



FEMA

February 12, 2013

FAQ: How can a jurisdiction comply with the requirement to maintain 65% of floodplains in an undeveloped state?

The Reasonable and Prudent Alternative (RPA) requires communities to retain 65 percent of the surface area of lots within the floodplain in an undeveloped state. The goal is to maintain hydrologic and sediment regimes that approximate natural conditions, thereby protecting water quality and the processes and functions that provide high quality habitat for aquatic communities. Intact riparian plant communities provide shade to regulate water temperatures, bank stability via soil cohesion provided by root systems, recruitment of large woody debris (LWD) over time into stream channels to provide channel stability and diverse instream habitat, input of terrestrial food sources into streams, and buffering of pollutant and sediment inputs. The percent of current tree canopy cover is frequently used as an indicator (proxy) for how closely tree stands provide natural functions (e.g. interception of precipitation, evapotranspiration, resistance to surface erosion, slope stability, recharge of streams during base flows, attenuation of storm flows, buffering inputs of contaminants to streams, etc...). Published literature often refers to stands as 'hydrologically mature' when they have approximately 65-70 percent canopy cover.

The goal is to retain and promote growth of native vegetation, especially mature hardwood and coniferous woodlands, to a level that approximates natural hydrologic functions. In locations where the baseline condition is less than 65 percent tree canopy cover:

1. The existing level of natural vegetation shall be fully retained
2. Existing trees within that vegetation shall be retained and allowed to mature
3. Growth of additional trees should be encouraged where possible.

The RPA requirement is to leave 65 percent of the surface area of the portion of the lot in the floodplain in an undeveloped state; this percentage pertains to the entire portion of the lot in the floodplain, including that area in the riparian buffer zone (RBZ), where removal of native vegetation is generally prohibited. The requirement stems from literature that discusses objectives for retention of forested plant communities across a spatial scale of approximately a 5th-field Hydrologic Unit Code (HUC) watershed scale, or larger basin (i.e. a 4th - field HUC). The RPA applies at the scale of individual lots or parcels; however, on the theory that if each lot stays in compliance, then the full floodplain will retain sufficient tree cover and native plant communities to allow watersheds to serve most of the functions of a hydrologically mature community. Most of the basic hydrologic processes, and many of the biologic functions that occur under intact mature trees will occur if at least 65 percent of lots within the floodplain are left in an undeveloped state (per the RPA language). These processes include interception, evapotranspiration, soil erosion control, and slope stabilization. They also include bank stability (due to root cohesion), shading, and large woody debris recruitment, buffering of contaminant inputs, and input of terrestrial food sources to streams. FEMA recognizes that not all floodplains, or floodplain parcels, have existing tree cover sufficient to meet the 65 percent standard as a baseline condition. The following points help clarify the objectives and



FEMA

regulatory requirements involved in meeting the RPA standard of maintaining 65 percent of lots within floodplains in an undeveloped state (i.e. maintain native vegetation, especially trees) on a permit-by-permit basis (i.e. 'Door 3'). .

- 1) The baseline condition for vegetation is assumed to be the approximate conditions that existed on September 22, 2011 when the Biological Opinion and RPA went into effect.
- 2) Multiple clearings of land (removal of trees and other vegetation) over time that would result in a net total of less than 65 percent native vegetation are not permitted.
- 3) Tree, shrub, and grass species that constitute "native" vegetation shall be defined by the those species listed on the Washington Native Plants Society (WNPS) listing for either the overall county in question, or for those (limited) site specific subwatersheds listed by WNPS, if such site-specific listing exists on the WNPS website for the location(s) in question. Any proposed deviations from this list by a jurisdiction needs to be documented and justified, and provided to FEMA.
- 4) Where baseline conditions are currently less than 65 percent tree cover:
 - a) Applicants for development permits must retain the trees on the wooded portion of the parcel.
 - b) Any exceptions must be based on impracticability of limiting construction actions to non-wooded portions of the parcel with appropriate documentation in an assessment that is approved by the jurisdiction and held on file for FEMA to review during a CAV or CAC. This vegetation management assessment would include what minimization, replacement, and compensatory actions will be required to ensure no adverse effect will occur to species and habitat. This may include an assessment to demonstrate that the lesser amount of vegetation would still provide net hydrologic and biologic functions without resulting in an adverse effect.

Jurisdictions have two options regarding how to regulate and administer the RPA standard of maintaining 65 percent of floodplain lands in an undeveloped state:

- A) Implement the requirement on a lot-by-lot spatial scale as described above under 'Door 3', or
- B) Present a plan to FEMA how they propose to maintain current baseline conditions for trees and other native vegetation across a larger spatial scale, such as a sub-watershed or watershed, and meet or exceed the 65 percent standard at that scale. They would also have to document and justify to FEMA how any deviations from the 65 percent provision on a lot-by-lot basis would still provide adequate net hydrologic and biologic functions, without resulting in adverse effects to ESA Listed fisheries populations at a project, reach, or larger scale.