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AUTHORITY: 23 U.S.C. 109(a) and (h), 144, 151, 315, and 319; 33 U.S.C. 401, 491 *et seq.*; 511 *et seq.*; sec. 4(b) of Pub. L. 97-134, 95 Stat. 1699 (1981); sec. 161 of Pub. L. 97-424, 96 Stat. 2097, at 3135 (1983); sec. 1311 of Pub. L. 105-178, as added by Pub. L. 105-206, 112 Stat. 842 (1998); 23 CFR 1.32; 49 CFR 1.48(b); E.O. 11988 (3 CFR, 1977 Comp., p. 117); Department of Transportation Order 5650.2, dated April 23, 1979 (44 FR 24678).

Subpart A—Location and Hydraulic Design of Encroachments on Flood Plains

SOURCE: 44 FR 67580, Nov. 26, 1979, unless otherwise noted.

§ 650.101 Purpose.

To prescribe Federal Highway Administration (FHWA) policies and procedures for the location and hydraulic design of highway encroachments on flood plains, including direct Federal highway projects administered by the FHWA.

§ 650.103 Policy.

It is the policy of the FHWA:

- (a) To encourage a broad and unified effort to prevent uneconomic, hazardous or incompatible use and development of the Nation's flood plains,
- (b) To avoid longitudinal encroachments, where practicable,
- (c) To avoid significant encroachments, where practicable,
- (d) To minimize impacts of highway agency actions which adversely affect base flood plains,
- (e) To restore and preserve the natural and beneficial flood-plain values that are adversely impacted by highway agency actions,
- (f) To avoid support of incompatible flood-plain development,

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(g) To be consistent with the intent of the Standards and Criteria of the National Flood Insurance Program, where appropriate, and

(h) To incorporate "A Unified National Program for Floodplain Management" of the Water Resources Council into FHWA procedures.

§ 650.105 Definitions.

(a) *Action* shall mean any highway construction, reconstruction, rehabilitation, repair, or improvement undertaken with Federal or Federal-aid highway funds or FHWA approval.

(b) *Base flood* shall mean the flood or tide having a 1-percent chance of being exceeded in any given year.

(c) *Base flood plain* shall mean the area subject to flooding by the base flood.

(d) *Design Flood* shall mean the peak discharge, volume if appropriate, stage or wave crest elevation of the flood associated with the probability of exceedance selected for the design of a highway encroachment. By definition, the highway will not be inundated from the stage of the design flood.

(e) *Encroachment* shall mean an action within the limits of the base flood plain.

(f) *Floodproof* shall mean to design and construct individual buildings, facilities, and their sites to protect against structural failure, to keep water out or to reduce the effects of water entry.

(g) *Freeboard* shall mean the vertical clearance of the lowest structural member of the bridge superstructure above the water surface elevation of the overtopping flood.

(h) *Minimize* shall mean to reduce to the smallest practicable amount or degree.

(i) *Natural and beneficial flood-plain values* shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

(j) *Overtopping flood* shall mean the flood described by the probability of exceedance and water surface elevation at which flow occurs over the highway, over the watershed divide, or through

structure(s) provided for emergency relief.

(k) *Practicable* shall mean capable of being done within reasonable natural, social, or economic constraints.

(l) *Preserve* shall mean to avoid modification to the functions of the natural flood-plain environment or to maintain it as closely as practicable in its natural state.

(m) *Regulatory floodway* shall mean the flood-plain area that is reserved in an open manner by Federal, State or local requirements, *i.e.*, unconfined or unobstructed either horizontally or vertically, to provide for the discharge of the base flood so that the cumulative increase in water surface elevation is no more than a designated amount (not to exceed 1 foot as established by the Federal Emergency Management Agency (FEMA) for administering the National Flood Insurance Program).

(n) *Restore* shall mean to reestablish a setting or environment in which the functions of the natural and beneficial flood-plain values adversely impacted by the highway agency action can again operate.

(o) *Risk* shall mean the consequences associated with the probability of flooding attributable to an encroachment. It shall include the potential for property loss and hazard to life during the service life of the highway.

(p) *Risk analysis* shall mean an economic comparison of design alternatives using expected total costs (construction costs plus risk costs) to determine the alternative with the least total expected cost to the public. It shall include probable flood-related costs during the service life of the facility for highway operation, maintenance, and repair, for highway-aggravated flood damage to other property, and for additional or interrupted highway travel.

(q) *Significant encroachment* shall mean a highway encroachment and any direct support of likely base flood-plain development that would involve one or more of the following construction-or flood-related impacts:

(1) A significant potential for interruption or termination of a transportation facility which is needed for

emergency vehicles or provides a community's only evacuation route.

(2) A significant risk, or

(3) A significant adverse impact on natural and beneficial flood-plain values.

(r) *Support base flood-plain development* shall mean to encourage, allow, serve, or otherwise facilitate additional base flood-plain development. Direct support results from an encroachment, while indirect support results from an action out of the base flood plain.

§ 650.107 Applicability.

(a) The provisions of this regulation shall apply to all encroachments and to all actions which affect base flood plains, except for repairs made with emergency funds (23 CFR part 668) during or immediately following a disaster.

(b) The provisions of this regulation shall not apply to or alter approvals or authorizations which were given by FHWA pursuant to regulations or directives in effect before the effective date of this regulation.

§ 650.109 Public involvement.

Procedures which have been established to meet the public involvement requirements of 23 CFR part 771 shall be used to provide opportunity for early public review and comment on alternatives which contain encroachments.

[53 FR 11065, Apr. 5, 1988]

§ 650.111 Location hydraulic studies.

(a) National Flood Insurance Program (NFIP) maps or information developed by the highway agency, if NFIP maps are not available, shall be used to determine whether a highway location alternative will include an encroachment.

(b) Location studies shall include evaluation and discussion of the practicability of alternatives to any longitudinal encroachments.

(c) Location studies shall include discussion of the following items, commensurate with the significance of the risk or environmental impact, for all alternatives containing encroachments