

DEPARTMENT OF THE ARMY  
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Circular  
No. 1105-2-130

8 June 1984

EXPIRES 31 MARCH 1985  
Planning  
GUIDANCE ON RECOMMENDING LEVEL OF PROTECTION  
FOR URBAN AREAS

1. Purpose. This circular transmits guidance on the level of protection for urban areas and on the conditions which might form a basis for seeking an exception from the maximum net benefits rule. The greater investments required to achieve benefits of higher than the National Economic Development (NED) levels of protection necessitate more rigorous justification.
2. Applicability. This circular is applicable to all HQUSACE/OCE elements and all field operating activities (FOA) having Civil Works responsibilities.
3. References.
  - a. ER 1105-2-20.
  - b. ER 1105-2-40
  - c. EP 1105-2-45.
4. General. As required by the Principles and Guidelines the alternative plan with the greatest net economic benefits consistent with protection of the Nation's environment (the NED plan) is the plan to be recommended for Federal action unless an exception is sought. Bases for recommending other than the NED plan differ depending on the degree of protection recommended. Recommendations for 100-year protection require the conditions and analyses of the next paragraph. Recommendations for greater than 100-year protection require the following in addition: First, analyses of strategies to reduce residual risk associated with the NED level of protection (paragraph 6); and second, documentation of special considerations which remain critical even after the analyses of paragraph 6 are applied.
5. Requirements for 100-Year Protection Recommendations. When the NED plan calls for less than 100-year protection, a 100-year protection plan may be recommended with reasonable expectation that an exception will be granted, when the following conditions and analyses are adequately documented:
  - a. Implementation of the NED plan would leave significant portions of an urban area within the post-project 100-year flood plain.
  - b. The incremental costs are not unreasonable.

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c. 100-year protection will reduce non-Federal eligibility requirements for the National Flood Insurance Program (NFIP).

d. 100-year protection has the potential to reduce future net subsidized reimbursements for flood losses, both insured and uninsured (e.g. disaster relief).

e. Since 100-year protection significantly changes the local planning environment, very careful with-project (100-year protection) economic analyses must be conducted. With-project damages will likely vary significantly from those associated with the NED plan. In particular with-project residual risk, especially the potential for induced damages, is likely to be higher with 100-year protection. These must be clearly set forth in the planning documents, and a benefit-cost ratio showing benefits and costs for flood plain development associated with 100-year protection must be specifically included. Changed flood plain development may impact on the NED plan as well.

6. Risk Reducing Analysis. A rationale frequently cited in support of high levels of protection in urban areas is the potential for severe consequences in event of failure of the protective measure (especially levees and floodwalls). The nature and characteristics of such failures must be documented and furthermore means of reducing the residual risk associated with the NED level of protection must be thoroughly investigated before a level of protection greater than the NED level is recommended. The means of reducing residual risk include, but are not limited to: (1) project design which reduces the likelihood of structural failure in the event design flows or flood profiles are exceeded (for example when failure would result in sudden, high velocity flows) ; (2) project design which incorporates features which reduce the hazard when the design flow is exceeded (for example, when overtopping without failure is experienced); (3) nonstructural measures which in combination with the structural features reduce the residual risk of those features (e.g. state-of-the-art flood warning and evacuation measures, zoning, flood plain management, etc.) These risk reducing measures are over and above those that have been found to be incrementally justified and included in the NED plan.

7. Special Conditions. If, through the planning and reporting process a consensus develops that a greater than NED level of protection is appropriate, then reasons for requesting an exception may be based on the following considerations:

a. Flood characteristics. Protection against severe floods of record. High velocity overbank flows, short warning times, high likelihood of loss of life, projected future runoff increases, etc., the substantial effects of which would remain even after implementing measures required by risk reducing analyses.

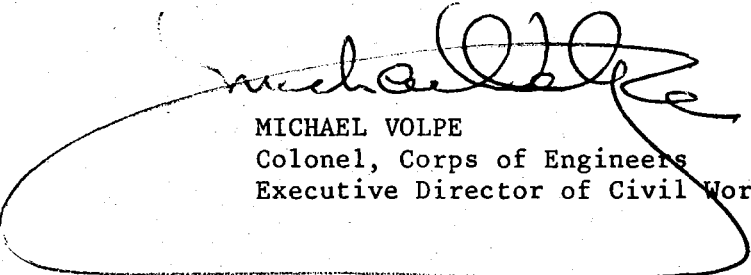
b. Characteristics of protected area. Uniqueness or special qualities of protected structures or activities (e.g. historic structures of national significance, hospitals, public buildings essential to operation of government, essential public services) which would remain at risk even after implementing measures required by risk reducing analyses.

c. Concerns of others. Firm plans for development within the floodplain by locals, i.e. plans which have a high likelihood of being implemented in the with project condition but would not be implemented in the without project condition, which cannot be located out of the floodplain and which cannot be adequately accommodated by risk reducing considerations.

8. Required Documentation. Arguments supporting higher levels of protection based on these considerations must be substantial, documented and supported by analyses. For example, it must be shown why high velocity flows cannot be substantially reduced by project design modifications, why flood warning and evacuation will not be effective, how loss of life is probable as a direct consequence of a design exceeding event, etc. It must also be shown how higher levels of protections will lessen these problems. The magnitude of the reduction in the residual damages as well as the degree of reduction in the risk of sustaining those damages must be analyzed and displayed. These analyses will be incremental. Because special considerations are believed to support a higher degree of protection it will not automatically be assumed that any specific level of protection is appropriate. Incremental changes in level of protection, cost of protection, degree of residual damage reduction and degree of risk reduction will be displayed.

9. NED Plan. There is no change in the requirement to formulate, evaluate and carry forward the NED plan in selectable form.

FOR THE COMMANDER:



MICHAEL VOLPE  
Colonel, Corps of Engineers  
Executive Director of Civil Works