the land unit may not contain 100 percent cropland. There may be some small percentage of noncropland, such as small stock ponds, turnrow deductions, etc., that are inclusions in the field. Many areas of these inclusions are too small to be delineated separately. If they were larger, such as a grassed waterway, they might be delineated as a separate CLU.

The size and type of inclusions to be delineated will be jointly agreed upon by the FSA SED, NRCS State Conservationist, and other USDA Service Center Agencies' State Managers. The determination on the size and type of inclusions will be submitted to the National Office for review and final approval.

The ability to delineate CLU's, with close to 0 percent inclusions, is largely dependent on the size of the terminal screen and the scale at which the orthophotograph is displayed.

When delineating CLU's, judgment must be exercised as to the effects of inclusions on program administration and Service Center workload. Inclusions that are large enough to effect Service Center programs shall be delineated.

92 Data Layers

A Subordinate Data Layers

By definition, CLU is delineated by permanent features such as fence lines, roads, waterways. This requirement minimizes the number of changes that will be required to CLU boundaries.

However, an important function and advantage of GIS is the ability to build additional layers of data. For example, subdivisions of CLU to show cropping patterns or conservation practices can be created in a separate layer and superimposed over the established CLU boundaries. The CLU layer can thus become the base layer for many other program-specific information layers created by partner agencies.

B Examples of Subordinate Data Layers

Layers already identified to be built from and tied to the CLU layer are NRCS's CM Land Units layer, and FSA's Wetland Points data layer.

Other possible examples are:

- subdividing an existing CLU to indicate crop variations or terraces
- combining CLU's with other layers such as soils to create thematic maps that show the soils for specific fields
- partitioning wetland determinations
- grouping CLU's with common attributes into new data layers such as CRP fields or tracts.

These layers may have permanent or short-term use in a Service Center or at other levels of the Service Center Agencies.

Continued on the next page

C
Subdivisions

Subdivisions may change regularly within CLU boundaries because of farm management factors. FSA currently delineates subdivisions on a photocopy of the aerial photograph enlargement. Subdivisions are delineated according to compliance reporting dates, if not sooner, and are based on a description by the farmer. The placement of the boundary line is often approximated since it is not likely that MDOQ or the base layer digital map matches current conditions.

Initial delineation of CLU's will not include data on any field subdivisions, such as CRP or terraces. The Service Center may transfer these subdivisions into the automated system as subordinate data layers after the initial delineations are completed.

93 Delineating Urban CLU

A
Defining Urban CLU

Urban CLU's include:

- land that includes cities, towns, villages, strip developments along highways, transportation, power, and communications facilities
- areas such as those occupied by mills, shopping centers, industrial and commercial complexes
- institutions that may, in some instances, be isolated from the urban areas.

B
Rules for Delineating

The following table describes the rules for delineating Urban CLU's.

Type of Boundary	Rules for Delineating
Visib1e	A permanent fence line is delineated as observed on aerial photograph or annual photography. Permanent waterways are delineated as the outside edge of established permanent waterways on aerial photograph or annual photography unless a property line divides the waterway. If the property line divides the waterway, delineate according to property boundary. Forest lines are considered the edge of the tree line, not the shadow line, as shown on aerial photography or annual photography. A sidewalk, street, or landscaping is delineated as a boundary when it falls at a property line.
Management	Change in zoning classification within a town or city, such as residential or commercial, is delineated as a boundary except in the case where a customer's property is split by zoning. If an urban area is surrounded by land that has not been previously delineated, the user will use the rules for delineation associated with the land categories adjacent to the urban area.
Ownership	Property boundaries that divide an otherwise contiguous CLU shall be drawn according to the actual property boundary line. County plat maps, if available, may provide a guide to assist delineation.

A
Defining Cropland CLU

Cropland CLU's include land:

- newly broken out, if both of the following apply:
  - land is planted to a crop intended for harvest
  - tillage and cultural practices in planting and harvesting the crop are consistent with normal practices in the area
- currently being tilled to produce a crop
- **not** currently tilled, but have been tilled in a prior year and are suitable to be tilled for crop production
- currently devoted to 1- or 2-row shelterbelt planting, orchard, vineyard, or other related crops
- in terraces that, according to FSA records, were cropped in the past even though they are no longer capable of being cropped
- in sod waterways or filter strips planted to perennial cover
- under CRP-1, including alternative perennials enrolled before June 3, 1999, until CRP-1 expires or is terminated.

Note: The definition of cropland in this subparagraph is consistent with the cropland definition in 2-CM and 3-CM.

Continued on the next page

B
Rules for Delineating

The following table describes the rules for delineating Cropland CLU's.

Type of Boundary	Rules for Delineating
Visib1e	Lines defining a road boundary are delineated at the edge of the road, not the centerline of the road. A permanent fence line is delineated as observed on aerial photograph or annual photography. **Note:** Placement of newly installed permanent fence lines delineated according to producer measurements should be verified with annual photography (35mm slides) and GPS, if available. The outside edge of established permanent waterways that are not cropped according to the visible boundary on aerial photograph or annual photography. Established grass backed terraces may be delineated according to the terrace boundaries on aerial photograph or annual slides. Forest lines are considered the edge of the tree line, not the shadow line. Irrigation patterns, such as pivot systems and corners, will not be delineated during the development of base-line CLU's.
Management	Crop line is the planting line where the producer consistently stops planting and begins planting another. The crops planted do not have to remain the same, but the line between crops should remain in the same place for 1 or more years before being used as a delineation line. Changes in chemical application rates, fertilizer rates, or tillage practices are not delineated as a boundary on the CLU layer. Changes in irrigation pattern or practice are not delineated as a boundary on the CLU layer.
Ownership	Where property boundaries fall at the centerline of a road, the land unit boundary shall be drawn at the edge of the road, not the centerline of the road. Property boundaries that do not follow a visible physical boundary, but do divide an otherwise contiguous CLU, shall be drawn according to the actual property boundary line. Property boundaries that fall at the centerline of a stream, creek, or river shall be drawn at the outside edge of the waterway, not the centerline of the waterway.

95 Delineating Rangeland CLU

A
Defining Rangeland CLU

Rangeland CLU's:

- include herbaceous, shrub, brush, or mixed range that has native vegetation dominated by grasses, grasslike forbs, or shrubs
- include introduced forage species that are managed like rangelands
- do not need to be grazed
- are most commonly defined by physical boundary that is a permanent fence or other similar feature.

B
Rules for Delineating

The following table describes the rules for delineating Rangeland CLU's. This includes areas not originally digitized from the county photographs.

Type of Boundary	Rules for Delineating
Visible	A permanent fence line is delineated as observed on aerial photograph or annual photography. Placement of newly installed permanent fence lines delineated according to producer measurements should be verified with annual slides and GPS, if available. Temporary livestock fencing shall not be used as a boundary.
Management	None.
Ownership	Property boundaries that divide an otherwise contiguous CLU shall be drawn according the actual property boundary line. County plat maps can also be used as a guide.

96 Delineating Other Agricultural CLU

A Defining Other Agricultural CLU

Other agricultural CLU's include farmsteads, holding areas for livestock such as corrals, breeding and training facilities on horse farms, farm lanes and roads, ditches and canals, small farm ponds, and similar uses.

Note: This corresponds to "other land on the farm" portion of Farmland as defined in 3-CM.

B Rules for Delineating

The following table describes the rules for delineating other agricultural land CLU's.

Type of Boundary	Rules for Delineating
Visible	A permanent fence line is delineated as shown on aerial photography or annual photography. Placement of newly installed permanent fence lines delineated according to producer measurements should be verified with annual photography. Temporary livestock fencing will not be used as a boundary. The outside edge of established permanent waterways that are not cropped are delineated according to visible boundary on aerial photograph or annual photography. Newly created permanent waterways can be delineated according to measurements provided by NRCS. Forest lines are considered the edge of the tree line, not the shadow line, as shown on aerial photography. A sidewalk, street, or landscaping is delineated as a boundary when it falls at a property line.
Management	Changes in land cover, such as from cropped land to a holding area for livestock, could cause boundary delineation if required for a Service Center Agency's business needs.
Ownership	Property boundaries that divide an otherwise contiguous CLU shall be drawn according to the actual property line.

97 Delineating Forest CLU

A
Defining Forest CLU

Forest CLU's include land that includes deciduous, evergreen, grazed forest, or mixed forest land that:

- have tree-crown density (crown closure percentage) of 25 percent or more of the total acres of tree or vegetative cover
- had tree-crown density (crown closure percentage) of 25 percent or more removed by clear cutting or fire, but still are primarily used for forest uses
- is defined by physical boundaries that include forest, fences, or other similar features.

Continued on the next page

B
Rules for Delineating

The following table contains rules for delineating Forest CLU's.

Type of Boundary	Rules for Delineating
Visible	Access, fire control breaks, logging, or recreational roads are not considered a boundary. A maintained fire break is considered a boundary if it also marks a change in ownership, management type, or timber type; otherwise, it should not be delineated. A permanent fence line is delineated as shown on aerial photograph or annual photography. Placement of newly installed permanent fence lines delineated according to producer measurements should be verified with annual slide or GPS, if available. Temporary livestock fencing will not be used as a boundary. Forest lines are considered the edge of the tree line, not the shadow line. A stream or river contained in the forest is considered a boundary only if it also marks a change in ownership, management type, or timber type.
Management	A change in timber type could be delineated as a boundary if required by the Service Center Agency's business need. This includes changes from evergreen forest to deciduous or mixed types of forest. A change in tree species could also be used to delineate a boundary if it also meant that the management or treatment of species was different from the surrounding species. Changes in chemical application rates, fertilizer rates, or tillage practices are not delineated as a boundary on the CLU layer. These types of changes could be included on future Service Center Agency's specific layer as needed.
Ownership	Property boundaries that divide an otherwise contiguous CLU shall be drawn according to the actual property boundary line.

98 Delineating Water Body CLU

A
Defining Water Body CLU

Water Body CLU's:

- include areas such as streams, rivers, canals, lakes, reservoirs, ponds, bays, estuaries, or aquaculture units
- are defined by physical boundaries, such as edge of water, but may include permanent fences, roads, or other similar features.

B
Rules for Delineating

The following table describes rules for delineating Water Body CLU's.

Type of Boundary	Rules for Delineating
Visible	Lines defining water boundary are delineated at the normal water line, not the centerline of the stream, river, riverbed, etc. Ponds and lakes under 1 acre shall not be delineated, unless needed for Service Center program purposes.
Management	Areas that are used for irrigation will not be separately delineated from those that are used for livestock water or recreation.
Ownership	Property boundaries that divide an otherwise contiguous CLU shall be drawn according to the actual property boundary line.

99 Delineating Mined CLU

A Defining Mined CLU

Mined CLU's include:

- extractive mining activities that have significant surface expression
- areas where vegetative cover and overburden are removed to expose such deposits as coal, iron ore, limestone, and copper
- areas where quarrying of building and decorative stone and recovery of sand and gravel deposits also result in large open surface pits
- inactive, unreclaimed, and active strip mines; quarries, borrow pits, and gravel pits even where current mining activity is not always distinguishable are included in this category until other cover or use has been established.

Note: Unused pits or quarries that have flooded, however, are placed in the Water category.

B Rules for Delineating

The following table describes rules for delineating Mined CLU's.

Type of Boundary	Rules for Delineating
Visible	A permanent fence line is delineated as shown on aerial photography or annual photography. Placement of newly installed permanent fence lines delineated according to producer measurements should be verified with annual photography. Temporary livestock fencing will not be used as a boundary. The outside edge of established permanent waterways that are not cropped are delineated according to visible boundary on aerial photograph or annual photography. Newly created permanent waterways can be delineated according to measurements provided by NRCS. Forest lines are considered the edge of the tree line, not the shadow line, as shown on aerial photography.
Management	Changes in land cover, such as from a strip mine to a gravel pit, could cause boundary delineation if required for a Service Center Agency's business needs.
Ownership	Property boundaries that divide an otherwise contiguous CLU shall be drawn according to the actual property boundary line.

100 Delineating Barren CLU

A Defining Barren CLU

Barren CLU's:

- include land that has minimal (generally < 5 percent) natural cover and limited capacity to support vegetative covers
- include land that includes contiguous dry salt flats, beaches, sandy areas other than beaches, bare exposed rock, transitional areas, or mixed barren land
- have no-vegetative natural cover, often having a limited capacity to support vegetation, with a surface of sand, rock, thin soil, or permanent ice or snow
- are defined by physical boundaries that may include fences, roads, sidewalks, streets, landscaping, permanent waterways, forests, or other similar features.

B Rules for Delineating

The following table describes the rules for delineating Barren land CLU's.

Type of Boundary	Rules for Delineating
Visible	A permanent fence line is delineated as shown on aerial photography or annual photography. Placement of newly installed permanent fence lines delineated according to producer measurements should be verified with annual photography. Temporary livestock fencing will not be used as a boundary. The outside edge of established permanent waterways that are not cropped are delineated according to visible boundary on aerial photograph or annual photography. Newly created permanent waterways can be delineated according to measurements provided by NRCS.
Management	Changes in land cover could cause boundary delineation if required for Service Center Agency's business needs.
Ownership	Property boundaries that divide an otherwise contiguous CLU shall be drawn according to the actual property boundary line.

101 Delineating Tundra CLU

A Defining Tundra CLU

Tundra CLU's:

- include treeless regions beyond the geographic limit of the boreal forest or above the altitudinal limit of trees in high mountain areas
- are defined by physical boundaries that include forests, permanent waterways, or other similar features.

B Rules for Delineating

The following table describes the rules for delineating Tundra CLU's.

Type of Boundary	Rules for Delineating
Visible	The outside edge of established permanent waterways that are not cropped are delineated according to visible boundary on aerial photograph or annual photography. Forest lines are considered the edge of the tree line, not the shadow line, as shown on aerial photograph or annual photography.
Management	Changes in tundra types could cause boundary delineation if required for Service Center Agency's business needs.
Ownership	Property boundaries that divide an otherwise contiguous CLU shall be drawn according to the actual property boundary line.

102 Delineating Perennial Snow and Ice CLU

A
Defining Tundra CLU

Perennial Snow and Ice CLU's include:

- lands that have a cover of either snow or ice because of a combination of environmental factors which cause these features to survive the summer melting season

  Note: In doing so, they persist as relatively permanent features on the landscape and may be used as environmental surrogates.

- snow, firn (coarse, compacted granular snow) or ice accumulation in these areas exceeds ablation, which is the combined loss of snow or ice mass by evaporation and melt-water runoff.

  Note: Adjacent lands most commonly will be classed as Water, Wetland, Barren Land or Tundra, with their common boundaries being distinguished most readily on late summer imagery.

B
Rules for Delineating

The following table describes the rules for delineating Perennial Snow and Ice CLU's.

Type of Boundary	Rules for Delineating
Visible	The outside edge of established permanent waterways that are not cropped are delineated according to visible boundary on aerial photograph or annual photography.
Management	Changes in perennial snow and ice could cause boundary delineation if required for Service Center Agency's business needs.
Ownership	Property boundaries that divide an otherwise contiguous CLU shall be drawn according to the actual property boundary line.

103-130 Reserved)

Section 2 Digitizing Standards

131 Introduction

A Overview

Transferring CLU polygons into GIS is called digitizing. Digitization is the creation of digital lines in GIS and is accomplished using heads-up digitizing methods. Heads-up digitizing is the process of tracing lines over an image displayed on the computer screen using a computer mouse. For Service Centers, these polygons will represent CLU boundary lines.

Note: See Exhibits 6 through 9 for examples of digital polygons.

B Relationship of CLU to MDOQ

MDOQ map images are used for digitizing in Service Centers. When the user has completed tracing CLU's, the software will "close" the lines into a completed polygon and the software functionality will maintain the placement of the CLU boundary lines in reference to MDOQ.

Example: When the user prompts the computer to show CLU's for a particular tract, the software will automatically display the polygon with precise placement over MDOQ. Digitized polygons drawn on top of the digital orthophotographs will remain exactly as placed until the lines are manually changed.

132 Minimum Digitizing Scale

A
Overview

GIS software allows the user to select, enlarge, and minimize the map image in the window area of the computer screen. The window is the actual viewable area of map features on the computer screen. As a minimum, it is suggested that the Service Centers use a digitizing window of approximately 6” x 8” and start at a scale that yields approximately 40 acres, more or less, in the window.

B
Required Digitizing Scale

The minimum scale at which on-screen digitizing will be performed is 1:4800. Small CLU areas will have to be done at a larger scale.

133 Minimum Precision

A
Overview

Precision is the standard of accuracy for acreage measurements.

B
Required Precision

The standard precision for acres for the Service Center Agencies is .01 acres.

Note: In those areas that grow tobacco, MDOQ may not support digital acreage measurements to one one-hundredth of an acre. At present, these areas require field measurements.

134 Standard Digitizing Defaults

A Overview

GIS functionality allows for numerous defaults and settings in the system when digitizing CLU's. To maintain consistency through all Service Centers, standard settings were developed for basic GIS operations.

B CLU Digitizing Standard Defaults

The following table describes standards to use when digitizing CLU's and tracts into the Service Center's GIS.

Item	Standard
Digital Maps	DOQ dated after 1994 provided by the National Digital Orthophotography Program
Map Display	North American Datum for 1983
Map Projection (conversion from 3-dimensional to 2-dimensional)	Universal Transverse Mercator Grid System
All Other Standards	See forthcoming USDA FSA Map Symbology Guide.

135 Tract Digitizing Standards

A Overview

FSA tract lines shall be digitized and maintained when the CLU boundaries do not equal the tract boundaries. Tract lines shall be entered after CLU boundaries are completed.

Note: Tract lines are digitized to the point where land management ends, not to the center of roads.

B Tract Digitizing Standards

Service Centers shall follow the standards included in the following table when digitizing tract boundaries.

IF CLU boundaries...	THEN...
do not equal the tract boundaries	tract boundaries shall also be digitized.
equal only part of the total tract boundary	remaining tract boundary shall be digitized. The CLU boundary that is the same as the tract boundary shall be assigned multiple attributes for both CLU and tract identification.
form the entire tract boundary	tract boundary will not be digitized. The CLU boundary shall be assigned multiple attributes for both CLU and tract identification.

136 Handling Existing Multi-Tracts

A Overview

FSA multi-tracts will not be maintained as part of the CLU layer. Tract lines for member tracts shall be entered after CLU boundaries are completed.

Note: Member tract lines are digitized to the point where land management ends, not to the center of roads.

B Tract Digitizing Standards

Service Centers shall follow the standards included in the following table when digitizing member tract boundaries.

IF CLU boundaries...	THEN...
do not equal the member tract boundaries	member tract boundaries shall also be digitized.
equal only part of the total member tract boundary	remaining member tract boundary shall be digitized. The CLU boundary that is the same as the member tract boundary shall be assigned multiple attributes for both CLU and member tract identification.
form the entire member tract boundary	member tract boundary will not be digitized. The CLU boundary shall be assigned multiple attributes for both CLU and member tract identification.

C Recording Multi-Tract Number

Digitizing centers shall enter the multi-tract number in the “Comments” field in the CLU attribute table for each member tract in a multi-tract.

Note: The Digitizing Tool used in the digitizing centers creates a “Comments” field for each CLU. The Maintenance Tool does not create a “Comments” field.

137 Land Physically Located Outside of County

A
Overview

FSA Service Centers sometimes administer land that is physically located outside of their county boundaries. This can occur as the result of a farm transfer or designation as an alternative servicing County Office under 3-CM.

This land usually will not be included in the initial CLU layer provided to the Service Center. When this is the case, the Service Center will be responsible for creating and maintaining this CLU data.

B
Obtaining Digital Photography

Service Centers shall request the necessary digital photography images according to the following table.

IF the area is in...	THEN request the images from...
your State and it has already been digitized	the county.
your State but has not been digitized	APFO.
another State.	

C
Adding CLU's

Digitize CLU's, enter attribute data, and add related data according to Parts 3 through 5.

Note: Make certain to enter in the CLU attribute table the State and county codes for where the land is physically located.

138-160 (Reserved)

Part 4 Identifying CLU

161 Numbering and Labeling CLU

A Unique CLU ID

With the greater use of GIS software and the installation of the new CCE equipment, it is important to ensure that data can easily move among systems and databases without overwriting data that someone else previously created. It is essential that each CLU have a globally-unique identifier GUID.

For the most part, the generation of unique identifiers for CLU's will be:

- accomplished by the software
- largely transparent to the user.

To ensure uniqueness, GUID's are usually long jumbles of characters that have little recognition value except to the computer. The important thing for the user to remember is that you need one. CLU records usually contain other attributes, such as a field number and a CLU label, that provide a human-recognizable identification.

Note: Whenever CLU is created by the Maintenance Tool, it will be assigned a unique identifier. It is called CLUID.

B CLU Label Overview

A label will also be assigned or attributed to each CLU to:

- identify CLU for Agencies in a specific Service Center
- assist in effective communication with the farmer and customers
- provide a link to previous historical tabular data.

This label is not related to the ID number. Each Agency in the Service Center will use the same label to identify CLU so that the farmer or other customer understands which CLU is being discussed no matter which Agency in the Service Center uses the number.

Example: Tract 2002, field 1 will be assigned to identify the same CLU by all Agencies in that Service Center.

Continued on the next page

C
CLU Labels for Existing Fields

CLU that was correctly identified on an aerial photograph as a tract and field will be assigned the same tract and field number as it had on the photograph when CLU data is entered into GIS. Using existing field number minimizes the changes required to historical data, such as NRCS conservation plans, that is tied to FSA field numbers. Any existing field number that does not meet 2-CP guidelines for numbering fields must be corrected on the 24" x 24" aerial photograph before it can be used to identify CLU.

D
CLU Labels for Other Areas

CLU's or land enclosed in tract boundaries that did not have an FSA field number will not be assigned a label that is unique to the tract; instead, these areas will be assigned a field number of "0". This number is used as a generic flag denoting undefined CLU's prompting the Service Center to review and assign CLU a new number. Undefined tracts will be assigned the number "0". When a CLU boundary is the same as a tract boundary, a field number of "1" shall be assigned to CLU.

Note: Follow 2-CP, paragraph 494 to determine new CLU numbers.

162 Attributing CLU's

A
What Is Attributing

GIS systems allow data elements (called attributes) to be attached to geospatial points, lines, and polygons. These attributes can contain human-recognizable identifiers and labels, or they may contain identifiers that point to data stored in other files and databases. Identifiers can provide a path to a potential bounty of information about a place on the ground.

B
CLU Attribute Table

A standard set of data attributes, such as data elements, shall be attached to each CLU polygon. See Exhibit 17 for a table listing the standard set of attributes and the method of entry. Additional attributes may be added to this standard set to meet unique agency business requirements.

163-190 (Reserved)

Part 5 Relationship With Other Data

191 Overview

A Background

Decades of records exist in files and databases describing USDA programs applied to abstract locations such as a tracts, management units, development sites, etc. GIS systems can now be used to relate this information concerning program delivery to specific points on the earth. This new capability envisions the user clicking the mouse on a place on a map or photograph and having the computer respond with data about the land.

B Examples of Linking Tabular and Spatial Data

This capability can be a major productivity enhancer. If you know a specific point on the earth, you can find all of the instances of program delivery that relate to that point on the earth. Any data that can be tied to a point on the ground can be related to any other data tied to that same geographic point. The following are a few examples of the type of data that could be displayed:

- who owns the land
- who is the current operator
- CRP contract data
- wetlands identified on the property
- the distance from the nearest road or river
- the conservation plan
- outstanding financial obligations tied to the land.

C Future Plans for Links

It will take time to establish all of the data linkages needed to implement this capability. Existing and new tabular data (data contained in database tables or traditional computer files) must be linked to geospatial locations. Acquiring additional layers of spatial data will produce other links. Through reengineering, program delivery systems will be adapted to store links to digitized land units, or to store spatial coordinates for the area where an activity takes place.

Additional information on linking CLU's to tabular data will be forthcoming in documentation for new and reengineered systems.

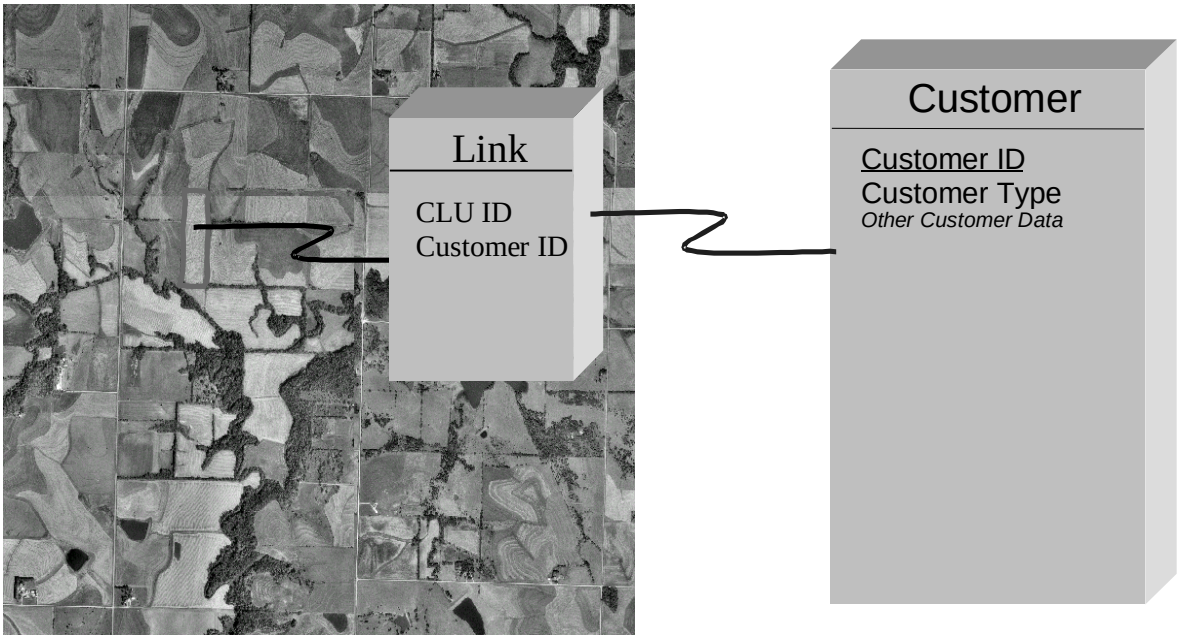
192 Linking CLU to Customer

A Overview

Future software will provide some of the initial linkages, in particular the linking of 1 or more customers to each CLU.

B Customer Link

The following is a graphic representation of 1 way to link between CLU and the customer.



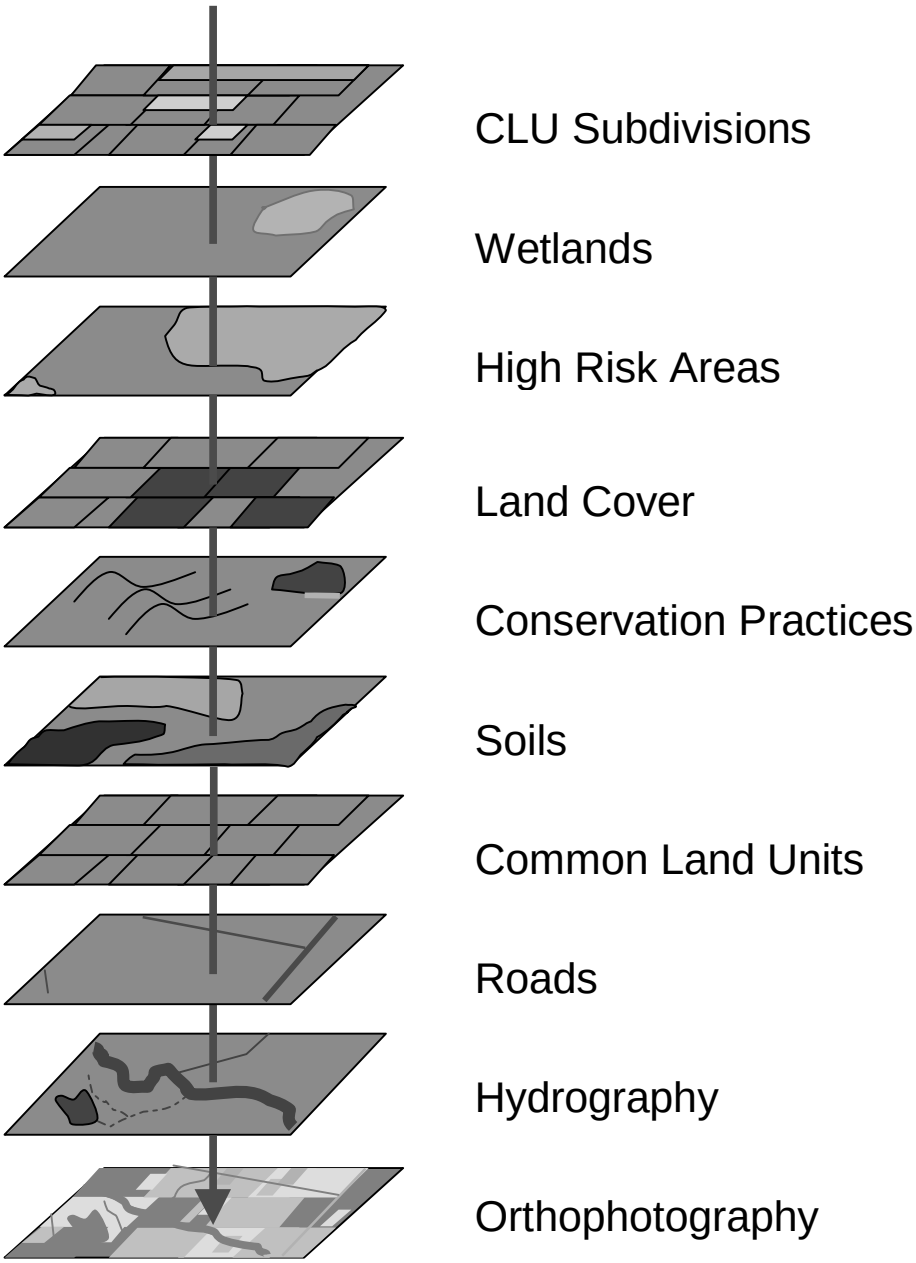
Linking CLU polygons to tabular data stored in files and databases.

193 CLU and Other Data Layers

A Additional Data Layers

Additional data layers are needed to properly maintain farm and producer records. While the Service Center Agencies have agreed on the basic area designation for CLU, each will want to create additional data layers to meet Agency specific needs. See Exhibits 6 through 9 for examples.

The following graphic represents some of the data layers which may be used by Service Centers to conduct their business.



194 Wetland Point Layer

A Background

NRCS is responsible for delineating official certified wetlands, but the certified wetland layer may not be complete by the time the initial CLU layer arrives in the Service Center. To assist producers before wetlands are completely certified, FSA will associate both basic certified and inventoried wetland information from the existing aerial maps to points on a layer separate from CLU.

When this point data is displayed in conjunction with the CLU layer, producers can be directed to NRCS for appropriate wetland certifications on specific CLU's. Once the certified wetland layer is completed, the FSA wetland point data for corresponding wetlands will no longer be used. Point data associated with existing inventoried wetland determinations that are not officially certified will continue to be used until NRCS makes an official certification at the producer's request.

B Establishing Points

Information for both certified official wetlands and noncertified wetlands on existing aerial maps shall be transferred to the wetland point layer. Place the wetland points and enter the appropriate attribute data according to the FSA manual provided with the Wetland Point Data Tool. The manual can also be found by selecting download at the following website: http://dc.ffasintranet.usda.gov/fsagis.

C Wetland Attribute Data

The following attribute data shall be recorded for FSA wetland points:

- approved wetland label from 2-CP, subparagraph 495 D
- acreage of wetland if shown on aerial map
- whether wetland is certified or inventoried
- date certified.

195 Conservation Management Units Layer

A
CM Unit Layer

The NRCS Customer Service Toolkit software produces a GIS data layer called "Conservation Management Land Units". These CM Land Units:

- delineate and describe land where conservation activities are being planned or have been applied
- are derived from the CLU layer but form a separate spatial layer.

The CM Land Units layer retains all the attributes of the CLU layer, plus it has additional attributes related to conservation planning.

A District Conservationist may create several of these conservation management layers, each one representing a planning alternative. One or more of these layers/themes may represent a customer's conservation plan or contract.

When a land owner finally implements a conservation plan, it may trigger changes to the CLU layer. However, it will be up to the CLU data steward in each Service Center to actually change the boundaries in the CLU layer. The CLU boundary changes will usually occur after the conservation practice is constructed, and is based on the new physical CLU boundaries found on the ground.

The NRCS Conservation Planning Handbook refers to these types of land units as "Conservation Management Units". In previous versions of the handbook, these were referred to as "Conservation Treatment Units".

195 Conservation Management Units Layer (Continued)

B
Subdivisions

Frequently, a District Conservationist will subdivide a CM Land Unit into multiple land units for conservation treatment purposes. This is especially common for pasture or grazing land. These subdivisions are:

- delineated on the CM Land Units layer
- are usually referred to as management units.

For example, a field conservationist may divide pastures or grazing land into several management units to develop grazing plans for customers. In this case, Fields 1 and 2, CLU's that are pastureland, can be divided into CM Land Units 1a, 1b, 2a, and 2b respectively.

C
Merging CLU's into Larger Units

As conservationists develop land unit themes for individual customers, they will probably want to merge them to cover larger geographic areas. This provides the ability to query on current and planned land use, and on conservation practices for scheduling or reporting purposes.

D
Tabular Attributes for CM Land Units

See Exhibit 18 for the data elements for the CM Land Units. The first 8 attributes come directly from the CLU data layer.

196-220 (Reserved)

Part 6 Releasing Data

Section 1 Rules for Release of Data

221 General Information

A Overview

It is FSA policy to safeguard individual privacy from the misuse of Federal records while granting individuals access to records concerning themselves. FSA information that is now available in digital form has no new release procedure than when it was retained in paper format.

As before, the information that is released to agencies of USDA should only be provided when they have an official use for the information. Release of this information to other Government agencies or a third party is allowable only if there has been a routine use established in the FSA Privacy Act system of records granting use of the information.

2-INFO provides procedures for all FSA offices to follow when making records available to the public, other Federal agencies, and Congress. 3-INFO provides procedures to be followed by all offices when collecting, maintaining, or disclosing data or information concerning an individual.

B Releasing CLU Data

In general, CLU boundaries may be released as long as no identifying information links CLU to a particular producer. Appropriate metadata must accompany the data according to Part 7.

222 Releasing CLU Data

A Releasing CLU Boundaries

CLU boundaries may be released as long as **no** identifying information links CLU to a
*--particular producer. All attribute information, except calculated acreage figures, must be stripped from CLU before distribution. Appropriate metadata must accompany the data according to Part 7.

B Not Releasing Farm, Tract, and CLU Numbers

Farm, tract, and CLU numbers appearing in the CLU attribute shall not be released, except to a producer on a farm in which that producer has an interest.

C Releasing CLU Acreage

Calculated acreage appearing in the CLU attribute table may be released.

D Releasing CLU Unique ID

The CLU unique numbers appearing in the CLU attribute table shall not be released, except to a producer on a farm in which that producer has an interest. A producer is considered to have an interest in CLU if the producer is an operator, owner, or other producer on CLU.--*

E HEL or Non-HEL Attributes

HEL/non-HEL status appearing in the CLU attribute table shall not be released, except to a producer on a farm in which they have an interest.

223-250 (Reserved)

Section 2 Servicing Requests

251 Basic Policy

A Overview

2-INFO provides procedures for all FSA offices to follow when determining the cost of making records available to the public, other Federal agencies, and Congress. 2-INFO, Part 4 provides procedures for determining the cost of search services, review services, computer services, and related services.

B Metadata Requirements

For CLU and related data, it will be necessary to provide metadata that accurately describes the data whenever data is released. See Part 7 for information on metadata.

*--C Official Distribution Point for CLU

APFO is the official collection and distribution point for FSA CLU data. County Offices shall provide copies of their CLU to APFO, through the APFO FTP site, immediately following certification and post an updated copy every 30 days. APFO will process CLU for archival and distribution.

Note: See 2-CP, Exhibit 37 for FTP instructions.**--***

*--252 Requests for Ortho-Imagery

A Basic Policy

APFO is the USDA data steward for ortho-imagery. There are no privacy issues concerning this data.

B Requests for Large Areas

Requests for ortho-imagery for the entire county or large areas shall be directed to APFO. This is similar to the existing policy concerning photographs.

C Requests for Small Areas

Requests from an individual producer for ortho-imagery covering their land can be filled--* at the Service Center.

D Charges

Producers shall not be charged for digital or paper copies of farms in which they have an interest. Charge other requestors only for the cost of reproduction. See Exhibit 19 for additional information on calculating costs for digital data and printed maps.

*--E More Information on Ortho-Imagery

For more information on ortho-imagery, see APFO's web site at **http://www.apfo.usda.gov**.--*

253 Requests for CLU

A Basic Policy

The release of CLU information has many privacy issues and Service Centers must ensure that privacy requirements are not violated according to paragraph 222, 2-INFO, and 3-INFO.

*--B Requests for Entire CLU

County Offices shall direct producers and the public to contact APFO by phone, e-mail, or mail for copies of entire CLU. See Exhibit 19 for the cost of data to be reproduced on CD. County Offices will soon be able to direct all geospatial data orders, CLU included, through the USDA Geospatial Data Gateway at **http://datagateway.nrcs.usda.gov/**. There is no charge when CLU is downloaded using FTP from this web site.**--***

***--253 Requests for CLU (Continued)**

C Servicing Producer Requests for CLU In Which the Producer Has an Interest

Requests from an individual producer for CLU's covering their land may be filled at the Service Center. In this case, privacy issues do not apply to the data associated with that producer and the data is provided at no charge. Only the CLU associated with that producer may be provided with full attribute data. A producer is considered to have an interest in CLU if the producer is an operator, owner, or other producer on CLU. Appropriate metadata must accompany that data according to Part 7.

Select the producer's CLU, click "Theme" and then click "Convert to Shapefile" to create a file containing only the producer's CLU. See the Maintenance Tool User Guide, "Search CLU and PLSS" for specific instructions on how to select CLU by farm, tract, or CLU number.

Note: File is **not** saved on hard drive or server.

D Charges

Producers shall **not** be charged for digital paper copies of farms in which they have an interest. A producer is considered to have an interest in CLU if the producer is an operator, owner, or other producer on CLU. See Exhibit 19 for additional information on how**--***
to calculate costs for digital data and printed maps.

254 Requests for Wetland Point Data

A Basic Policy

Requests for official wetland information should be directed to NRCS as they are the responsible agency.

B Requests for Large Areas

The Wetland Point Layer data shall not be released except to a producer for a farm in which they have an interest. NRCS will have access to the data through CCE so it will not be necessary to provide them with a copy of the data.

C Requests From Producers

The Wetland Point Layer data shall be provided to a producer for farms in which they have an interest. The data is provided as a tool for producers to use when communicating with NRCS. It is very important that producers understand the proper use of the data and request a final determination as soon as possible for all noncertified wetlands.

D Charges

Producers shall **not** be charged for digital or paper copies of farms in which they have an interest.

--

255 Requests for CRP Data

A Basic Policy

CRP data recorded for CLU cannot be released except to a producer on a farm in which they have an interest.

B Requests for Large Areas

CRP data cannot be released on a county wide, or large scale basis. Partner agencies will have access to the data through CCE so it will not be necessary to provide them with a copy of the data.

C Requests From Producers

The CRP data shall be provided to a producer for farms in which they have an interest.

D Requests for Small Areas

CRP data cannot be released except to a producer on a farm in which they have an interest.

E Requests for CRP Data

Producers shall **not** be charged for digital or paper copies of farms in which they have an interest.

256-280 Reserved

Part 7 Metadata

281 General Information

A Background

Metadata essentially describes the information in a data set. For GIS data, it answers questions such as:

- what does the data set describe
- who produced the data set
- why was the data set created
- how was the data set created
- and how reliable are the data.
- who wrote the metadata
- how can someone get a copy of the data set.

Refer to **http://geology.usgs.gov/tools/metadata/tools/doc/ctc** to see a more detailed explanation of metadata.

Metadata is included when you provide a copy of digital data to someone who requests it. It is also used to describe the data sets that are searchable by using the web. For maps of CLU and related data, it will be necessary to provide metadata that accurately describes the data whenever data is released.

B Metadata Standards

***--**Metadata for SCA agency data sets is to conform to FGDC Metadata Content Standards. See **http://www.fgdc.gov/metadata/meta_stand.html** to download the standards.

C Creating Compliant Metadata

FGDC compliant metadata will be available to Service Centers after certified CLU files are sent to APFO at **http://www.apfo.usda.gov/**. Metadata files for certified CLU's already sent to APFO will also be posted to the same web site for Service Centers to download their metadata using FTP.

D Example of CLU Metadata

See Exhibit 22 for an example of FGDC compliant metadata for a CLU file.**--***

Reports, Forms, Abbreviations, and Redelegations of Authority

Reports

None

Forms

This table lists all forms referenced in this handbook.

Number	Title	Display Reference	Reference
AD-1026	Highly Erodible Land Conservation (HELC) and Wetland Conservation (WC) Certification		Ex. 10

Abbreviations

The following abbreviations are not listed in 1-CM.

Approved Abbreviation	Term	Reference
CCE	Common Computing Environment	1, 2, 254, 255, 161, Ex. 12
CD	compact disc	253, Ex. 13, 19
CLU	common land unit	Text, Ex. 7-11, 13
CM	Conservation Management Land Unit	92, 195
DOQ	digital orthophotography quadrangle	134, Ex. 6-9
FGDC	Federal Geographic Data Committee	281, Ex. 22
FTS	file transfer protocol	251, 253, 281
GIS	geographic information system	1, 2, 32, 64, 91, 131, 134, 161, 162, 191, Ex. 10, 13
GPS	global positioning system	94, 95, 97
GUID	Globally-unique identifier	161
LA	Loss Adjustor	Ex. 12
MDOQ	mosaicked digitial ortho-photography	92, 31-133
PLSS	Public Land Survey System	Ex. 13
QC	Quality Control	Ex. 13
SCI	Service Center Initiative	281
SCIMS	Service Center Information Management System	Ex. 10

Redelegations of Authority

None

Definitions of Terms Used in This Handbook

Attribute Table

An attribute table is a database, or other tabular file, containing rows and columns. It is used to store nongeospatial data, such as cropping history and system calculated acres, in precise fields which allow the system to quickly find, retrieve, and query the data when prompted by the user.

Attribute Field

An attribute field is a single column of information contained in an attribute table.

Common Data

Common data:

- is common to more than 1 of the Service Center Agencies
- originates outside the Service Centers and is maintained for all Agencies by the Service Center data steward or system administrator.

Common Land Unit (CLU)

CLU is the smallest unit that has:

- a permanent, contiguous boundary
- common land cover management
- a common owner
- a common producer association.

Continued on the next page

Definitions of Terms Used in This Handbook (Continued)

Database

A database is a logical collection of interrelated information, managed and stored as a unit, usually on some form of mass-storage system such as a magnetic tape or disk.

A GIS database includes data about the spatial location and shape of geographic features recorded as points, lines, areas, pixels, grid cells, or tins as well as their attributes.

Digital Ortho-photography (DOQ)

Digital orthophotography is a digital representation (map) of an aerial photograph. Ground and land features are accurately located in their true map positions on DOQ. Distortions caused by differences in terrain relief and aerial camera tilt have been removed. Service Centers will use DOQ's as the base map in their GIS.

Digitizing

Digitizing is encoding map features, such as points, lines and polygons, as coordinates in a digital form, that is, using the computer to draw lines and points on an digital map. Field Service Agencies will be digitizing tract/CLU boundaries on top of the digital aerial photography.

Geographic Information System (GIS)

GIS is an application software capable of manipulating, analyzing, and storing spatial or geographic referenced data. GIS will automatically compute distances and acres using imbedded calculation models.

Geo-reference

Geo-reference is to establish the relationship between coordinates on a paper map (2-dimensional) and known real-world coordinates using longitude and latitude.

Map Projection

Map projection is the conversion of the Earth's 3-dimensional coordinates into a 2-dimensional plane. Since the Earth is round, when it is displayed as a flat map, map projections maintain the integrity of data by shifting the 2-dimensional map to correlate with 3-dimensional longitude and latitude locations.

Continued on the next page

Definitions of Terms Used in This Handbook (Continued)

Mosaicked Digital Ortho-Photography (MDOQ)	Mosaicked Digital Ortho Photography is a seamless mosaic of all the DOQ's in a single county that has been reformatted to remove visible seam lines, misalignment, and color variations between DOQ's.
Polygon	A polygon is a figure having multiple line segments connected to form a plane. Polygons are the GIS term for a CLU's boundary.
Program Specific Data	Program specific data is used and maintained by 1 Field Service Center Agency.
Record	A record is a single row of data in an attribute table. Users can define the exact record (row) and field (column) to locate exact program information in the automated system.
Relational Database Management System	A relational database management system has the ability to access data organized in tabular files that may be related together by a common field (item). It has the capability to recombine the data items from different files, thus providing a powerful tool for locating, updating, and querying information stored in the computer.
Shared Data	Shared data is shared by 2 or more Field Service Center Agencies, but is maintained by 1 Agency or an external organization. **Example:** Land ownership maintained by the county government.
Spatial Data	Spatial data is information about the location, shape, and relationships of map features, such as roads, fences, barns, feed lots, and other details contained on maps. Spatial data stores the geographic location of features, usually in a longitude and latitude numbering system, with attribute information describing what these features represent.
Views	Views are projected maps that allow the user to display, explore, query, and analyze geographic data in GIS.

Example of DOQ

Note: The quality has been reduced because of photocopying.

Example of Digitized CLU's on Top of DOQ

Note: The quality has been reduced because of photocopying.

Example of Digitized CLU's on Top of DOQ

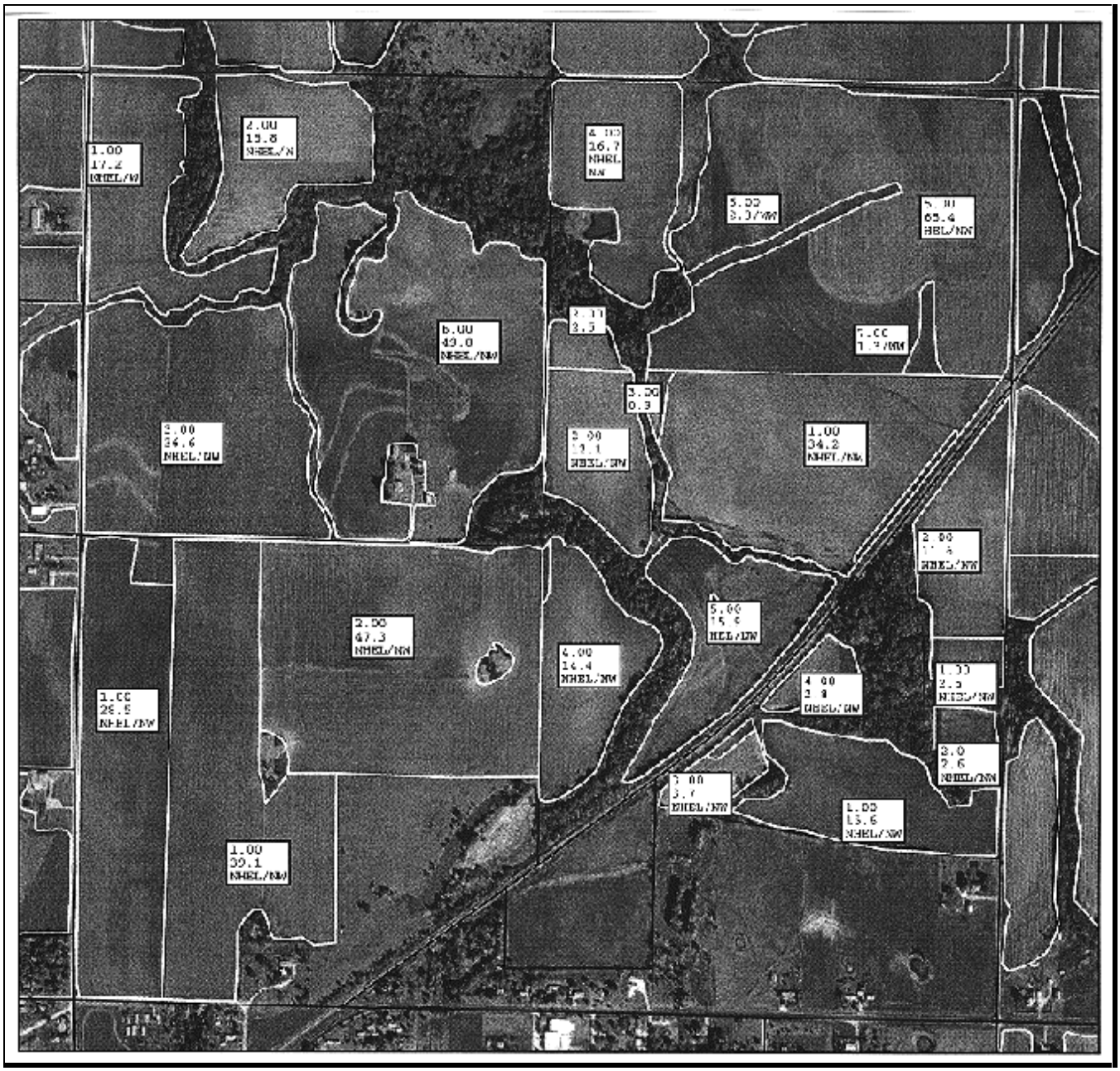
Note: The quality has been reduced because of photocopying.

Example of Digitized CLU's With Soils Layer on Top of DOQ

Note: The quality has been reduced because of photocopying.

Example of Digitized CLU's With Labels on Top of DOQ

Note: All CLU's have been labeled in the graphic. The quality has been reduced because of photocopying.



A
FSA Tools

The following are tools used by FSA to create and maintain CLU.

FSA Tools	Description
CLU Digitizing Tool	Tool set for CLU data creation.
CLU Maintenance Tool	Tool set for Service Center CLU maintenance.
CLU Crop Reporting Tool	Prototype tool for collecting Crop Report data using CLU and GIS.
CLU HEL Tool	Automates the calculation of HEL acreage and map unit soil type of 1 or more CLU's within a tract.
CLU Utilities	Additional tools for labeling, searching CLU, generating PLSS section maps and other tools.
CLU QC Tools	Quality control tools for checking edit work on CLU or other data created at a Service Center.
FSA Mapmaker	Facilitates the creation of State/county thematic maps for project management, tracking, or decision support purposes.

Continued on the next page

B
NRCS Tools

The following are tools used by NRCS to create and maintain the CLU and data layers.

NRCS Tools	Description
Customer Service Toolkit	Customer Service Toolkit is a collection of software tools for USDA field employees who work with the public, primarily farmers and ranchers. The purpose of the tools is to help natural resource planners provide information to farmers and ranchers that result in conservation on the land. The tools incorporate commercial software products such as Microsoft Outlook, Excel, and Access. This enables conservationists to provide natural resource information in professional looking documents. Toolkit also provides tools for mapping and analyzing natural resource information. Maps are a traditional method of communicating with customers, and the Toolkit makes it easy to develop these maps for customers. Within the Toolkit environment are tools for managing wetland determinations and conservation easements.
Soil Data Viewer	The NRCS is the Federal agency responsible for mapping soils and developing databases of information about soils. Many groups including farmers and ranchers, State and local governments, universities, developers, and realtors come to NRCS for soils data. Traditionally, soils information has been provided on paper, but most of the soils data across the country has been converted into electronic databases. Many soil surveys are being digitized/mapped for use with geographic information systems. The Soil Data Viewer takes advantage of soil surveys that have been digitized. The tool makes it easy for NRCS resource conservationists to produce maps that show locations of soil types and provide information on how the soils located in a specific site should be used to conserve the resource and prevent pollution. A desktop and a web version of the Soil Data Viewer are available.
Resource Data Gateway	Web-based suite of tools for locating and delivering natural resource data including soils, orthoimagery, climate, plants, and CLU. The Gateway strives to provide easy “one stop shopping” for delivery to anyone, anywhere, at any time, supports geospatial data needs for Service Center applications like the Customer Service Toolkit and Soils Data viewer. The Gateway encourages better use, easier access, efficient delivery, and improved management of NRCS data. Gateway allows electronic download or CD delivery of data to internal and external customers. External customers include farmers, agribusiness consultants, Federal, State, and local conservation agencies, and the general public. The Gateway supports “locating” (by State, county, or user-specified area), “selecting” (by data theme such as soil, plant, climate, “formatting” (re-projection), and selecting “delivery preference” (download, FTP, or mail CD).

Available Standards

A Current Geospatial Standards

The following titles describe current geospatial standards and are located on the following website: http://www.fsa.usda.gov/scdm.

Title	Description
Standard for Geospatial Data	This standard provides the USDA Service Center Modernization initiative with a geospatial data model and data standards. It describes a basic, nationally consistent set of core geospatial data that will provide a foundation on which to base business applications.
Standard for Geospatial Dataset File Naming	This document provides the USDA Service Center Modernization initiative standard for geospatial directory and file naming conventions. It describes the conventions used for the basic nationally consistent set of core geospatial data, locally acquired geospatial data, and derived geospatial data.

CLU Attributes

In the following table, the "Attribute Name" is the full system name for the attribute. The "Field Name" is a shortened, alternative name for use where GIS systems have a constraint on the maximum length of an attribute name.

SCIMS Physical Attribute Name	GIS Data Physical Name (ArcView .dbf data element)	Method of Entry	Attribute Length
***--**Shape	SHAPE	System-generated	8 character**--***
State_Code	STATECD	User entry[1/]	2 character
County_Code	COUNTYCD	User entry[1/]	3 character
Farm_Number	FARMNBR	User entry	7, numeric
Tract_Number	TRACTNBR	User entry	7, numeric
Common_Land_Unit_ Number	CLUNBR	User entry	7, numeric
CLU_Calculated_ Acreage	CALCACRES	System-generated	8, numeric, 2 decimals
Highly_Erodible_Land _ Type_Code	HELTYPECD	User entry	1, character
Common_Land_Unit_ Classification_Code	CLUCLSCD	User entry	2, numeric
FSA Official Acres	FSA_ACRES	User entry	8, numeric, 2 decimals
Common_Land_Unit_ Identifier	CLUID	System-generated	36 character
***--**Comments	COMMENT	User entry	80 character

[1/] State and county codes are identical for all CLU's in a county dataset except for CLU's which fall outside the county boundary. See paragraph 137.

Notes: Using the FIPS tool in the merit tool will change all CLU's to what is entered in the pop up window.**--***

Comment field is created when using Digitizing Tool. The Maintenance Tool does not create a Comment Field.

CLU Attributes (Continued)

Definitions of CLU Attributes	
Attribute	**Definition**
***--**Shape	Vector data storage format storing the location, shape, and attributes of the geographic feature. Format is listed as polygon.**--***
State Code	The numeric Federal Information Processing Standards (FIPS Pub 5-2) code for a State within the United States, or a U.S. Territory. These codes can also be found in the GSA Locator Codes system. **Examples:** 01 = Alabama, 02 = Alaska, 20 = Kansas, 29 = Missouri, 51 = Virginia. **Note:** FIPS codes are character fields to preserve the leading zeroes.
County Code	The standard code used to identify physical counties and equivalent entities of the United States, its possessions, and associated areas as specified in FIPS PUB 6-4. A county code is only unique if it is combined with a State code. **Example:** 01 003 = Baldwin County in Alabama. **Note:** These codes are stored as character fields to preserve the leading zeroes.
Farm Number	An identifier attached to all land units under control of a particular "operator". The land units may have different owners. Land units may come and go from the farm as interest (lease, ownership) in the land units changes. An "operator" is the person or business that actually controls day-to-day operation of the farm. The Farm Number requires a State code and county code for uniqueness. **Domain:** Values of 0 to 9,999,999; with 0 indicating the lack of a specific farm number.
Tract Number	An identifier given to a collection of land units under the same ownership. An "owner" is a person or business having deed to the land. Tract Numbers are usually assigned by FSA; however, other agencies might create tract numbers for CLU's containing range land, wetlands, housing developments, and other types of noncropped land. This Tract Number requires a State code and county code for uniqueness. **Domain:** Values of 0 to 9,999,999; with 0 indicating the lack of a specific tract number.
CLU Number	Usually contains the FSA-assigned field number for CLU. In instances where FSA has not assigned a formal tract/field designation (for range land or housing developments), NRCS or RD may assign a CLU number meaningful to the user, and without an accompanying tract number. **Domain:** Values of 0 to 9,999,999; with 0 indicating the lack of a specific CLU number.

CLU Attributes (Continued)

Definitions of CLU Attributes	
Attribute	**Definition**
CLU Calculated Acres	The polygon acreage based on calculation by the GIS tool.
Highly Erodible Land Type Code	Indicates the determination of CLU to contain highly erodible land. **Domain:** H - Highly Erodible Land (HEL) N - Non Highly Erodible Land (NHEL) E - Exempted Highly Erodible Land (EHEL) (only in CA, AZ, NV, UT) U - Undetermined, that is, a determination has not yet been made. (Default) **Note:** Versions of this code have contained a 1-character "Y", "N"or Blank to indicate that the land unit is determined to be highly erodible. The Y/N/Blank value can be found on AD-1026. Both FSA and NRCS use AD-1026. This designation is not sufficient for future uses; and, when available, the actual determination will be recorded. If necessary, the codes listed above can be correlated back to the Y/N/Blank codes as follows: H (HEL) = "Y" N (NHEL) = "N" E (EHEL) = "N" U (Undetermined) = Blank
Common Land Unit Classification Code	A 2-character code to denote the current primary classification of land unit type as defined in this handbook. See Exhibit 18 for listing and explanation of land unit types. **Domain:** 01 Urban 02 Cropland 03 Rangeland 04 Forest 05 Water Body 06 Mined Land 07 Barren 08 Tundra 09 Perennial Snow and Ice 10 Other Agriculture
FSA Official Acres	An 8-character number to record the acreage from official fields.
Common Land Unit Identifier	A globally-unique identifier assigned to a spatial feature, such as CLU. This identifier will generally not be visible to the user but will provide the internal uniqueness needed to maintain electronic records as they are moved and merged among computers and offices.
***--**Comments	An 80 character free-form field.**--***

A
CLU Land Classification Codes

Following are CLU land classification codes relationship to Level II USGS categories.

CLU Class	CLU Code	Standard Color	Relationship to Level II USGS Categories	
			Code	Name
Urban	01	Red	11	Residential
			12	Commercial and Services
			13	Industrial
			14	Transportation, Communications, and Utilities
			15	Industrial and Commercial Complexes
			16	Mixed Urban or Built-up Land
			17	Other Urban or Built-up Land
Cropland	02	Light Brown	21	Cropland and Pasture
			22	Orchards, Groves, Vineyards, Nurseries, and Ornamental Horticultural Areas
Rangeland	03	Tan	31	Herbaceous Rangeland
			32	Shrub and Brush Rangeland
			33	Mixed Rangeland
			62	Nonforested Wetland
Forest	04	Dark Green	41	Deciduous Forest Land
			42	Evergreen Forest Land
			43	Mixed Forest Land
			61	Forested Wetland
Water Body	05	Blue	51	Streams and Canals
			52	Lakes
			53	Reservoirs
			54	Bays and Estuaries
Mined Land	06	Rose	75	Strip Mines, Quarries, and Gravel Pits
Barren	07	Grey	71	Dry Salt Flats
			72	Beaches
			73	Sandy Areas Other Than Beaches
			74	Bare Exposed Rock
			76	Transitional Areas
			77	Mixed Barren Land
Tundra	08	Light Green	81	Shrub and Brush Tundra
			82	Herbaceous Tundra
			83	Bare Ground Tundra
			84	Wet Tundra
			85	Mixed Tundra
Perennial Snow and Ice	09	Light Blue (Ice)	91	Perennial Snowfields
			92	Glaciers
Other Agriculture	10	Light Yellow	21	Confined Feeding Operations
			22	Other Agricultural Land

Continued on the next page

B
USGS Land Classification Definition and Codes

Following are the definitions and codes used to populate the CLU Land Classification data.

Land Use and Land Cover Classification System for Use With Remote Sensor Data	
Level I	**Level II**
1 Urban or Built-up Land	11 Residential 12 Commercial and Services 13 Industrial 14 Transportation, Communications, and Utilities 15 Industrial and Commercial Complexes 16 Mixed Urban or Built-up Land 17 Other Urban or Built-up Land
2 Agricultural Land	21 Cropland and Pasture 22 Orchards, Groves, Vineyards, Nurseries, and Ornamental Horticultural Areas 23 Confined Feeding Operations 24 Other Agricultural Land
3 Rangeland	31 Herbaceous Rangeland 32 Shrub and Brush Rangeland 33 Mixed Rangeland
4 Forest Land	41 Deciduous Forest Land 42 Evergreen Forest Land 43 Mixed Forest Land
5 Water	51 Streams and Canals 52 Lakes 53 Reservoirs 54 Bays and Estuaries
6 Wetland	61 Forested Wetland 62 Nonforested Wetland
7 Barren Land	71 Dry Salt Flats 72 Beaches 73 Sandy Areas Other Than Beaches 74 Bare Exposed Rock 75 Strip Mines, Quarries, and Grave Pits 76 Transitional Areas 77 Mixed Barren Land
8 Tundra	81 Shrub and Brush Tundra 82 Herbaceous Tundra 83 Bare Ground Tundra 84 Wet Tundra 85 Mixed Tundra
9 Perennial Snow or Ice	91 Perennial Snowfields 92 Glaciers

Charging for Data

A Calculating the Cost of Providing Digital Data

The following are items to consider when calculating the cost of providing digital data.

Item	Charge
CD, diskette, or other media.	Actual cost rounded to nearest dollar.
• Staff time spent on taking request. • Staff time for modifications to data, including changes for Privacy Act purposes. • Staff time for or modifying metadata, if needed. • Staff time preparing for mailing, etc.	Time rounded up to nearest ¼ hour times staff cost of either of the following: • when feasible, at the salary rate of the employee conducting the search, plus 16 percent of the employee's basic pay • where a homogeneous class of personnel is used exclusively, at the rate of $2.50 per quarter hour for clerical time and $5.00 per quarter hour for supervisory or professional time.
Computer time for transferring data.	Estimated time X average staff cost of either of the following: • when feasible, at the salary rate of the employee conducting the search, plus 16 percent of the employee's basic pay • where a homogeneous class of personnel is used exclusively, at the rate of $2.50 per quarter hour for clerical time and $5.00 per quarter hour for supervisory or professional time. **Note:** Service Center computer time is calculated as staff cost according to **7 CFR Subtitle A.**
Cost of packaging, if applicable.	Actual cost rounded up to nearest $.50.
Mailing cost, if applicable	Actual cost.

Charging for Data (Continued)

B Calculating Costs for Providing Maps

The following are items to consider when calculating costs for providing maps.

Item	Charge
Cost of paper and ink for printer.	Estimated cost rounded up to nearest dollar.
• Staff time spent on taking request. • Staff time for modifications to data, including changes for Privacy Act purposes. • Staff time for or modifying metadata, if needed. • Staff time for preparing map. • Staff time preparing for mailing, etc.	Time rounded up to nearest ¼ hour times staff cost of either of the following: • when feasible, at the salary rate of the employee conducting the search, plus 16 percent of the employee's basic pay • where a homogeneous class of personnel is used exclusively, at the rate of $2.50 per quarter hour for clerical time and $5.00 per quarter hour for supervisory or professional time.
Computer time for transferring data.	Estimated time X average staff cost of either of the following: • when feasible, at the salary rate of the employee conducting the search, plus 16 percent of the employee's basic pay • where a homogeneous class of personnel is used exclusively, at the rate of $2.50 per quarter hour for clerical time and $5.00 per quarter hour for supervisory or professional time. **Note:** Service Center computer time is calculated as staff cost according to **7 CFR Subtitle A.**
Cost of packaging, if applicable.	Actual cost rounded up to nearest $.50.
Mailing cost, if applicable.	Actual cost.

Charging for Data (Continued)

C Charging for Releasable Data

Use the following table to determine when to charge for releasable data.

WHEN a request is made by...	THEN the data is provided...
• farm operators, owners, or other producer on the farm when requesting only those CLU's in which they have an interest •***--**other Federal or State agencies, including individuals contracted by these agencies, to perform their official duties in making FSA program determinations • certified appraisers for performing appraisals of FSA direct and guaranteed farm loans**--*** • LA's for all crop insurance	at the Service Center and is free upon request.
• farm operators, owners, or other producers on the farm when requesting CLU for the entire county • Federal, State, or local agencies to perform official duties **not** related to making FSA program determinations • all others	at APFO and is $50 per CD for certified CLU.

Note: The partner agencies have access to data through CCE.

*--Example of CLU Metadata

The following is an example of metadata for certified CLU. The metadata is FGDC compliant. Text in bold indicated metadata that would be county specific.

CLU Metadata

Metadata:
Identification_Information:
Citation:
Citation_Information:
Originator: USDA-FSA Aerial Photography Field Office
Publication_Date: 20020521
Title: clu_a_**ia015**; Common Land Unit for **Boone County, Iowa**
Edition: Version 1
Geospatial_Data_Presentation_Form: Vector Digital Data
Series_Information:
Series_Name: Common Land Units
Issue_Identification: Version 1.0
Publication_Information:
Publication_Place: USDA-FSA Aerial Photography Field Office
Publisher: USDA-FSA Aerial Photography Field Office
Online_Linkage: none
Description:
Abstract:
The common land unit (CLU) dataset consists of digitized farm, tract, and field boundaries with associated attribute data. The USDA Farm Service Agency (FSA) defines farm fields as agricultural land that is delineated by natural and man-made boundaries such as road ways, tree lines, waterways, fence lines, etc. Field boundaries are visible features that can be identified and delineated on aerial photography and digital imagery. Tracts are defined by FSA as sets of contiguous fields under single ownership. Common land units are used to administer USDA farm commodity support and conservation programs in a GIS environment.

The CLU data set was prepared by digitizing farm tracts and fields using 1:7920 scale rectified photomaps that have been maintained by FSA in USDA Field Service Centers. Using the photomaps as a reference, tract and field boundaries were digitized on-screen with digital orthophotography using ESRI's (Environmental Systems Research Institute) ArcView GIS Product. Each of the boundaries of the CLU was digitized to a tolerance of 3 meters (approximately 10 feet) from ground features visible on the digital orthophotography.

The base ortho imagery was produced by Mosaicking digital orthophoto quarter quads (DOQQ's) into a seamless county image. The CLU's were digitized from the mosaic. The mosaic process eliminates or minimizes any offset that would normally be present between standard USGS quarter quadrangles. CLU datasets are projected in the UTM coordinate system, NAD 83. In counties that are split by two UTM zones, the CLU will be projected in the single, predominant zone.

Purpose:
This CLU data will aid County Field Service Centers in identifying and delineating farm tracts and field boundaries as they administer USDA programs for their customers.
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: **20020521**
Currentness_Reference: Inspection Status of Common Land Unit
Status:

1 of 9

--*

*--Example of CLU Metadata (Continued)

Progress: **Certified**
Maintenance_and_Update_Frequency: On-going, regular updates.
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: **-94.25**
East_Bounding_Coordinate: **-93.625**
North_Bounding_Coordinate: **42.25**
South_Bounding_Coordinate: **41.75**
Keywords:
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Aerial photograph
Theme_Keyword: Aerial photo
Theme_Keyword: rectified
Theme_Keyword: photo maps
Theme_Keyword: CLU
Theme_Keyword: Common Land Unit
Theme_Keyword: Field Boundaries
Theme_Keyword: Farm Tracts
Theme_Keyword: Digitizing
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: USA
Place_Keyword: **Boone**
Place_Keyword: **Iowa**
Place_Keyword: FSA
Place_Keyword: Field Service Center
Place_Keyword: **BOONE CO IA FSA**
Place_Keyword: **FIPS 19015**
Place_Keyword: Aerial Photography Field Office
Place_Keyword: APFO
Place_Keyword: USDA
Place_Keyword: United State Department of Agriculture
Access_Constraints: Access to all of the attributes in this digital data set is currently limited to FSA and Agency partnerships. A limited set of attributes is available to persons and entities outside of FSA and their Agency partners.
Use_Constraints:
If digitizing, use a scale of 1:4800 or 1 inch equals 300 feet. This will maintain proper digitizing accuracy.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: USDA-FSA Aerial Photography Field Office
Contact_Position: CLU Distribution Administrator
Contact_Address:
Address_Type: mailing and physical
Address: 2222 West 2300 South
City: Salt Lake City
State_or_Province: Utah
Postal_Code: 84119-2020
Contact_Voice_Telephone: 801-975-3500
Contact_Electronic_Mail_Address: clu@apfo.usda.gov
Native_Data_Set_Environment: ArcView GIS 3.x
Cross_Reference:
Citation_Information:

2 of 9

--*

*--Example of CLU Metadata (Continued)

Originator: USDA Farm Service Agency Digitizing Centers or vendors.
Publication_Date: **20020521**
Title: Common Land Unit
Geospatial_Data_Presentation_Form: Vector Digital Data
Series_Information:
Series_Name: Common Land Units
Issue_Identification: Version 1.0
Publication_Information:
Publication_Place: **Boone County, Iowa FSA office**
Publisher: **Boone County, Iowa FSA office**
Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
A sampling of field boundaries was checked to insure the boundary lines fell within the 3 meter (9.8 foot) criteria. Polygon attributes were checked for accuracy against original photomaps with original boundary and attribute information during Certification process in Service Center.

All attribute data was collected and transferred from the aerial photographs that are maintained by the county FSA office to the computerized attribute table. Certain attributes were verified using quality control procedures. The CLU layer is searched for duplicate CLU numbers, duplicate tract numbers, and acreage differences between system calculated acreage and acreage from original data source.
Logical_Consistency_Report:
Polygon and chain-node topology present, no additional checks for topological consistency were performed on this data set. Attribution of the digital data set includes polygon areas that define agricultural and non-agricultural lands.
Completeness_Report:
This digital CLU data set is complete with no required elements left undigitized, as depicted on the reference material.
Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
All features digitized shall be within 3 meters of their locations as depicted on a display of the digital ortho-imagery. Positional accuracy standard is applicable only to delineated tract and field boundaries that follow visible features.
Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: USDA Farm Service Agency Digitizing Centers or vendors
Publication_Date: **20020521**
Title: **clu_a_ia015**; Common Land Unit (CLU) **Boone, Iowa**
Geospatial_Data_Presentation_Form: Vector Digital Data
Series_Information:
Series_Name: Common Land Units
Issue_Identification: Version 1.0
Publication_Information:
Publication_Place: State Digitizing Center
Publisher: State Digitizing Center Manager
Source_Scale_Denominator: 7920
Type_of_Source_Media: 24x24 inch rectified aerial photographs
Source_Time_Period_of_Content:
Time_Period_Information:

3 of 9

--*

*--Example of CLU Metadata (Continued)

Single_Date/Time:
Calendar_Date: **2000**
Source_Currentness_Reference:
Majority Year of rectified aerial photographs
Source_Citation_Abbreviation: NAPP
Source_Contribution:
County Photomaps (rectified black and white aerial photograph enlargements) measure 24 inch by 24 inch and are produced on sturdy photographic paper with labeled tract and field boundaries delineated with colored ink.
Process_Step:
Process_Description:
The process to digitize the CLU is quite uniform. The photomaps or a scanned replica are either sent to an in-house digitizing center or an outside vendor. The photomaps are organized into a linear order. A user will then take the photomap and match up the orthophotographic mosaic with the photomap and digitize the tract and field boundaries. When the digitization is complete, the following field attributes are updated with the proper attributes data.

STATECD - State Code
COUNTYCD - County Code
FARMNBR - Farm Number
TRACTNBR - Tract Number
CLUNBR - Common Land Unit Number
CALCACRES - CLU Calculated Acreage
HELTYPECD - Highly Erodible Land Type Code
CLUCLSCD - CLU Classification Code
FSA_ACRES - FSA Official Acres
CLUID - Common Land Unit Identifier

The naming convention of the CLU shapefile according to the "Manual for Managing Geospatial Datasets in Service Centers" Version 4.0 February, 2003 is as follows:

.shp - the file that stores the feature geometry.
.shx - the file that stores the index of the feature geometry.
.dbf - the dBase file that stores the attribute information of features. When a shapefile is added as a theme to a view, this file is displayed as a feature table.

clu - Theme Name (Common Land Unit)
a - Feature Type (Area)
st - State Code (two-letter US Postal Office abbreviations).
nnn - County Codes (three-digit FIPS number).

Example: Common Land Units of Boone County, Iowa.
clu_a_ia015.shp, clu_a_ia015.shx, clu_a_ia015.dbf

When the CLU has been digitized, the file is sent to the Service Center for Certification. This is a quality control process which includes: comparing the CLU to the source documentation, verifying attribute data, and removing polygon errors. After this quality control process is completed the file is electronically sent to the Aerial Photography Field Office in Salt Lake City, Utah via File Transfer Protocol (FTP) for storage and distribution.

Source_Used_Citation_Abbreviation: NAPP
Process_Date: 20025021
Spatial_Data_Organization_Information:
Indirect_Spatial_Reference:

4 of 9

--*

*--Example of CLU Metadata (Continued)

U.S. Department of Commerce, 1987, Codes for the Identification of the States, the District of Columbia and the Outlying areas of the United States, and Associated Areas (FIPS 5-2): Washington, D.C., National Institute of Standards and Technology.
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
Point_and_Vector_Object_Count: **11921**
Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: **15**
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: **0.999600**
Longitude_of_Central_Meridian: **105W**
Latitude_of_Projection_Origin: **0.0**
False_Easting: **500000**
False_Northing: **0.0**
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: Coordinate Pair
Coordinate_Representation:
Abscissa_Resolution: **0.0000002472808**
Ordinate_Resolution: **0.0000002472808**
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System
Semi-major_Axis: **6378137.000000**
Denominator_of_Flattening_Ratio: **298.257222**
Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: **clu_a_ia015.dbf**
Entity_Type_Definition:
The dBase file that stores the attribute information of features. When a shapefile is added as a theme to a view, this file is displayed as a feature table.

Entity_Type_Definition_Source: ESRI Online Help
Attribute:
Attribute_Label: shape
Attribute_Definition: The representation of the entity in the data.
Attribute_Definition_Source: Farm Service Agency
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: polygon
Enumerated_Domain_Value_Definition: 2-dimensional element.
Enumerated_Domain_Value_Definition_Source: ESRI GIS software
Attribute:
Attribute_Label: statecd
Attribute_Definition: Standard Code used to identify states, this is the state where the CLU is located.
The 2-character FIPS code of the State or State equivalent.

5 of 9

--*

*--Example of CLU Metadata (Continued)

Attribute_Definition_Source: FIPS Pub 5-2
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name:
Codes for the identification of the states, the District of Columbia and the outlying areas of the United States, and associated areas, FIPS 5-2.
Codeset_Source:
U.S. Department of Commerce, National Institute of Standards and Technology
Attribute:
Attribute_Label: countycd
Attribute_Definition: Standard code used to identify physical Counties, unique only when combined with Statecd. The 3-character FIPS code of the County or County equivalent.

Attribute_Definition_Source: FIPS Pub 6-4
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name:
Codes for the Identification of Counties, FIPS Pub 6-4.
Codeset_Source:
U.S. Department of Commerce, National Institute of Standards and Technology
Attribute:
Attribute_Label: farmnbr
Attribute_Definition: Identifier attached to all land units under the control of a particular operator.
Attribute_Definition_Source: Farm Service Agency
Attribute_Domain_Values:
Unrepresentable_Domain: Range 1 - 9999999
Attribute:
Attribute_Label: tractnbr
Attribute_Definition: Identifier given to a collection of land units under the same ownership, unique to a farm number, State and County code.
Attribute_Definition_Source: Farm Service Agency
Attribute_Domain_Values:
Unrepresentable_Domain: Range 1 - 9999999
Attribute:
Attribute_Label: clunbr
Attribute_Definition: FSA assigned number to identify CLU for Agencies in a specific Service Center, assist in effective communication with the farmer and customers and provide a link to previous historical tabular data.
Attribute_Definition_Source: Farm Service Agency
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0
Range_Domain_Maximum: 999
Attribute:
Attribute_Label: calcacres
Attribute_Definition: GIS system calculated acreage.
Attribute_Definition_Source: Farm Service Agency
Attribute_Domain_Values:
Unrepresentable_Domain: Numeric Field value assigned based on irregular shaped field boundary.
Attribute:
Attribute_Label: heltypecd
Attribute_Definition: Highly Erodible Land Type Designation.
Attribute_Definition_Source: Farm Service Agency (6-CP)

6 of 9

--*

***--Example of CLU Metadata (Continued)**

```
        Attribute_Domain_Values:
          Enumerated_Domain:
            Enumerated_Domain_Value: E
            Enumerated_Domain_Value_Definition: Exempt
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: Y
            Enumerated_Domain_Value_Definition: Highly Erodible
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
      Attribute:
        Attribute_Label: cluclscd
        Attribute_Definition: Primary classification of land unit type.
        Attribute_Definition_Source:
          FSA Handbook 8-CM, revision 1
        Attribute_Domain_Values:
          Enumerated_Domain:
            Enumerated_Domain_Value: 0
            Enumerated_Domain_Value_Definition: None
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: 1
            Enumerated_Domain_Value_Definition: Urban CLU
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: 2
            Enumerated_Domain_Value_Definition: Cropland CLU
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: 4
            Enumerated_Domain_Value_Definition: Forest CLU
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: 5
            Enumerated_Domain_Value_Definition: Water Body CLU
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: 6
            Enumerated_Domain_Value_Definition: Barren Land CLU
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: 7
            Enumerated_Domain_Value_Definition: Tundra CLU
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: 8
            Enumerated_Domain_Value_Definition: Range Land CLU
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: 9
            Enumerated_Domain_Value_Definition: Mined Land CLU
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
          Enumerated_Domain:
            Enumerated_Domain_Value: 10
            Enumerated_Domain_Value_Definition: Other Agricultural CLU
            Enumerated_Domain_Value_Definition_Source: Farm Service Agency
7 of 9
```

--*

*--Example of CLU Metadata (Continued)

Attribute:
Attribute_Label: fsa_acres
Attribute_Definition: Recorded FSA Acreage (from County Office producer records)
Attribute_Definition_Source: Farm Service Agency
Attribute_Domain_Values:
Unrepresentable_Domain: Numeric Field
Attribute:
Attribute_Label: cluid
Attribute_Definition: Each CLU defined in the GIS database will be automatically identified and tracked, for national purposes, with an ID number assigned by the automated system, This GUID (global unique identifier) is not visible to the user, will be unique to the Nation and will never be reused.
Attribute_Definition_Source: Farm Service Agency
Attribute_Domain_Values:
Unrepresentable_Domain: Mixed Character Field/Numeric Field
Attribute:
Attribute_Label: comments
Attribute_Definition: For County Office Corrections.
Attribute_Definition_Source: Farm Service Agency
Attribute_Domain_Values:
Unrepresentable_Domain: Character Field
Overview_Description:
Entity_and_Attribute_Overview:

SCIMS Name	GIS Name	Type	Length	Precision	Scale
State_Code	STATECD	String	2	0	0
County_Code	COUNTYCD	String	3	0	0
Farm_Number	FARMNBR	Long	7	7	0
Tract_Number	TRACTNBR	Long	7	7	0
Common_Land_Unit_Number	CLUNBR	Long	7	7	0
CLU_Calculated_Acreage	CALCACRES	Float	8	7	2
Highly_Erodible_Land_ Type_Code	HELTYPECD	String	1	0	0
Common_Land_Unit_ Classification_Code	CLUCLSCD	String	2	2	0
FSA_Official_Acres	FSA_ACRES	Float	8	7	2
Common_Land_Unit_ Identifier	CLUID	String	36	0	0
Unknown	COMMENTS	String	80	0	0

Entity_and_Attribute_Detail_Citation:
FSA Handbook 8-CM, revision 1, Common Land Unit Instruction
Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Anita Jo Stevens
Contact_Organization: USDA-FSA Aerial Photography Field Office
Contact_Address:
Address_Type: mailing address
Address: 2222 West 2300 South
City: Salt Lake City
State_or_Province: Utah
Postal_Code: 84119-2020
Contact_Voice_Telephone: 801-975-3500

8 of 9

--*

*--Example of CLU Metadata (Continued)

Contact_Facsimile_Telephone: 801-975-3529
Contact_Electronic_Mail_Address: clu@apfo.usda.gov
Distribution_Liability:
In no event shall the creators, custodians, or distributors of this information be liable for any damages arising out of its use (or the inability to use it).
Metadata_Reference_Information:
Metadata_Date: 20020521
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: David Davis
Contact_Organization: USDA-FSA Aerial Photography Field Office
Contact_Address:
Address_Type: mailing address
Address: 2222 West 2300 South
City: Salt Lake City
State_or_Province: Utah
Postal_Code: 84119-2020
Contact_Voice_Telephone: 801-975-3500
Contact_Electronic_Mail_Address: clu@apfo.usda.gov
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Security_Information:
Metadata_Security_Classification_System: None
Metadata_Security_Classification: Unclassified
Metadata_Security_Handling_Description: None

9 of 9

--*

--