Groton Municipal Meeting - December 12, 2023

Attendees: Charlotte Weigel, Mark Haddad, Charlotte Steeves, Takashi Tada, Kara Cruikshank, Tom Delaney, Brian Callahan, Bob Pine, Ralph Baker, Hillary King

NRWA Staff: Sara Singh, Paulina Torres, Will Collier

NBS Discussion:

Mark begins conversation asking for clarifications on grant funding capabilities and requirements.

- Bob outlines that the MVP Action Grant in this project will use funding toward NBS site planning processes. This project would ideally be used as a means to enhance the 5 municipalities current projects and provide a basis for applying to future funding towards the implementation of NBS.
- Hillary adds that this process is helpful in the organization of NBS lists for the town and could be used to 'rank' NBS sites in town, again providing a basis for future funding applications.

Sara asks attendees to identify the town's priorities in relation to NBS.

Mark suggests that discussing Broadmeadow Rd. is the number one priority for Groton, many agree to this point.

- Attendees provide background on the area: Broadmeadow Rd. frequently experiences flooding, this issue is exacerbated due to lack of maintenance since the 1940s and 50s. Invasive species, eutrophied, storage is gone, as well as water flow redirection issues.
    - The water only has one outlet, a single culvert, through which it can flow out of the area, thus causing the flooding after accumulating precipitation.
    - Tom suggests that redirecting the water from the culvert cannot be a solution as it would likely flood the town's central area near the town hall.
    - There used to be 40 - 50 criss-crossing channels for the water
- Mark mentions that Broadmeadow Rd. was proposed as a potential site for a previous MVP grant in town. During this application, the proposed project of a culvert replacement did not qualify for funding at the time given that it was a gray infrastructure proposal.
    - Mark raises the question: Which NBS could qualify for this area?
        - Bob mentions that promoting a decrease in upstream water flow could aid this issue. Both benefiting flooding events as water is infiltrated to the water table, and drought events as the water table should hold more water.
        - NBS ideas upstream include augmenting floodplains, installing rain gardens and biofilters.
        - Invasive species management could benefit the area, while not solving the flooding problem. Bob points out that NBS are not intended to be an all encompassing solution to climate change issues, rather a start to resiliency.

Charlotte Steeves suggests that increasing biodiversity is a priority for herself, mentioning that pollinator gardens are a great resource to aid in insect extinction mitigation, as are native plants.

- Charlotte Weigel shares pollinator corridor plans underway in Groton, providing land connectivity, public land stewardship, and education.
    - The proposed corridor starts at the Senior Center and continues through trails, Charlotte W. suggests that an assessment on where further connectivity is possible would be beneficial. Perhaps this assessment could begin during this current NRWA MVP project.
    - How can this corridor overlap with other NBS ideas?
    - Broadmeadow rd. restoration through invasive species management.
    - Many invasive species in this area lie within private land such as the Groton School property, Charlotte S. suggests that the school would be receptive to NBS discussions given the school's attitude on attempting to do more for the environment.
    - Locations along the rail trail before Lawrence Academy in town could benefit from invasive species management as well
    - Charlotte W. offers to provide a list of areas needing invasive species management to aid the MVP project.

Takashi said "Flooding is the #1 priority. And we have a lot of wetlands and protected forest areas we want to keep protected, and expand."

Mark suggests overlap with this project and the town's update of sidewalk pavements. Mark proposes that NBS could be combined with this to counteract the addition of impermeable pavement. "Focus on flooding."

Tom and Charlotte W. begin discussion on other potential NBS locations.

- Tom suggests looking into into Lost Lake, a high hazard dam that is too vital to remove. "Water can't get out fast enough."
- Charlotte W. suggests Cady Pond, which experiences flooding issues due to maintenance and beaver issues.

Brian shares that he would like to see more rain garden locations in town from this project.

Tom adds that there are 8 leaching culverts on Main St., each adjacent to a regular culvert.

Charlotte W. adds that Groton has made assessments on the town's vulnerabilities and shares some.

- Impervious surfaces
- Cady pond identified as an MS4 outfall
- Country Club impervious surfaces
- 2010 flooding of the Nashua River, stemming from Pepperell Dam, cuts off Western Groton from the rest of town.

- 119 bridge over Nashua River could use repairs.
- Town dump runoff, could more attention to floodplains aid this issue?
- Townsend Rd.
- Wildfire risk, drought.
- Invasives

The Town Planning Board is making updates to the Master Plan.

Takashi added that there are culverts in need of replacement and that will need to comply with stream crossing standards. He said that he will send us the compiled list. There is a DER grant opportunity for this.

Sara asks attendees if there are any parks or playgrounds that could benefit from this project.

Takashi mentions Prescott playground is super overgrown and in need of maintenance + restoration, and West Groton playground. He adds that both are in need of more maintenance, and that while parks have not been a main topic of discussion in town, they could come up as topics in the future. Takashi also mentions an outdoor fitness park that is in progress.

Community Outreach, Vulnerable Communities:

Sara asks attendees for information on community groups to reach out to during this project for planned community meetings.

Charlotte W. and others, list groups of interest:

- Sustainability Commission
- Stewardship Committee
- Landowners (Charlotte S. suggests looking at parcel data to see where private and public land overlap. Advocating for 'rewilding' or naturalizing lawns)
- Groton Garden Club
- Groton Conservation Trust
- Senior Center
- Invasive Species Committee
- Conservation Commission
- Town Forest Committee
- The Groton School
- Lawrence Academy
- Groton-Dunstable Middle School, presentation opportunity, Charlotte W. shares that 7th grade class studies biodiversity and invasive species and could become involved in this project.

Mark Haddad questions how MVP funding accounts for EJ census blocks, sharing that Groton does not include any EJ census tract blocks within its boundaries.

- Hillary clarifies that MVP program prioritizes funding for community projects highlighting EJ census blocks, but additionally also prioritizes funding for other community needs.
- Will adds that while Groton does not have an EJ community within its boundaries, there are vulnerable groups in every community, defining who they are could benefit future funding opportunities.

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Groton Community Meeting 1
NRWA Office - February 1, 2024
5:30 - 7:30 pm

<u>Groton Focus Group 1:</u>

Tried to identify municipal land that, with some improvement, could be used to sequester more carbon than it does in its current state. Also identified one parcel owned by a local nonprofit that might also benefit. The parcels are numbered and are shown on the attached map.

1. **Highway Department Facility** – large areas of bare soil that could benefit from plantings than could absorb atmospheric CO2

2. **Browloaf Parcel** – areas of un-vegetated sand that could benefit from plantings than could absorb atmospheric CO2

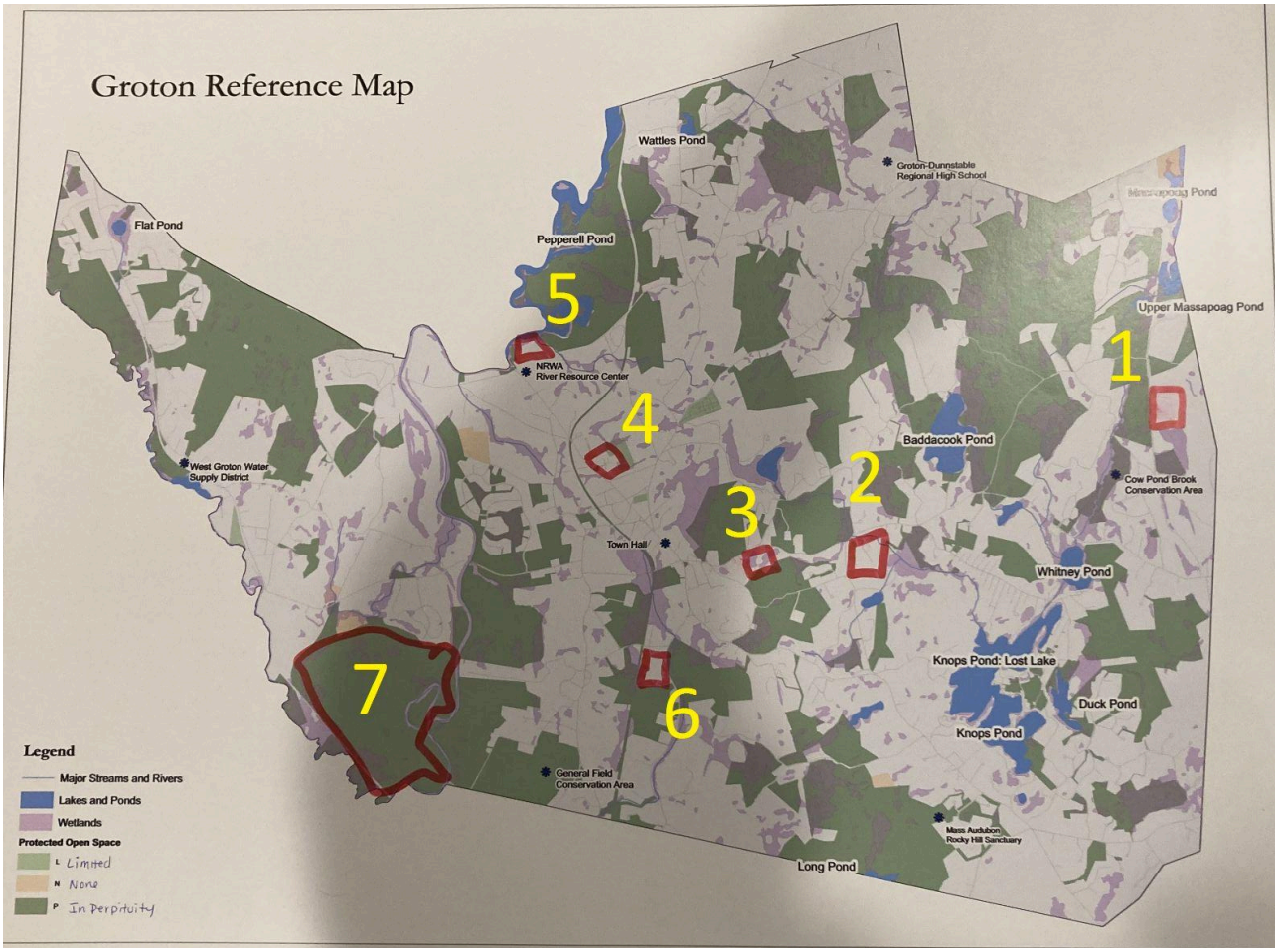
3. **Groton Country Club** – large paved parking lot that could benefit from swales and rain gardens to capture and infiltrate rain water and snow melt

4. **Middle School Parking Lot** - large paved parking lot that could benefit from swales and rain gardens to capture and infiltrate rain water and snow melt

5. **Old Town Dump** – potential source of contamination entering the Nashua River or aquifer below

6. **Groton Hill Music Center** (private not-for-profit) – large upland grass area that might better sequester carbon if converted to forest

7. **Groton Town Forest** – could benefit from a study to see if current practices could be modified to enhance carbon sequestration



Groton Focus Group 2

Broadmeadow Road – flooding, road closures
=> raise the road, re-route

West Groton dam – Squannacook banks are high
=> remove the dam

Country Club flooding @ Cady Pond Brook – limits recreation opportunities

Nod Road – flatlands flooding

Firebreak areas – high tension power lines
Reduce risk of fires jumping from one part of Groton to another

Willowdale Road Housing Development – flooding concerns

New housing development off 119 (Groton Farm development, deluxe property, willing to work with community)

– potential flooding concerns
– traffic concerns for emergencies
=> permeable pavement for lots within

Flood risk @ Lost Lake area

Groton Focus Group 3

Areas of concern: flooded road, regularly gets quarter inch of rain
Broadmeadow Road (Purple spot) – cuts through wetlands, near Route 119
It has settled over time
Library Access Road….to exit the Library, you have to go through private property, wetlands, or a road that's not really a road. NBS alone won't solve this area's problems.

Culverts from wetlands of Town Center => Court Street
James Brook
Main Street
Across from Hollis Street
Some in private land, some not
All part of the same watershed that's contributing to the Broadmeadow issues
Even though it's dry, it's feeding water to Broadmeadow

James Brook: Bates Property, Groton Conservation Trust, needs to meander
Cady Brook, culvert under Smith Street needs to be replaced
Fish are not able to pass through
Where the Nashua River Rail Trail passes, the beaver dam washes out, caused flooding

Groton School ice skating dam is broken, failed in October
=> Dam removal NBS

Droughts, biodiversity loss
Create a pollinator corridor design, for Town Properties, to increase biodiversity of native pollinators. Some homeowners have done this but a larger corridor effort is needed. Senior Center in West Groton….backyards….

Rain Gardens. Lunenburg has received grants and now has 600 rain gardens to reduce flooding….There is one at Groton Town Hall….the rain garden would catch water during hard rains. Starting place: Knops Pond. On publicly owned property, Painted Post Road off Route 40 (Holly Estes property)...this is the Town's responsibility.

Replanting shade trees on the street. Cow Pond Brook area: put on the edges & boundary of parking areas. Also: Main Street should have more trees down the road, and Old Ayer Road to Town Hall. (The community org Friends of Trees are always looking to plant new trees.) The trees should be resilient to warmer, wetter weather. + greenways along streams to keep the water cold / riparian greenways

Groton Focus Group 4

Dead trees risk, hung up, decomposing => "negligence….should be made useful by
to biochar"

The popularity of green 1950s style lawns is "an education challenge", yet also "better for fire safety"

Nashua River's water level throughout Groton is defined by Pepperell's hydroelectric dam

The dam in West Groton – Riverport Residence floodplains go upstream from there
""Lived here 30 years, it floods less than it used to"

"We need breathing room" – by coordinating with Pepperell, we could have the river be 2 feet lower

Trees are a hazard in the event of hurricanes/tornados
Need for public education for homeowners, about their trees

Lost Lakes complex – some swimming areas here, weed problem, septic system
Septics used to flow into Lost Lake, it still has bacteria….now using spot treatment chemicals

No place to put septic systems near Lost Lake: tiny plots, no topsoil, salt & plastic pollution, eutrophication

Squannacook River Court Dam / Squannacook Brook: end of useful life….on Shirley/Groton public & private land….if the dam goes down, the pond disappears.

Restore natural species, grasslands, meadow habitat

"Excess of trees, maybe we should thin"...too much non-native scrub pine, not enough hardwoods

Groton Community Meeting 2 (Zoom)
5:30 - 7:30 pm February 13, 2024

#1 Broadmeadow - this is an area that plugs regularly. The road gets shut down. The town has been trying to find a way to resolve this.

And hasn't gotten funding actually, because there were no NBS that the town is very interested in this particular site. I think it really needs to be 1 of the areas that is studied. Low area that goes through a wetland and supposedly is built over a marsh and it can settle over time.

Begins upstream and continues down through Broadmeadow. That's where you actually see it most evidently. But then it also continues down along Old Ayer Road.

You can see just to the left of that it has a lot of lines in it. Those are areas where the drainage has been improved for probably agriculture. Very likely you could put meanders there.

Part of James Brook has been in a culvert that could be daylighted downstream. There are a number of ways to change the way water flows.

I think there's a lot of potential applications of solutions here. Jessica Veasey-Powell of NRWA actually did a study of this area and identified contributing factors that actually translate to NBS. The town itself is very interested in this and I think this needs to rise to 1 of the ones that's looked at.

Restoration, it looks like are good options and also stormwater wetland development in addition to daylighting stream.

James Brooke has long been buried. And the fact that the James Brook is culverted on Court Street contributes to the overall flooding problem of James Brook down by the Meadow Road Area.

Is there a concern over whether the amount of private land that's that surround that contributes to James Brooke upstream? And then it might be difficult to find parcels where you can infiltrate, to mitigate some of that downstream water,

If we closed it off, that would cause problems for a lot of people, including emergency vehicles. Because Broadmeadow ends at farmers row, and the fire station is nearby. If the fire truck can't get up Broadmeadow road to the center of town, that’s a problem. It's also 1 of the main access routes to the public library.

Adrienne’s recap: So, the settled over time network upstream contributes to the flooding.
The culvert over James Brooke could be daylight in. Buried upstream around Court Street. Private land upstream and fire station access.

#2. West Groton / Squannacook Dam

Adrienne: Let's talk about dam removal and other things we could potentially do. Here's a wetland overlay. Groton just got a grant for the state to do a study of the feasibility of dam removal. So that process has been initiated, and they'll have a study supposedly in August or so. There's a lot of concern in West Groton about the dam removal because it's an iconic aspect of the area.

There has been a fairly vocal opposition to the idea from the residents. And the town will have to make a decision about it in the end. And there's another complicating factor, and that is the town owns approximately half of the dam, and the other half is owned by a landowner in the abutting town.

How many dams are in Groton? There's the Hollingsworth and Bowes Dam.
There's the Lost Lake Dam. Baddacook Pond has a dam. Groton School used to have a dam. Around ~5 man made dams in Groton, and we have a lot of beaver dams.

There were two that were identified on the most recent hazard mitigation plan as high hazard. West Groton/Squannacook, and then the Lost Lake Dam.

I'm concerned about the possible toxic silt behind that dam, given the factories right upstream. And we don't know what's in the silt. That would be a good question to know if the state's going to review that when they do the study.

#3 Thompson Mill Pond & Groton Country's Club's nearby parking lots

Is there any interest in trying to build some flood storage capacity here on the boundaries of the pond? And if there may be places where we could potentially create some volume for a floodplain?

In this FEMA overlay, you can see it actually spills all the way over into Thompson Mill Pond. And then downward towards West Main Street, in the event of a flooding event.

Also right along the railroad tracks there, which are being converted to a rail trail. There is a Senior and Assisted Living Center nearby. There is a field just south of that building. That would, would really be a good place to put some nature back in. It's a very big open field. It's used for nothing, south of River Court. Large paved parking lot could benefit from swales and rain gardens to capture and infiltrate rainwater and. Every space in that parking lot is fairly regularly used. But it is a terrible parking lot. There's no shade.

We identified it in our group for 2 reasons. #1. There was some historical flooding noted. Where Cady Pond Brook goes under 119, in the most recent Hazard Mitigation Plan.

There's potential in this parking lot area infiltration to mitigate some of the phosphorus issues downstream because of this. Cady Pond Brook feeds into James Brook, and then goes into the Nashua River. And both James Brooke & that section of the Nashua River are impaired, low dissolved oxygen.

The parking lots may be particularly difficult because the septic system or the leach field or something is under that parking lot somewhere, which might create a bit of a challenge.

Even just going to a pervious surface would be an improvement for that parking lot. Trees to mitigate heat island effect, maybe bioswales.

Does the Groton Country Club have an interest in making improvements to their parking lot? It's town owned property, not private. The townspeople would probably love to see improvement made to the parking lot they use.

Right. And it's also within the town's MS4 area, so it would be counted as participation in the MS4 program.

Okay, so this is pretty good priority site. High priority.

There's another parking lot that's up by the pickleball courts and I don't know…..If you follow Whitman Road to the east, you'll see the courts on the north side and the parking lot on the south side there. It's very haphazardly laid out. Almost certainly would be a good place for NBS improvements.

#4 Intersection with Common Street & Nod Road

Rick Muelke talked about an intersection with Common Street and Nod Road that floods regularly. Common Street is downward sloping, when it rains it ends up being a significant accumulation and sometimes freezes over too. At the junction of Common Street where it comes into Nard and Sand Hill… it's the whole area really. There's no place for the water to go. Where does it come from? Comes from everywhere. If I had to guess, I'd say it's coming from the southeast and heading to the northwest generally and bumping into Sand Hill with nowhere to go since the area is so flat, with no visible gradations. There's also gonna be more impervious structure there because the town just approved a house lot on the corner.

So land that was more or less forested is being turned into a house. And my understanding is they got the approval from the Con Com and everybody to go ahead. So the town knew it was a wet spot, but apparently they found a dry spot in that lot.

#5 *New site added* - NEFF property

If you go over to Long Hill Road and you take Long Hill to the Nashua River, you've got the bridge there, Route 225. I'm the property manager there for New England Forestry Foundation. And I've always had this vision in my mind that somebody like Bob Pine or the Army Corps of Engineers maybe could recontour the land there. When there's a good flood, that New England Forestry property, which is called Groton Place and a little bit of the trust property Sabine Woods, are very close to the river. And they take a lot of water from the Nashua, which does not go downstream immediately because it flows onto this big open wide area. I've been here about 30, 40 years. And I think there's been 3 massive floods. And those have, in each case, blocked the bridge of 225. I've often thought of the

lower, western portion of Groton Place, which is mostly an open field with some forest. I don't know whether that could be rejiggered by the engineers so that it could accept more water or maybe hold more water or hold the water it has longer so it doesn't flow down so quickly to Lowell and Lawrence.

For emergency purposes, that's a pretty important access to West Groton. Last time it flooded, we couldn't get out. I live in West Groton. We actually had to go into Townsend and then all the way around through Pepperell to get to downtown Groton. It took us 45 minutes to get to downtown Groton.

I tend to think of this as some kind of a holding area for water so that less volume goes down to Lowell and Lawrence. But maybe it would have some impact on the bridge there as well. It's kind of late to be stopping water at that point. The whole Squannacook River dumps into the Nashua south of here and the Nashua is a huge up-gradient watershed. And that's what is flooding this area.

It actually doesn't flood for a day or two after the bridge because it takes that long for the water to come down here. The Nashua River, Fitchburg, and Leominster are all contributing water that ends up here. We have to do things outside the flood zone in order to reduce the flooding. You know, maybe the field on the opposite side, on the west side of the Nashua River right there, just north of West Main Street. It's all privately owned, but maybe it could be improved to accept more water or hold it longer? When that area flooded 12 - 13 years ago, this whole area was under 2 – 3 feet of water. And back in 1987 too.

#6 Willowdale Road in Groton

School parking area in Willowdale was marked up on the map. There's an elderly housing center, and concern about the road in major flood events. This is in the floodplain, it’s an area that floods and holds water. So it doesn't get to Broadmeadow Road and flood that even more. There's an interaction among a lot of places here that is bigger than our scale.

Yeah, exactly. It's a flooding open space. So isn't that what it's for? That's where we want it to flood.

#7 James Brook @ Old Ayer Road

This land is owned by the Groton Conservation Trust. Where that flag is, the brook is straight as an arrow because it was once straightened. It could be meandered, unstraightened. Just below that area, there's a culvert that goes under Indian Hill Road and then a little farther, it goes under Old Ayer Road.

And those culverts are both in big trouble. So actions we take up-gradient that slow the flow would be good. And that's an area where the Conservation Trust might be willing to assist.

Nobody lives right there, that's conservation land. And then next to it, you see the Groton Hills Music Center right across the road, they own that land on the right side of the road, and they might be amenable too.

And that land actually has a permanent restriction on it also to be used for agricultural purposes, so. You're right, that does have an APR on it. There were serious, serious problems when they were constructing Groton Hill Music Center – with water coming off what is mostly a parking lot heading right toward the center and across the road there.

Right where Old Ayer Road meets with Peabody Street, I noticed signs of a blowout of water and something onto the trust land from the Groton Hill land across the street. Fortunately, on that land there with that open field, the grass is so thick and so long and so heavy that it impedes the flow of water from the Groton Hill land directly into James Brook.

I think it's a lower priority, but one that might be worth discussing in a more broad way. That is a long stretch of James Brook. Probably beyond the scale of the study that we're currently doing. But we can look at the culverts downstream and then also look at the opportunities for capacity building on this floodplain area. If you're having trouble maintaining it as agricultural land, it may be a good place for forest reclamation and the addition of a floodplain forest. And the installation of J hooks and meanders and things like that to try to actually create some flow when James Brook is running really high.

Adrienne: Right. Just so you know, we have 12 sites and then the additional one, which is the New England Forest property. We need to identify 8 – 10 priorities for the site tour.

#8 The Groton School Pond Dam @ Farmer's Row

Now we're downstream. The rail trail in the middle, with the pond on both sides.
But the water in the last big storm, the water on the right side flooded over and washed out the rail trail getting to the lower part of the pond, which is on the left side of the rail trail.

Right next to Groton School Pond, that area flooded and washed out, & there's a culvert that connects the two sides somehow. That washed out between that little area on the right side and the big area on the left side. And then that in turn washed out a beaver dam that flooded down and flooded the basement of one of our one of the Select Board members.

Where Peter Cunningham lives, his basement got flooded because of all the water that the first flood that washed out the rail trail then caused the second dam to fail, which was the beaver dam. And that in turn created a flood that followed the left side of the rail trail and did damage to some houses just a ways down. This type of thing has happened before in that location. This area has been a problem and will be a problem again. So the culvert just couldn't handle the flow capacity?

Right.

And what about permeable surfaces at the summit? I don't know. Most of the area on the right side of the rail trail is very high. But the area to the left is fairly flat, not much higher than the rail trail.

Someone shares their NBS idea: put the beavers to work, let them rebuild their dam

#9 Groton Place, Long Hill Road

Where Bob and I and New England Forestry rebuilt that dam at Groton Place off of Long Hill Road, there used to be another beaver dam upstream from that. And I just double-checked about a week ago and it's been non-functional for decades, but there was a beaver dam there. And if we could teach some beavers to rebuild that dam, all the water that comes down Long Hill Road, which is quite a bit, I think, it all drains through manmade culverts and stuff directly into that, I call it the upper pond, because as you go into Groton Place, it's to your left.

Of course we've provided our own dam down in the middle of the property, but the thought occurred to me recently that if there were a functioning beaver dam east of the main road coming in, where it blew out and we rebuilt it, that would slow the water down, give it more time to go in the ground, clean up, get all the crap out of it that came off of Long Hill Road, and then would reduce the chance of another big washout on the main road and dam at Groton Place off of Long Hill Road.

Do we want to recommend dam removal here to release some of that pressure that's backing up? I don't know if it's feasible or not, but the fact that it has failed multiple times in the past, is worth looking into. Is there a better way to handle the water on the two sides of that rail trail? Right, I mean, you have this conserved land and this hydrologic system traveling through Phoebe Keyes Woods here, and these two APR parcels, so there's an opportunity to create floodplain and flood storage capacity in these sites, because they're conserved land. But the real question is, do you want to improve flow? And if this dam is routinely overtopping, then can you even design for enough flood storage capacity that would prevent the dam from overtopping in the future? And also, what's the status of the dam? What is the quality of it overall?

Groton School is the private owner, and they're in the process of attempting to repair the damage that was done recently. They went before the Conservation Commission not long ago.

So maybe they need the dam to hold back the water. I think that's worth exploring, just because there's a couple of different possibilities in terms of dealing with water over the rail trail. You have spaces where you can create storage basins on either side, because you have conserved land there.

And there's a potential for having Groton School pay for it, because they're already looking at it, and having discussions with them about things that we could figure out might be very helpful to them.

There's kind of a really awful water retention area that's just to the north of that solar field at the top there. Full of detritus, plastics, trash. If you go down Cow Pond Brook Road, there's a pond to the right. NBS needed here. Directly north of the solar panels. It's like a little swale in the natural flow of the land right there, but it's collected a lot of crap in that whole area.

Yes. I walked there recently, that place is disgusting. It could really use help.

#10 Lost Lake

A great place for rain gardens. We could use lots of rain gardens all throughout town.

The Lost Lake's got a big circle marked around it because our group felt there's a lot of housing right along the shores of the lake, so we thought of the impact a flood event would have there. The dam that holds Loft Lake has wooden slats that hold the upper part of it, so it's very easy to control the water level, and in fact, the water level is dropped every winter in order to kill weeds around the edge. You can just simply drop the water level of the lake if you have to.

I'm going to recommend this as a location to do outreach and education potentially for homeowners with regards to using fertilizers on their lawns, appropriate plants, & other things to try to keep a natural bank around the entire water body as much as possible.

Time's Up

Bob Pine reports to the group-at-large, as representative of Groton Breakout Group

We had a lot of really good discussions. Most of them about flooding, which is sort of endemic in Groton because Groton has so many winding little streams and two rivers. We've had major floods due to major storms.

So we're talking about issues along the **Nashua River** and what might be feasible. But most of that is, of course, controlled by all the up-gradient towns. We've talked about the **Groton Country Club** and the problem with the parking area that is overcrowded, but really in awful shape.

It is a heat island all by itself and possible solutions to that. We talked about the **Groton School Pond**, which has flooded a few times, breaking a small dam and causing some damage down in the gradient. I think flooding was the endemic thing that kind of tied almost all of them together.

And classic potential for rain gardens and all the ways to hold water and infiltrate water are things that I think we'll end up dealing with. We unfortunately did so much talking, we never got to about half of them…..