Pearly Pond Watershed Restoration Plan Meeting

Advisory Council and Steering Committee
Dick Emberly, Dick Isakson, Catherine Koning, Paul Kotila, Doug Lear, Bill Preston, Fred Rogers, June Wallace

Meeting Minutes – July 17, 2014
Location: 315 Petrocelli Hall, Franklin Pierce
Time: 3 - 4:30 pm

Agenda:
1. Discuss proposed BMPs (see attached list from CEI) - focus on FPU wastewater-related since Dick Emberly, the FPU wastewater treatment facility (WWTF) operator is present today
2. Outline meeting dates for the rest of 2014

Potential BMPs for Pearly Pond - Starting with the most cost-effective:

Mountain Rd. Wetland - releasing residual phosphorus from early WWTF design
1. Treatment islands - floating wetlands that take up the phosphorus from the water. One at the outlet of the wetland along the Hodge Pond trail, another at the Mtn. Rd. Inlet. Need to harvest the plants to remove the phosphorus. This maintenance is not paid for by the grant. Could be a good student project/research. Need more info on this idea, Ben will send links to materials for all to read. Most cost-effective solution here.
2. Reactive Barrier Walls - installed at wetland outlet and Mtn. Rd. inlet instead of treatment islands. Need more information, make sure info comes from northern climates similar to ours. Ben will send links to materials for all to read.

Rapid Infiltration Beds
Enhanced sand filter - add iron, which binds the phosphorus. Sand needs to be removed and replaced every 10 years, that would be the time to do this. Can we get a grant to do this? SRF loans could help. (what does SRF stand for?)

Dick Emberly noted that the WWTF is not currently running for optimal Phosphorus removal, and if that is an issue with the RIBs then he can add more alum for great P uptake in the WWTF. Ben will discuss this with Dick Emberly.

Infiltration of rain into the wastewater system is always a problem, adds to the amount of water that must be treated. FPU has done an "I & I" (infiltration and inflow investigation), but more could be done. Could a grant help pay for that?

Septic Systems
Connecting Lakeview dorms to FPU WWTF: Need 1500-1800 linear feet of larger pipe to do this, very expensive. Dick Emberly noted that instead of that, they could possibly use existing line with large holding tank (would allow the WWTF to run better with a 24 hr flow). Could a grant help pay for that? Ben will discuss this further with Dick Emberly.
Next meeting:
Discuss:
Waterfowl control options
Stormwater BMPs
Educational brochure

The third Friday of every month was chosen for the regular meeting. Catherine will confirm exact dates and times by email.
Pearly Pond Potential BMPs

**Stormwater – Potential Loading ~ 95 kg/year** - How many needed?
1. FPU Boat house / fields – Treat systems - $270,000 - (10 year reduction of 5-8 kg/yr - $5,400 / kg)
2. East FPU parking - Infiltration dividers/RGs - $165,000 - (10 year reduction of 2-4 kg/yr - $7,600 / kg)
3. Route 119 - Treat swales - $100,000 - (10 year reduction of 1.2-2 kg/yr - $8,600 / kg)
4. Kimball Rd sharp corner – Treat pond & buffer – $70,000 (10 year reduction of 0.7 – 1.5 kg/yr - $9,000 / kg)
5. FPU steep roadway & parking areas – Infiltration - $130,000 (10 year reduction of 1.5- 3 kg/yr - $9,000 / kg)
6. FPU Community Center – RainGarden – $36,000 (10 year reduction of 0.4-0.8 kg/yr - $9,200 / kg)
7. Kimball Rd Beach Access – Treatment - $65,000 (10 year reduction of 0.7 – 1.5 kg/yr - $9,800 / kg)
8. Mountain Rd Drainage Access – Treat & stabilize - $108,000 (10 year reduction of 1 - 2 kg/yr - $10,400 / kg)
9. Ingalls / Mtn Rd Culvert – Drainage & buffers - $70,000 - (10 year reduction of 0.6 - 1.2 kg/yr - $11,000 / kg)
10. End of Kimball Rd – Treat & Stabilize - $75,000 - (10 year reduction of 0.6 – 1.2 kg/yr - $11,600 / kg)

**Mountain Rd Wetland (residual wastewater) - Potential Loading ~ 26-34 kg/year**
1. Treatment islands - $20,000 (10 year reduction of 15 kg/yr - $130 / kg)
2. Reactive barrier walls - $30,000 (10 year reduction of 15 kg/yr - $200 / kg)
3. Alum treatment - $90,000 (10 year reduction of 15 kg/yr - $600 / kg)
4. Dredge / harvest - $350,000 (10 year reduction of 20 kg/yr - $1,750 / kg)

**FPU Wastewater - Potential Loading ~ 7 – 14 kg/year**
1. Enhanced sand filter at RIBs - $100,000 (10 year reduction of 5 kg/yr - $2,000 / kg)
2. Reduced water consumption (low flush toilets $450 per, low flow fixtures $150 per, gray water systems $100,000) – (10 year reduction of 1-2 kg/yr - $5,000 / kg)
3. Additional head works storage capacity ( large tank to reduce shock loading) - $150,000 (10 year reduction of 3 kg/yr - $50,000 / kg)
4. Collection system inspection / I&I reduction – $200,000 ($50/LF X 4,000 LF) - (10 year reduction of 1-2 kg/yr - $10,000 / kg)
5. Increase retention time of WWTP – (Added RBCs, Plant modifications) - $1,000,000 (10 year reduction of 5 kg/yr - $20,000 / kg)
## Pearly Pond Potential BMPs

**Waterfowl - Potential Loading ~ 23 kg/year**

1. Establish meadows vs mowed lawns
2. Noise makers & Ultrasonic Repellants – $15,000 (GooseBuster – Distress calls $250 - $500) - (10 year reduction of 12 kg/yr - $125 / kg)
3. Shoreline vegetative buffers - $20,000 ($1,000 ea. x 20 buffers) - (10 year reduction of 12 kg/yr - $170 / kg)
4. Visual Scares & Predator Decoys - $20,000 (Swan & coyote effigies $70 ea., scare balloons $30-$40 ea.) - (10 year reduction of 12 kg/yr - $170 / kg)
5. Purchase border collies or swans - $25,000 (10 year reduction of 12 kg/yr - $200 / kg)
6. Perched beaches - $100,000 ($5,000 each x 20 buffers) - (10 year reduction of 12 kg/yr - $830 / kg)
7. Hire companies with drones – $100,000 (Goose-buster - $1,500 - $2,000 per visit) (10 year reduction of 12 kg/yr - $830 / kg)

**Septic Systems - Potential Loading ~ 17 kg/year - (0.3 kg/yr/household)**

1. Public education program - $50,000 - (10 year reduction of 5 kg/yr - $1,000 / kg)
2. Sewer Dormitory - $90,000 - (10 year reduction of 3 kg/yr - $3,000 / kg)
3. Community System at Kimball Rd - $1,000,000 - 0.2 kg/yr/household – (10 year reduction of 6 kg/yr - $17,000 / kg)
4. Community System at Moose Lane - $250,000 - 0.2 kg/yr/household – (10 year reduction of 1.2 kg/yr - $21,000 / kg)
5. Sewer University Drive - $300,000 – 0.15 kg/yr/household – (10 year reduction of 0.9 kg/yr - $33,000 / kg)
6. Sewer Kimball Rd - $900,000 – 0.15 kg/yr/household – (10 year reduction of 2.5 kg/yr - $36,000 / kg)