

Revision of Primary Series Maps

In 1992, the U.S. Geological Survey (USGS) completed a 50-year effort to provide primary series map coverage of the United States. Many of these maps now need to be updated to reflect the construction of new roads and highways and other changes that have taken place over time. The USGS has formulated a graphic revision plan to help keep the primary series maps current.

Primary series maps include 1:20,000-scale quadrangles of Puerto Rico, 1:24,000- or 1:25,000-scale quadrangles of the conterminous United States, Hawaii, and U.S. Territories, and 1:63,360-scale quadrangles of Alaska.

The revision of primary series maps from new collection sources is accomplished using a variety of processes. The raster revision process combines the scanned content of paper maps with raster updating technologies. The vector revision process involves the automated plotting of updated vector files. Traditional processes use analog stereoplotters and manual scribing instruments on specially coated map separates. The ability to select from or combine these processes increases the efficiency of the National Mapping Division map revision program.

Categories of Revision

There are two categories of map revision: complete revision and basic revision.

In the complete revision process, all features are corrected and updated. Content is validated by field checking against ground truth. Contours are revised. The revised map meets all current National Mapping Division standards for feature content and

National Map Accuracy Standards for positional accuracy.

In the basic revision process, many features are revised through interpretation of image sources, such as orthophotos or aerial photographs. The features are not verified through ground truth, and contours are generally not revised. The revised map maintains the positional accuracy of the previously published map. Most resources are focused on basic revision because this method is less expensive and more maps can be revised in a given period of time.

Map Characteristics

Map Scale

Map revision generally results in the production of maps at the same scale as the original map.

Contour Interval

Map revision generally results in the production of maps at the same contour interval as the original map.

Projection

Most revised maps are cast on the Universal Transverse Mercator projection. However, those revised by the U.S. Department of Agriculture Forest Service are cast on the appropriate State plane projection.

Horizontal Datum

Most revised maps are converted to the North American Datum of 1983 (NAD 83). However, maps revised by the Forest Service are currently left on the North American Datum of 1927. Maps of Hawaii, Puerto Rico, American Samoa, Guam, and the Alaskan Islands of St. Lawrence, St. Paul, and St. George are converted from their own horizontal datums to NAD 83.

Vertical Datum

Revised maps are left on the vertical datum used for the most recently published map. In most cases, this is the National Geodetic Vertical Datum of 1929.

Reference Systems

On most revised maps, the Universal Transverse Mercator (UTM) system is shown as a full line grid. However, on maps revised by the Forest Service, only UTM grid ticks are shown.

The State Plane Coordinate System for the appropriate horizontal datum is shown as grid ticks on all revised maps.

Symbology

The symbology of new features on the revised map matches the symbol set used on the previous version of the map as closely as is economically possible. An entire group of features may be revised using a different symbol set for economic reasons.

During basic revision, existing purple symbols are converted to standard color symbols.

Names

During complete revision, feature names and labels are verified through field work and information obtained from local sources, including the public. All names are compared to approved Geographic Names Information System (GNIS) sources.

During basic revision, names shown on the original map are retained if the features to which they apply are retained. Previously published names and labels are validated from information received since the publication of the original map. This information is provided by other

agencies, as well as by map users and the public. Generally, the only new names and labels that are added are those identified with updated boundary information. However, other new names that are submitted may be added if supported by GNIS sources. All new or changed names are checked against approved GNIS sources.

Feature Content-Complete Revision

During complete revision, all map content, including contouring, is revised and field verified.

Feature Content-Basic Revision

Feature types that can be reliably identified on imagery or ancillary sources are revised during basic revision. However, individual instances of these types of features may not be revised because they may not be identifiable on the specific image or source used.

Feature types that cannot be reliably identified on imagery or ancillary sources are retained unless it is obvious that they no longer exist. If it is obvious that they no longer exist, they are deleted. The continued portrayal of retained features on the revised map does not necessarily mean that they still exist.

The following guidelines pertain to specific feature categories in basic revision:

Hydrography

New bodies of water are added. Previously mapped water bodies are modified if there is obvious evidence of change. Streams or small ditches are not added or modified unless there is obvious evidence of change.

Characteristics describing streams as perennial or intermittent are not revised unless the information has been verified on the ground.

Transportation

Aircraft facilities, bridges, highways, roads, trails, and so on are revised where there is obvious evidence of change.

Boundaries

Boundaries are revised using ancillary sources.

Public Land Survey System (PLSS)

The PLSS is not revised unless there is a memorandum of understanding with another mapping agency. The PLSS information may be added where the existing map had no previous survey and if the new survey information is available from the Bureau of Land Management's Geographic Coordinate Data Base.

Built-Up

Previously mapped houses of worship, schools, building labels, landmark buildings in built-up areas, and fence lines are retained unless it is obvious that they no longer exist. New houses of worship, schools, and labels on landmark buildings are not added unless the information is provided by a cooperator or member of the Earth Science Corps in the Volunteer for Science Program. The currentness of the houses of worship, schools, and other landmark building information is reflected with a note in the map collar.

Hypsography

Contours are generally not revised during basic revision unless requested by a cooperator.

Nonvegetative Surface Cover

Barren land, beaches, dunes, and moraines are revised if there is evidence of obvious change.

Vegetative Surface Cover

Vegetative surface cover is evaluated on an individual map basis to determine if it requires revision. If revision is required, the orchards, vineyards, and various types of woodland are revised where there is evidence of obvious change.

Named Landforms

Names of prominent islands, ridges, valleys, and so on may be added if reliable information is available. All new landform names are checked against approved GNIS sources.

For more information about revised primary series maps, contact:

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For information on National Mapping Program standards, visit the Web site geography.usgs.gov/standards.

For information on other USGS products and services, call 1-888-ASK-USGS, or visit the general interest publications Web site on mapping, geography, and related topics at erg.usgs.gov/isb/pubs/pubslists/.

For additional information, visit the ask.usgs.gov Web site or the USGS home page at www.usgs.gov.

Information