



City of Binghamton LLPT 2 Meeting

2.16.17

Attendees

- City of Binghamton
 - Thomas Costello
 - Ray Standish
 - Franco Incitti
 - Tim Konetchy
 - Tim Coyne
 - Juliet Berling
- Broome County
 - Frank Evangelisti
 - Stephanie Brewer
 - Beth Lucas
- Susquehanna River Basin Commission
 - Andrew Gavin
- New York State Department of Environmental Conservation
 - Bill Nechamen
 - Kevin Delaney
- United States Army Corps of Engineers
 - Dan Fuller
 - Kerrie O'Keeffe
 - Ben Girtain-Plowe
- Federal Emergency Management Agency (FEMA) Region II
 - Leon Skinner
 - Raymond Tracey
 - George Bielen
 - Alan Springett
 - Seth Lawler
 - Aneela Mousam
 - Curtis Smith
 - CERC
 - 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. Typically, breach modeling will reduce the overall flooding behind the levee impact area. 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 breaching and the levee system failing. This would have a potential cost to the community
 - Q: Why does FEMA have it listed as non-applicable?
 - A: Trying to be as sensitive as possible to the community because there are people who are traumatized by the thought of any weaknesses to the levees. This is why community outreach is necessary should this procedure be chosen
- **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 and 7.82% increase in Chenango Flow
- The hydraulics – how that water moves through the system – was modeled using a HEC-RAS 1-D Steady State Model. Due to this, approximately 2,336 structures will be impacted during a 1-percent-chance-flood according to the model
- Q: What are the impacts of the interstate construction?
 - A: 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
 - Q: There are local residents who have stated they have seen changes in how water is moving as a result of the interstate construction.
 - A: Better topography model will help us determine this, and we will be able to get this information through a 2-D Natural Valley Procedure in phase 2
- Levee #5 (Chenango River)
 - Approx. number of structures impacted: 606
- Levee #6 and #7 (Chenango River)
 - Approx. number of structures impacted by #6: 15
 - Approx. number of structures impacted by #7: 0
 - Q: Is FEMA providing first pass analysis of all potentially applicable options with mapping layer?
 - A: Yes
- Levee #8 and #9 (Chenango River)
 - Approx. number of structures impacted by #8: 10
 - Approx. number of structures impacted by #9: 22
- Levee #10 and #14 (Susquehanna River)
 - Approx. number of structures impacted by #10: 70
 - Approx. number of structures impacted by #14: 100
- Levee #13, #19 & #20 (Susquehanna River)
 - Approx. number of structures impacted by #13: 305
 - Approx. number of structures impacted by #19 & #20: 675
- Levee #15, #16 & #31 (Susquehanna River)
 - Approx. number of structures impacted by #15: 250
 - Approx. number of structures impacted by #16: 150
 - Approx. number of structures impacted by #31: 13
 - Not part of the USACE project
- Levee #3 and #4 (Susquehanna River)
 - Approx. number of structures impacted by #3: 38
 - Approx. number of structures impacted by #4: 109
- Levee #17 and #18 (Pierce Creek)
 - Approx. number of structures impacted by #17: 4



- Approx. number of structures impacted by #18: 0

First Pass Results: Free Board Analysis

- Black line with the dots is information from USACE's levee database
 - USACE has commissioned a new survey of this information, as they have found errors with the previous survey
- 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 #4 and #3
 - FEMA suggests the most logical options are Natural Valley 2-D analysis, Structural-Based Inundation or Freeboard Deficient Procedures
- Levee #5
 - This may meet all freeboard requirements, so this is an area where accreditation could be possible. Benefit-cost analysis should be undertaken before beginning the accreditation process
 - The area in question seems to have more impacts from a small stream rather than the river, but it's shown as a levee
 - If the levee gets accredited, Sound Reach would be a good procedure
 - This levee has potential to save money for the community as well as indicate the level of resilience in the community
- Levee #7 and #6
- Levee #8 and #9
 - Q: Has the USACE done any of the levee risk assessments in this area?
 - A: Not yet
- Levee #14 and #10
- Levee #15, #16 & #31
- Levee #17 and #18
- Levee #13
 - Common knowledge area where people perceive the levee may breach, but there's no facts to support this
 - Structural-Based would probably not be the best approach due to local concerns
- Levee #19 and #20
 - City is concerned about these levees because of the potential inundation and their insurance levels and ability to maintain in this area

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

- Please share any additional data to Seth Lawler (slawler@Dewberry.com) and Sri Koka (skoka@Dewberry.com)
- City of Binghamton 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