

# Vertical Datum Changes

In an effort to lessen the impact of flooding, Congress created the National Flood Insurance Program (NFIP) in 1968. In partnership with the FEMA and the NFIP, the Northwest Florida Water Management District (NFWFMD) Floodplain Mapping Program was created to update the Flood Insurance Rate Maps (FIRMs) for the entire 16-County District area. One of the main goals of this effort is to more accurately identify the boundaries of flood hazard areas. The limits of these flood hazard areas are determined by comparing flood elevations with digital elevation data. To ensure that all the elevations used are based on a common reference system, a FIRM must reference a single vertical datum.

## What is Vertical Datum?

A vertical datum is a set of constants that defines a system for comparison of elevations. In the NFIP, a vertical datum is important because all elevations need to be referenced to the same system. Otherwise, surveys using different datum's would have different elevations for the same point. Historically, the FIRMs have referenced the National Geodetic Vertical Datum of 1929 (NGVD 29). With FIRM updates, a more accurate vertical datum will be used - the North American Vertical Datum of 1988 (NAVD 88).

## Why is the Vertical Datum Changing?

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 sea level. In addition, the older vertical datum (NGVD 29) 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 With the outdated vertical datum, points at 0.0' NGVD 29 have, in fact, different elevations for a variety of reasons.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 NFWFMD mapping effort provides an opportunity to produce new maps using NAVD 88 and expedite the use of the newer vertical datum.

## When is the Vertical Datum Changing?

Elevations in NAVD 88 should be used for floodplain management and flood insurance purposes (e.g., elevation certificates) the day that a new FIRM becomes effective for a county.

## Who Will Be Impacted by the Vertical Datum Change?

This change should be noted by anyone who uses a FIRM in the NFWFMD area, particularly when comparing elevation data on a new FIRM with data from an old FIRM that was produced in NGVD 29. The vertical datum change impacts those who work with elevation data, such as engineers and surveyors, as well as community floodplain administrators.

## **How are Un-revised NGVD 29 Flood Elevations Converted to NAVD 88?**

The difference between the two datum's varies from location to location. Therefore, an average offset (the difference between NAVD 88 and NGVD 29) has been computed for each county in the State. Where a county boundary and a flooding source with unrevised NGVD 29 flood elevations are coincident, an individual offset will be calculated and applied during the creation of the a FIRM. Flood Insurance Study reports that support the new FIRMs, will contain information on the conversion of elevations between NAVD 88 and NGVD

## **Is Further Information Available?**

If you have any questions regarding vertical datum changes or the NFIP in general, please contact the FEMA Map Assistance Center toll free at 1-877-FEMA MAP (1-877-336-2627). Additional information about the NFIP is available at [www.fema.gov/nfip](http://www.fema.gov/nfip). Information about the NFWFMD can be found at [www.nfwfmdfloodmaps.com](http://www.nfwfmdfloodmaps.com).