Fawn Lake Preservation Study

PUBLIC MEETING

October 29, 2014

Introductions

- Bedford Department of Public Works
- Bedford Conservation Commission
- Comprehensive Environmental Inc.
  - CEI provides civil and environmental engineering services in the areas of water resources, water supply, wastewater, stormwater management, roadway engineering, construction management, and hazardous waste remediation

Discussion Items

- Conservation Commission's Responsibilities
- 2001 Established Goal for Fawn Lake
- Fawn Lake Watershed and Aquatic Vegetation
- Management Strategies Implemented to Date
- Tasks Under this Study

Conservation Commission

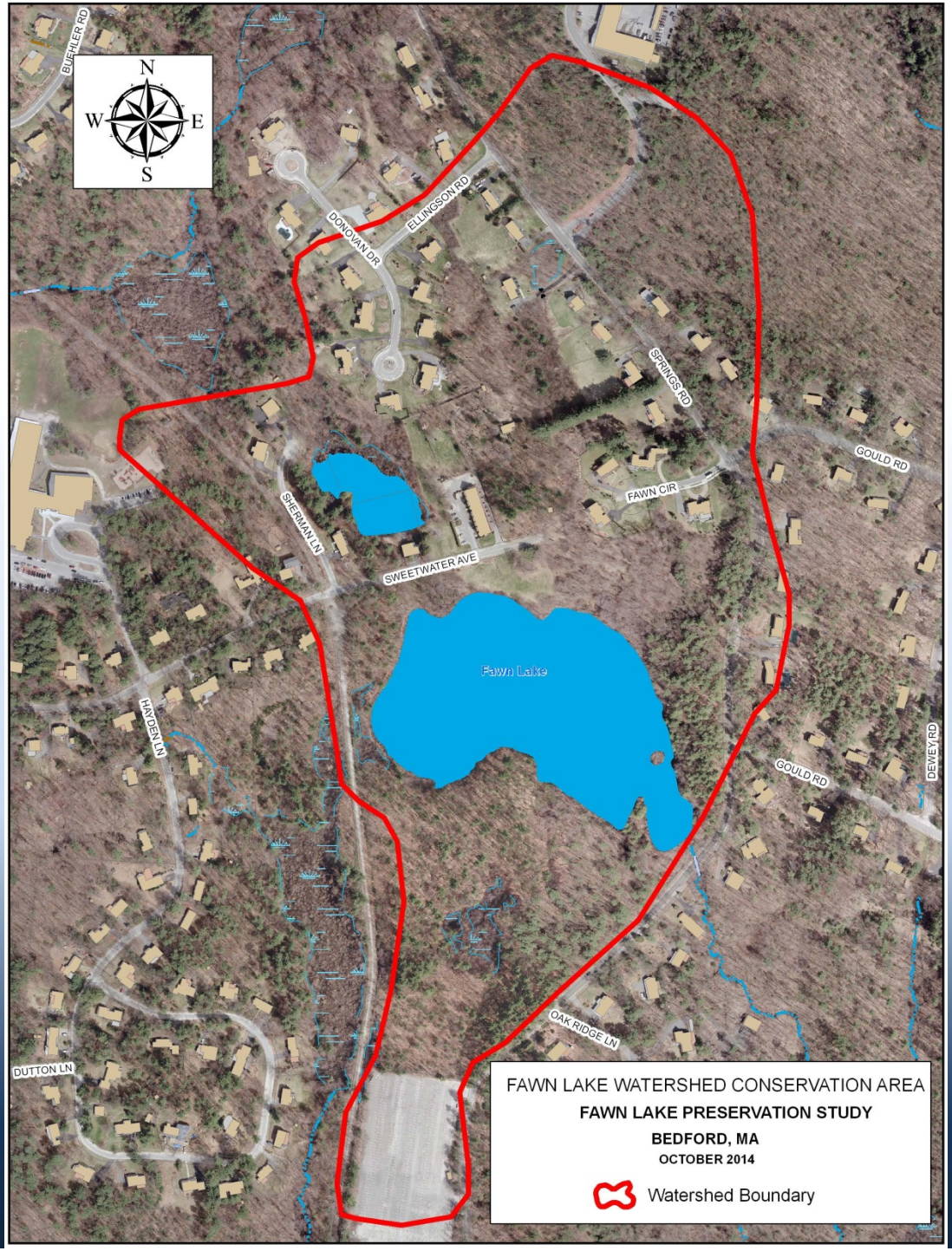
- Functions are to oversee the protection of wetlands, waterbodies, waterways, floodplains and riverfront areas, and to **acquire and maintain** open space land for the protection of natural resources and for the benefit and enjoyment of the citizens of Bedford.
  - Town purchased the 40-acre Fawn Lake Conservation Area in the 1970s;
  - Conservation Commission has a Legal Management Role under Chapter 40, Section 8C (Conservation Commission Act);
  - Approved the current Preservation Study which is being co-managed by DPW and the Commission.

2001 Goal for Fawn Lake

- The community goal of the Fawn Lake Restoration Project is to establish conditions at Fawn Lake that enhance aesthetic, recreational and wildlife habitat values by restoring open water areas free of excessive plant growth.
  - The success of the project is dependent upon community involvement and support during the design, permitting, funding and construction phases.

Fawn Lake Watershed

- 86-Acre Watershed
  - 50% forested conservation land
  - 50% low-density residential
- Includes all properties that drain towards or into Fawn Lake
  - land runoff
  - Town drainage system (1 stormwater outfall)
- Drainage that enters Fawn Lake is <u>not</u> treated


N
W
E
S
BUEHLER RD
DONOVAN DR
ELLINGSON RD
SPRINGS RD
COULD RD
FAWN CIR
SHERMAN LN
SWEETWATER AVE
Fawn Lake
HAYDEN LN
COULD RD
DEWEY RD
OAK RIDGE LN
DUTTON LN
FAWN LAKE WATERSHED CONSERVATION AREA
FAWN LAKE PRESERVATION STUDY
BEDFORD, MA
OCTOBER 2014
Watershed Boundary

Fawn Lake Watershed

- Potential Sources of Pollution
  - Use of lawn fertilizers and pesticides
  - Pet and other animal wastes
  - Road and vehicle maintenance activities

- Homeowners and Visitors are Encouraged to:
  - Use slow-release fertilizers/avoid high nitrogen fertilizers
  - Pick up after pets and do not feed the birds
  - Avoid runoff that includes oil or other chemicals

Management Strategies Implemented to Date

- Aquatic Vegetation Control
  - Hydroraking
  - Chemical Treatment
- Watershed Protection
  - Nuisance Waterfowl Control
  - Homeowner Education/Community Outreach
  - Funds being sought for stormwater controls/BMPs
- Other Improvements: Beaver Control, Trails, Signage and Mapping, Solar Trash Compactor

Aquatic Vegetation Control

- The Town has spent over $300,000 to date to preserve Fawn Lake through aquatic vegetation control.

Date	Activity
2001	Vegetation survey (9 species)
June 2003	Diquot application to 7-8 acres
September-October 2003	Hydroraked (5 weeks)
July 2004	Vegetation survey (7 species)
October-November 2004	Hydroraked (3 weeks)
July 2005	Vegetation survey (9 species)
July 2005	Diquot application 8-9 acres
2006-2007	Vegetation surveys (8 species)
August 2006	Diquot application
July 2007	Diquot application
August 2007	Glyphosate application
September 2007	Glyphosate application
September 2008	Vegetation survey (15 species)
July 2010	Vegetation survey (10 species)
September-October 2010	Hydroraked 5-6 acres (3.5 weeks)

Tasks Under This Study

- Lake Bathymetry
- Sediment Depth
- Extent of Plant Masses
  - plant type and relative densities
- Sediment Sample(s)
- Evaluate Various Lake Management Strategies

Lake Management Strategies

Management Alternatives:

A. Dredging
   a. Mechanical Dredging
   b. Hydraulic Dredging
   c. Bio-Dredging
B. Hydroraking
C. Chemical Treatment
   a. Diquat
   b. Glyphosate
   c. Fluridone
D. Weed Harvesting
E. Water Level Drawdown
F. Sub-Surface Barriers
G. Aeration
H. Dam Repair/Enhancement/Removal
I. Do Nothing

Considerations for Each Alternative:

1. Description of Strategy
2. Description of Environmental Impacts
3. Logistics of Strategy
4. Sediment Disposal Options (if needed)
5. Impacts to Surrounding Properties
6. Future O&M Associated with the Strategy
7. Time to Complete the Strategy
8. How Long the Work Effort is Expected to Last
9. List of Environmental Permits Required
10. Likelihood of Obtaining Said Permits
11. Estimated Cost for Permitting
12. Estimated Cost for Performing the Strategy
13. Plant Response
14. Advantages
15. Disadvantages
16. Systems Where Used Successfully

Questions?

Bedford DPW
314 Great Road
Bedford, MA 01730
781-275-7605

Bedford Conservation Commission
10 Mudge Way
Bedford, MA 01730
781-275-6211

Comprehensive Environmental Inc.
225 Cedar Hill Street
Marlborough, MA 01752
508-281-5160