Montgomery Flood Hazard Meeting

August 7, 2024

Franklin County Natural Resources Conservation District, SLR, Montgomery Conservation Commission

Meeting Notes:

- Data collection
- Now, feedback point
- Completely voluntary, the town is in the driver's seat, end result of this project is preliminary designs
- Meeting 2 of 5

Overview of project

- Understand flood issues and patterns
    - Aerial surveys
    - Bridge surveys
    - Hydraulic models
- So far – data collection and hydraulic modeling completed

Data collection

- Taking a closer look at culverts and bridges. Data collected informs model later.
- UAS topobathymetric LiDAR 2D model

Stages of Project Completed:

- Flood Hazard modeling and Project Identification
- Aerial survey, 9 bridge surveys, hydraulic model, UAS drones to get topobathymetric lidar

Existing Conditions Hydraulic Modeling

- Encompasses over 7 square miles
- Hydrology – looking at the flows, the amount of water should be accurate using USGS gages
- Land use used as roughness value

Reviewed extent and depth of flooding on a series of maps focused on the two village areas and a video of the flood wave.

Small flood = 50 year flood

Medium flood = 100 year flood - though that wording is kind of misleading because it really means it has a 1% chance of occurring during any given year.

Large flood = 500 year flood

The profiles help identify areas of constriction. Fuller Bridge , comstock Bridge, Longley Bridge = choke points

Medium Flood Models

- Q: Does the medium flood model show a 100-year flood?

  A: Medium flood model has been assigned a 100-year flood, Large model a 500 year flood, and small model a 50 year flood. They have been renamed

- Q: Do the medium and large flood models show damage to bridges?

  A: Model can inform where damage might happen. Which bridges show up as pinch points during a flood.

Large Flood Model

- Q: Would large model show bridge washouts? We know in the '97 flood there was a bride washout (Fuller Bridge?)

  A: Model can show, based on existing conditions, where river will overflow, reach bridge level.

Model Validation:

- Takes evidence from past events to verify model
- Comparisons of damage and water extend data collected were compared to model extent, depth, and velocity
- Comparisons show that the model represents flood patterns well and is suitable for use in evaluating alternatives
- Halloween 2019 Flood, 2 years of Trout River gauge data
- Q: After previous flood damage, impacted bridges were rebuilt but not elevated or widened. Do existing bridges need to be removed/replaced if they are constructed to specifications that might not last with the frequency and amount of rain we are getting?
- Longley Bridge Rd - Field flooding in 2019, also shown in model

- Model can also indicate areas prone to erosion, velocity of stream
- C: Model shows depth of river during flood events. Some areas have sand, silt, rocks, within 3' of the bottom of bridge (West Hill Brook). Black Falls Brook also has a lot of sediment coming
- Future Task: look further at land use and streams further upstream/outside of the valley in this model to determine potential interventions higher up in the watershed.
- Q: How clean is water that has saturated leach fields?
- Q: If river was deeper, would water stay in it? (Dredging)
    - Dredging came up a few times during the meeting. Will need to be clear about where this might be an option, and where it isn't and why.
- Q: Trees in river acting as 'beaver dams'. Should we remove debris jams?

  A: Debris removal is a post flood response. May still be necessary after flooding, but this study aims to explore how flooding impacts can be reduced.

- Q: Where river flow has shifted since 2019, does model reflect those changes. Yes
- C: Some areas observed with standing water, mosquito breeding areas, algae. Curious if dredging would lead to a healthier river.

Project Identification:

- Looking for areas with constricted spots, high velocity areas, areas with previous flooding/flood damage, projects responding to previous flood and damage
- Previous responses have not necessarily considered mitigation/resiliency. Many have just responded to immediate damage.
- This project aims to identify proactive resiliency projects that can reduce future damages. These are often bigger picture projects.

Alternatives/ Potential Project Locations/Options:

Multiple alternatives have been identified either at the first public meeting, through river walks and observing the river area, and evaluation of flood patterns in the modeling. The following list of projects are being presented as possibilities for further evaluation if deemed acceptable to the group. Feedback is helpful at this stage in the case that any of these will not work or could be expanded. We have not done any hydraulic modeling of these alternatives yet. We will do that prior to the next meeting the fall, where we can show results.

Alt 1: 251 Fuller Bridge Rd, floodplain and wetland restoration, flood storage, sediment storage. This project was previously identified and educational work has occurred here.

- C: Really liked this idea, feels like a 'gift', with community space, food forest as well.
- Q: In model, when pulse of water comes in, is this area one of the first to receive water and is that used to inform priority? Is this an area that gets the first pulse of water? Do you have a hierarchy of where things flood first?

  A: Not yet explored in model, at what point this area floods.

Alt 2: West Hill Brook/118 Bridge. This may include multiple options to decrease the sediment issues at the bridge.

- C: Town has cleared out under bridge before, but it fills in again
- May consider bridge replacement, sediment and debris management for this area.
- Q: Does this study consider where debris is coming from?

  A: Study assumes debris that is coming will continue to come.

Alt 3: Same location as Alt 2. Move road to provide more room for debris and water to spread out. May include floodplain restoration.

- Still need to model
- This area may include home buyouts

Alt 4: Comstock Bridge replacement, forced overflow.

- Historic bridge, option to move water around bridge to reduce backup and damage to the bridge.
- C: When 118 was built in 1952, changed path of river. River seems to go back to original path during flooding – jumping back at Black Falls Brook area
- C: There used to be an alternative path the river used to take but it seems a lumber mill redirected it to the choke point for power
- C: The water always floods where the highway is. The state changed the flow and it is too hard of a right turn. Can give the river more space at the town land area.

Alt 5 & 6: Vincent Bridge & Longley Bridge, replace or create changes around

Alt 7: Fuller Covered Bridge

- Historic bridge
- Tight spot, road damage multiple times. Major pinch point for river.
- Q: Was area filled in to accommodate narrow bridge? (pinch in river)

A: Looks like it was.

- C: Flood of '97, water went through bridge and over road surface of bridge.
- Q: Should bridge be raised?
- Q: Is there an opportunity to move/shift Black Falls Road?
- The land away from the bridge, between northern roads was just recently parceled out (not relevant for future flood work though)

Alt 8: Lower land to regain floodplain access. Looking for opportunity to give river wider space.

Alt 9: Black Falls Brook constrained along Black Falls Rd and Brook Rd. Could move Black Falls Rd and lower floodplain.

Alt 10: Trout River/Rt 118 embankment across from Rec Center. Floodplain lowering. Lots of erosion. There was some previous restoration work done in 1998. Option to lower floodplain and give river space away from road.

Alt 11: Constriction below village, removed deposition filling channel, opportunity to open river a little?

Alt 12: Floodplain access in town center. Lots of homes/businesses in areas prone to flooding, even during smalls storms.

- C: Lots of erosion on banks, properties have lost some land to erosion.
- Q: What is the timeline for testing alternatives?

  A: Next meeting in October. Alternatives will be explored in more detail.

Alt 13: Floodplain access in center, South Branch Trout River, looking for more flood storage.

Alt 14: Snowmobile bridge on Trout River

Alt 15: Lots of damage to buildings in center during previous floods. River confined by walls and buildings. Change in slope from steep upstream channels. Consider moving/removing homes, buildings, home buyouts, increase floodplain access.

- Q: Is there a warning system in place during flooding to tell people when they should leave homes, what areas to avoid?

  A: This study can help inform those systems, but is not a direct outcome of this work. Town would need to develop that in their emergency planning. Town has an emergency plan, but it does not have specifics around flooding. New England 511

doesn't mention Montgomery often, though it is helpful elsewhere in VT. Can Northwest Regional Planning Commission assist with model to build a new plan?

- C/Q: River gauge on the Trout River would be very helpful for flood warning system to appeal to NOAA to have river gauge put on the Trout River?
- Franklin County NRCD will look into process to get gauge on Trout. USGS/NOAA
- Q: Does the model consider different types of storms/flooding scenarios? Such as abrupt, intense storm dropping lots of water in a short timeframe, or prolonged periods of rain?

  A: Yes and No. Model has assumptions of 'starting wetness', and SLR has 2 years of gauge data from the Trout River, including Hurricane Irene data.

- Comstock Bridge Road – there is a rock with a white line on it that people go to to see if they should start worrying when the river starts rising.
- There is a staff gage on the Trout River in Montgomery Center – not sure if/how monitored
- SLR will create PDFs to show some of the flooding risk areas to be shared throughout the community.

Other future work:
A list of other methods to reduce flooding was suggested, which would be a future step as these do not include the hydraulic modeling area. They include buffers and river corridor protection, reduce upstream road sediment runoff, in upstream areas increase flood storage, stormwater mitigation, individual building buyouts, elevations, and floodproofing.

Post Alternative Review Q & Cs:

Q: It was mentioned that there is 'a lot of money' available for this type of work. How far will it go for these types of projects?

- CWSP have money for these projects, at least $1.5 to $2 million dollars each year over 3 years.
- FEMA another source
- Community may need to pick and choose which funding sources to match to each project

Q: Do recommendations in October's meeting come with a cost estimate?

- SLR can provide a rough estimate of the range/scale of the project. Goal in October's meeting is to narrow down projects and ideas to further develop, which will include some more details on potential cost.

Q: Have downstream communities done this work?

- Some communities have done stream geomorphic modeling, but this study is more in-depth.