

Delaware Estuary Levee Organization (DELO)
Minutes
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Name	Affiliation	E-mail	Phone
Victor DeVasto	Gloucester County Soil Conservation District	Victor.devasto@gloucesterscd.org	856-589-5250
Ernest Tark	Mayor, Mannington Township		856-935-2359
Harry A. Moore	Mayor, Oldmans Township	Harrya33@comcast.net	856-299-0580
Joseph Ruggeri	NJDEP		609-292-2296
Patricia Griggs	FEMA	Patricia.Griggs@dhs.gov	732-427-1533
Kenneth A. DiMuzio, Jr. Esq.	Greenwich Township/Logan Township (Gloucester Co.)	kdimuzio@hdhlaw.com	856-845-8243
Kent Schellinger	Cape May County	schellingerk@co.cape-may.nj.us	
Len Clark	Gloucester Co. Office of Emergency Management	leclark@co.gloucester.nj.us	856-307-7156
Jim Manski	Cumberland Co. Office of Emergency Management	melindawe@co.cumberland.nj.us	856-455-8770
Mike Bonham	Cumberland-Salem County Soil Conservation District	cumbsoil@aol.com	856-451-2422
Gary Timmerman	Cumberland-Salem County Soil Conservation District	cumbsoil@aol.com	856-451-2422
Laura Tessieri	Delaware River Basin Commission	Laura.tessieri@drbc.state.nj.us	609-883-9500 X304
Kathy Ireland	Maurice River Township	kireland@mauricerivertwp.org	609-381-3460
Rick Westergaard	Gloucester County Planning Division	rwestergaard@co.gloucester.nj.us	856-307-6650
MaryBeth Sorrentino	USDA NRCS	Mary.sorrentino@nj.usda.gov	856-205-1225 X108
Alan Springett	FEMA	Alan.Springett@dhs.gov	212-680-8557
Len Fariello	Wildlife Preserve, Inc.	lfariello@aol.com	973-539-5355
Joseph K. Hepner III	Seabreeze Homeowners Association	hjkhepner@aol.com	856-453-9457
Sharon Mollick	Cumberland	sharonmo@co.cumberland.nj.us	856-453-2175

	County Planning		
Jen Savaro	Cumberland County Planning	Summer intern	
William Skaradek	USDA Natural Resources Conservation Service	William.skaradek@nj.usda.gov	609-267-1639 X113
Ken Taaffe	USDA, South Jersey RC&D	Ken.taaffe@nj.usda.gov	609-267-1639 X5
Greg Westfall	USDA NRCS	Gregory.westfall@nj.usda.gov	732-537-6054

Welcome and Introductions

Meeting began at 10:10 a.m. Ken Taaffe, Coordinator, South Jersey RC&D Council, welcomed attendees and asked each of them to introduce themselves and their affiliation.

Multi-Jurisdictional Hazard Mitigation Planning Status

Len Clark reviewed the history on the Multi-Jurisdictional Hazard Mitigation Plan. He noted that the four counties (Camden, Cumberland, Gloucester and Salem) received a \$500,000 grant to develop a plan in 2006. Currently the Gloucester County Plan has been reviewed and approved at the State Office of Emergency Management and an expected approval from FEMA Region II is to occur by 6/30/09 with municipal resolutions of approval by 12/30/09. It is expected that the other three counties will be approved by 12/30/09. Plans can be viewed at www.ccpublicsafety.org. Plans will undergo a review every five years.

Map Modernization and Risk MAP Programs/Levee Accreditation and /or Certification

Alan Springett reported that the purpose of the flood maps is to identify flood risk. Flooding is the largest risk of natural hazards in the U.S. He noted that the goal of the FEMA Map Modernization initiative over the last five years has been to digitize the existing flood maps for the areas of the U.S. where 96% of the population lives. The Map Modernization effort is now being done on a County basis (rather than individual municipalities). Risk MAP will involve flood risk mapping on a watershed basis rather than either a municipality or county. The Planning function at FEMA is being brought into the same branch at FEMA where the flood mapping is occurring. Work is occurring on development of the HAZUS tool (platform of ARC/ESRI) for use in development of "what if" scenarios including "loss of use" for public/commercial structures. This use of geographic information systems (GIS) allows for the targeting of funds to areas where there is repetitive flood losses (those where two or more claims have been made to the National Flood Insurance Program).

Comment [ket1]: What's this?

Alan explained that the 1 percent flood event is a better way of expressing what people have traditionally called the 100 year flood. A 1 percent flood means that there is a 1 percent chance of a given amount of flooding occurring in a given year. This criterion means different things to different people with engineers using the 100 year or 1 percent flood for design purposes. FEMA uses the 1% annual flood statistic for regulatory purposes, not as a safety standard. FEMA, on the other hand, looks at the 1 percent flood as a reasonable compromise between too much or too little protection. He gave an example as follows:

In a 30 year home mortgage there is a 4% chance of a fire occurring while there is a 26% chance of a 1 percent flood occurring. There is a 6% chance for a 500 year flood during the life of a 30 year mortgage.

FEMA has made the decision, for economic reasons, there will be only one paper flood map per community and that after that the map is available digitally and can be

reproduced by the local community. The advantages of the digitally available map are that it is on an aerial photo base (old maps done in the early 1980s were not) and the digital maps can be easily revised.

FEMA requires that there be no greater than 6 inches plus or minus for elevation surveys for LiDAR and ortho-imagery. FEMA is willing to accept on-the-ground engineering surveys using these to revise the digital flood (D-Firm) maps. Alan said that there will be another three years before the Map modernization maps are available in Gloucester County. New Maps for Cumberland and Salem Counties will include coastal information. The Corps of Engineers will run model for the Delaware River vicinity. Previous modeling was done in the early 1980s. New model will incorporate the sea level rise of 1.31 feet at the Atlantic City tide gage with a ½ foot rise in sea level since the last mapping in 1980s.

Ken DiMuzio asked how the Army Corps program relates to the FEMA program. Alan noted that Army Corps model using a coarse grid offshore and run the model on what storm surge is and wave height. The higher of these two (risk) is FEMA's role. Alan noted that the FEMA may contract out the work rather than use the Corps but the private contractor would use the Corps model. Ken asked whether the Corps concern is tidal and FEMA's is stormwater?

Len Fariello asked the extent of the analysis. Alan said it was Fire Island to the Delaware boundary.

Levee Certification and Accreditation

Alan noted that the levees here were often built for salt hay production and were not designed to modern standards. Alan said that no one has been willing to sponsor the levees in this region and been willing to raise the levees to meet freeboard and minimum protection engineering standards. FEMA did not accredit any Gloucester County levees and probably won't accredit other levees here in this region. He noted that there may have been up to a 3 foot rise of sea level since the 1800s and that since white man came here there has been an inward loss of up to 900 meters of coastline. He described these terms as follows:

Levee certification – built to engineering standards and the engineer who certified the levee is willing to back up his/her determination.

Levee accreditation – meets FEMA standards as published in the Federal Register for flood insurance purposes.

Ken DiMuzio asked whether the risk assessment was based on 1% flood? Alan said yes. He noted that freeboard requirements are an attempt legislatively and by regulation to address these risks. He noted that in a riverine situation a minimum of 2 foot of freeboard is required. He cited an example in Upstate New York where the 1% risk required 2 foot of freeboard but the 0.2% ("500 year event") required 10 feet of freeboard. He noted that the southern NY, northern PA, and northern NJ area over the last 72 months has seen the greatest percent increase in precipitation of anywhere in the U.S.

Ken asked Alan whether FEMA shouldn't be encouraging more people to purchase flood insurance. Alan cited an example of where there had been considerable controversy over a decision that FEMA made to show that an existing structure, thought to be a levee but actually a dune, was did not provide sufficient flood protection causing significant increased need for flood insurance or increases in flood insurance premiums. He noted the difference between a dune and a levee as follows:

Dune – sacrificial feature that takes the wave's energy, when this is consistently worn away following each event the value of the dune for flood protection is diminished. NFIP would not consider this a valid flood protection structure.
Levee – robust structure for flood protection

South Jersey Levee Inventory

Joe Ruggeri discussed the background behind the development of the South Jersey Levee Inventory. He noted that the Katrina event in September 2005 changed the way people think about the nature of levees. He also noted that the Association of State Dam Safety Officials (ASDO) did a national survey and found that 50% of the states do not have a levee inventory or safety program. New Jersey is one of them. He also noted that the National Levee Safety Committee recently published a draft report for recommendations for a National Levee Safety Program. This report can be found at:

http://www.iwr.usace.army.mil/ncls/docs/NCLS-Recommendation-Report_012009_DRAFT.pdf

He noted that the Levee Inventory funding is coming from NJDEP to the Corps of Engineers to NRCS. NRCS is using a checklist to analyze the levee characteristics which meets the Corps and NJDEP purposes.

Alan Springett noted that the Inventory should provide useful information by identifying the areas that will flood in the event of overtopping or failure of the levees. He noted that we typically don't have pumps behind the levees in South Jersey and that, in the event of failure or overtopping, we would end up having great difficulty restoring conditions back to their pre-flooded state similar to what happened during Katrina. Joe also noted that the false security of those who live behind levees could make folks unable to evacuate in the event of a sudden failure.

Greg Westfall and Bill Skaradek present a power point presentation on the Inventory. Highlights of presentation were as follows:

Project Sponsors – NJ Department of Environmental Protection – Bureau of Dam Safety and Flood Control
South Jersey Resource Conservation and Development (RC&D) Council
U.S. Army Corps of Engineers
U.S.D.A. Natural Resources Conservation Service

NRCS initially used 2002 aerial photos to digitize locations of levee in each of the four counties (Cape May, Cumberland, Gloucester and Salem). This effort identified 106 levees. An additional 61 levees were identified by Cumberland County Planning for a total of 157 levees. Levees removed from further consideration were:

10 – Dam Safety Inventory

3 - CDFs (Corps Disposal Facilities)

10 – non-functional (breached) systems

Some identified locations were not levees

Some had no human consequence (protecting wildlife management areas, etc.)

Approximately 30 levees have been have had the field inventory completed and are awaiting the LiDAR analysis.

This leaves approximately 61 remaining of the original 106. We will need to consider additional levees to compete the agreed-to 100. These levees will be prioritized as follows:

- Highest economic consequence
- Moderate economic consequence
- Agricultural Systems

Identification and notification of levee owners is being done as follows:

- Publicly accessible levees assessed first
- Block and Lot parcel data layer intersected with digital levee layer
- Block and lot information used to determine owner's name from NJ Association of County Tax Boards website
- Letters and Levee Inventory tri-fold brochure mailed to owners

Levee Characteristics Analyzed

- | | |
|------------------------------|----------------------------|
| 1. Vegetation Control | 9. Riprap/Slope Protection |
| 2. Sod Cover | 10. Encroachments |
| 3. Erosion | 11. Culverts |
| 4. Slope Stability | 12. Floodgates |
| 5. Settlement | 13. Pumping Stations |
| 6. Depressions/Rutting | 14. Closure Structures |
| 7. Cracking | |
| 8. Burrowing Animal Presence | |

LiDAR Analysis

- LiDAR – Light Intensity Distance and Ranging
- Based on rate of speed of light from an interceptor in a plane to the ground and features below (not an aerial photo)
- Relatively accurate prediction of the surface elevations

Upcoming LiDAR Analysis

- Area Protection (acres/square miles)
- Acres of agricultural land protected
- Number of homes/businesses/structures protected
- Population of area protected
- Roads, railroads and utilities protected

Inventory completion date is April 2010.

DELO Role vs. NRCS Role

- DELO reviews and comments on Inventory
- DELO is a decisionmaker on future actions to use Inventory
- NRCS coordinates with other partner organizations
- NRCS performs Inventory with input from DELO and partner organizations

What's Next?

Decisions and actions by DELO as to the use of the Levee Inventory. Some possible outcomes are to leverage funding for:

- On-going operation and maintenance costs
- Joint (counties/municipalities) purchase and maintenance of equipment (mowers, etc.) for maintenance of levees and their parts
- Rehabilitation and replacement costs for levees and their associated water control structures
- Others?

DELO Contact Information

- Ken Taaffe
South Jersey RC&D Council
Phone – 609-267-1639 X110
E-mail – ken.taaffe@nj.usda.gov

Inventory Contact Information

- William Skaradek
Phone – 609-267-1639 X113
E-mail – William.skaradek@nj.usda.gov
- Gregory Westfall
Phone – 732-537-6054
E-mail – Gregory.westfall@nj.usda.gov

Ken DiMuzio asked whether the Levee Spreadsheet being developed for the project will become public. Greg said that this information would be made public, but that currently

it is limited to a few NRCS staff as data is just beginning to be entered with approximately 30 levees field inventoried.

Outreach for DELO Meetings

There was discussion regarding outreach for these meetings. Representation by most of the 27 municipalities and four counties is needed. Len Fariello, who is Mayor of Hanover Township in Morris County and a local landowner, noted that many Mayors are part-time and swamped with e-mail and regular mail communication. He suggested that we reach out to Environmental Commissions, Municipal Clerks/Administrators, Planning Boards and Public Works Managers. The NJ Society of Municipal Engineers was also mentioned by Kent Schellinger as a good contact.

Identification of Non-Public Owners

There was discussion of identification of non-public owners. Ken DiMuzio asked whether ownership and Lot and Block information is shown on the spreadsheet being developed for the Inventory. Greg noted that the owners name is shown and that NRCS will add the Lot and Block information. Ken noted that the owners are legally responsible for operation and maintenance of these structures. Ken noted that there is the joint project for the Repaupo Creek tidegate with the Gloucester County Improvement Authority but no local responsible party for operation and maintenance. Concern was expressed as to who would be responsible and that maintenance on this new project would not be done. Alan Springett noted that if a levee performs a public service and an emergency occurs, and no government or other sponsor responsibility, then its whoever has legal responsibility for O&M before hand.

Next Meeting

Ken asked the group about when the next meeting could be held. There was consensus that the next meeting will take place in late September or early October.