

Hazard Mitigation Meeting Minutes—December 3, 2024

(To review word-for-word details on this meeting, please listen to the recording).

Marty Feltus (Hazard Mitigation Committee Chair) opened the public meeting at approximately 6:05 pm for the final public report on the study that the Hazard Mitigation Committee (HMC) initiated about a year and a half ago. This project began with the revision of the Town Hazard Mitigation Plan in 2022. It describes all the possible natural hazards possible in the community and the HMC decided to study the hazard that affects the Town most often, which is flooding. The HMC applied for a grant to study flooding in the north part of town, since that main intersection is very important in terms of transportation, to see if there is something that could be done to alleviate some of the concerns. They were awarded a grant in the summer of 2023 to begin looking at all previous studies as well as obtaining new measurements, data, and LiDAR imaging, and conducting a 2D hydraulic study to predict how water flows throughout the area with various depths of rain. With this information the goal was to choose two specific hazard mitigation actions that could be pursued to reduce the risk of flooding. The engineering firm, SLR, was selected to conduct this study, and to provide a Benefit-Cost Analysis (BCA) for the two most feasible determined hazard mitigation actions. There have been several public meetings (Nov '23, May '24, July '24, Aug '24) presenting each phase of this project and December 3, 2024, was the final phase.

Marty then introduced Jessica Louisos, one of two engineers from SLR who worked on this project. She stated that Jessica would be giving a brief recap of the study along with the final report of their findings and suggestions for alternative hazard mitigation actions, and details on the two alternatives/actions that were chosen to pursue further.

Jessica first mentioned that Doug Osborne, the other SLR engineer who was at the previous meetings, helped conduct the study and prepare the final report, but could not attend this meeting. Jessica gave a recap of the project, starting in October 2023, and shared slides showing the areas of study and explaining the data collection process. The study team used drone-based LiDAR (light detection and ranging) technology, which can see below the water surface to the riverbed and record 3D images with elevations, even showing the sediment that is located in the river. The study was mainly conducted on the areas of Town along the Passumpsic River, with the focus around the Rt 5/ Rt. 122/ Rt. 114 intersection. Several slides showed the water depths during storms and predictions and then water velocities in and around the river. Jessica mentioned that the amounts of water shown in the models were very close to the amounts of water that occurred in the flooded areas during the first storm in July 2024. Also shared was a video slide of the hydraulic model that puts the whole floodway through the system. It showed different time points of the flood and how the water would flow over the existing conditions of the land during the course of a storm (this example was for a 500-year flood). This model also shows how long the water would remain on the land and roadways during and after the storm.

Continuing with the recap, Jessica stated that based on the data, modeling, and HMC and public input, two of the suggested alternative hazard mitigation actions were chosen and submitted in a Hazard Mitigation Grant Program (HMGP) pre-application to FEMA for funding. Both pre-applications were invited to the next round of review as a full application. She explained that one of

the determinations for FEMA grant funding is a positive Benefit-Cost Ratio (greater than 1.0) based on their specific FEMA Benefit-Cost Calculator. One thing they know from past data, is how much money is needed to repair physical damage to land or buildings, or economic damage, based on the amount of flooding. And these specific data points are used within the B-C calculation to determine if a mitigation project is worth the cost.

The first hazard mitigation project/action that was submitted in the pre-app for FEMA grant funding was the Old Town Garage Site Floodplain Restoration. Jessica explained what would occur on this site if the asphalt, concrete, garbage, fill, and invasive species were removed so that the area could be restored to natural floodplain storage land. Jessica answered a question about the volume of fill that needed to be removed, stating that somewhere between 19,000-20,000 cubic yards of material being removed (translating to 3 – 7 feet depth depending on specific part of site because of the elevation variation). This would allow for sediment, ice, and debris to be collected here and also slow the flow of water past this area. Jessica showed examples (Melrose Terrace and Hinesburg Town Garage) where floodplain restoration has occurred and been successful in reducing flooding.

Members of the public asked questions, shared some concerns, and offered other suggestions for reducing flooding in this area. Jessica stated that there are other future projects that should be considered and would also be helpful in reducing flooding, but that for now this is one that FEMA may grant funding for since it has a positive B-C calculation of about 1.48, based on ecosystem benefits, reducing flooding on Route 114, etc. According to the models, this project should decrease upstream flooding over Route 114 from 0.9 feet to 0.7 feet and decrease inundation time from 4 hours and 15 minutes to 2 hours and 15 minutes during a 500-year flood. There was a question about where the materials/fill would be hauled to and Jessica answered that at the time we do not know yet where that would be. And if soil contamination is present, that would need to be identified and cleaned separately. But based on the numbers used to calculate the costs and benefits, even with the cost of soil testing, FEMA would likely fund a project like this (approximated at \$1,000,000, with no match needed by the Town). Alison Low (NVDA) stated that there are brownfield funding opportunities that could take care of the remediation part if necessary. There was also a public comment made that with its large parking area and ability to be gated, this area is a beneficial spot that is used for collection of debris during storms. Jessica stated that maybe it could be used for both or could another area in Town be used for debris collection. And there is a lot of time to refine plans and allow for public comment and Select Board decisions. There are also other studies that could be done to apply for funding for additional projects in other places including private lands if this would be what the landowner wants to try and is open to these considerations. There are many possibilities through state funding as well.

The second hazard mitigation project/action that was submitted in the pre-app for FEMA grant funding was putting in a Dry Bridge on Main Street, south of the current Main Street Bridge, replacing the culverts just north of the Lyndon Carwash. Since the Main Street Bridge is a constriction point and has piers that block the passage of logs and other debris, and since there is a berm along the river, the water gets blocked up in certain places and then floods the surrounding areas including the mobile home park. If the berm is removed, along with the culverts and fill that was previously put in, and a large dry bridge was installed, it would allow more water under the road. The lowered land area would allow for the collection of the logs to come out and spread out, so they did not need to go under the bridge. The models predict that this alternative will result in a

lower amount of flooding upstream of the Main Street Bridge and in the mobile home park, as well as a shorter roadway inundation at the intersection.

Jessica shared additional slides showing the varying amounts of flood reduction and roadway inundation at 100-year and 500-year floods and the benefits of removing some land, including shallower water on the highway, reduced time of overtopping, vehicle detours, and clogging/erosion damage, and more flood passage under the road. The FEMA BCA includes these benefits as well as to the buildings themselves (assuming first floor elevation of mobile home park homes), plus ecosystem benefits, and is showing a BCR > 1.0. The cost of this project was rounded up slightly to \$2,700,000, but there have been some assumptions made, and we may need a few adjustments made that will affect the final cost of this project. A question was asked about how the State would be involved. Jessica explained that Marty and Alison have already reached out to VTRANS about the project, and they could become a partner in this project. But because the State is always interested in the resiliency of their bridges, etc. and because FEMA would be paying in full for the project, the State is likely to be very open to this project that would protect their infrastructure. Jessica also answered a question about where the costs of the damages came from in the BCA, and she explained that these are not the damages for all of Lyndon. FEMA is very specific about the costs and damages associated with the project location and it can only be a certain distance from the project.

Jessica also answered a question about how the passage of more water at this spot on the river would affect downstream areas. She explained that their hydraulic models take the entire floodplain study area into account, and that she is confident that this upstream project will not cause more flooding downstream. There were a few more questions and concerns raised by other residents and Jessica answered and reiterated several explanations of why the project concentrated on these two alternatives and how future projects are possible and that each project would be separately evaluated.

Marty gave a brief recap of the goals of the overall project, and the SLR study area, with the focus on the Rt. 5/ Rt. 122/ Rt. 114 intersection due to the concern of the impact on traffic and public safety in that area when it is impeded and closed. The pre-applications were already presented to FEMA, and we were invited to submit full applications with a lot more information provided, including the BCAs for both projects. Then it will be 6 months to one year more before we know if we will be granted funding and what would be the next steps.

There were a few questions taken from Zoom participants at the end of the presentation. Marty answered the first stating that the HMC was making the decisions on what projects to apply for based on the SLR study and feedback and then would go to the Select Board before submitting the full applications. It was mentioned that there used to be a dry bridge at this location before it was removed and replaced with the current culverts. One participant stated that people are not cleaning up after themselves and that too much debris gets into the river. Another question was asked about the design level and Jessica stated that the design level applies to most FEMA projects because they look at protection up to a certain storm level. This dry bridge project is trying to protect up to the 100-year storm level. Jessica was less sure about a number to provide to FEMA for the floodplain project because a project like this should be resilient to infinity since it should not fail, versus a bridge or culvert that could fail. She will get back to us with that number.

There was another question about receiving more water on Broad Street if the Dry Bridge goes in. But Jessica stated that there would not be more water or less water downstream, because the water is coming anyway. The HM project would just allow more water to flow under the road at that project site versus over the road, but not more water overall. Another comment was made about how we need to keep the water on the west side of the railroad tracks and maybe there should be some sort of valve. Overall, there is too much water in the whole area.

One participant stated that he wrote a letter to the editor of the Caledonia Record, and he has copies of it with him for people to read. It calls for a Town Stream Maintenance Department, just like our Highway Department, where we will have a group checking on what's sitting in the water causing issues. He states that we need more input and oversight at the local level, and we need to challenge some of the State rules. He mentioned that there is also too much silt in certain areas, and we need to start doing something about these problems on an ongoing basis and not waiting for flood damage to businesses and homes and loss of life. Creating more flood plain storage is necessary and should not stop at that one intersection. We should not be stopping with this one project. Marty stated that she agrees, but that the HMC had to concentrate on one area and specific projects at this time. Other hazard mitigation actions could not be included in this FEMA application. But the Town will need to continue to study and figure out what else can be done. One final comment by a resident was that the 1927 flood was devastating throughout the State and when something like that comes along, it is not possible to protect yourself. But we can try to minimize the more common storms, which is what the HMC is trying to do.

Marty closed out the meeting thanking everyone for coming. She stated that the presentation and slideshow will be posted on the Town website along with all the other HMC information and that they welcome comments from everyone. The meeting ended at approximately 7:30 pm.

In attendance:

Jon Elwell, Ben Copans, Chris Thompson, David & Diane Ainsworth, Mark Valois, Chris Martel, Holly Taylor, Jennifer Gould, Jim Impey, Reg Lussier, Ken Burchesky, Michelle Clark, Peter Mallet, Denise Montgomery, Tracy Bodeo, Marty Feltus, Ken Mason, Jessica Louisos (SLR), Alison Low (NVDA).

In attendance via Zoom:

Lisa Kolb (VEM), Hillary Adams, Nicole Gratton, Paul Hayes, Steve Libby, Jeff Olesky, Win Johnson, Brian Eberhardt.