

**Delaware Estuary Levee Organization (DELO)
Minutes
September 13, 2006**

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Welcome and Introductions

Meeting began at 10:20 a.m. Ken Taaffe, Coordinator, South Jersey RC&D Council, welcomed attendees and asked each of them to introduce themselves and their affiliation.

There was considerable discussion regarding the lack of representation from municipalities and counties. In Ken's absence, Greg had sent out meeting notice via e-mail. Ken and Greg will review and update the e-mail list to ascertain that it is inclusive of all.

There was discussion about the lack of any FEMA representation at these meetings. Ken and Greg had formally invited several different FEMA people but, due to floods and other natural disasters, none of them were able to attend.

FEMA Representation Needs

Ken DiMuzio noted that there are a number of reasons for FEMA involvement with this group. He noted that the “orphanage” (abandoned tidegates and levees, with no ownership, no operation, maintenance and rehabilitation). He stated that this organization was formed to underscore this problem. He said that there is a need for someone to take responsibility. He noted the FEMA 3/27 issue on the Map Modernization Program and that FEMA has changed the prioritization for map modernization from Counties to Census Blocks where 90 percent of the risk and 92 percent of the population is located. He said that once the levees are tied to engineering evaluation it is uncertain who would be certifying the levees. He noted that there are five “C”s as in terms of questions for FEMA as follows:

Collaboration – who are you collaborating with as you do the map modernization (eg. Corps of Engineers collaborates with PADEP)

Consistency – uniformity of standards. Scale and methodology to be used to do the map modernization.

Centralization – who exactly is in charge? FEMA or DHS? Is FEMA’s directive on map modernization taking a pro-active approach?

Consequences – Explain to us the difference between eligibility for National Flood Insurance Program or disaster relief as it relates to the eligibility of the levees to be certified. In others words, do uncertified levees cause high insurance premiums and no disaster relief? Who wins or loses?

Cash – What kind of cash for what kind of projects?

He noted that we need to establish a funding priority, responsibility and standards for levee classification in order to avoid crisis management. We should be doing crisis avoidance.

Mike Ivanick noted that the cost of rebuilding the Pine Mount dike in Greenwich is estimated to cost \$1.5 million but that it might take \$10-15 million to meet the FEMA requirements. He stated that the Greenwich Meadow Bank Company had been around 200+ years.

Development of Fact Sheet for Sharing the Levee Story with Decisionmakers

KP Kilpatrick asked what about getting the previous news articles and Ken DiMuzio’s white paper to Congressman Andrews and LoBiondo and Senator Lautenberg. He felt there is a need to inform the Legislature of this problem.

Mark Mihalasky noted that his program had a Congressional earmark for \$500,000 (working with Congressmen Andrews and LoBiondo and then-Senator Corzine). He stated that they were told that a one page fact sheet with bullets covering here is the

problem, here are the hazards with the website address given for more specific information.

Mark Mihalasky will e-mail examples of the fact sheets to Ken and Greg. A committee, made up of Ken DiMuzio, KP, Ken and Greg, will draft a fact sheet.

Prioritization of South Jersey Relative to Federal Programs

There was considerable discussion regarding the fact that federal programs (both the map modernization program of FEMA and the levee inventory program of the Corps) make areas with higher population densities a higher priority for assistance. It was noted that, even though this region may have a lower population density than other areas of the State or the nation, there are sufficient other reasons for making this area a higher priority. These reasons include not only protection from storm surge flooding but also agricultural irrigation water supply protection and domestic water supply protection from salt water intrusion. Also, under a potential worst case scenario, there could be an emergency at one or more of the nuclear power plants with a hurricane storm surge occurring simultaneously. It would be essential to have unflooded evacuation routes available from the area. KP noted that the population of South Jersey is approximately 3.7 million.

Funding for Levee Inventory

Greg Westfall noted that we need to explore any and all possibilities for obtaining the funding to do the inventory. Ken Taaffe and Greg will follow-up with a number of possible funding sources before the next meeting.

Ken DiMuzio asked Greg about the five NRCS projects in the region and their costs. Greg noted that the watershed plans have recently been posted on the NRCS website at: <http://www.nj.nrcs.usda.gov/programs/watersheds/locationmap.html>

Mark also suggested that the IBOAT NJ Program might be a source of funding. He stated that the Office of Maritime Resources in the NJDOT (Genevieve Baum) would be the source. Applications are due in late spring. Another source suggested was the Delaware Bay Bridge Authority which has \$5,000 grants.

LIDAR Data – Potential Levee Inventory Method

Ken Taaffe introduced Dr. Mark Mihalasky, Director of Geospatial Analysis, Coastal Resources Center, Richard Stockton State College, who gave a Power Point presentation on this subject. The Coastal Research Center was founded in 1986 by Dr. Stewart Farrell. LIDAR stands for Light Detection and Ranging and, among other purposes, is used to collect topographic information. The following are some features and benefits of this technique:

- A remote sensing technique
- Vertical accuracy to within 6 inches
- Overlapping swaths (approx. 700 feet wide)

- Largest use of this technique is for shoreline change
- Used LIDAR for dune vulnerability in Mantoloking
- Levee Inventorying in Rio Grande Valley, TX – identified levee profile or structural instability
- Highly accurate remotely sensed data
- Inexpensive over large areas compared to traditional aerial photography
- Multiple return capability to image ground and above ground features (canopy)

Dr. Mihalasky reported that there are aerial photography data sets for 2002 going back to as early as 1931. The most recent LIDAR data set is for 2005 and is along the Atlantic Coast but does not include the Delaware Bay region.

Mike Ivanick asked what the cost would be to do the Delaware Bay region. Mark noted that he has attempted to contact the Corps on this. National Oceanic and Atmospheric Administration (NOAA) and U.S. Geological Survey (USGS) also have groups that do this type of work (LIDAR). The larger the project the more economic. Brian Mulvanna asked whether there is a later data set following 2005. Mark was not aware of any and said there is no systematic program for doing this in an area every year. Joe Ruggeri asked whether Dr. Mihalasky had spoken to anyone at New Jersey Office of Information Technology (NJOIT). He noted that NJOIT has signed a CTP (Cooperative Technical Partnership) with FEMA.

Ken DiMuzio asked whether municipalities could be clients. Dr. Mihalasky noted that their clients are using the information for beach maintenance. Mantoloking actually has a local tax for beach maintenance and is using the data for dune vulnerability assessment. Ken asked who commissioned the LIDAR of the coast. Dr. Mihalasky replied that it was the Corps of Engineers with NOAA.

There was considerable discussion about how to get the necessary funding to complete the inventory. Ken Taaffe asked how much it would cost. Rick Westergaard noted that they are doing a LIDAR survey of all of Gloucester County (320 square miles) which will cost \$1.1 million.

Dr. Mihalasky's Power Point can be viewed at:

http://www.stockton.edu/~mihalasm/outgoing/lidar_levee.pdf

Army Corps of Engineers National Levee Inventory Program

See the following handout provided by Brian Mulvanna.

Army Corp of Engineers National Levee Inventory

The Army Corp of Engineers National Levee Inventory has received \$30 million in program funding for FY06. These funds are from the Corps' O&M account and are for activities concerning Corps' levees only at this time.

A National Levee Safety Program is still proposed in both the House and Senate. The Congress seemed to be very interested, but the funding in the two bills is very different. A link to the bill is shown below:

<http://www.house.gov/transportation/water/04-06-06/04-06-06memo.html>

Even without the passage of legislation creating a Levee Safety Program, the Corps is looking at how inspection are done on our levees and wants to develop a more robust system and look at developing a Corps Levee Safety Program. The \$30 Million dollars will be used to complete an initial levee inventory and inspection plan based on the following 4 deliverables:

1. A Geospatial Database model for the levee inventory
2. Complete a GIS inventory of Corps Federal projects only. Only the fields from the initial survey will be populated for the non-federal projects. There may be exceptions to this, but they will be determined and specified by HQ.
3. Develop a methodology for performing Technical Risk Assessments of levees
4. Beta test the methodology on 10 to 15 Federal Projects. (TBD)

An additional \$20M in funding is also in the Presidents budget for FY07. These funds are not in the House budget and HQ is still working the Senate. Congress wants the Corps to show program execution and benefits from that first \$30 Million above. Meeting our schedules will be very important. If the Corps receives the additional \$20M, the following deliverables are planned at this point:

1. Initial Survey of other Federal Agencies
2. Initial Survey of other non-federal levees (State and Local)
3. Validation of the Risk assessment on Corps projects protecting large population centers.
4. GIS inventory of other Federal and non-Federal projects protecting large population centers

Large population is a general term. No limit was placed on that term; it will be set at a later time

An Assessment Methodology team has started work. Given the wide variations in the level of protection provided by levees in the Corps Program, a Hazard Classification table is being developed. The level of effort would apply to both the assessment and inventory work. At what level should we not complete the Geospatial work on a levee? Our programs allow non-federal projects down to the 10 year level of protection. The assessment team is looking at what level is considered a good and reasonable expenditure of Federal funds.

Army Corp of Engineers National Levee Inventory

An Initial Corps Levee Survey has been completed. Many inconsistencies in the way Corps Districts conduct their Inspection of Completed Works program and the ratings used were uncovered. Districts have used federal ratings on non-federal projects and non-federal ratings on federal projects. A team is looking at the rating system and will recommend one system for all projects. A summary of findings is included in the tables below.

Non-Federal Rating	Federal Rating	Number of Segments	% of Program
Acceptable – No Immediate work required, other than routine maintenance. Project will function as designed (874)	Excellent – No major deficiencies. None or few minor deficiencies. All old deficiencies noted in last inspection corrected. (156)	1030	52%
Minimally Acceptable – one or more deficient conditions exist in the project that needs to be improved/corrected. However, the project will essentially function as designed, but with a lesser degree of reliability. (335)	<p>Very Good - No major deficiencies. Several few minor deficiencies. Most old deficiencies noted in last inspection corrected. (156)</p> <p>Good – Few or no new major deficiencies. Numerous new minor deficiencies and/or several old minor deficiencies noted in last inspection. Additional annual maintenance needed. (304)</p>	795	40%
Unacceptable – One or more deficient conditions that can reasonably be foreseen to prevent the project from functioning as designed. (65)	<p>Fair – Major deficiencies that if not corrected immediately may lead to or cause deterioration of the project such that it is incapable of providing maximum protection. Little or no evidence of minimum maintenance performed. (52)</p> <p>Poor - Major deficiencies such the structural integrity will probably not withstand a major flood event. Little or no evidence of maintenance performed. (48)</p>	165	8%

Army Corp of Engineers National Levee Inventory

USACE Non-Federal Levee Program

Level of Protection	Agricultural Levees #	Ag Miles	Rural Levees #	Rural Miles	Urban Levees #	Urban Miles	Total #	Total Miles
0 to 24 yrs	204	1281	108	676	231	316	543	2273
25 to 49 yrs	43	489	12	39	49	537	104	1063
50 to 99 yrs	103	926	82	528	162	932	347	8679
100 to 500 yrs	135	1464	175	2888	608	2334	918	6686
> 500 yrs	18	122	14	739	46	171	78	1032
Total	503	4284	391	4871	1096	4291	1990	13446

Inspection Rating	Agricultural Levees #	Ag Miles	Rural Levees #	Rural Miles	Urban Levees #	Urban Miles	Total #	Total Miles
Acceptable	313	2490	151	2570	566	1546	1030	6606
Minimally Acceptable	155	1512	173	1811	467	2309	795	5632
Unacceptable	35	278	66	494	64	435	165	1208

Levee Program Near Term Work (1 to 3 months):

Inventory: Five Corps Districts were selected for pilot testing: Portland, Sacramento, Louisville, Little Rock, and St. Louis. An Inventory team is working to set up a national contract to assist with detailed GIS work. These districts should be starting their inventories in the next month. The Database team will be finalizing the data fields and the database model. Only **Federal levees** will be included in the detailed Geospatial inventory test.

Assessments: An Assessment Team has identified possible failure modes and established teams to develop the various toolboxes necessary to perform the risk assessments. The team has decided against a 2 phase approach. The approach being developed will allow the flexibility to perform assessments on projects with no data or with significant data. An uncertainty band will be included in the methodology. Beta testing is planned for the 2nd quarter of FY07. This may still change slightly given the development of the tools.

I-Walls: The first phase of I-wall work revealed 124 projects with I-walls greater than 6 feet. The second phase of the I-Wall screening is being developed and should be provided to the Districts in September 2006. ICW again will be the only funding source available. Guidance and priorities for use of FY07 ICW funds is being developed by HQ. More details will follow under separate letter.

Corps Levee Safety Program: Even without the passage of the National Levee Safety Program, the Corps will be looking at changes to the way inspections of completed works are performed. A Team has been formed to start this exercise in September 2006. Members are from Emergency Management, Operations, and Engineering. This team will look at incorporating Risk Assessments into the ICW program and what and how we inspect, as well as reporting and communications.

Future Task (3 to 6 months):

Inventory: Approximately 5 Districts will be completing their input of the detailed Geospatial Database data entry. A National contractor may be used to assist with the data collection and the development of procedures for collecting and inputting the data. Lessons learned from that data entry will be incorporated into the database model. Remaining Districts will complete the detailed GIS data entry on federal projects only in FY07 from centralized funding. Remaining Districts should be starting their initiative in the 2nd quarter of FY07.

Assessment: Beta testing of the methodology tools will begin by the methodology team. Locations of projects are still to be determined.

Corps Levee Safety Program: We expect to have guidance in place for Districts to adequately budget for FY09. Additional funding in FY08 is being programmed at HQ to assist with the transition from the current ICW program to a Levee Safety Program.

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Dr. Mihalasky noted that we should look at economic reasons for doing the inventory and suggested contact be made with Richard Pinickeo, Atlantic County Community College, who has economic statistics.

Mike Invanick suggested that we involve the Littoral Society and municipalities.

Actions to be Taken Prior Next Meeting

- 1. Produce a 1 page (two sided) Fact Sheet** - Drafts will be provided to members of a review committee made up of Ken DiMuzio, Ken Taaffe, KP Kilpatrick, Mark Mihalasky, Brian Mulvanna and Greg Westfall.

Ken DiMuzio suggested that a photo be taken of the Pureland Industrial Complex, largest manufacturing complex on the East Coast, with a train coming down the track at high tide.

- 2. Identify and contact potential funding sources for levee inventory** – Ken Taaffe, KP Kilpatrick, Rick Westergard, Mark Mihalasky and Greg Westfall

Mark Mihalasky will provide examples of successful NJDOT proposals to Ken Taaffe.

- 3. Invite FEMA person to discuss the Map Modernization Program as it relates to the 5 “C”s** - Ken Taaffe and/or Greg Westfall

Next Meeting

October Meeting? – dependent on status of completion of above actions.

November 8th – DELO, Cumberland County Cooperative Extension