CHANGES IN VERTICAL DATUM

BACKGROUND

In an effort to lessen the impact of flooding, Congress created the National Flood Insurance Program (NFIP) in 1968; this Program is managed by the Federal Emergency Management Agency (FEMA). In partnership with FEMA, the Georgia Flood Map Modernization Program was created to update the Flood Insurance Rate Maps (FIRMs) for the entire state and provide them in a digital format. Building on the success of this program, FEMA embarked upon a new effort to help communities better assess and then reduce their risk associated with flooding. Georgia is implementing this program at the state level through its Georgia Flood Mapping, Assessment & Planning (M.A.P.) program. One of the main goals of this effort continues to be to identify the boundaries of the different flood hazard areas more accurately. The limits of these flood hazard areas are based on elevation data. To ensure that all of the elevations used are based on a common reference system, a FIRM must reference a single vertical datum.

Q What is a Vertical Datum?

A vertical datum is a set of constants that defines a system of comparison of elevations. A vertical datum is important because all elevations need to be referenced to the same system. Otherwise, surveys using different datums would have different elevations for the same point. Historically, the FIRMs have referenced the National Geodetic Vertical Datum of 1929 (NGVD29). As the flood maps were updated in Georgia during Flood Map Modernization, they were based upon the newer North American Vertical Datum of 1988 (NAVD88).

Q Why was the Vertical Datum Changed?

A datum needs to be updated periodically because geologic changes to the surface of the earth occur; these changes are due to subsidence and uplift or gradual changes in seal level. In addition, the older vertical datum (NGVD29) was flawed because of erroneous assumptions that mean sea level at different tidal stations represented the same elevation (zero). With the outdated vertical datum, points at 0.0′ NGVD29 have, in fact, different elevations for a variety of reasons. We can now more accurately measure these elevation differences with an expanded geodetic network, further warranting the use of the new vertical datum. The statewide mapping effort provides an opportunity to produce new maps using NAVD88 and expedite the State's use of the new vertical datum.

Q When did the Vertical Datum Change?

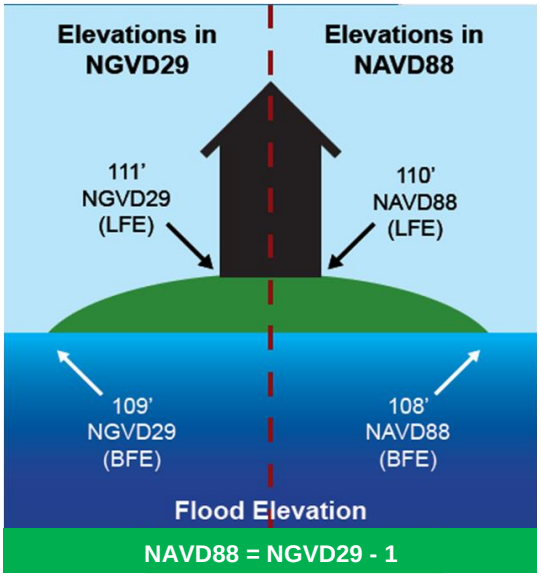
Elevations in NAVD88 should have started being used for floodplain management and flood insurance purposes (e.g., elevation certificates, rating using grandfathering rules) the day a new FIRM using the new datum became effective for a county.

Q Who Will be Impacted by the Vertical Datum Change?

This change will be noted by anyone who uses a FIRM in Georgia, particularly when comparing elevation data on the new FIRM with data from an old FIRM that was produced using NGVD29. This applies to insurance agents who may be comparing Base Flood Elevations (BFEs) and Lowest Floor Elevations (LFEs) on older and or newer elevation certificates and comparing them to the previous FIRM or the new FIRM. The vertical datum changes can impact other stakeholders that work with elevation data, such as engineers and surveyors as well as floodplain administrators across the State.

Q How are the NGVD29 Elevations Converted to NAVD88?

The difference between the two datums varies from location to location. The exact conversion used will be listed in your Flood Insurance Study test. A datum conversion example is shown. The offset will be applied to the NGVD29 elevations that are not revised during the creation of a new FIRM. Where a county boundary and a flooding source with unrevised NGVD29 flood elevations coincide, an individual offset will be calculated and applied during the creation of a FIRM. The Flood Insurance Study report that supports the new FIRM will contain information on the conversion of the elevations between NAVD88 and NGVD29.



Q Where Can I Get Further Information?

If you have any questions regarding vertical datums changes or mapping changes in general, please contact the FEMA Map and Insurance eXchange (FMIX) at 1-877-FEMA MAP (1-877-336-2627). FEMA also has additional information regarding the implementation of using NAVD88 www.fema.gov/sites/default/files/2020-02/Vertical_Datum_Conversion_Guidance_May_2014.pdf. To obtain current elevation, description, or location information for benchmarks in Georgia, visit the National Geodetic Survey's website at www.NGS.NOAA.gov. Contact information for additional details about Georgia's MAP Program is below.

For assistance or more information, please contact:

Joe Martinenza P.E.
NFIP State Coordinator
Program Manager-Floodplain Unit
Georgia Department of Natural Resources
Environmental Protection Division
Watershed Protection Branch
2 Martin Luther King Jr. Drive, Suite 1152 East
Atlanta, Georgia 30334
470-938-3355
Joseph.Martinenza@dnr.ga.gov