

FEMA REGULATORY FLOODWAY STANDARDS (DRAFT – May, 2004):

There are two separate but related issues with respect to FEMA's Floodway Standards. The first issue relates to the policies and procedure associated with the initial establishment of the regulatory floodway based on a maximum allowable 1' foot rise in the Base Flood Elevation (BFE). The second issue is the procedures that have been developed for permitting development within the regulatory floodway after it has been established. This paper addresses both issues.

Riverine floodplains are comprised of the floodway and the flood fringe. The floodway is comprised of the channel and adjacent overbank areas necessary to effectively convey floodwaters. The flood fringe are lands outside the floodway that are at or below the BFE that store, but do not effectively convey, floodwaters. Lands that compose the flood fringe will be inundated during a 1% chance flood event but, due to physical characteristics of the floodplain, do not effectively convey floodwaters. The floodway and the Base Flood Elevation (BFE) of the 1% chance flood are determined using hydraulic modeling techniques.

1.FEMA regulatory floodway limits.

FEMA's regulations (Section 9.4) state: "Floodway means that portion of the floodplain which is effective in carrying flow, within which this carrying capacity must be preserved and where the flood hazard is generally highest, i.e., where water depths and velocities are the greatest. It is that area which provides for the discharge of the base flood so the cumulative increase in water surface elevation is no more than one foot." FEMA's regulatory floodway limits are determined by inserting encroachment stations into the hydraulic model to reduce the conveyance of the floodway and calculating the resulting increase in flood stage. FEMA's standard for conducting a Flood Insurance Study (FIS) is to assume the cumulative reduction in conveyance will result in an increase in the BFE of 1.0 foot. This is accomplished by assuming that the loss of conveyance on one side of the river is matched by an identical loss of conveyance on the opposite side of the river, and the loss is assumed to occur throughout the entire community. FEMA's regulations allow for State and local government regulations that are more stringent (allow something less than a one foot rise) to take precedence. Approximately 20 states have more stringent floodway standards allowing from .001 to 0.5 foot of rise. Some states require landowners causing increased flood elevations on someone else's property obtain easements from affected landowners.

Once the regulatory floodway has been established following this procedure it is FEMA's policy that flood profile published in the Flood Insurance Study and used to draw the floodplain NOT include the one foot of increased flood height that these encroachment will cause. The FIS flood profile and floodplain delineation are used to determine who is required to buy flood insurance. FEMA feels it can not make this requirement associated with a future risk, since the encroachments will not occur until sometime in the future (if they occur at all).

For example, if at a point on the river the BFE is calculated to be 50.00' (NAVD 88); that is the elevation that is used to map the limits of the floodplain at that location. 50.00' is also the elevation shown as the BFE on the FIRM and in the Flood Insurance Study. The floodway will be mapped based on an assumed 1.0' rise in the BFE, or 51.00', but the FIRM will not show this elevation.

This policy can result in increasing flood damages. First, this approach yields a map that will allow development to occur that will obstruct flood flows backing up an additional foot of floodwater on existing structures in the floodplain. Second, since FEMA's minimum standard is to construct new buildings such that the lowest floor is at the BFE, new buildings will be subject to flooding into their first floor as the BFE rises. Finally, as the flood elevation rises due to development in conveyance areas, the floodplain limits will expand. The outer limits of the floodplain are delineated based on the intersection of the BFE with the ground contours. As the flood elevation rises, flooding will extend further from the stream, inundating lands presently outside the mapped Special Flood Hazard Area (SFHA). Depending on the terrain the amount of land subject to flooding outside the SFHA could be quite extensive.

Recommendation: Floodway limits should be established based on a hydraulic analysis that does not include encroachments into the floodway (ie: zero rise floodway). Once the floodway has been established, the map revision process should require landowners proposing encroachments into the floodway that increase the BFE to obtain easements from affected landowners. At a very minimum, if FEMA continues to use a one foot rise floodway, FEMA should develop a separate map (layer) to evaluate new development based on a one foot increase in the BFE.

2. FEMA's Procedures for "No-Rise" Certificates

Section 60.3 (d) (3) states Communities shall prohibit encroachments, fill, new development, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses that the proposed encroachment would not result in any increase in flood levels within the community of the base flood (100-year) discharge.

Each FEMA Regional office has promulgated procedures to determine whether a proposed development in the regulatory floodway will increase flood levels. Unfortunately, the procedures ignore the cumulative impact of past and future development. Similar properties on the opposite side of the river, and similar properties on the same side of the river, both upstream and downstream, are ignored. The end result of development in the regulatory floodway, evaluated one at a time, will result in significant increases in flood elevations and flood damages.

Recommendation: Establish procedures to assure the cumulative impact of all proposed and potential development is legally acceptable to the community and affected property owners through the acquisition of flowage easements.