Formulation, Implementation, and Outputs of Two Multi-Objective Non-Structural Alternative Projects in Iowa

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“Critical” infrastructure?
Louisa #11 NSAP

**Multi-objective Outputs**

- NRCS acquisition of permanent easements
- Protection of Highway X99
- Hydraulic connectivity to river
- Bottom up inundation
- Mitigation of multiple residences and structures
- Increased public lands base and environmental benefits
- Reduced/eliminated future flood risk to crops and structures
- Reduced future levee O&M and flood recovery costs
Green Island levee breached at Sta 90+00. This breach was in addition to the breach at Sta 40+00 that occurred July 26. Water from the Sta 40+00 breach had flowed over crop land and began rising in an area bounded by the levee and Highway 52. The area impacted was mainly farmland and some woodland. The water in the interior rose to an extent that it overtopped the levee at Sta 90+00, flowing back to the Maquoketa River. Therefore, a temporary side channel of the Maquoketa River was created on the normally dry side of the levee between Sta 40+00 and Sta 90+00. The cause of the breach was confirmed during discussions with the project sponsors. The size of the breach was about 150 feet wide. At the time of the site visit, the Maquoketa River had fallen and the interior flooded areas were draining through the breaches and out to the river.
Green Island Levee and Drainage District
Jackson County, IA

- Confluence of Maquoketa and Mississippi Rivers
- Levee was providing ~ 4% Annual Chance Exceedance (25 yr) protection to ~1,363 acres of agricultural land and a few residential structures
- July 2010 flood event - two major breaches
- Corps estimated cost to repair: $607,942
- 0.66:1 BCR
- Silver Jackets role
Green Island L&DD NSAP

- **Challenges**
  - Benefit-to-Cost Ratio (BCR)
  - Corps repair cost estimate vs local estimates
  - One land owner’s preference vs others
  - Levee repair decision process
  - Repair permitting process
  - Property tax concerns
  - Residual value acquisition

- **Advantages of an NSAP**
  - Permanently avoid future levee damages and cropland and possible residential flooding
  - Floodplain wetlands restoration ecological benefits
  - Proximity to existing IA DNR conservation area
  - High potential for subsequent acquisition of residual land value
  - Quality of life benefits (Iowa ranks 49th out of 50 States in per capita public land)

- **Current status**
  - NRCS MRBI WREP funding received
  - NRCS acquisition of permanent easements underway
  - Corps NSAP implementation funding requested
  - Developing Corps/IA DNR Cooperation Agreement (CA)
  - Coordinating with IA DOT
  - Developing levee R-O-W acquisition cost estimate
  - Working to incorporate NSAP into Project Inspection Report (PIR)
Green Island NSAP
Multi-objective Outputs

• NRCS acquisition of permanent easements on all affected lands
• Mitigation of possible impacts to Highway 52 embankment
• Iowa Natural Heritage Foundation funded wetland restoration on acquired lands
• Possible mitigation of 5-6 residential structures

• Fee title acquisition of levee right-of-way (ROW) and subsequent transfer to IA DNR
• Acquisition of residual value of easement lands and fee title transfer to IA DNR for management
• Increased public lands base and environmental benefits
• Elimination of future flood risk to crops and structures and flood recovery costs
The very first "senior moment"

Oh, crap! Was that TODAY?

Questions? Comments?