



## Town of Vestal LLPT 2 Meeting

2.16.17

### Attendees

- Town of Vestal
  - Vern Myers
  - Lincoln Ellis
  - Mark Dedrick
- Broome County
  - Ben Pratt
- New York State Department of Environmental Conservation
  - Kevin Delaney
  - Dan Fuller
  - Kerrie O'Keeffe
  - Ben Girtainplowe
- United States Army Corps of Engineers
  - Raymond Tracey
  - George Bielen
- Federal Emergency Management Agency (FEMA) Region II
  - Alan Springett
  - Seth Lawler
  - Sri Koka
  - Aneela Mousam
  - Curtis Smith
  - CERC
    - Amber Greene
    - Thomas Song
    - Paige Mandy
    - Cara Spidle

### Meeting Notes

#### *Presentation*

- **The Natural Valley Procedure** is applicable, and FEMA suggests applying a 2-D analysis to all structures in Phase 2. The 2-D analysis will provide the basic, maximum area of inundation. This method has no additional cost to the community
- **Structural-Based Inundation Procedure** is not applicable, but FEMA can apply this method. FEMA has it listed as not applicable because there's no known vulnerability or area that has breached in the past. If the community chooses this procedure, it will likely show a smaller area of inundation, and the community will need to undergo a significant amount of community outreach to address sensitivities concerning perceptions people may have about the levee system failing. This would have a potential cost to the community
  - Q: So, with the Structural-Based, FEMA is saying it should actually say potentially applicable?
    - A: Yes. There's an argument for both
    - Good thing about Structural-Based is that the community could probably do the procedure at no additional cost
    - Need information about the condition of the structure internally
- **Overtopping Procedure** is used on earthen levees where you expect water to overtop during a flood. The method is potentially applicable because the water flow can be managed (i.e. due to pumping stations), and it can be proven that the structure has some form of armoring against erosion so that the risk is not increased. The concern here is this method does not take into account flood events higher than the 1-percent-chance-flood. This would have a potential cost to the community
- **Freeboard Deficient Procedure** is potentially applicable. Information that proves the levee meets all requirements in code of federal regulations title 44CFR65.10, except for having sufficient freeboard, is required. Freeboard is a challenge throughout Broome



County, and it would require a new map analysis and modeling for all streams in the area to identify the true flood risk. This would have a potential cost to the community

- **Sound Reach Procedure** is not applicable here and would require documentation that the levee meets all requirements in title 44CFR65.10. This would have a potential cost to the community

## First Pass Results: Natural Valley Analysis

- To develop this first pass analysis, FEMA updated the hydrology – the amount of water that comes through the system – as well as updated the Gage Analysis to include the impact of Tropical Storm Lee. FEMA found a 3.59% increase in the flow of the Susquehanna
- The hydraulics – how that water moves through the system – was modeled using a HEC-RAS 1D Steady State Model. Due to this, approximately 1,115 structures will be impacted during a 1-percent-chance-flood according to the model. Some communities have been participating in buy-out programs, which have changed the number of affected structures
- Vestal should provide to FEMA any information of participation in any buy-out programs, as this will affect the number of structures at risk
- If Vestal has local names to identify levees, please alert FEMA and the maps will be updated accordingly
- Levee #21 (Susquehanna River)
  - Approx. number of structures impacted: 625 structures
- Levee #33A/B (Susquehanna River/Choconut Creek)
  - Approx. number of structures impacted: 490
  - The National Department of Transportation has identified that FEMA is not allowed to use road systems as restrictions to flow in mapping for flood inundation, unless that particular section of road was designed as a levee. This will cause issues for future modeling - in this case, the 17 I-86
  - Q: Does this include railroads?
    - A: Yes
  - Q: Confused because the levees were there before the 17 I-86?
    - A: Regardless, the current status does not allow for inspection or verification; therefore, it can't be incorporated
    - This is not as much of an issue as the fact that 33A has flooding around the levee, so FEMA will need to conduct Natural Valley no matter what
    - If the Community has clear information (from another federal agency or a design professional registered in the state of New York) that the road system was designed and constructed as a levee then write a letter with the data and FEMA will accept it
    - USACE looking into the railroad design to see if this issue was addressed during construction. In the meantime, the highway was constructed on top of the railroad, but does not believe it was designed through the USACE's modification process, but looking into this as well

## First Pass Results: Free Board Analysis

- Black line with the dots is information from USACE's levee database
  - USACE will be doing a review of this information because they are not sure why these graphs look rough
- Blue line is required freeboard, which is 3 ft. and an additional 1 ft. higher for either side of a structure that's in a river
- Red line is the modified flood area base elevation plus the flow from Tropical Storm Lee
- Levee #21
  - FEMA suggests the most logical options are Natural Valley 2-D analysis, Structural-Based Inundation or Freeboard Deficient
    - Not enough freeboard



- Q: Are there any pump stations?
    - A: No
- Levee #33A/B
  - Q: Could we split the upstream part of Choconut near the Susquehanna since it has more freeboard?
    - A: We might have enough freeboard to split this section into a separate reach
    - The only question is how much of a flooding is a result of that area and is it worth it?
    - There are some neighborhoods near this one
    - Suggest that Community conduct a benefit-cost review to determine how many structures are at risk and if it's financially reasonable for the Community to remove them from flood risk identification

### **Procedures for LAMP**

- Natural Valley
  - We have all the information, no additional requirements needed
  - FEMA suggests a 2-D modeling approach because it provides good information about the direction and velocity of the water in a potential flood. The 2-D approach also develops the basic maximum extent that would be included in a Zone D
- Structural-Based Inundation
  - Community must conduct a high level of outreach to the Community
  - Refer to slide 13 for data requirements to pursue this procedure
- Overtopping Approach
  - Refer to slide 13 for data requirements to pursue this procedure
- Freeboard Deficient
  - Refer to slide 13 for data requirements to pursue this procedure
- Sound Reach
  - Note: this is a very expensive procedure and requires a substantive investment from the community
  - Refer to slide 13 for data requirements to pursue this procedure

### **Next steps**

- Town of Vestal looking into additional data around road embankments to share with FEMA
  - Please share any additional data to Seth Lawler ([slawler@Dewberry.com](mailto:slawler@Dewberry.com)) and Sri Koka ([skoka@Dewberry.com](mailto:skoka@Dewberry.com))
- Town of Vestal review the procedures to determine which procedure they want to go forward with
- FEMA to prepare a LAMP plan that summarizes LLPT discussion's, first pass analyses, and recommended LAMP Procedure to be applied in Phase 2