Agricultural Districts Program Mapping Checklist

Prepared for the New York State Department of Agriculture and Markets by Cornell Institute for Resource Information Sciences

Cornell University
Institute for Resource
Information Sciences

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Introduction

Agricultural districts comprise more than 8.5 million acres of land in 53 counties in New York State. As districts are created, or modified during renewal, maps are generated, based on tax parcels included in the districts. Each county is responsible for creating maps to meet the program requirements of the Agricultural Districts Mapping Program. Since 1977, on behalf of the New York State Department of Agriculture and Markets, Cornell University's Institute for Resource Information Sciences (IRIS) has facilitated the mapping program. IRIS's primary responsibility is to support agricultural district mapping efforts by reviewing, distributing, and archiving agricultural district maps, and to provide consultation services.

Originally, district boundaries were hand-drawn on Mylar prints of New York State Department of Transportation (DOT) planimetric maps, or other comparable base maps. Geographic Information System (GIS) mapping technology has now replaced manual mapping methods in most counties. Use of GIS technology has increased the variability of the map displays. To maintain consistency and continuity throughout the program, and to meet the needs of the Department of Agriculture and Markets, mapping standards have been compiled. This document provides an outline of the data, documentation, and current map output requirements for the Agricultural Districts Mapping Program. It is intended to be a guide to the production of agricultural district maps.

GIS technology also makes it feasible to produce and distribute maps electronically, as an alternative to hard copies. The requirements for submitting district data digitally are included in this guide. Many examples of maps from participating counties are provided to illustrate the range of possibilities that meet program standards. For more information, see "Contact Information," page 8.

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Mapping Checklist

Map Data Overview

Agricultural district maps are created by displaying the district boundaries on a standard base map. The base map must include roads, water features, jurisdictional boundaries, and distinct, legible labels. The agricultural district maps serve two main functions:

- They are legally binding representations of district boundaries upon creation, review, or modification of districts by county legislative bodies and as certified by the commissioner of the Department of Agriculture and Markets.
- They are tools for planning purposes, used by state agencies, municipalities, and the private sector to comply with the Agriculture and Markets Law.

The Agricultural District

(For examples, see Appendix 1)

The Agricultural District is determined by the tax parcels that comprise it. New York State Agriculture and Markets Law (Article 25-AA) concerning submission of a district for consideration states, " . . . the description thereof, which shall include tax map identification numbers for all parcels within the district, plus a map delineating the exterior boundaries of the district in relation to tax parcel boundaries, shall be filed by the county legislative body with the county clerk, the county director of real property tax services, and the commissioner." The boundary should be delineated on a base map at a scale of 1:24,000.

❑ **Agricultural District Boundary**

The symbol used to represent the district boundary should be the most prominent feature on the map, without obscuring any base map information. The Agricultural District Boundary should follow the outermost boundary of aggregate groups of the tax parcels included in the district. The boundary can be displayed as a heavy line, or the areas in the district can be shaded or have a patterned fill.

Individual tax parcel boundaries may be displayed but are not required. Parcel boundaries can be represented by a narrower line than the district boundary. The lines should be distinct from base map features. Alternatively, individual tax parcels included in the district can be identified on the map by shading, hatching, or labeling. **Symbols should not obscure base map data.**

❑ **Open Enrollment Annual Inclusion Parcels**

Areas added during annual open enrollment periods, as allowed by the New York State Agricultural Districts Law under section 303-B, should be included on the eight-year review maps unless they have been removed from the district.

❑ **Excluded Tax Parcels**

Areas of exclusion are parcels that are not included in the district, but may be encompassed by district lands. The excluded parcels should be distinct and easy to identify.

The Base Map

The base map provides the framework and background for displaying the boundary of the agricultural district. Accurate scale and appropriate features are necessary for locating land parcels and using the Agricultural District maps with other data sets. Each map feature type should be displayed with a unique map symbol—a unique combination of pattern and line weight. Each feature should be distinguishable on a hard copy, monochromatic version of the map.

Map Content

- ❑ **Required Features**
  - ❑ roads (For examples, see Appendix 2).
  - ❑ municipal boundaries—including, when applicable, country and state boundaries (For examples, see Appendix 3.)
  - ❑ water features (For examples, see Appendix 4.)
- ❑ **Required Elements**
  - ❑ north arrow
  - ❑ key or legend to base map feature symbols
  - ❑ scale bar
  - ❑ geographic coordinate grid with appropriate labels (For examples, see Appendix 5.)
- ❑ **Required Documentation**
  - ❑ source of base map data
  - ❑ scale (1:24,000)
  - ❑ geographic reference information: map units, datum, projection, and grid

Feature Labels (For examples, see Appendix 6.)

Each feature should be labeled in a distinct style. For example, road names in a roman typeface; water features in *italics*. Town names should be distinct from village names, typically by using different type sizes. Federal, state, and county route numbers should be distinctly labeled to differentiate them. Local road labels are optional. Roads that coincide with a district boundary should be labeled.

Map Configuration

- ❑ **Sheet Size**
  The maximum dimension per map sheet produced at a scale of 1:24,000 is 42" x 36".
- ❑ **Multiple Sheets (For examples, see Appendix 7.)**
  Maps depicting large districts may be submitted on multiple sheets. The district can be divided by town, or by logical breaks in district boundary. It is preferable that each sheet shows as contiguous a boundary as possible. If your map cannot fit at a scale of 1:24,000 on a single maximum-size sheet, please contact Cornell IRIS (see page 8) for advice.
- ❑ **Map Index (For examples, see Appendix 8.)**
  When a map consists of multiple sheets, an index to the map sheets should be included. The index can be displayed either as an inset on the map, or as a separate map sheet.

Sources of Base Maps

The standard base map for the Agricultural Districts Mapping Program is the New York State Department of Transportation (NYS DOT) 7½ minute, 1:24,000 planimetric map series. This map series includes a vast amount of data for reference including jurisdictional boundaries, transportation networks, hydrography, place names, and many other natural and cultural features. Digital (raster) versions of the NYS DOT quadrangles may be downloaded from NYS GIS Clearinghouse at **http://www.nysgis.state.ny.us/gisdata/quads/drg24/index.htm.**

Vector base map data is also available through the NYS GIS Clearinghouse from the New York State Office of Cyber Security and Critical Infrastructure Coordination (CSCIC) for members of the New York State GIS Data Sharing Cooperative at **http://www.nysgis.state.ny.us/gisdata.**

Documentation: The Title Block

The title block is added to each map sheet to provide program documentation. Significant dates, such as certifications and annual inclusions, are recorded on the title block throughout its eight-year cycle, as are any corrections to the boundary. The title block is positioned in a corner of the map sheet so it will be on the top face of a folded map in a file drawer, or on the leading edge of the map in a flat file map drawer.

Title Block Components

The following information is incorporated into an add-on title block supplied by Cornell IRIS (at right) when NYS DOT base maps are used. Map producers may incorporate a similar title block into the body of the map or leave an appropriate space in a corner of the map for insertion by Cornell IRIS.

- ❑ county
- ❑ district number
- ❑ creation date
- ❑ towns in which the district is located
- ❑ 7½ minute quadrangles on which the district is located
- ❑ key to agricultural district map symbols
- ❑ scale (1:24,000)
- ❑ north arrow
- ❑ district status
  - proposed
  - review—modified
  - review—unmodified
  - consolidated (list included districts)
- ❑ individual sheet number and total number of sheets (e.g., sheet 1 of 4)
- ❑ space for adding the dates of any Annual Open Enrollment additions that occur between renewal anniversaries of the district (see above).

COUNTY: _____

DISTRICT: _____

TOWNS: _____

CREATION DATE: _____ _____

DATE	MAP STATUS – IRIS	303b ADDITIONS DATES:		
_____	8-Year Review – MODIFIED	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

7 ½' QUADRANGLES

SCALE = 1:24,000

_____

_____

_____

_____

_____

N

KEY

UTM zone 18 NAD83

Base Map NYS DOT 1:24,000 PLANIMETRIC RASTER DATA (Source? NYSGIS Clearinghouse?)

Sample Title Block

Additional documentation should be included in a title block or the body of the map.

- ❑ geographic reference information: projection and coordinate grid system
- ❑ key to base map feature symbols
- ❑ source of base map data
- ❑ bar scale

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Map Submission Options

Maps may be submitted to IRIS as printed documents or as digital files.

Hard Copy Maps

Hard copy maps may be submitted on paper, Mylar, or vellum and must be printed at the 1:24,000 scale. Maps will be scanned at IRIS for distribution and archiving as digital files.

Digital Maps

Maps submitted in digital form will have two components: (1) a map graphic; and (2) agricultural district boundary data (vector file). The map graphic will be printed at IRIS for archiving.

Map Graphic

The map graphic is a complete agricultural district map that includes all required map elements. The digital file should be submitted in PDF format. EPS or TIF files are acceptable alternatives. The map must be formatted to print at a scale of 1:24,000.

Shapefile

The vector file is a GIS-generated shapefile of the agricultural district boundary. It should be the GIS data layer used to represent the agricultural district boundary on the map graphic being submitted for district renewal.

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Naming Convention

The file names should follow the convention of abbreviating the county name with the first four letters in upper case and three digit district number (COUN###). Multiple sheets include a suffix that indicates the sheet number (s##); index maps will have the suffix "ndx." For example: Albany Agricultural District 1, sheets one and two would be named ALBA001s01 and ALBA001s02. An index to the map sheets would be named ALBAndx, and the shapefile would be named ALBA001.

Metadata for Digital Data

Metadata should include a brief description of files, including map projection and contact information as a plain text or MSWord document file. Name the file using the map file name (e.g., ALBA001.doc).

File Transmittal for Digital Data

All files should be mailed to Cornell IRIS on a single CD labeled with digital file date, district, map projection, and contact information. See contact information on page 8.

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Contact Information

New York State Agricultural District Program
(http://www.agmkt.state.ny.us/AP/agservices/agdistricts.html)

New York State Department of Agriculture and Markets
10B Airline Drive
Albany, NY 12235
info@agmkt.state.ny.us
Phone: 800.554.4501

New York State Agricultural Districts Mapping Program
(iris.css.cornell.edu/)

Cornell Institute for Resource Information Sciences
Cornell University
1015 Bradfield Hall
Ithaca, NY 14853
Phone: 607.255.6520
Fax: 607.255.4662

Diane Ayers, Data Manager
dag10@cornell.edu
Phone: 607.255.6529

Susan Hoskins, Program Manager
sbh1@cornell.edu
Phone: 607.255.4864

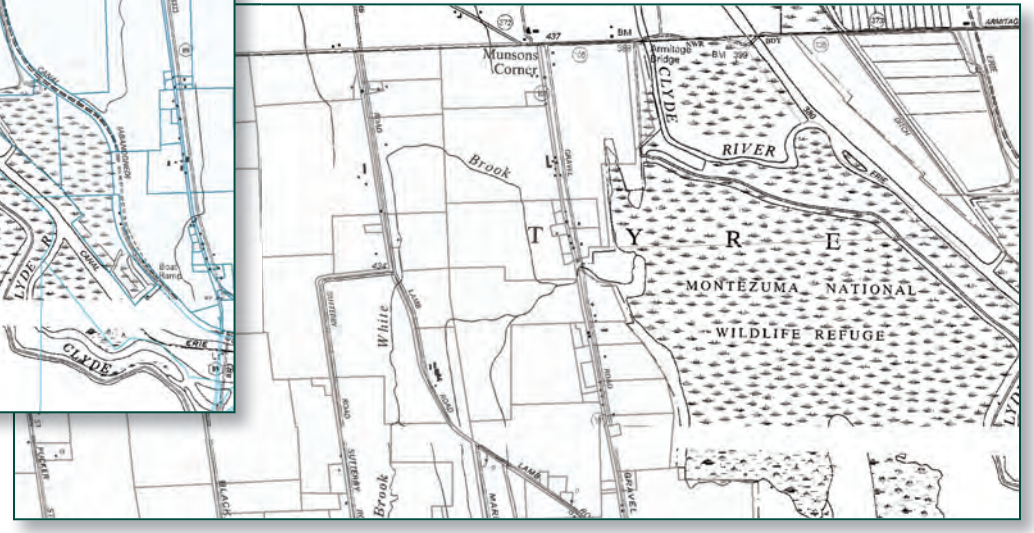
Appendices: Map Illustrations*

*All examples in these appendices are excerpted from actual New York State Agricultural District maps submitted by counties participating in the program. These excerpts are intended for illustrative purposes. The original maps provided by the counties are intended to be printed or displayed at the scale of 1:24,000. The illustrations might be larger or smaller than the original scale. North is toward the top of the page on all maps.

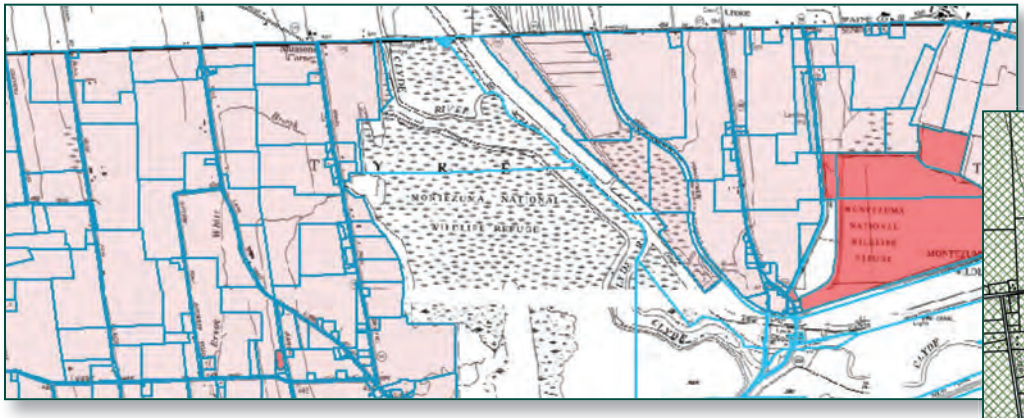
Appendix 1. Agricultural District Boundaries

The Agricultural District Boundary should be the most prominent feature on the map. These four images are excerpts of different versions of the same district map.

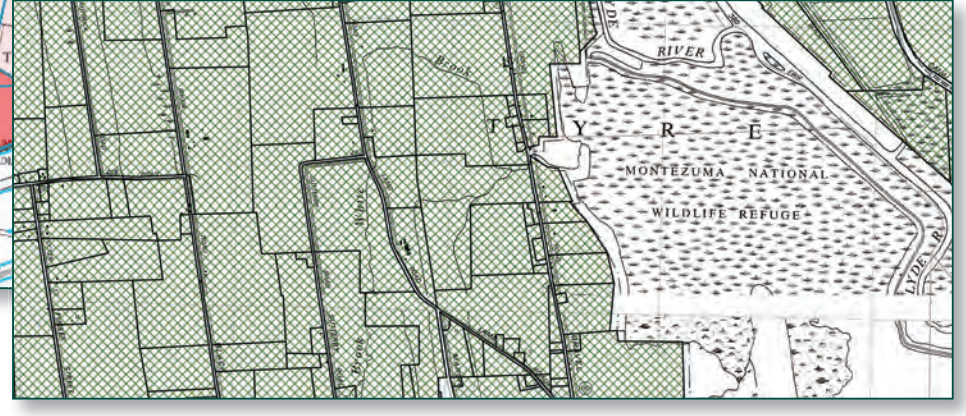
The district recedes into the base map, illustrating why the light blue fill is not a good choice.



The light blue fill, converted to monochrome in this example, disappears completely.

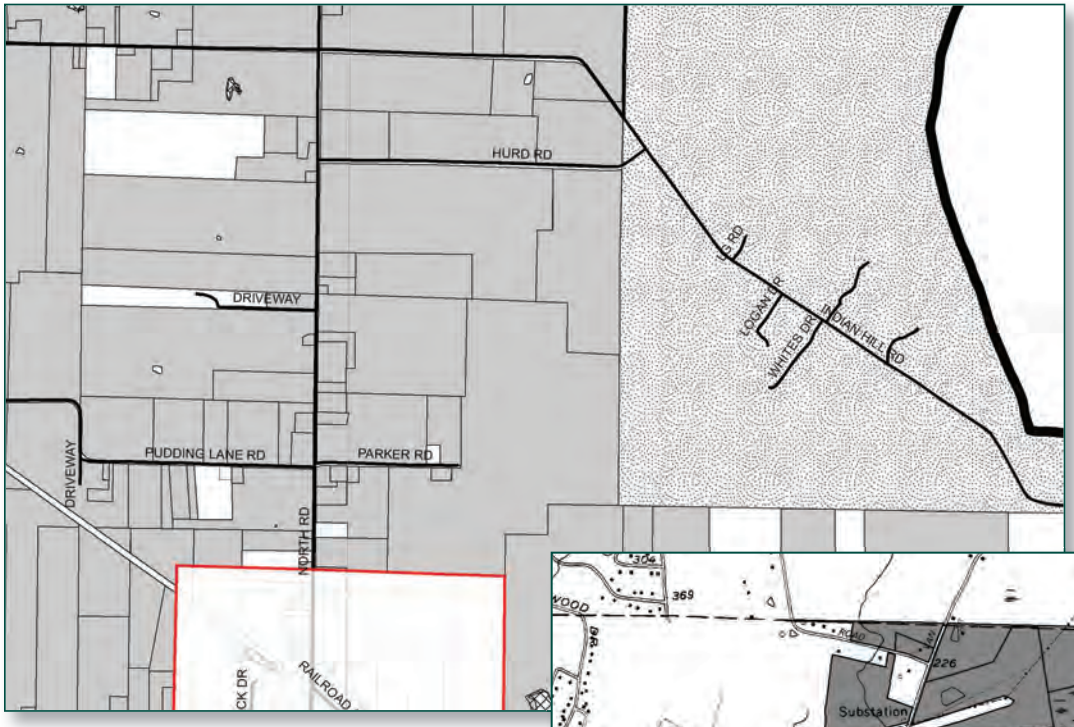


The pink fill shows more contrast against the base map. However, the areas in red, representing deleted parcels, dominate the illustration. Areas being deleted from the district need not be displayed.

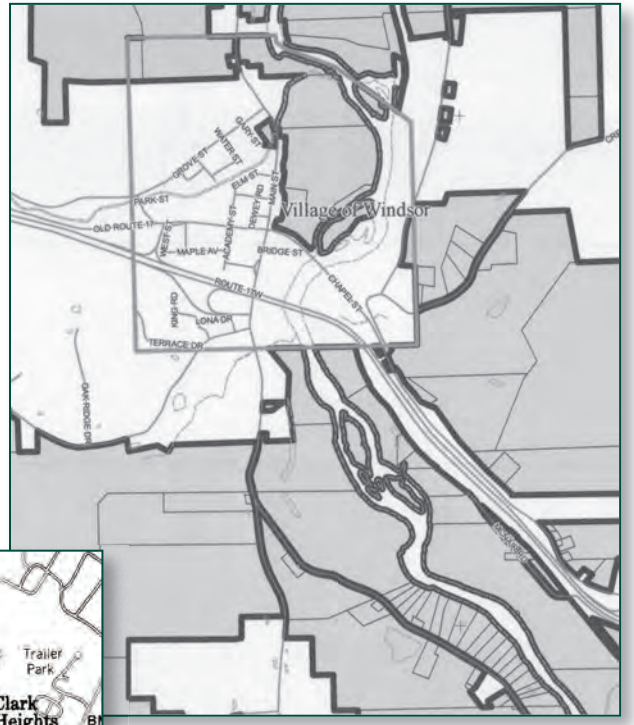


The final version of the map displays a dark green hatch fill for the parcels included in the district. At 1:24,000 scale, the base map is legible; the agricultural district is most prominent.

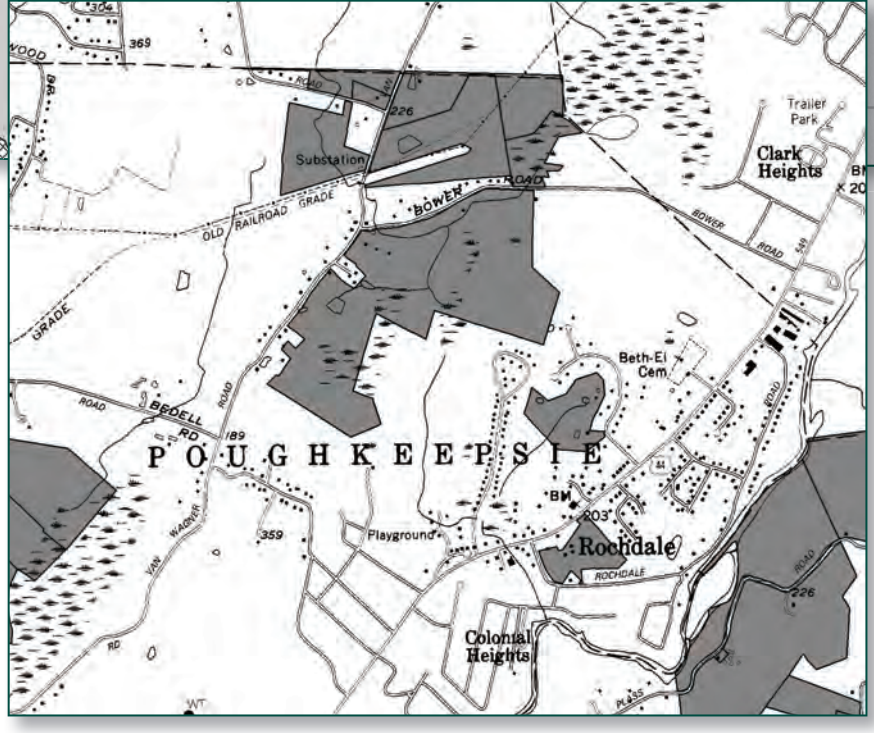
This page shows excerpts from three different maps, each using gray shading to mark the areas in the agricultural district.



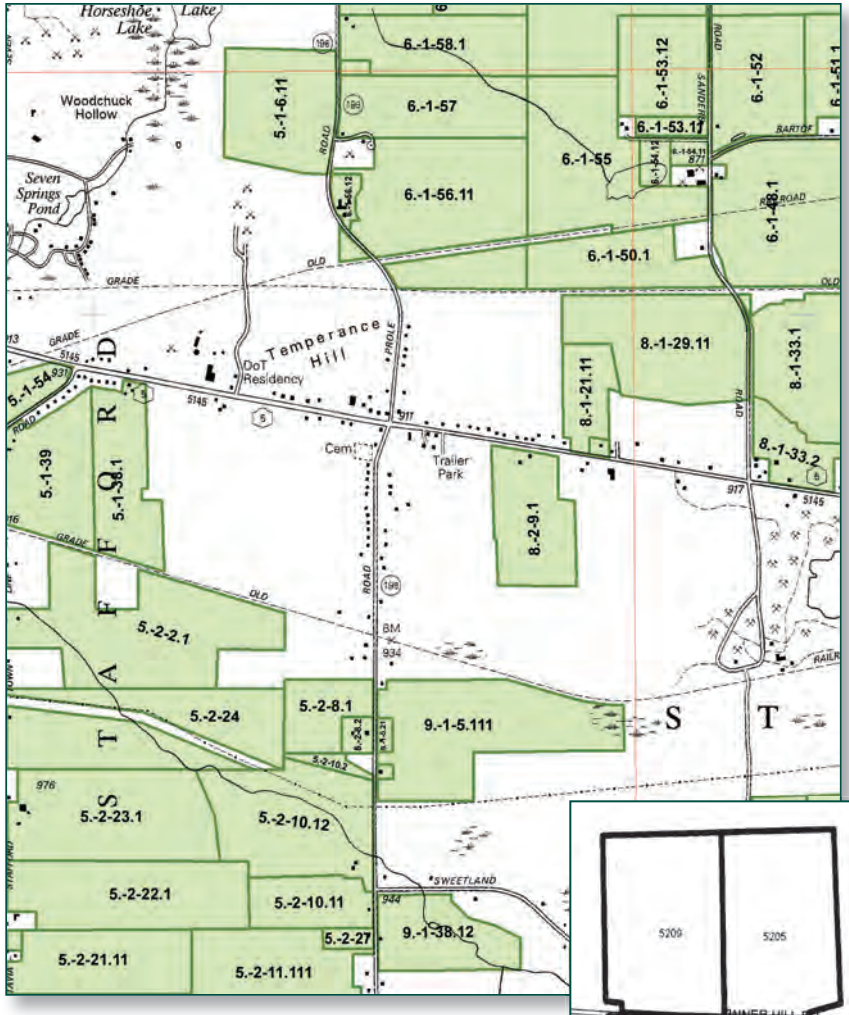
A moderate gray with black base map features shows a clear contrast between the agricultural district and the roads and labels.

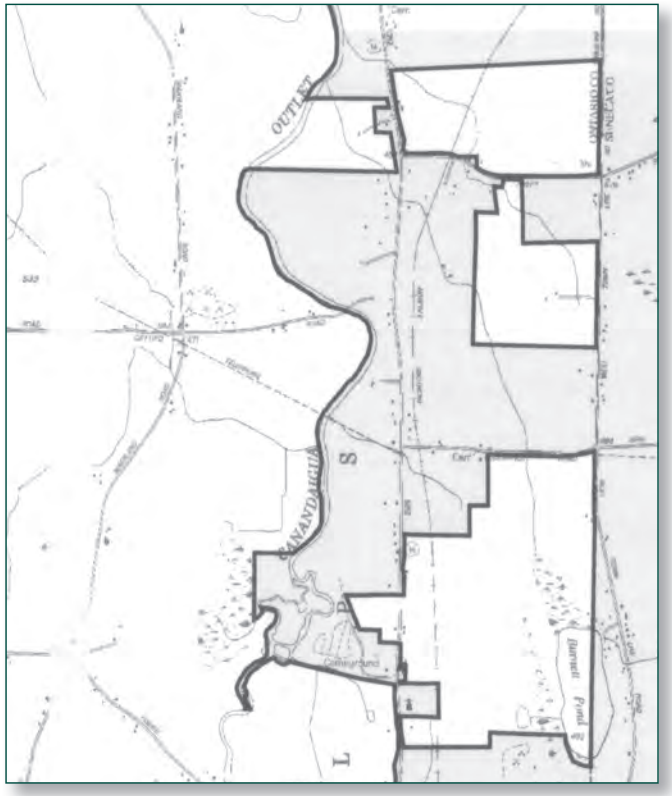


The wide outline of the agricultural district helps the boundaries stand out.



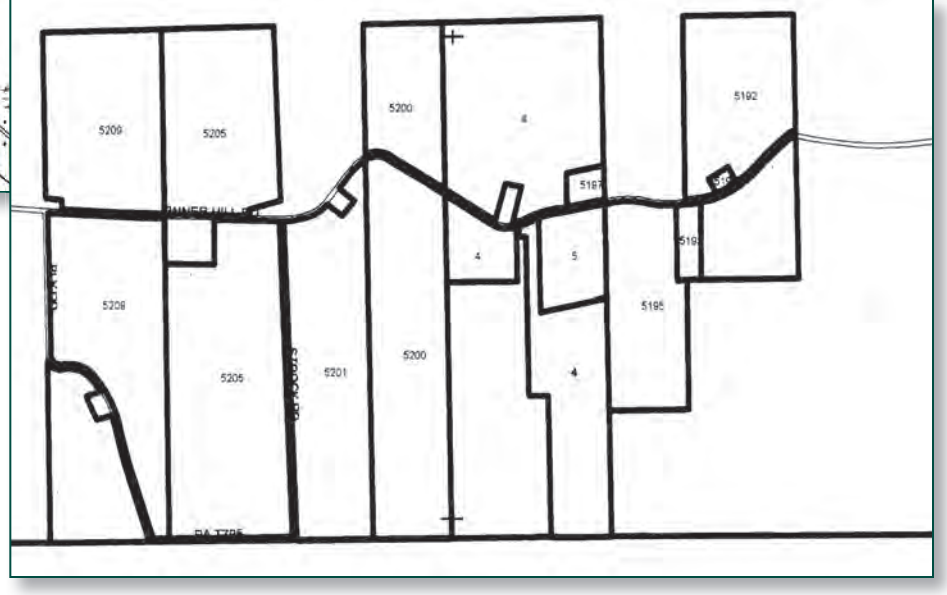
A darker gray still does not obscure the base map.



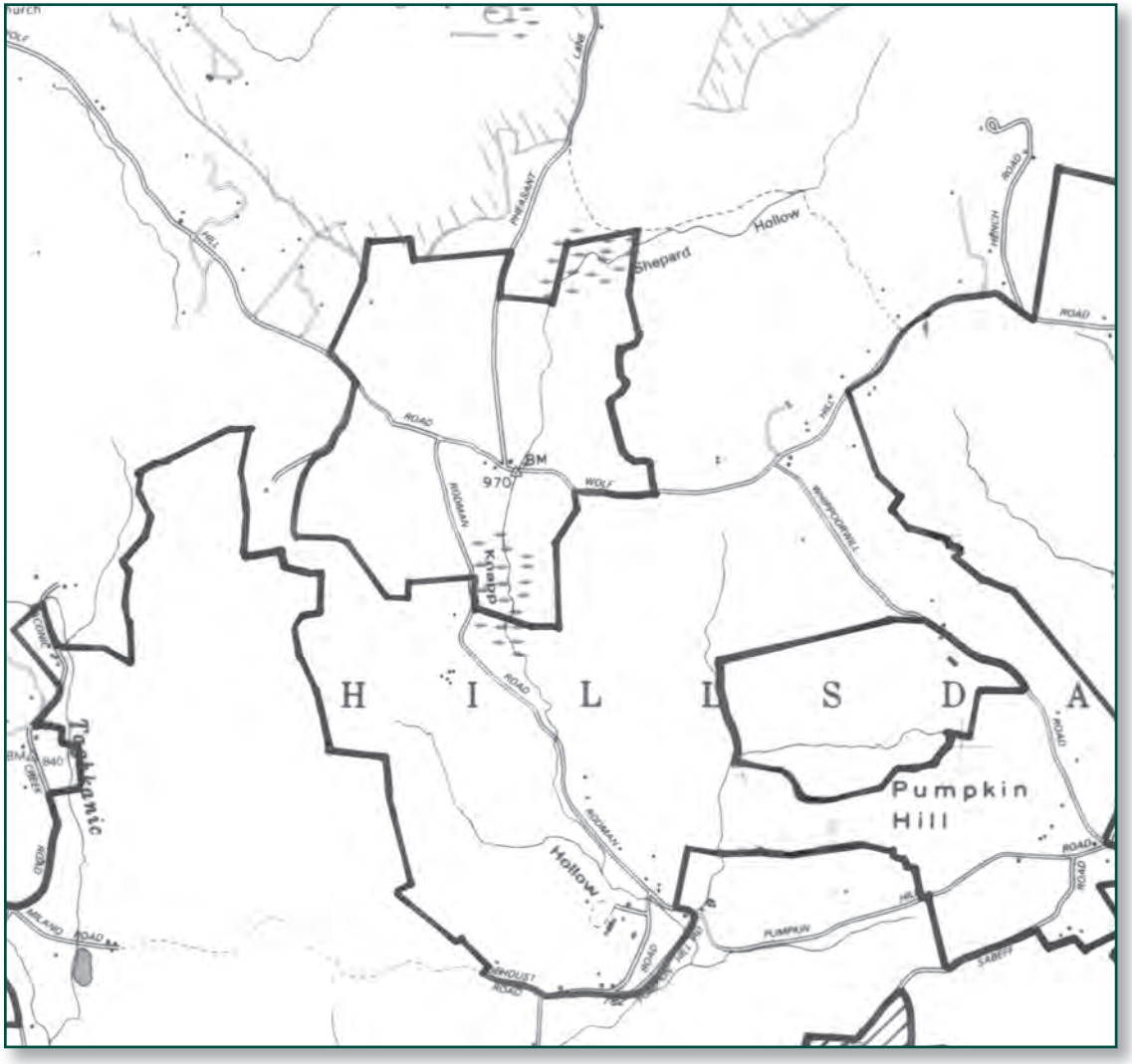


Another approach is to shade areas not in the district, as in this example. This assures that base map information within the district is clearly visible.

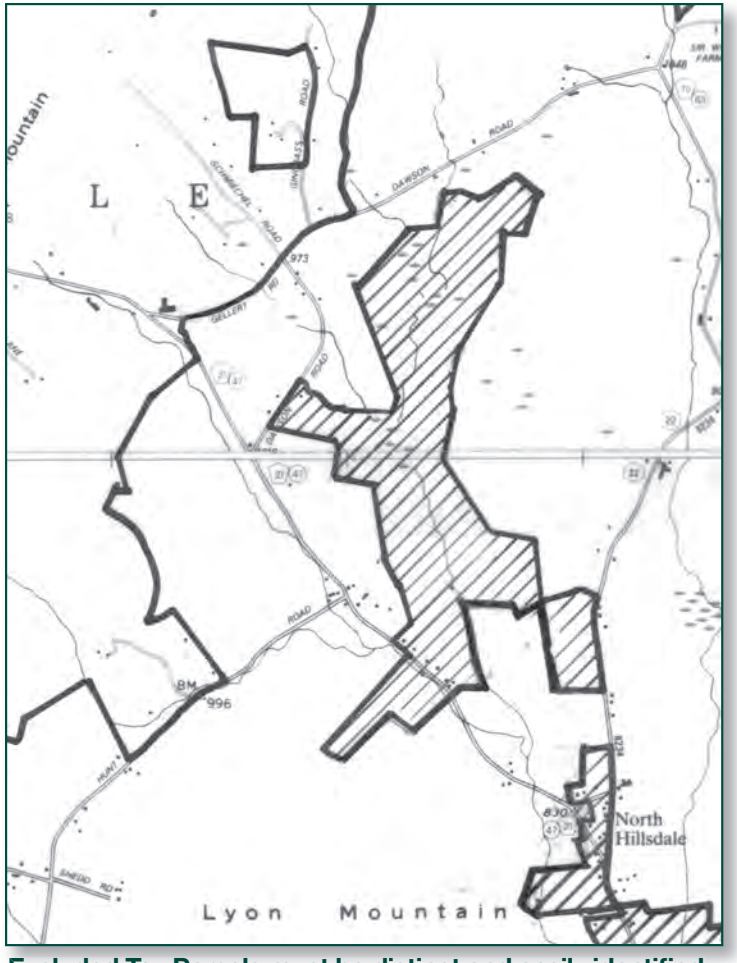
Color shading can be used as long as there is a balance between the district standing out and base map information not being lost. Pale green shading of parcels and parcel identification numbers indicate the extent of the district.



Labels can be used to identify parcels in the district—unlabeled parcels would be perceived as not being in the district. If unlabeled parcels are also included in the district, there should be a way to distinguish the unlabeled areas intended to be out of the district from those in the district.



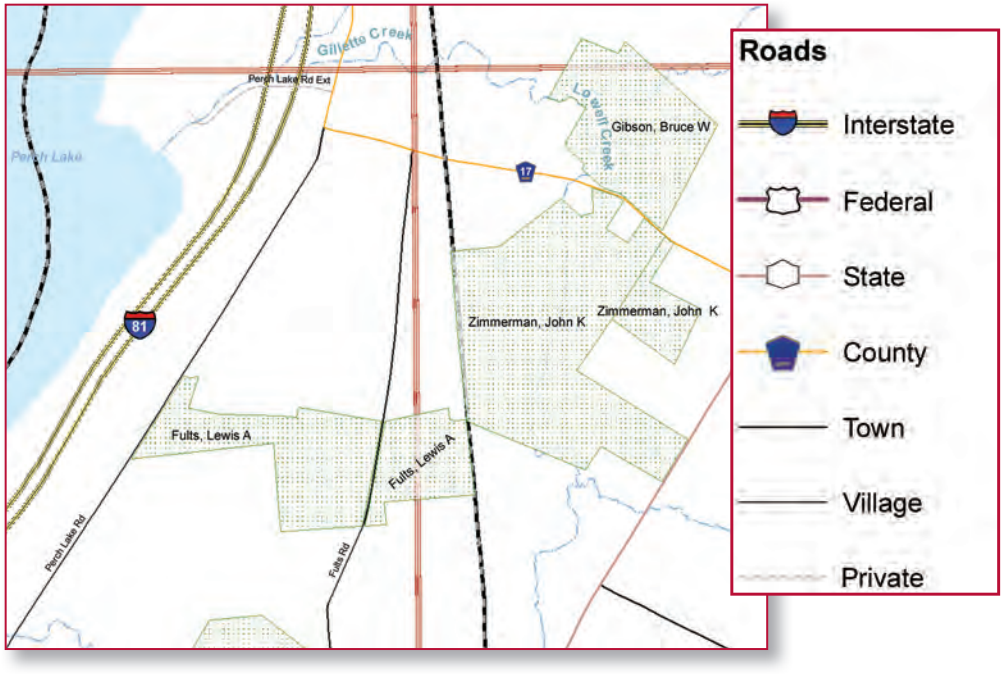
Using a heavy line without any shading or fill will work if the district covers large, contiguous areas and the boundary has visible continuity.

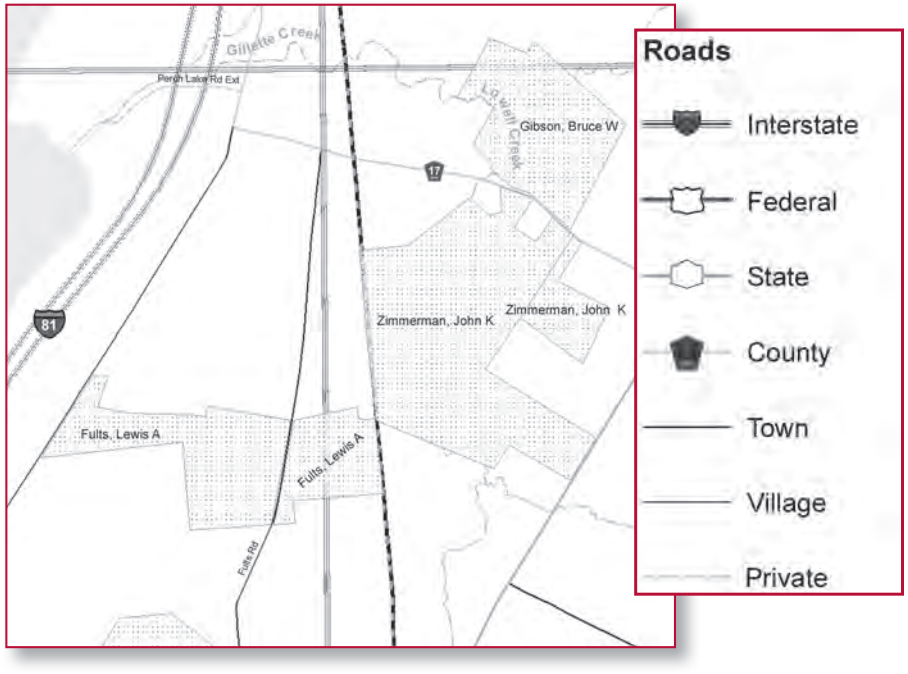


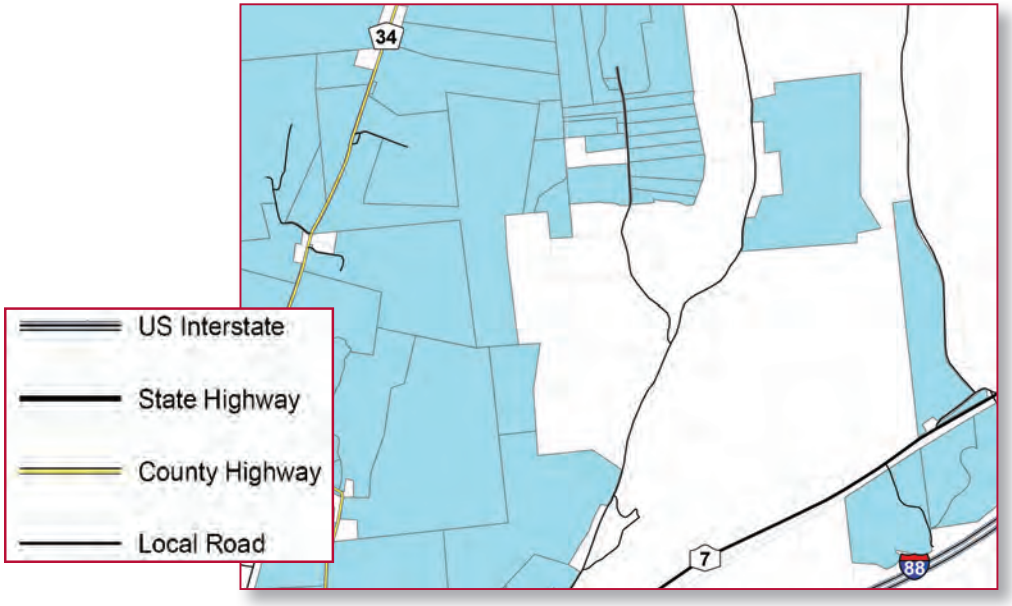
Excluded Tax Parcels must be distinct and easily identified as being out of the district. If district is shaded, the "OUT" parcels are easily identified by lack of shading. In the case where the boundary is shown with a wide line and no shading, exclusions can be shown as hatched out or marked with a label "OUT" or "X".

Appendix 2. Roads

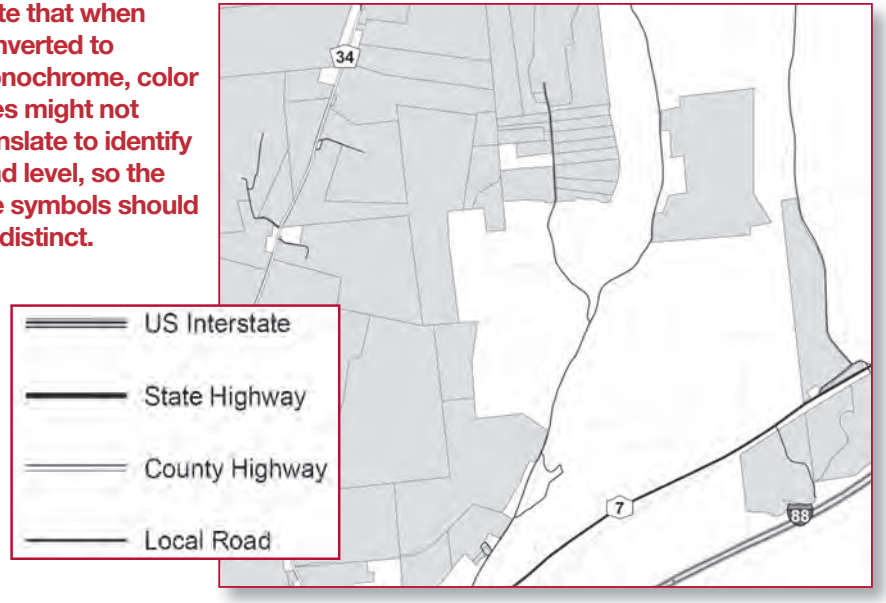
Federal and state roads should be distinguishable from local roads by line weight, line symbol, or labeling.

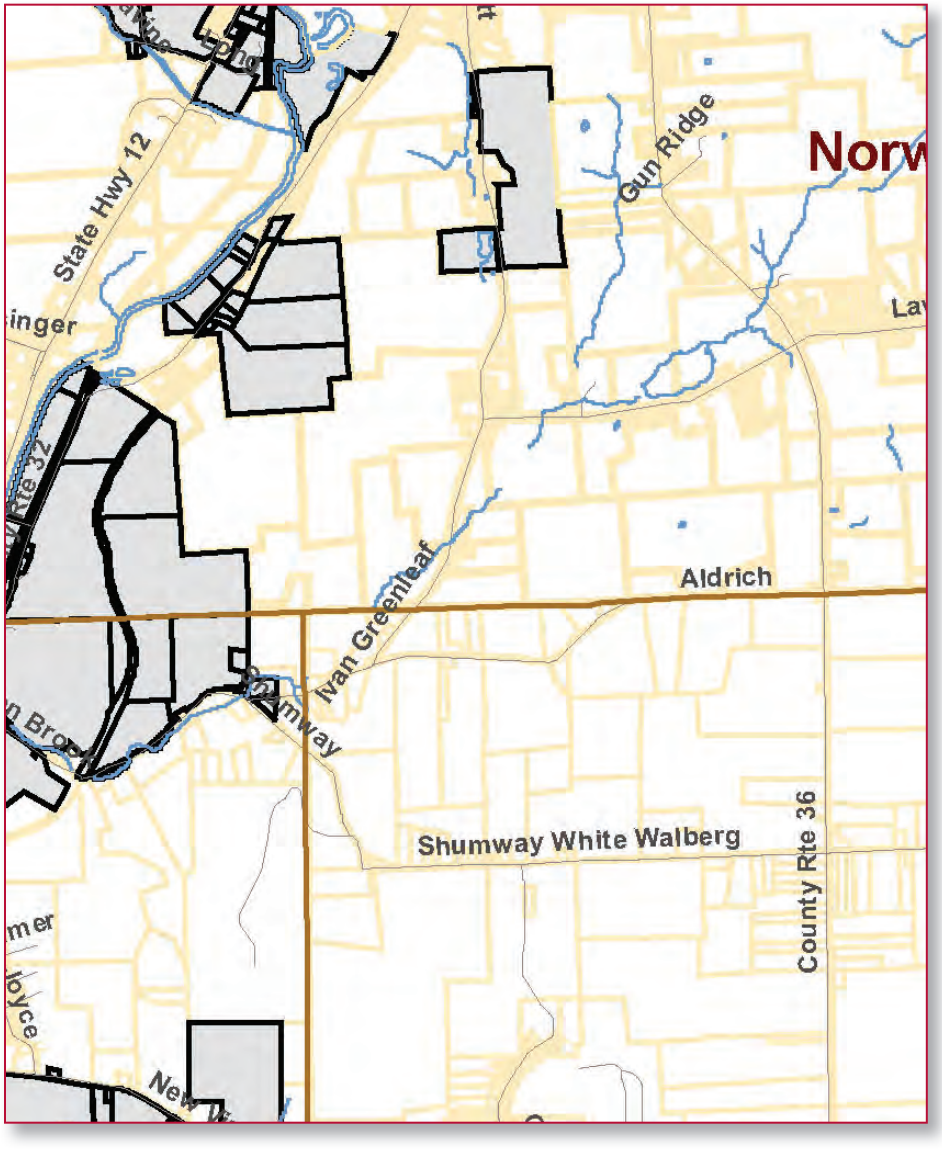


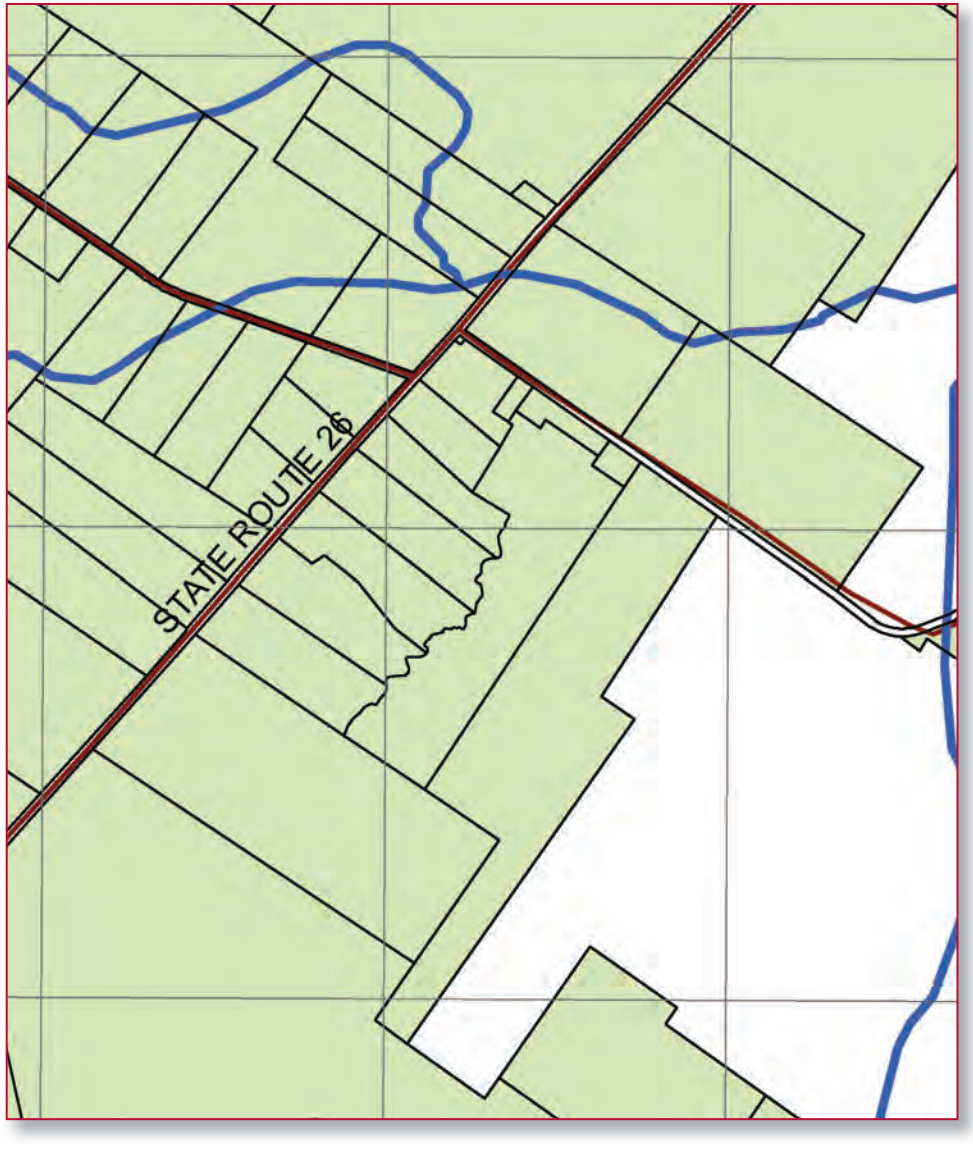




Note that when converted to monochrome, color lines might not translate to identify road level, so the line symbols should be distinct.



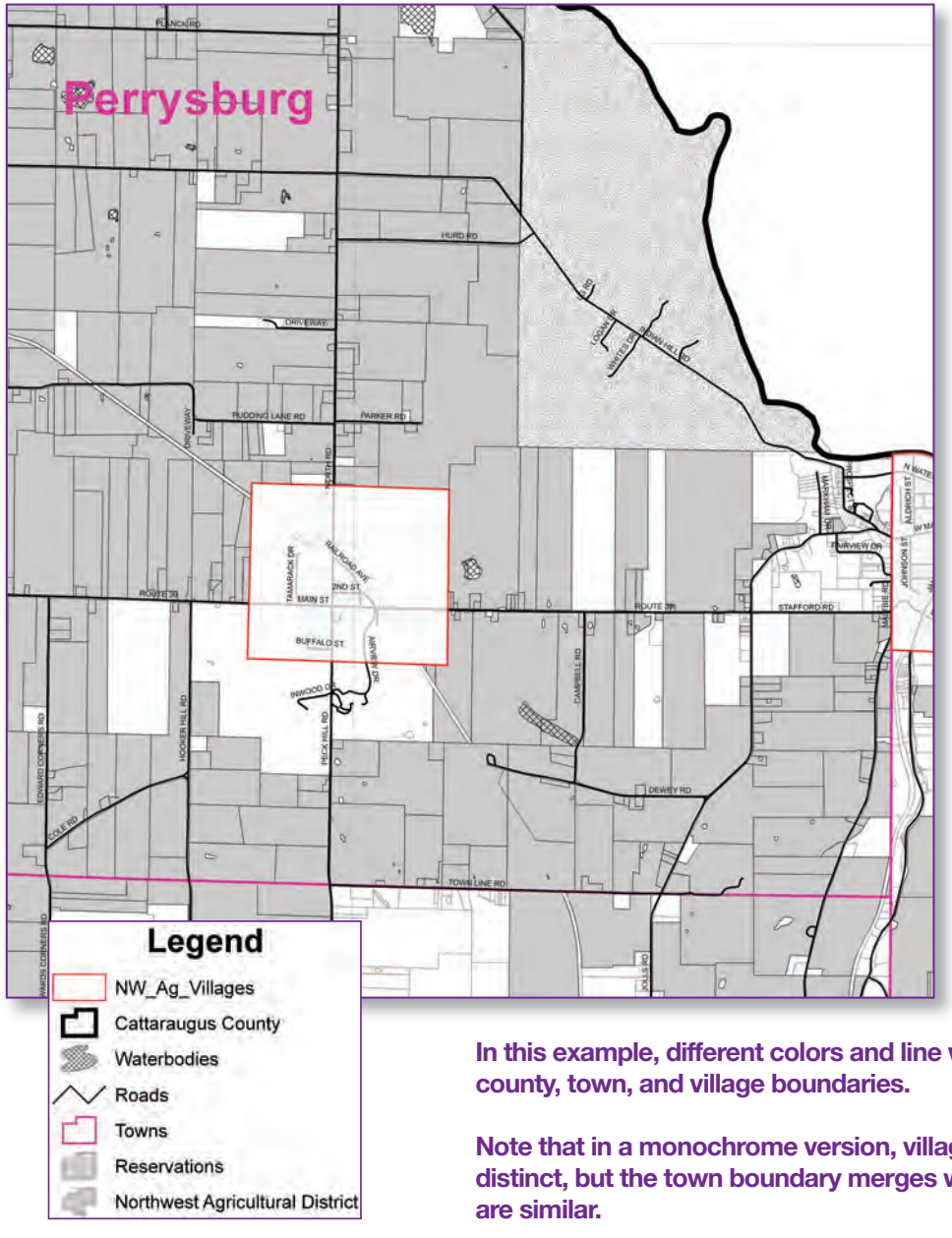


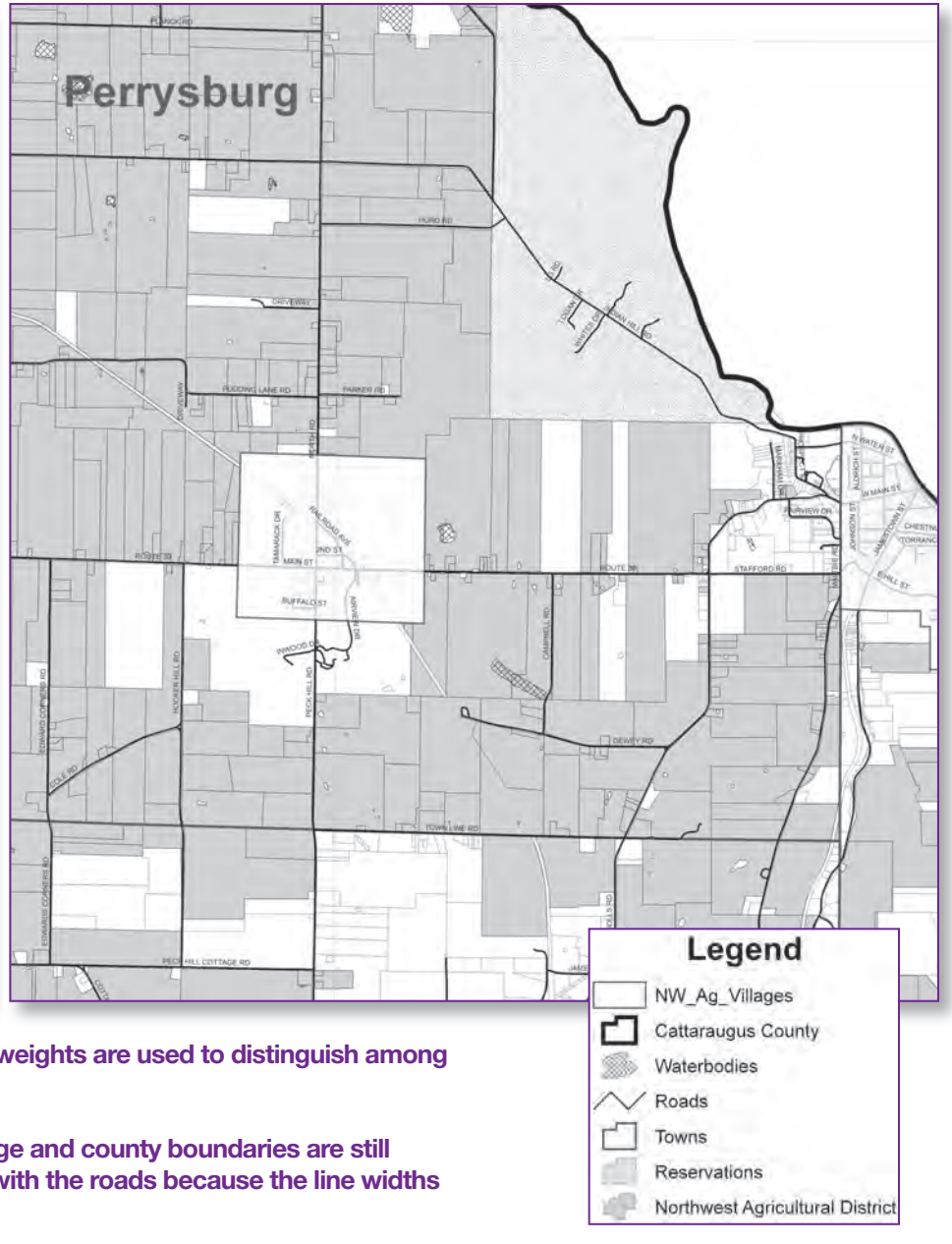


Roads can be labeled to distinguish state from local highways.

Appendix 3. Municipal Boundaries

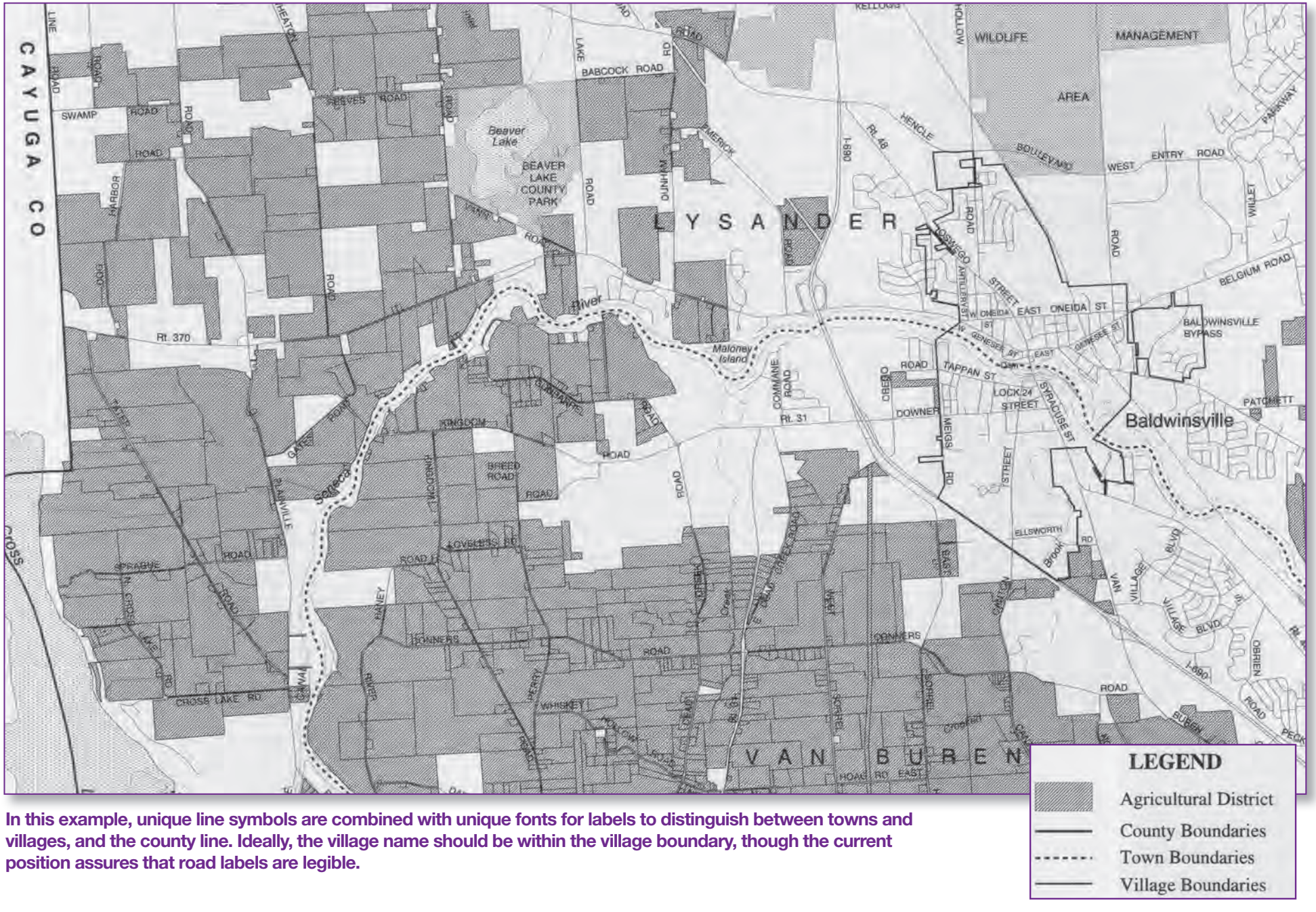
Boundaries should be clearly displayed on the map. It is essential to understand which towns each district falls within. Village, county, and state boundaries, when applicable, should also be displayed. Each should be a distinct line weight or symbol.





In this example, different colors and line weights are used to distinguish among county, town, and village boundaries.

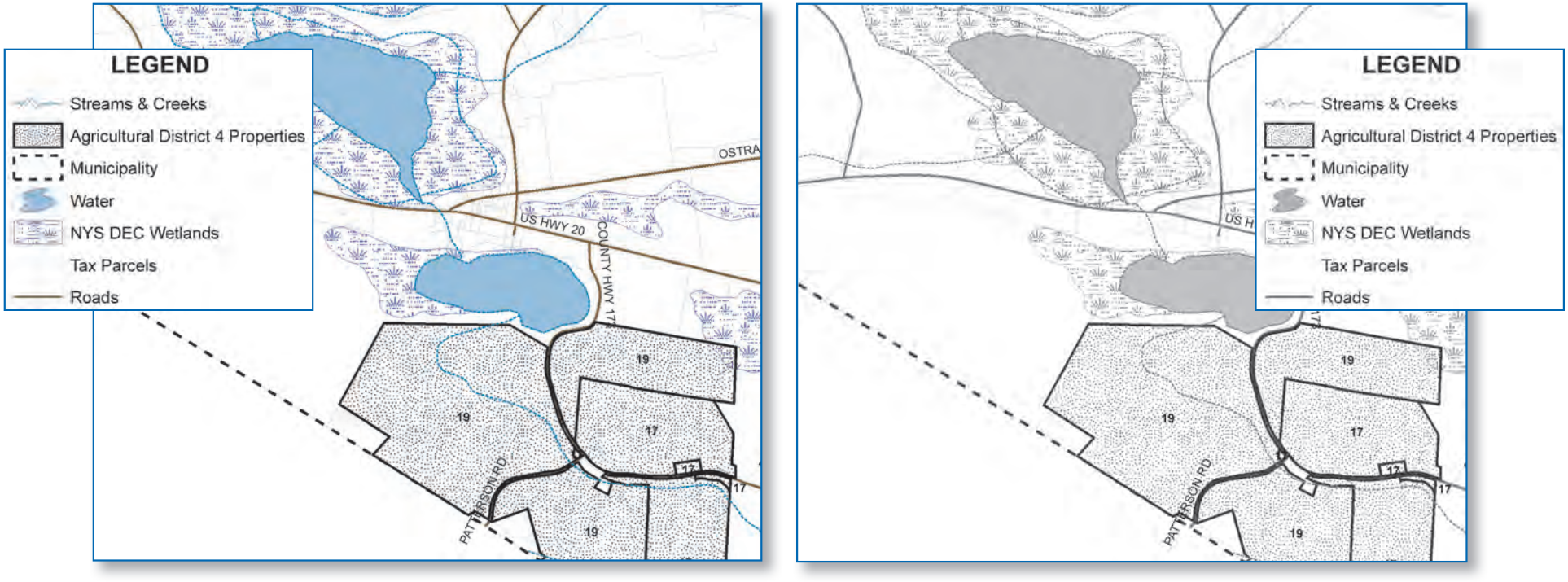
Note that in a monochrome version, village and county boundaries are still distinct, but the town boundary merges with the roads because the line widths are similar.



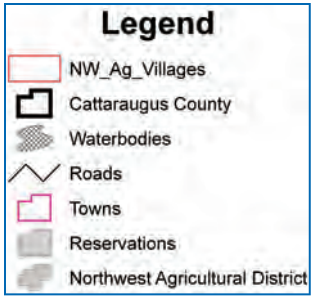
In this example, unique line symbols are combined with unique fonts for labels to distinguish between towns and villages, and the county line. Ideally, the village name should be within the village boundary, though the current position assures that road labels are legible.

Appendix 4. Water Features

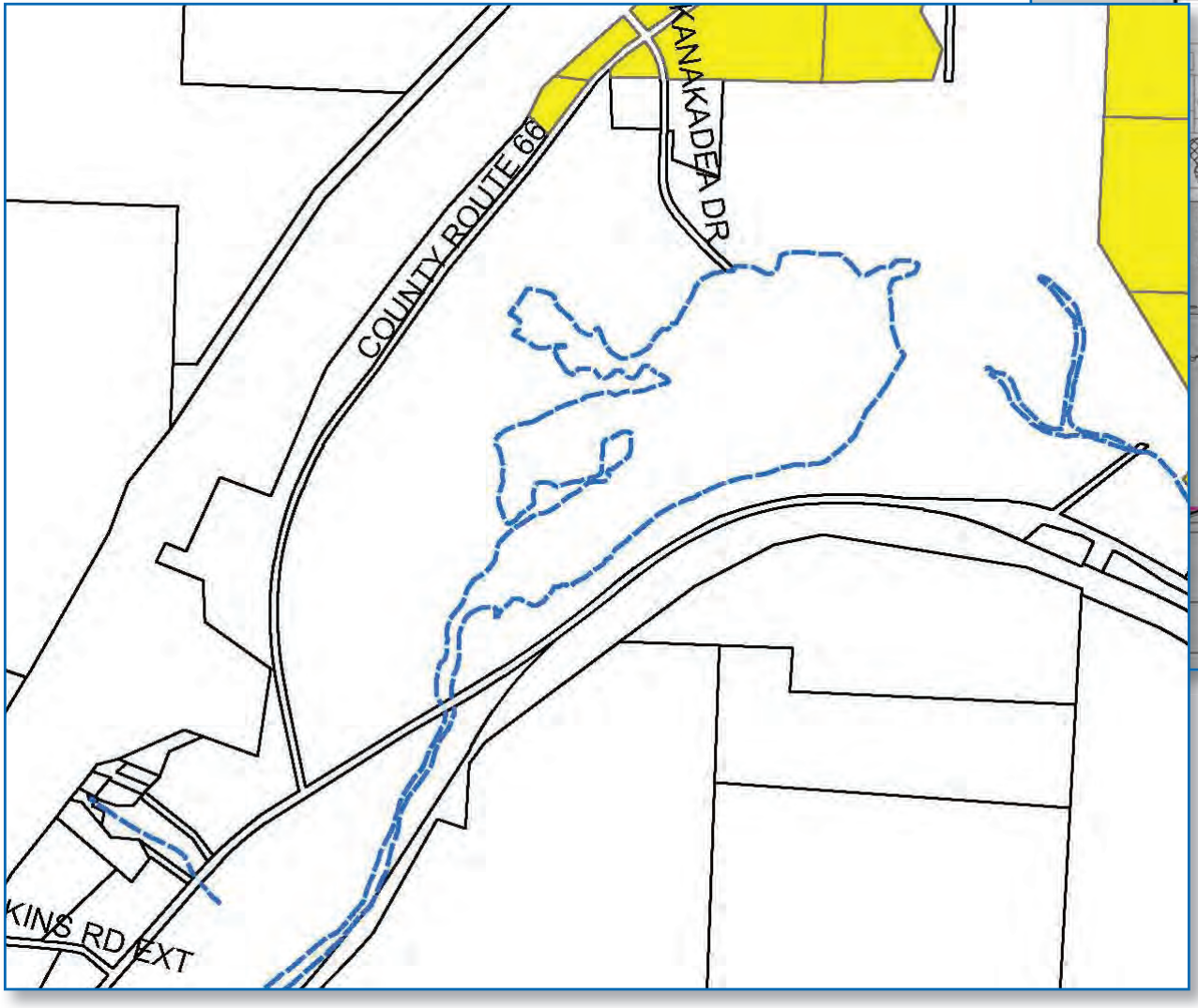
Water features provide environmental references. A unique symbol for streams and fill for water bodies enables users to differentiate which lines are roads and which are streams; which polygons represent the district and which are ponds or lakes.

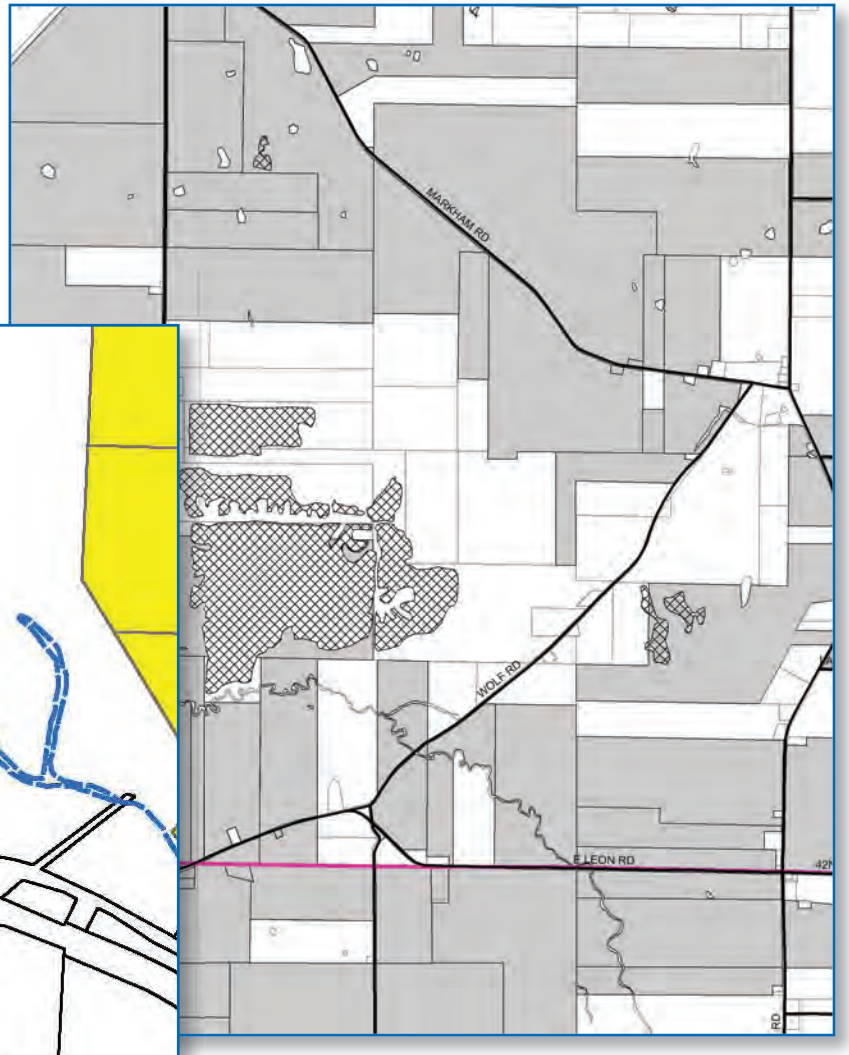


The water features are easily identified in this example, whether in color or monochrome.



The symbols used need not be complex.





In this example, water features are delineated with a dashed line—streams as a single line, rivers with two lines, and water bodies defined by the dashed line.

Appendix 5. Geographic Reference Grid

Geographic reference coordinates are used to locate map features in the real world. When they are georeferenced, agricultural district maps can be compared to other map data, such as topographic or wetlands maps. Grids are also used for georeferencing maps for digitizing. The grid coordinates can be displayed in a variety of ways.

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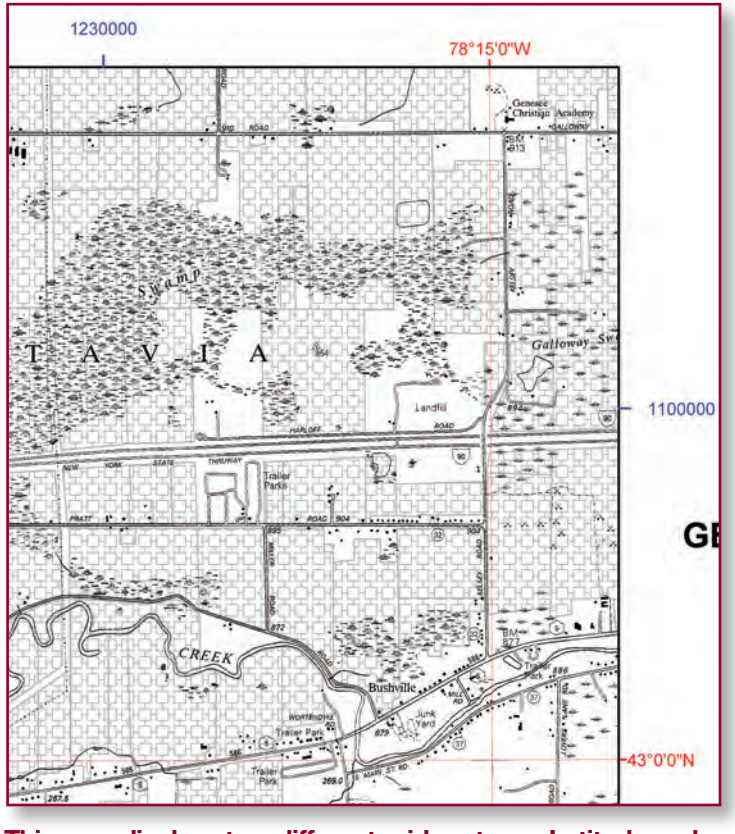
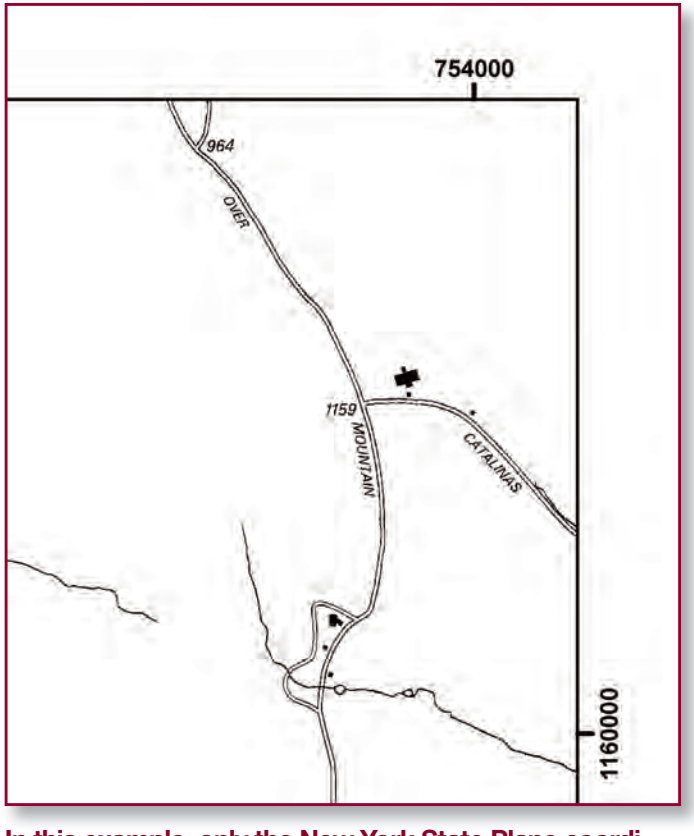
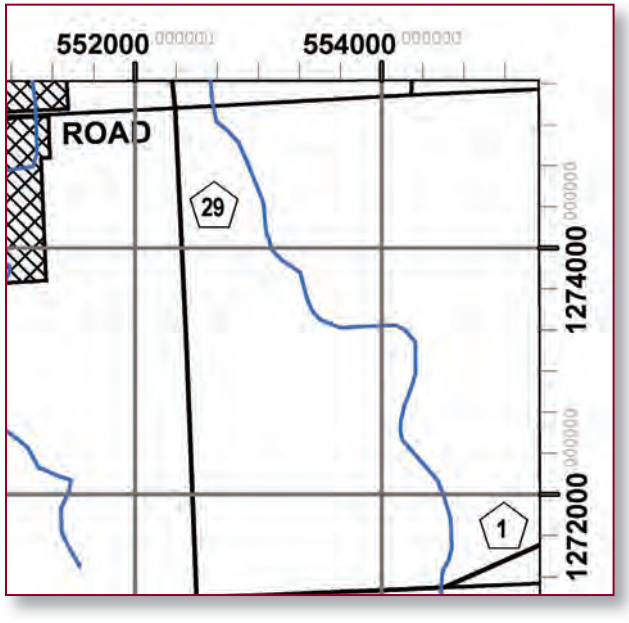


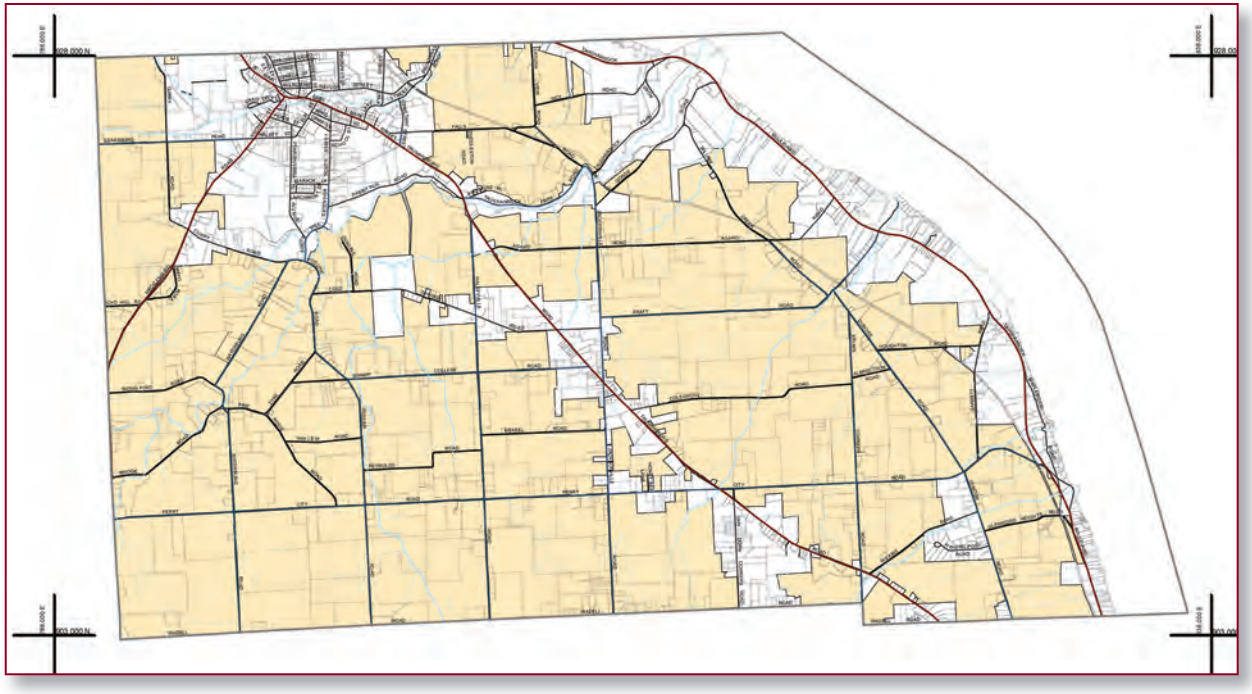
This map displays two different grid systems. Latitude and longitude coordinates are displayed and labeled in red. The grid lines extend across the map. The New York State Plane coordinate grid and labels are displayed in blue. Only where the grid crosses the edge of the map are the ticks shown.



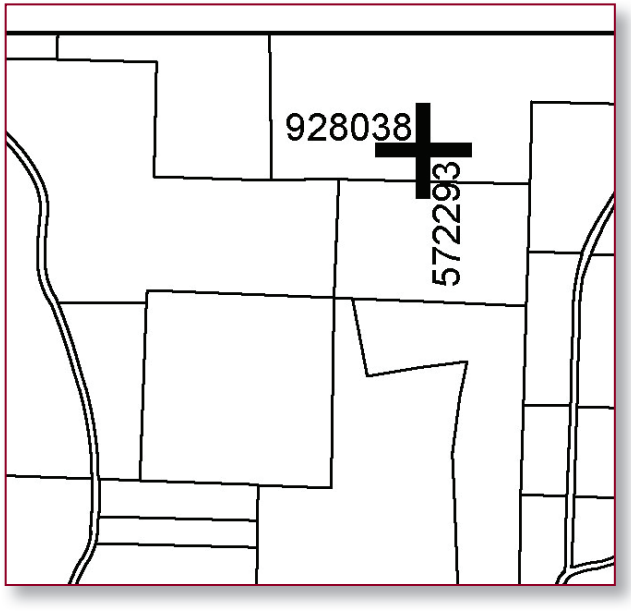
In this example, only the New York State Plane coordinates appear. The grid is displayed as tick marks along the edges of the map. There are no lines or tick marks within the body of the map.



A third example displays New York State Plane coordinate values. The width and color of the grid lines, as well as the interval between tick marks, will affect the ease of reading the grid. Smaller grid intervals and heavier lines may obscure the map data.

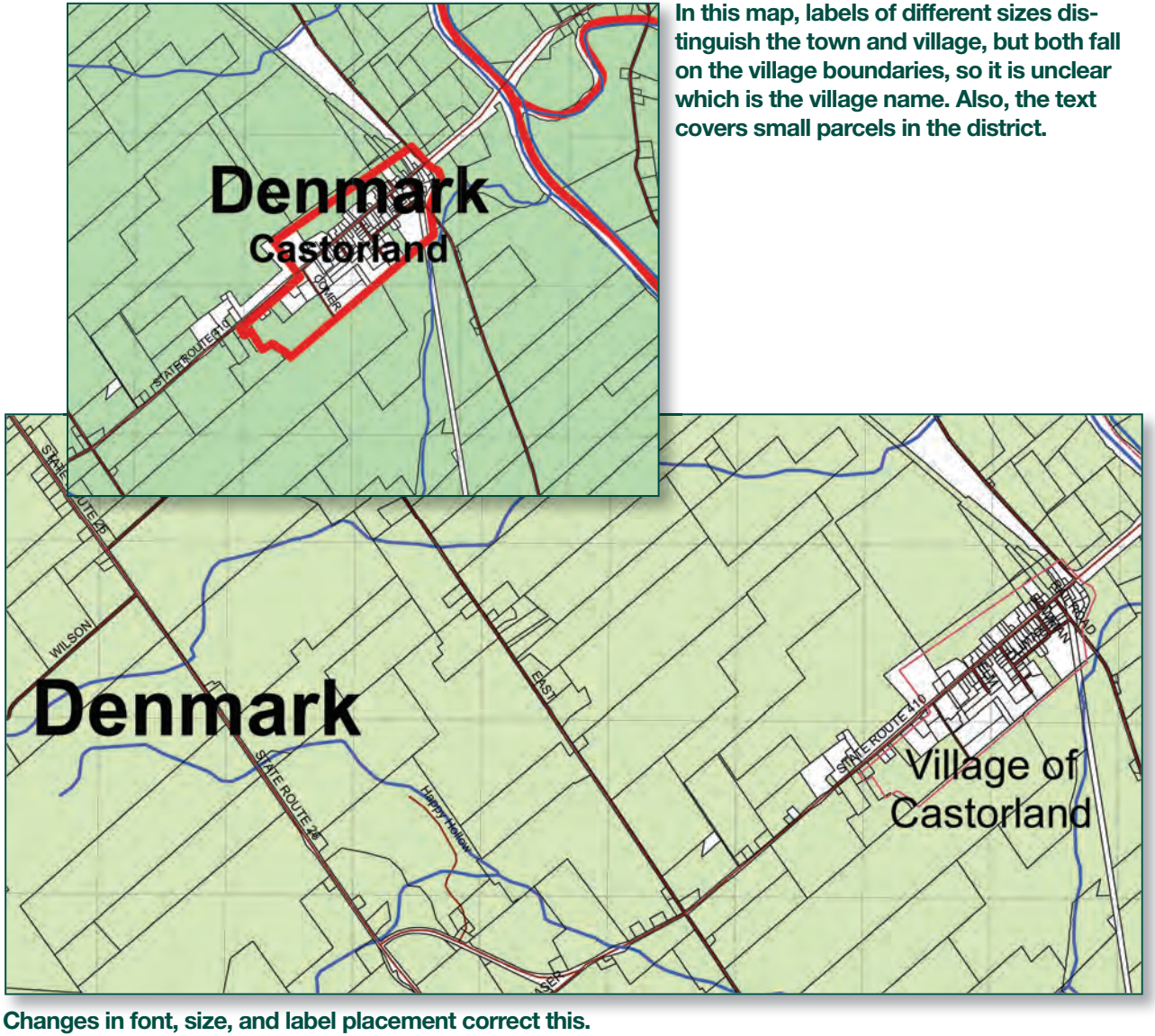


At least four tick marks should be included on the map, placed toward the outer corners of each map sheet. Ticks should be clearly labeled with the coordinate values. Coordinate system and map units should be clearly identified.



Appendix 6. Feature Labels

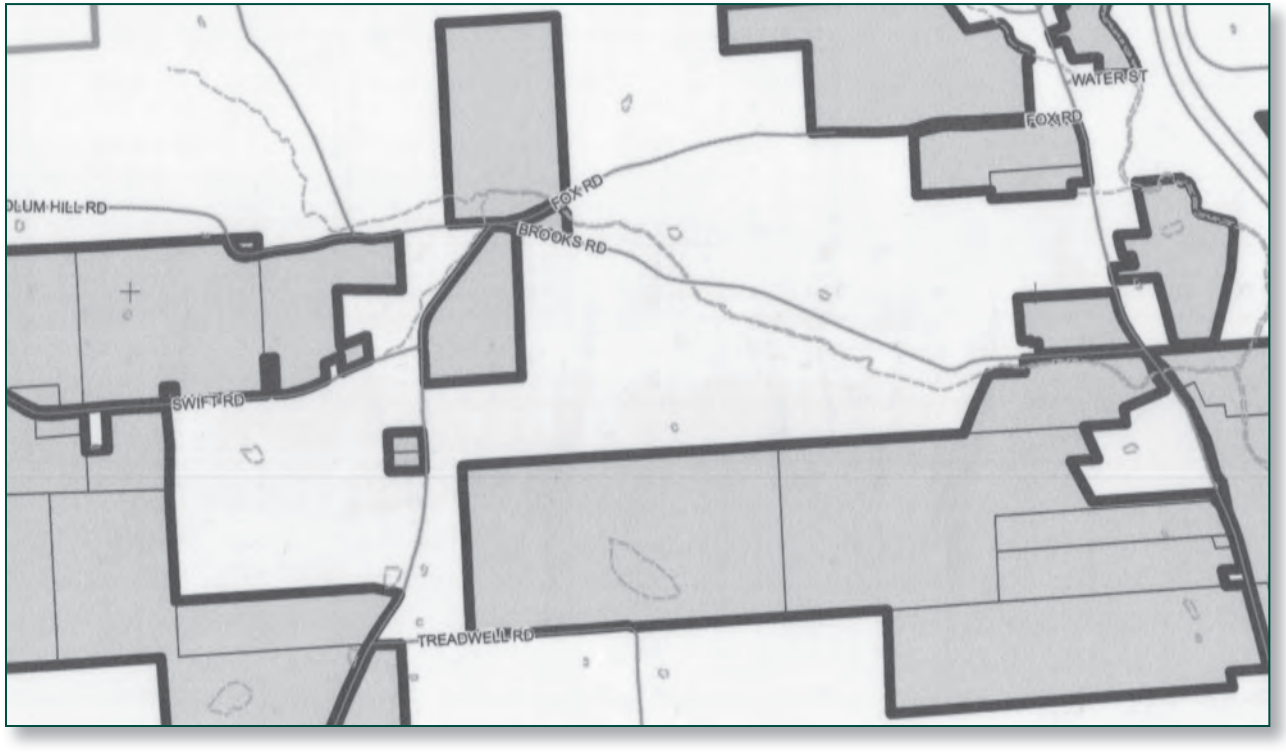
Labels identify the various features on a map; each feature type should be labeled in a distinctive font. Labels should be positioned close to the feature they identify, in a way that doesn't obscure other information, especially the district boundary. Labels must be large enough to be legible, but small enough that they don't interfere with reading the base map or the district boundary.



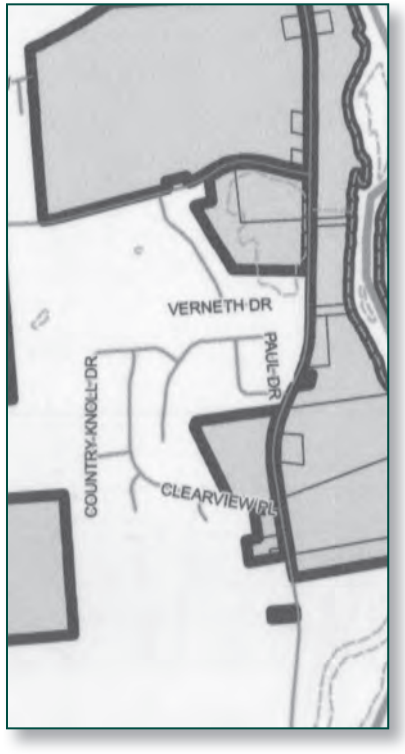
In this map, labels of different sizes distinguish the town and village, but both fall on the village boundaries, so it is unclear which is the village name. Also, the text covers small parcels in the district.

Changes in font, size, and label placement correct this.

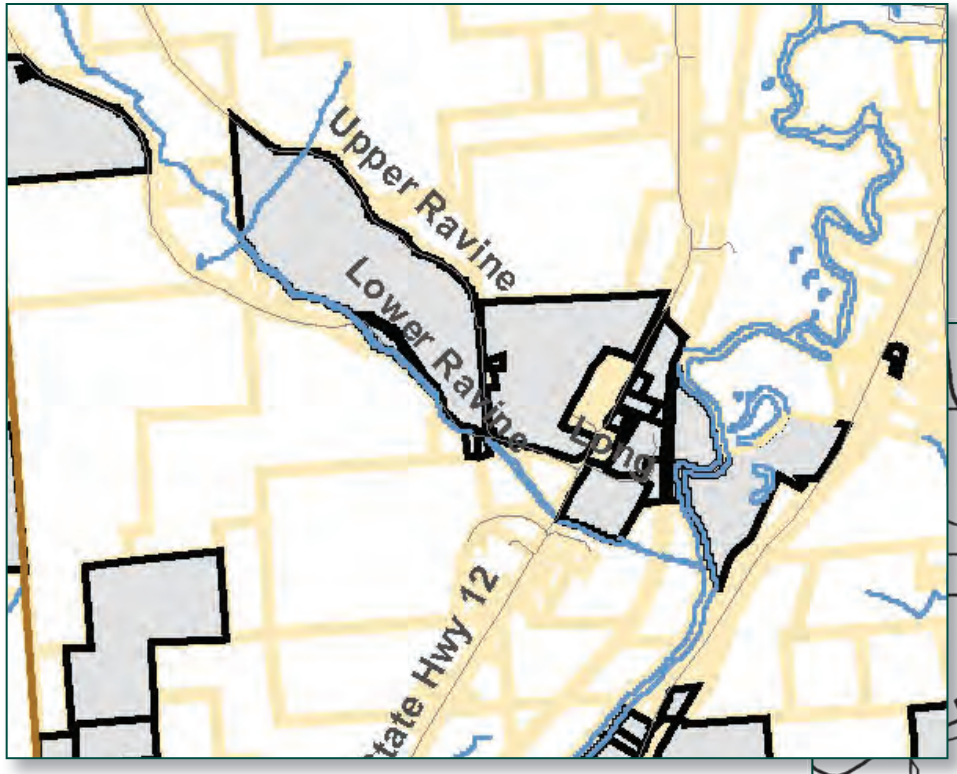
In the following examples, labels are superimposed on district boundaries. Labels should not interfere with reading the detail of the district boundary.



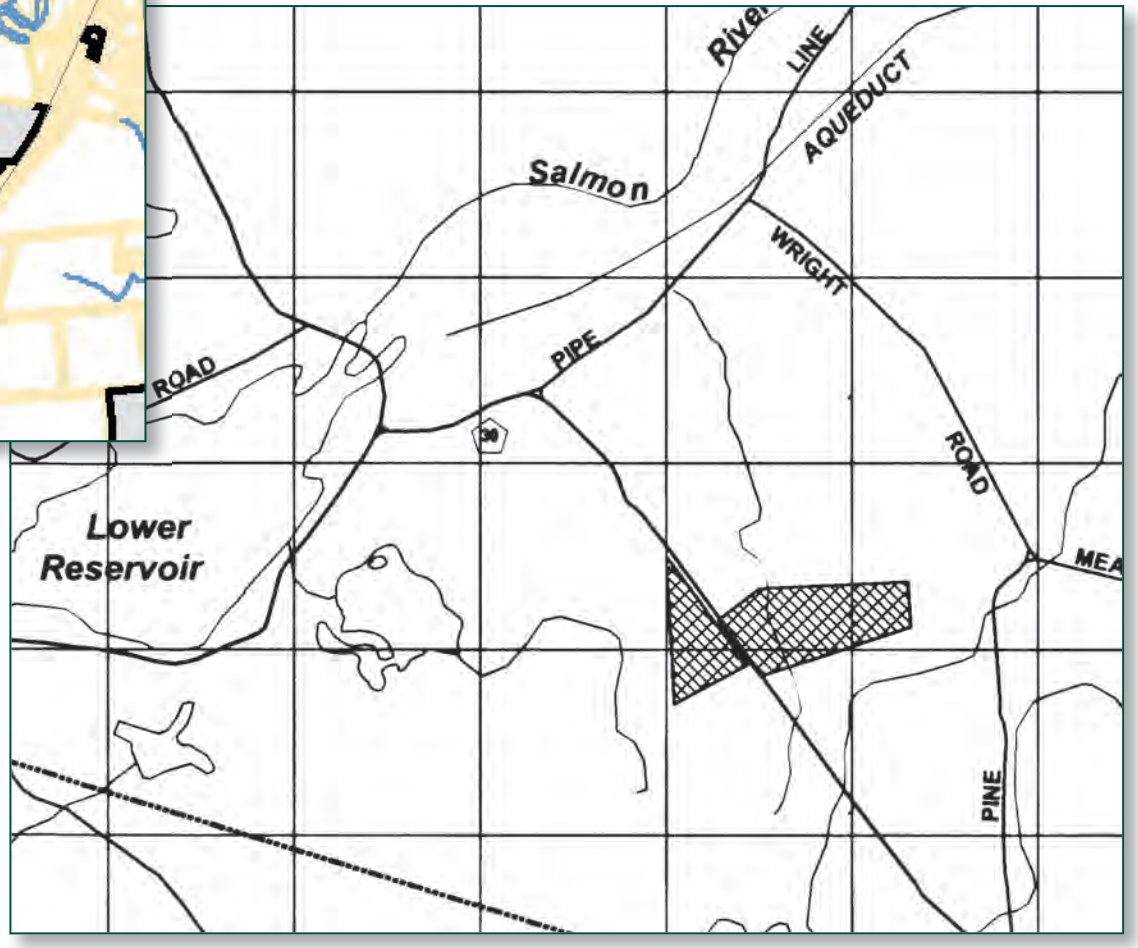
In the first example, it is easy to infer that the boundary follows the road.



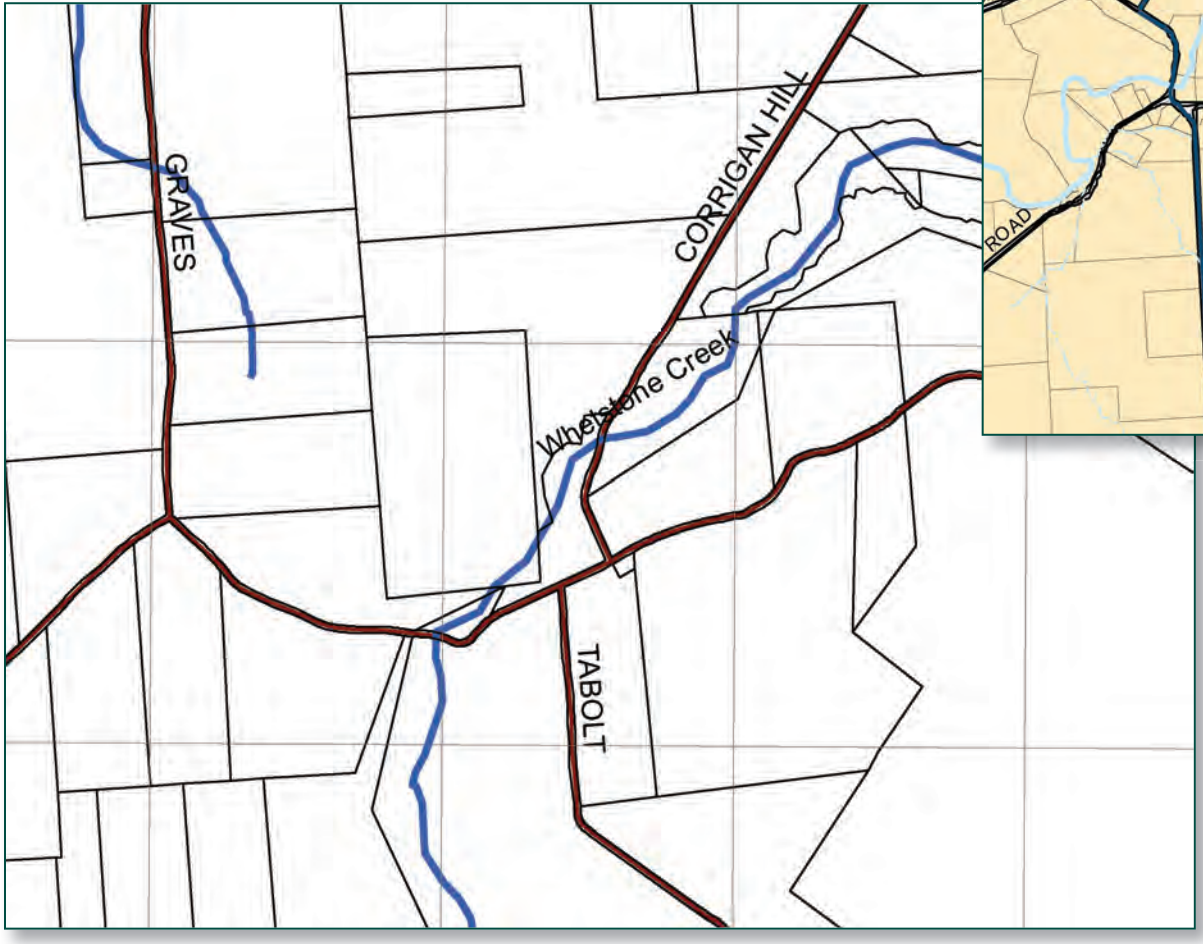
But in the second example, the obscured boundary is not as easy to determine.



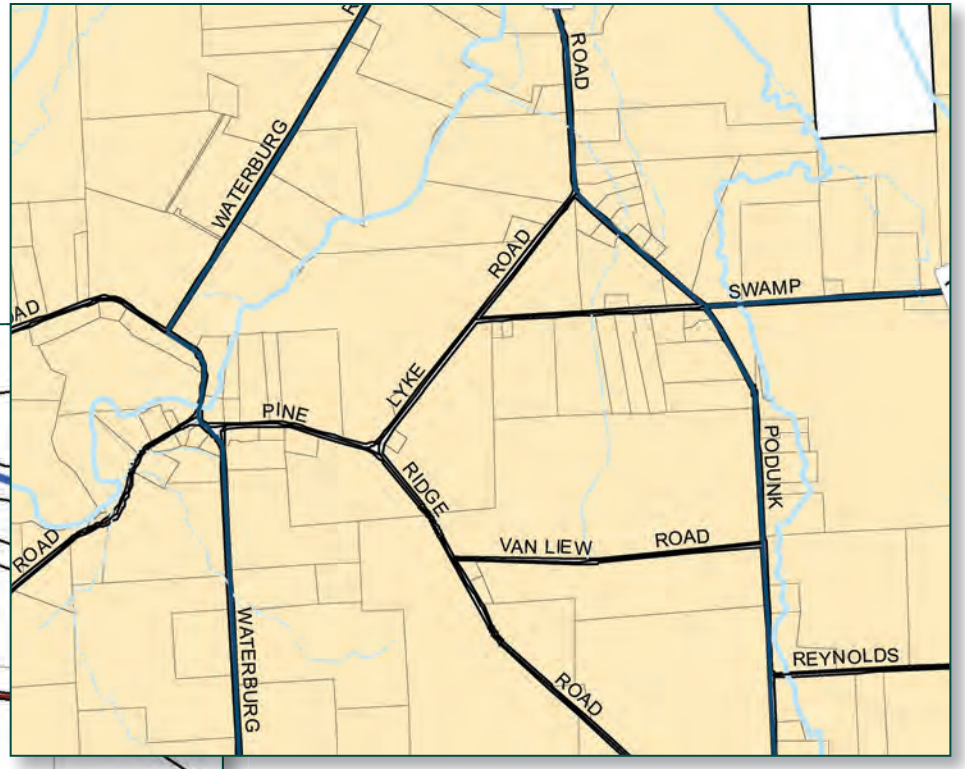
Labels should be close to the features described. In this example, it is not clear if "Upper Ravine" and "Lower Ravine" refer to the streams or the roads.



In this example, although roads and streams intertwine, it is easy to tell which label refers to a given feature. The labels are positioned physically close to the features they name. Different fonts are used to distinguish types of features: *italics* for natural water features; *ITALIC CAPS* for manmade water features; ROMAN CAPS for roads. Also note the different type sizes.



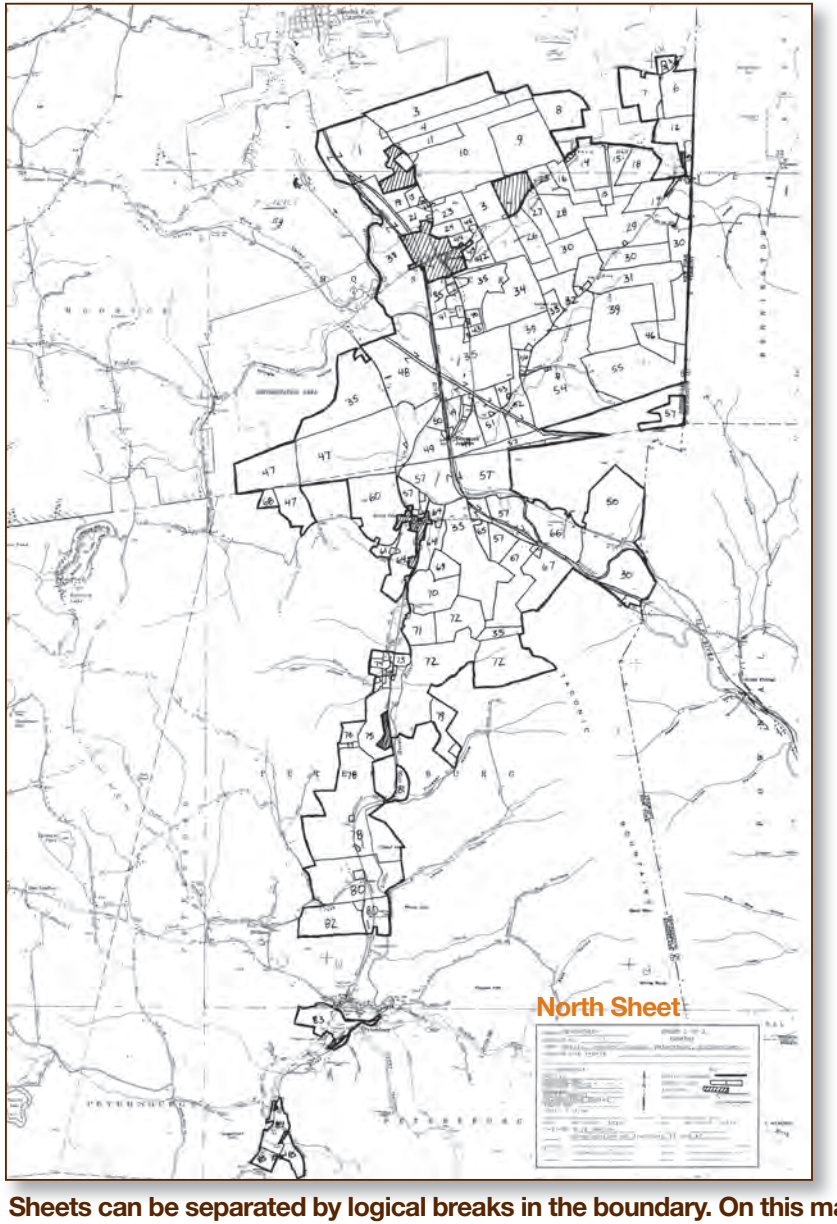
Even when the options for label editing are limited, unique styles can be simple. In this example, all road names are CAPITALIZED and the stream name is in CAPS and lower case.

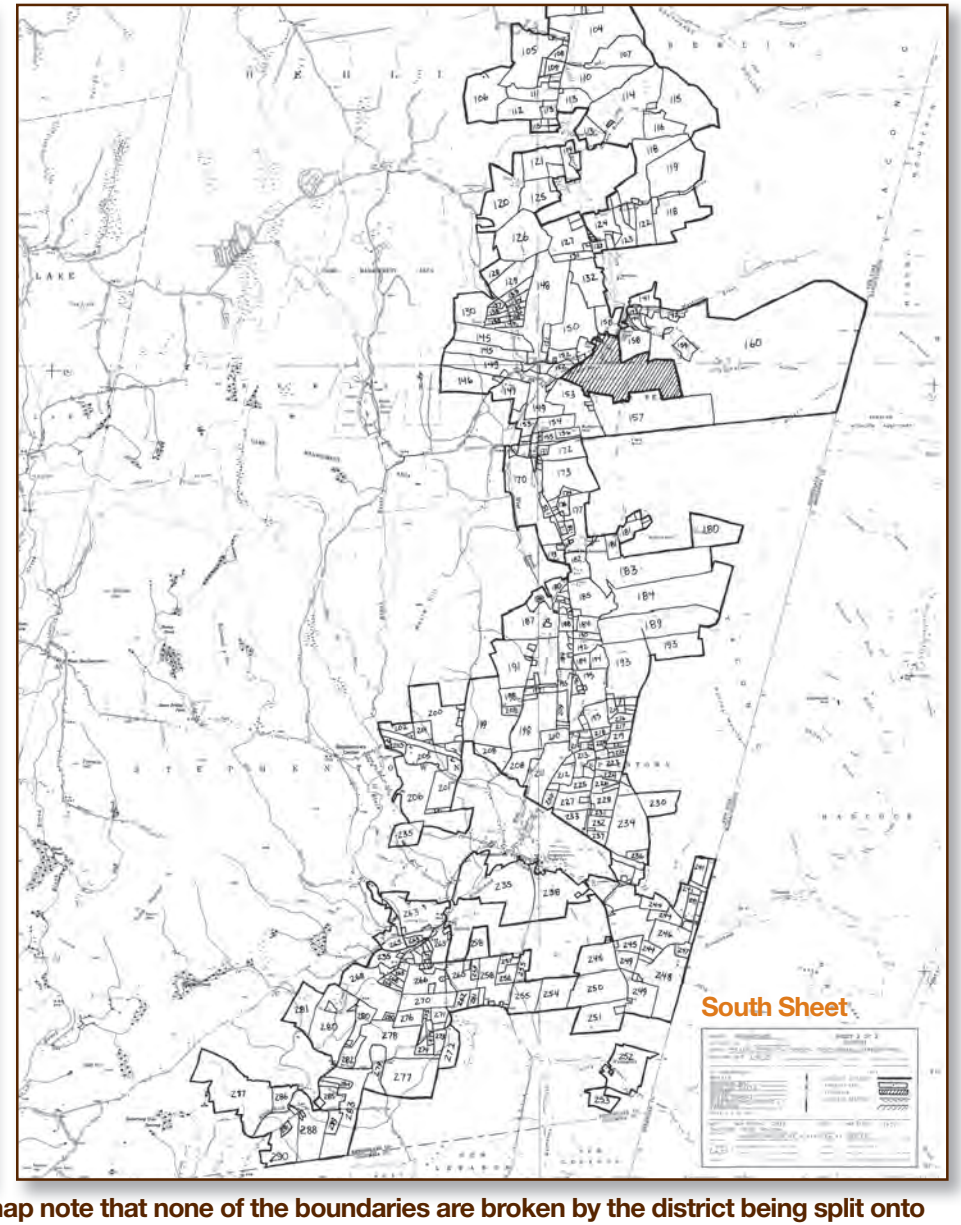


This example includes water features as references, but they are not labeled. Road labels include the word "Road," so there is no confusion.

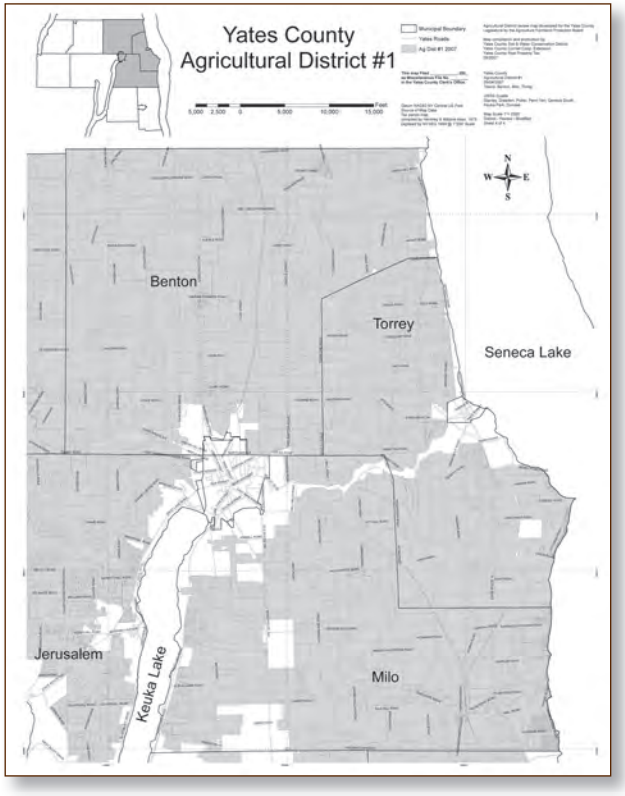
Appendix 7. Special Requirements for Multiple Sheet Maps

Map size limit is 36" x 42". Large maps can be produced as multiple sheets. Districts may not fit on one map sheet when the boundary is displayed at a scale of 1:24,000. District boundaries may be divided onto multiple sheets in a number of ways.



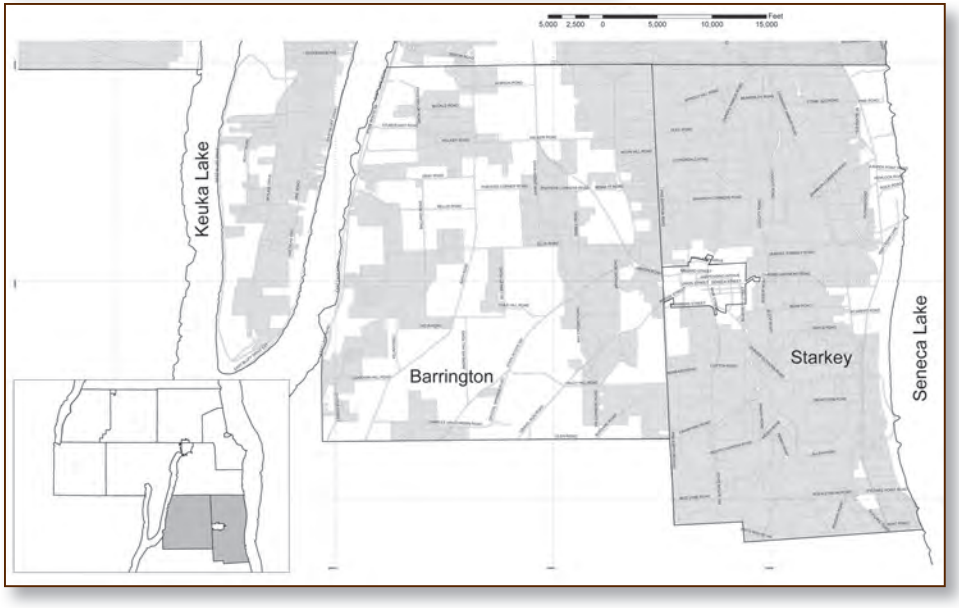


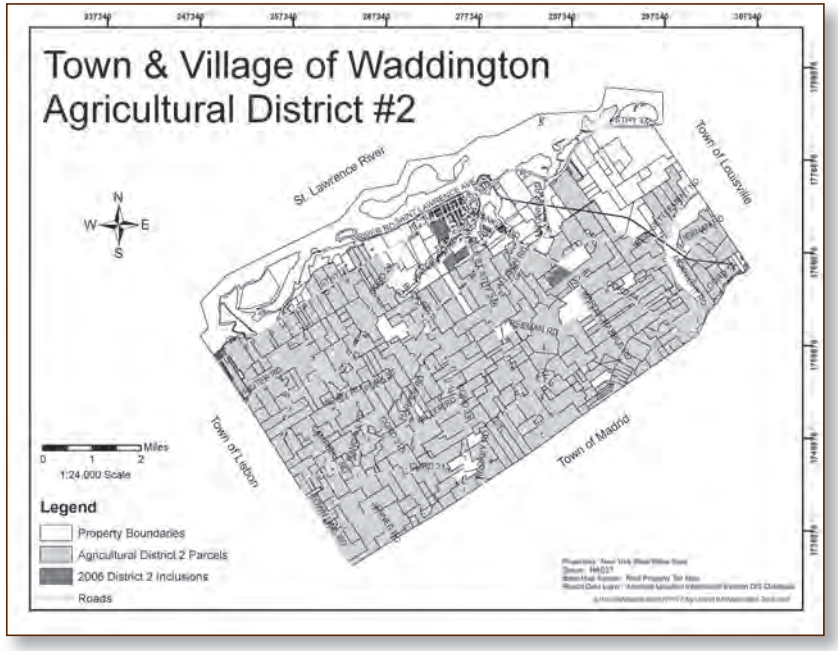
Sheets can be separated by logical breaks in the boundary. On this map note that none of the boundaries are broken by the district being split onto two sheets. Instead of an index, the title blocks are labeled "North" and "South."

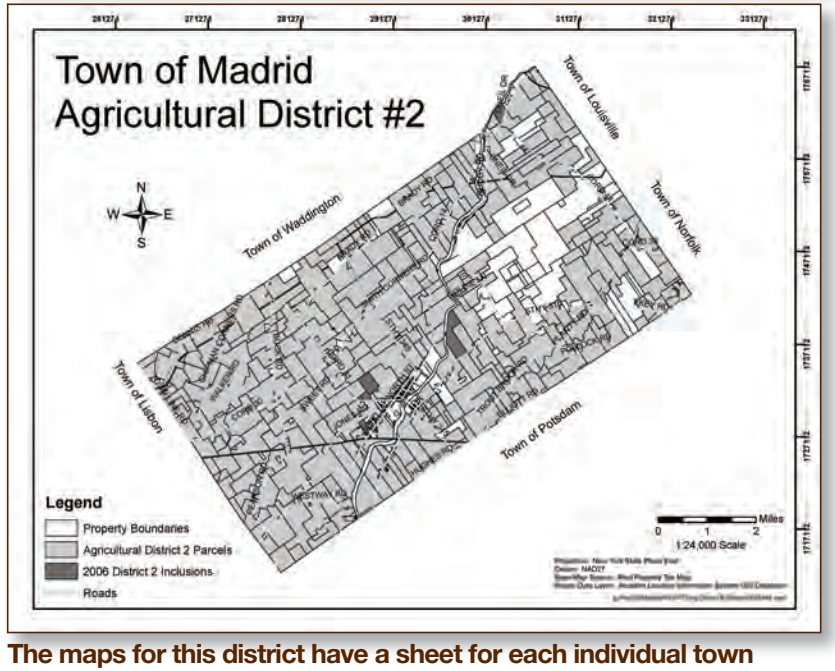


When a district is divided into two or more sections, showing areas of overlap makes it easier to reference adjacent sheets to each other. In this case, sheets center on two towns per sheet, but a portion of the adjacent towns are shown on each sheet.

Note also the index in the corner of each map sheet.



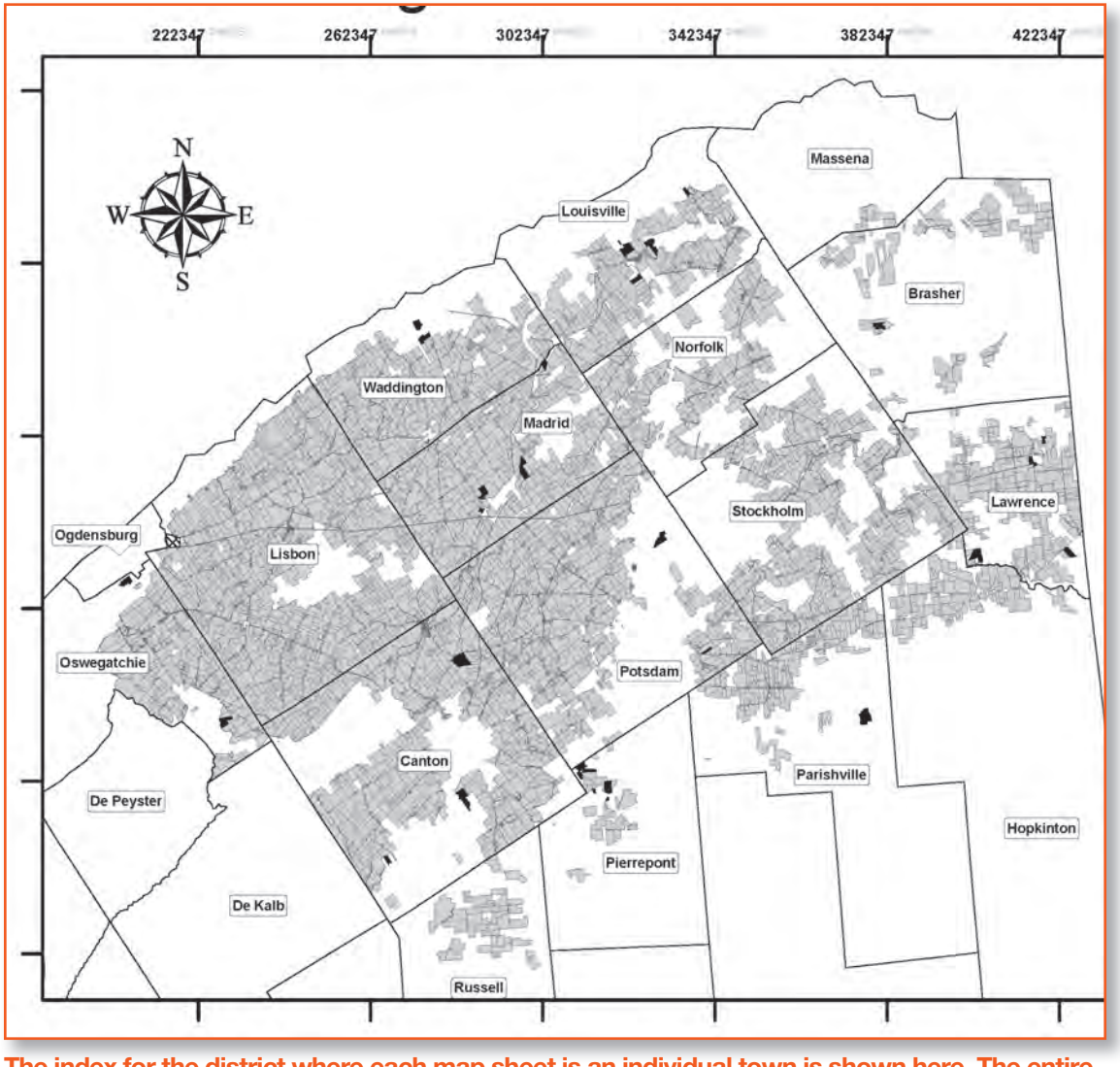




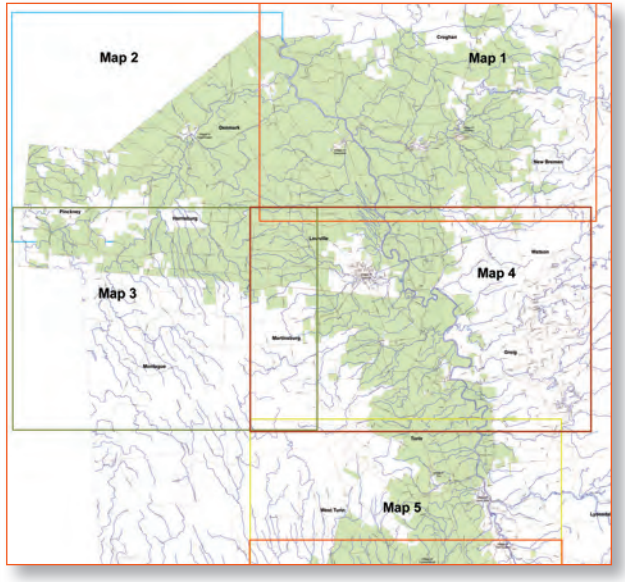
The maps for this district have a sheet for each individual town with no overlap between sheets. In this example, adjacent towns are labeled, maintaining the continuity between sheets.

Appendix 8. Map Index

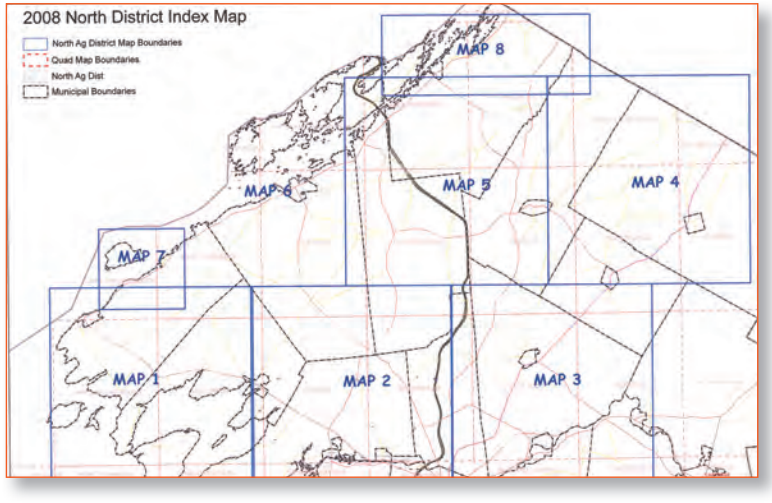
When a map comprises multiple sheets, an index to the map sheets should be included, either as an inset on the map, or as a separate map sheet.



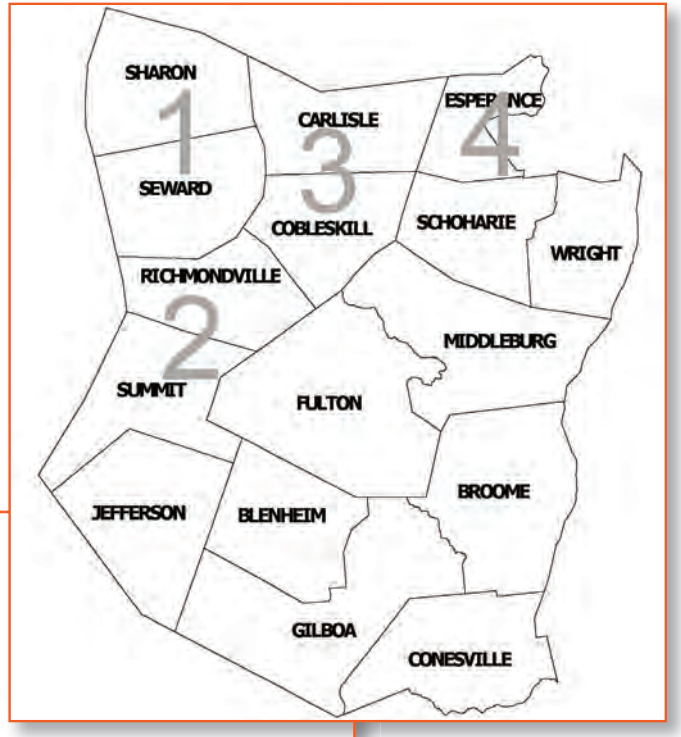
The index for the district where each map sheet is an individual town is shown here. The entire county is not shown; just the area that includes all the towns in the district. Rather than sheet numbers, town names refer to the individual sheets.

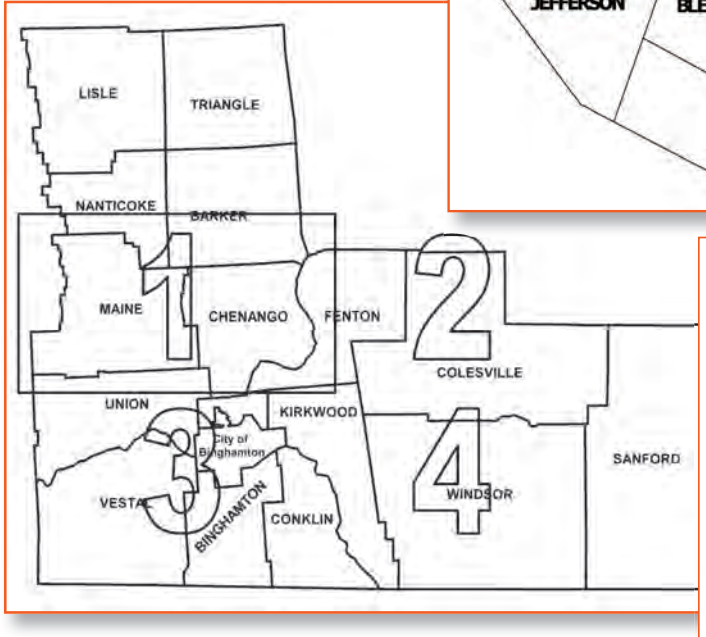


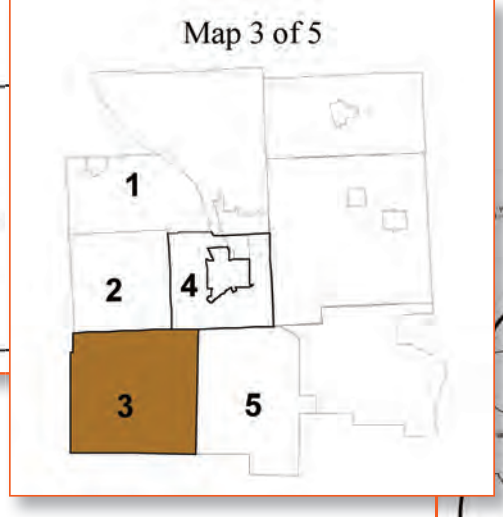
These two examples show the estimated extents of the map sheets. One example includes the district boundary, the other does not. Either approach is acceptable.

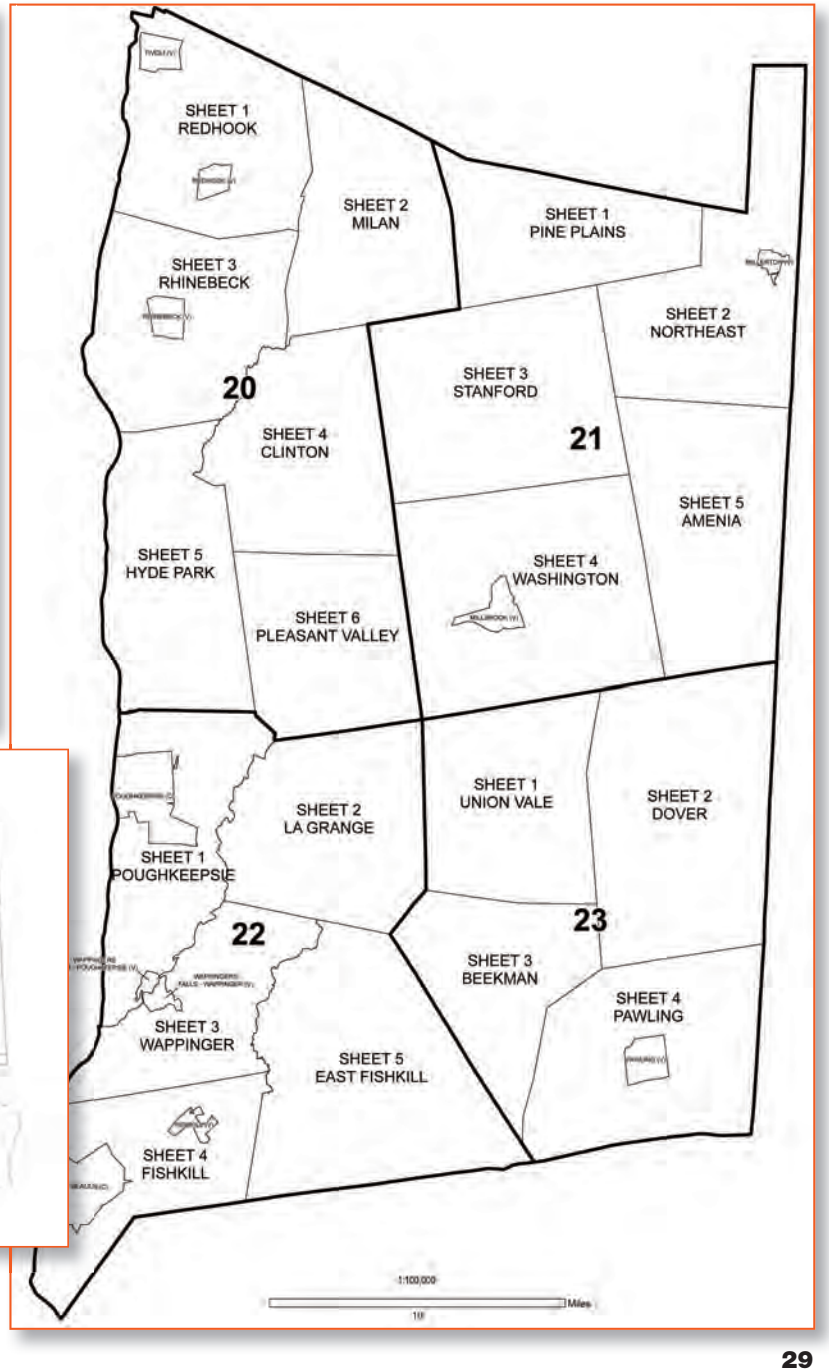


A simplified approach would be to show an outline of the county with the map sheets indicated.









Notes

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