

How can we reduce flood damages?



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Floods happen



they always will

- Serious flooding has occurred in 8 of the last 15 years
- Resulting in 8 Presidential Disaster Declarations in Iowa

Preparing for the Future

- Lead policy discussion on flood plain and watershed management
- Create a comprehensive flood plain management program



In view of 2008, 1993, and numerous other floods:

Are we doing something wrong?

Should we be doing things differently?

Building on the RIO Recommendations



Flood Plain Management Expert Panel

- Roger Less, P.E.
R I District, Corps of Engineers
- Rick Fosse, P.E.
Dir. Public Works, Iowa City
- Dave Claman, P.E.
Bridge Design, IDOT
- George Hollins, P.E.
Business Office, U of Iowa
- Bill Cappuccio
FPM Program, IDNR
- Mike Ryan, P.E.
H.R. Green (consultant)
- John North
Iowa Assn. of Water Agencies,
formerly with Cedar Rapids
- Dave Eash
Hydrologist, USGS
- Jack Riessen, P.E.
Iowa DNR

Panel Discussion Issues

- Should flood larger than the 1% exceedance flood (100-year recurrence interval flood) used as the “base” flood for flood plain management?
 - Many of the existing requirements based on 100-year flood
 - 100-year flood has a 1 in 4 chance of being exceeded in 30 year period.
 - Much larger floods can and do occur (100 year discharge exceeded by factor of 4 in some locations)
- Panel consensus: use the 500 year flood as base flood
 - Panel recognized that implementing this standard could be difficult – maps, legal challenges (overly stringent), etc.

Panel Discussion Issues

- Should critical infrastructure be protected to a higher standard?
 - Critical facilities like water plants, hospitals, some public buildings, main highways, etc. should remain functional during most severe floods that can be anticipated.
 - Standard Project Flood – most severe flood that can be reasonably anticipated.

- Panel consensus: yes
 - Flood maps do not show SPF
 - Requires different hydrological analysis than 50, 100 and 500-year flood discharges

Panel Discussion Issues

- Should levees protect to a higher standard than the 100-year flood to be “certified”?
 - Properties behind “certified” levees have no regulatory or flood insurance purchase requirement
 - 100-year levee has about a 1 in 4 chance of overtopping in a 30 year period
- Panel consensus: levees protecting houses, businesses, etc. should provide at a minimum, protection from a 500 year flood.

Panel Discussion Issues

- Should inundation limits of “perfect storm” type of flood be shown on all flood maps for information purposes?
 - Most existing maps only show 100 year flood boundaries, some show the 500 year.
 - The 500 year flood has been exceeded by a factor of 2 to 3 in some areas.
- Panel consensus: strong “yes”.

Panel Discussion Issues

- Should Iowa redefine or reestablish a single entity to have overall flood plain management responsibility?
 - INRC created in 1949 with primary purpose of reducing flood damages
 - Iowa was once a national leader
 - FPM now part of a section within a bureau within a division within an agency.
- Panel consensus: Yes.
 - Would provide much-needed focus on flood loss reduction programs
 - Panel did not make recommendations as to nature of such a entity – advisory panel, rulemaking authority, etc. – or organizationally where such a entity should be located

Panel Discussion Issues

- Should flood insurance be required for areas outside the 100 year flood plain, behind 100 year levees, etc.?
- Are new methods of calculating flood discharges needed?
- Have landscape changes like tile drainage and urbanization increased the frequency or severity of floods?
- Do flood insurance rates reflect true actuarial risk of flooding?
- Is an upward shift in stage-discharge relationships causing more severe flooding?
- How can LIDAR coverage be used to develop better, statewide flood maps?

Panel Discussion Issues

- How should the “perfect storm” flood discharge be calculated?
- Is there a need to have a state levee inspection program (as well as a dam inspection program)?
- How can we better inform people of flood risk and encourage more voluntary purchase of flood insurance?
- How can we get design professionals to better consider all flood risks in the siting and design of buildings and facilities?
- Should a more stringent standard be used for delineating the floodway – the “no build” area of the flood plain?

Panel Discussion Issues

- Issue papers, panel recommendations to be provided to broader audience for input and further discussion
- Developing comprehensive, statewide flood loss reduction strategy will require long-term effort

From Policy to Implementation



Comprehensive Flood Plain Management Program

- Flood plain maps
- Engineering and permitting expertise
- Local program oversight and assistance
- Dam and levee safety
- Disaster response

Fully funding a comprehensive program estimated at \$3 million per year

Flood Plain Maps

- Develop a statewide mapping plan
- Create flood plain maps
 - LiDAR data
 - Engineering analysis of flood flows
- Acquire FEMA approval
 - Technical Review
 - Public Input Process

**Required Level of Effort
= 3 FTEs**

**\$15 million to complete
statewide mapping**

Existing Effort = 0 FTEs

Engineering & Permitting

- Issue permits for flood plain development
- Review projects and provide assistance
 - Landowners
 - Local Programs
- Train local program managers
- Conduct detailed flood studies

1000 – 1500 requests for project assistance and permits/year

Required Level of Effort = 8 FTEs

Existing Effort = 4 FTEs

Cross train staff with Local Program Assistance

Local Program Oversight & Assistance

- Review and approve local flood plain permitting programs
- Assist with implementation of the National Flood Insurance Program
- Assist local programs in complying with FEMA regulations

498 communities participate
in NFIP
136 delegated local programs

Required Level of Effort
= 6 FTEs

Existing Effort = 2 FTEs

Cross train staff with
Engineering & Permitting

Dam & Levee Safety

- Issue permits for dam and levee construction, repair, removal
- Provide dam breach analyses
- Provide technical assistance to dam and levee owners
- Inspect dams and levees for structural integrity
- Provide technical assistance to landowners for other flood plain projects

3300 jurisdictional dams

65% over 25 years old

No levee inventory or inspection program

**Required Level of Effort
= 11 FTEs**

Existing Effort = 1 FTEs

Disaster Response

- Assist in assessing risks to critical structures
- Conduct real-time flood inundation mapping during a flood event
- Detailed analysis of flood events
- Provide guidance for repair and recovery projects

Staff expertise used from all flood plain management components.

Questions?

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