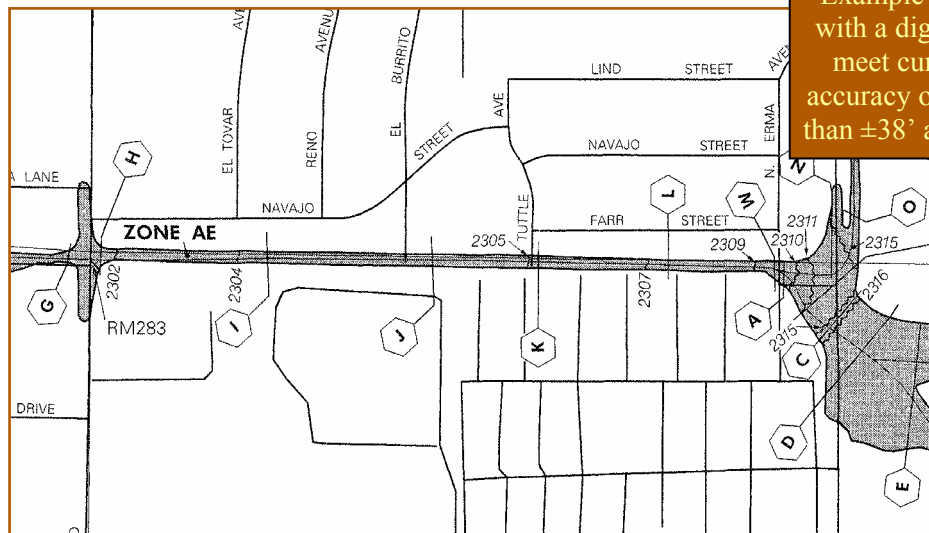


Importance of Base Mapping on FIRMs

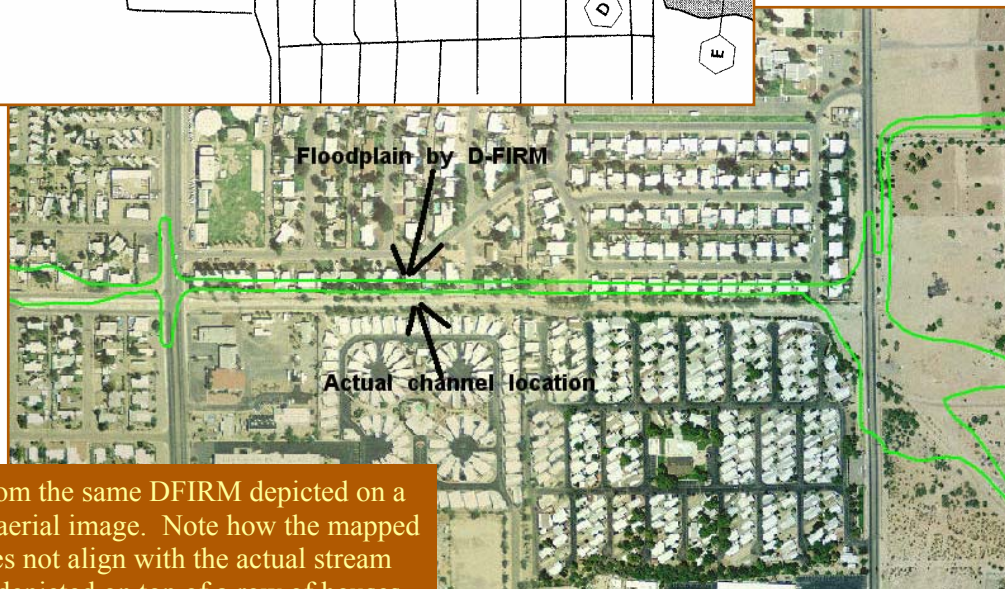


The base map (i.e., digital mapping of streets, railroads, hydrographic features, and political boundaries) on a Flood Insurance Rate Map (FIRM) provides a backdrop for all mapped floodplain features and is needed by map users to locate actual property on a FIRM. Property is located on a FIRM by aligning features on the FIRM's base map, such as road locations and streamlines, with the same features on mapping depicting the property in question. With advances in mapping technology, most FIRMs published in the past five years have been produced digitally. The use of these digital flood data has allowed communities and others to use computer software to help manage floodplains.

Until recently, however, FIRM base map standards were open and the best, readily-available base mapping was used for a digitally-produced FIRM (DFIRM). In addition, a base map is used to provide horizontal control when compiling unrevised flood hazard data. This open standard means that the digital location of a flood theme (i.e., mapped floodplains and floodways) from a DFIRM is only as accurate as the base map. With more floodplain managers using highly-accurate base maps with digital flood themes from DFIRMs, incorrect determinations can be made because of disparate data sources. This is depicted below.



Example portion of a DFIRM panel with a digital base map that does not meet current standards, that is the accuracy of the road vectors is greater than $\pm 38'$ at the 95% confidence level.



Flood theme from the same DFIRM depicted on a highly-accurate aerial image. Note how the mapped floodplain does not align with the actual stream location and is depicted on top of a row of houses.

Current Base Map Standards

Base map data that are supplied by communities or other non-Federal sources and meet the Federal Emergency Management Agency's (FEMA's) criteria are the first choice for DFIRM production. These files may be in either vector or raster format. In order for FEMA to use a digital base map for a new DFIRM, the following minimum standards must be met:

1. The minimum **resolution** requirement for raster data files is 1 meter ground distance.
2. The minimum **horizontal positional** accuracy is that of the default base map - the USGS DOQs - which have an accuracy of ± 38 feet at the 95% confidence level.
3. The data must be complete and **cover** an entire county. Base map imagery must be augmented with hydrographic features, political boundaries, and feature names.
4. Base map files must be georeferenced to a known projection and datum and be accompanied by information that described those parameters.
5. The base map data must have been created or reviewed for the need of updating within the last 7 years.
6. Base map data must be distributable to the public at no cost.

Since a base map may be used to provide horizontal control when digitizing flood hazard data, it is used to locate structures in relation to the mapped floodplain (also known as the Special Flood Hazard Area) as well as for user orientation and familiarity. In addition, the standards above allow for greater usability of the digital flood theme shown on new DFIRMs.

Usability of DFIRM Data

Digital data allow for more efficient storage, update, search, and distribution. The most significant advantage, in addition, is that the data developed as part of a DFIRM are designed to work within a GIS environment. This means that a DFIRM can be used for automated analyses that are costly and impractical with paper products. Furthermore, DFIRM data are compatible with Internet applications. All newly-produced DFIRMs will contain the following standard features to facilitate usability.

1. A base map that is distributed with the digital files.
2. The features normally shown on a printed DFIRM panel, for example, flood boundaries, cross section locations, bench marks, Base Flood Elevation lines, flood zones, etc.
3. Electronic copies of the Flood Insurance Study report, which includes flood profiles, floodway data tables, and narrative text.
4. Metadata (i.e., organized and maintained information about the DFIRM).

This fact sheet was produced by MAPIX-Mainland, a joint venture of:



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