River Road Site Visit, 9/13/2021; (9-12; Low Tide at 11:23am @ 0.4 ft; River exposed at ~11am)

Attendees:

- Geoff Wilson
- Molly Hawkins, Conservation Commission
- Wayne Amaral, DPW Director
- Lee Ann Delp, Emergency Management Director
- Gary Bill, former (retired) DPW Director
- Rick Parker, Select Board
- Sam Joslin, Building Inspector/ADA Coordinator
- Chip Wallace, Climate Change Resiliency Committee
- Leah Zambernardi, Town Planner
- Nancy Pau, Climate Change Resiliency Committee
- Angus Jennings, Town Manager

The group met initially at Ferry Park. Nancy gave a brief overview of the potential risks/hazards to River Road, resulting from erosion and compounded by current and projected sea level rise; and summarized the purpose of today's site visit as gaining a better understanding of existing conditions and discussing (with the benefit of Geoff's expertise) potential remediation to prevent failures along River Road. She emphasized potential for low-cost, low tech strategies, and noted that grant funds could become available (incl. the next round of MVP grants due in February). Geoff said that River Road was not constructed on solid ledge, and that the initial construction may not have excavated down as far as would be expected if the same road were to be built to today's standards. Sam shared brought hard copies of the most recent draft FEMA Flood Insurance Rate Maps (FIRMs). The group reviewed the maps for the purpose of identifying locations on River Road to stop along the tour route. The group carpooled (or, in Chip's case, cycled) along the route, stopping at key points along the way.

1st stop (& last stop)— Bailey lane farm…

- bad erosion all along the river side, with numerous emergency fixes (riprap) right next to the road.
- The photos from the end of the site visits were taken from the River at Low tide. See the eroded roots and large piles of riprap falling from road bank to mudflats.
- at places, the bank is undercut by 6+ feet, and may be at or under the road.
- Gary: The bank used to be 5 feet from the edge of the road. When he was DPW director, he had lots of discussion with Coastal Zone Management, MassDEP, Army Corps of Engineers, and the West Newbury Conservation Commission, and got permission to do emergency repair, and put rip rap in areas. He backfilled the riprap with soil to allow for vegetation to establish and stabilize the bank. (Gary estimated that this work took place about 20 years ago).
- There are areas of the farm that are inundated. This pooled water is running under the road and washing out some of the sand, causing erosion on bank side.

- The Culvert to the west of the farm was replaced in 2001 (?). It was made 6" bigger when replaced, and handled all storms until the Mother's Day storm (2005).
- There was lots of flooding in multiple places in 2005 Mother's Day storm. River Road not passable; but 2006 storm (Father's Day) did not cause flooding.
- Gary installed numerous pipe drainages under the road to pass water, maybe 15-17 under road pipes. Gary to work with Assessor/GIS Coordinator to put on map?
- We discussed what was tried historically to some new green infrastructure designs that have developed in last 20 years…. successful project blend hard structure with plants and match "erosion infrastructure" to wave energy of the site. Design also must incorporate deflection of wave energy to ensure it doesn't create adjacent erosion problems.
- Geoff noted that, over the years, the River has gotten wider, and less deep.

2nd stop— 89 River Road, "Big houses"…

- Gary did an emergency repair in this area
- 2 trees were removed on the River side recently, part of a garage construction project. Where the stump is removed, we see signs of ground slumping— may be at risk of bank erosion in future.

3rd Stop—115 River Road— Orange house with garage on river side…

- large stretch of erosion to the west of the garage, along where existing guard rail is.

Last stop— Coffin street triangle

- There are two culverts in this area, with water in the perennial stream behind Cortland Lane going under Coffin Street, then River Road to the River. Should assess the culverts capacity for current and predicted rain events.
- Upstream activities can have significant impact on flooding in this area. Some shared story of a landowner upstream that created a 3-acre pond. When the dam broke, it caused a lot of property flooding on Coffin Street, and created a flash flood that almost took out a police cruiser.

Take Aways:

- To address River Road erosion, Wayne suggested a master plan, with priorities identified of which sections to address first. Geoff/Gary suggested that work be sectioned into "cells", with consideration of River bank access.
- Comprehensive mapping is needed to identify all the erosion areas. We discussed if Geoff can do it (not his focus); but he has the expertise we're looking for, and may be able to train interns/volunteers to do it. There are benefits of contracting it out to an organization/contractor— however, we need to find the right one that will provide practical information.
- Other Towns have expressed interest in River erosion issues— and we may be able to collaborate on mapping problem areas.

- Several participants mentioned liking Geoff's practical, common sense approach to identifying problems and possible solutions. They stressed the importance of this in seeking solution for River Road, and for grant funds.
- We discussed the value of a low tide walk for residents to show the vulnerability of the road. Nancy will discuss with Resiliency committee the possibility of piloting the first one this fall (at Bailey Road farm).

Other Discussions:

- Leah, Gary, and Wayne discussed the challenges of Homeowner association detention basins and stormwater infrastructure (incl. swales)… owners often don't know they are responsible and assume Town is responsible. Basins should be cleaned every year or every other year; but likely none within developments overseen by homeowners associations are cleaned. If owners do know about it; they may not be knowledgeable regarding how to clean it and how to get help. Wayne noted, based on his experience, that it can be difficult to find contractors that will do the work, esp. if there is only one or a small number of basins to be cleaned, due to the cost to the contractor of mobilizing equipment and labor.
  - Nancy suggested contacting Northeast Mosquito Control to see if they would provide this service. They monitor for mosquitos in some Catchment basins, and this may be an incentive for homeowners to keep the basin clean. Nancy will email contacts to Leah.
- Geoff mentioned that UNH storm water center has lots of information on Low Impact Development catchment systems. They are designed with fore-bays that settle sediment, and pass water to vegetated basins that remove pollutants. https://www.unh.edu/unhsc/
- Group discussed road side ditches (Country drainage), and the need to maintain them, and outreach to landowners. Some culverts under driveways are undersized, and it's difficult for homeowners to enlarge them— maybe map section of ditches that need maintenance/retrofit?
- Wayne and Angus mentioned that MS4 mapping is only done in certain parts of town, and should be completed throughout Town— maybe incorporate into Grant?

Resources:

- Maryland's Living Shoreline Examples:
  - Presentation slides: https://digitalcommons.odu.edu/cgi/viewcontent.cgi?article=1007&context=hraforum_24
  - Website for more info: https://dnr.maryland.gov/ccs/Pages/livingshorelines.aspx
  - ACOE Natural and Nature-based Features Guide: fluvial: https://ewn.erdc.dren.mil/?p=5586

Native Plant Resources for flood control/mitigation (below are some resources the PCA pulled together to help connect grants to native plants)

- Native Plants for Wildlife Habitat and Conservation Landscaping
- Restoring Native Habitat, Helping to Mitigate Flooding in Houston
- How Can Nature Reduce Flood Risks
- Climate Change Handbook for Regional Water Planning (e.g., search on: restoration)
- An Introduction to using Native Plants in Restoration Projects
- State's Ecosystems Face a Flood of Changes
- Landscaping with Native Plants
- Adaptation Clearinghouse (e.g., search on: native plants)

Grants:

DER Culvert Grant: https://www.mass.gov/doc/fy22-rfr-crma-grant-program-notice/download

FEMA Flood Mitigation Assistance Program (Opens 9/30/2021; Closes 1/28/2022)

- ELIBIBLE USES: FMA is primarily used to provide project funding in flood prone areas but can also be used for limited planning purposes. Eligible project activities include acquisition, demolition and relocation; elevation of existing structures to the Base Flood Elevation (BFE) or an Advisory Base Flood Elevation (ABFE) or higher; minor localized flood risk reduction projects; and dry-flood proofing (historic properties and non-residential structures). When used for planning purposes, FMA funds can only be used for developing the flood hazard component of a hazard mitigation plan that meets the planning criteria outlined in 44 CFR Part 201.
- The Fiscal Year 2022 funding notice for the Flood Mitigation Assistance program adopts the Center for Disease Control's Social Vulnerability Index as an additional scoring criterion to rank applications for proposed projects and activities. This new criterion prioritizes funding for the disadvantaged communities by awarding extra points to projects that affect underserved populations.
- More Information: https://www.adaptationclearinghouse.org/resources/flood-mitigation-assistance-program.html

FEMA Building Resilient Infrastructures and Communities (BRIC) grant;
ELIGIBLE USES: BRIC funds can be used for "capability- and capacity-building" activities (i.e., building codes activities, partnerships, project scoping, and planning and planning-related activities), hazard mitigation projects, and project management costs. FEMA can also fund projects that utilize innovative project designs and/or partnerships. To be eligible for BRIC funding, projects must:

- be cost-effective (according to FEMA's Benefit-Cost Analysis requirements);
- decrease risk and impacts of future potential natural hazards;
- meet the 2015 or 2018 International Building Codes;
- be consistent with the applicant's FEMA-approved hazard mitigation plans; and
- satisfy historic preservation and environmental compliance requirements.

APPLICATION PERIOD: The application period for new funding opens on September 30, 2021 and closes on January 28, 2022 at 3:00 P.M. ET

More information:
FEMA Announcement: https://www.adaptationclearinghouse.org/resources/fema-building-resilient-infrastructure-and-communities-bric-grant-program.htm

USFS Landscape Scale Restoration competitive grant: Due Nov 5, 2021 (State Forester by Sept 24).

The purpose if the Landscape Scale Restoration competitive grant program is: “To encourage collaborative, science-based restoration of priority rural forest landscapes.” This program supports, high impact projects that lead to measurable outcomes on the landscape, leverage public and private resources, and further priorities identified in each State Forest Action Plan or equivalent restoration strategy."

Program outcomes include: Improve fish and wildlife habitat; improve water quality and watershed function; mitigate invasive plants, insect infestation, and disease; reduce wildfire risk; improve forest ecosystem health; and measure ecological and economic benefits.

APPLICATION DEADLINE: November 05, 2021 by 6PM ET/5PM CT

To apply: grants.gov and search USDA-FS-2022-LSR

More
Information: https://www.fs.usda.gov/detail/r9/workingtogether/grants/?cid=FSEPRD898818