Wellesley Ponds Comprehensive Plan Update October 2016

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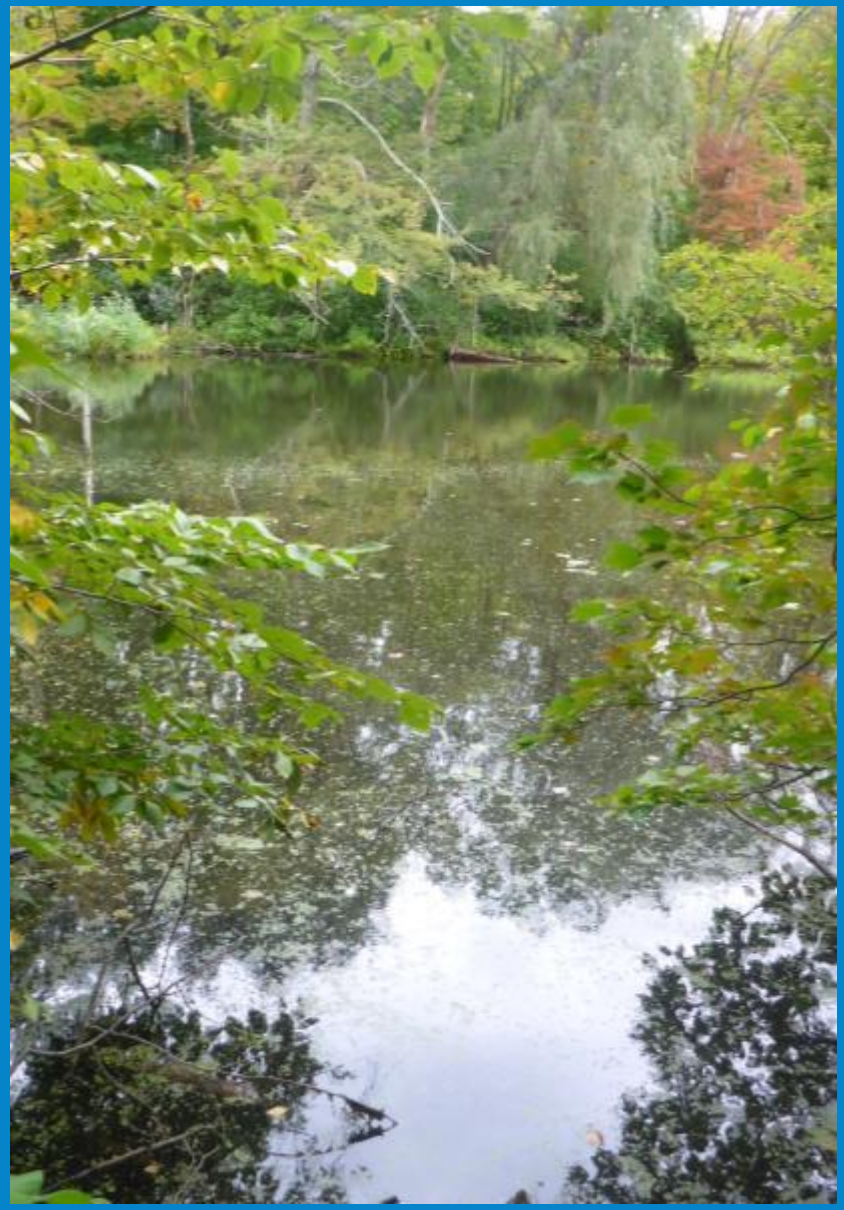
Water Resource Services

Comprehensive Management Plan

- Gather appropriate data for 8 ponds
- Consider conditions and goals for each
- Develop plan for protection, rehabilitation, maintenance



Comprehensive Management Plan

- At previous meeting we considered water and sediment depths
- Half the ponds have been dredged, but most still have soft sediment

Comprehensive Management Plan

Pond area, water & sediment summary

Pond	Pond Area	Water Volume	Average Water Depth	Sediment Volume	Average Sediment Depth
	Acres	Acre-feet	Feet	Acre-feet	Feet
Abbotts	1.7	2.0	1.2	5.9	3.5
Bezanson	0.4	1.1	2.5	0.2	0.5
Duck	0.5	0.5	0.9	0.5	0.9
Farms Station	0.9	3.4	3.9	2.7	3.1
Icehouse	4.6	15.2	3.3	23.8	5.2
Longfellow	8.3	18.8	2.3	13.3	1.6
Reeds	1.9	2.9	1.6	1.4	0.7
Rockridge	1.8	4.4	2.4	1.6	0.9

Comprehensive Management Plan

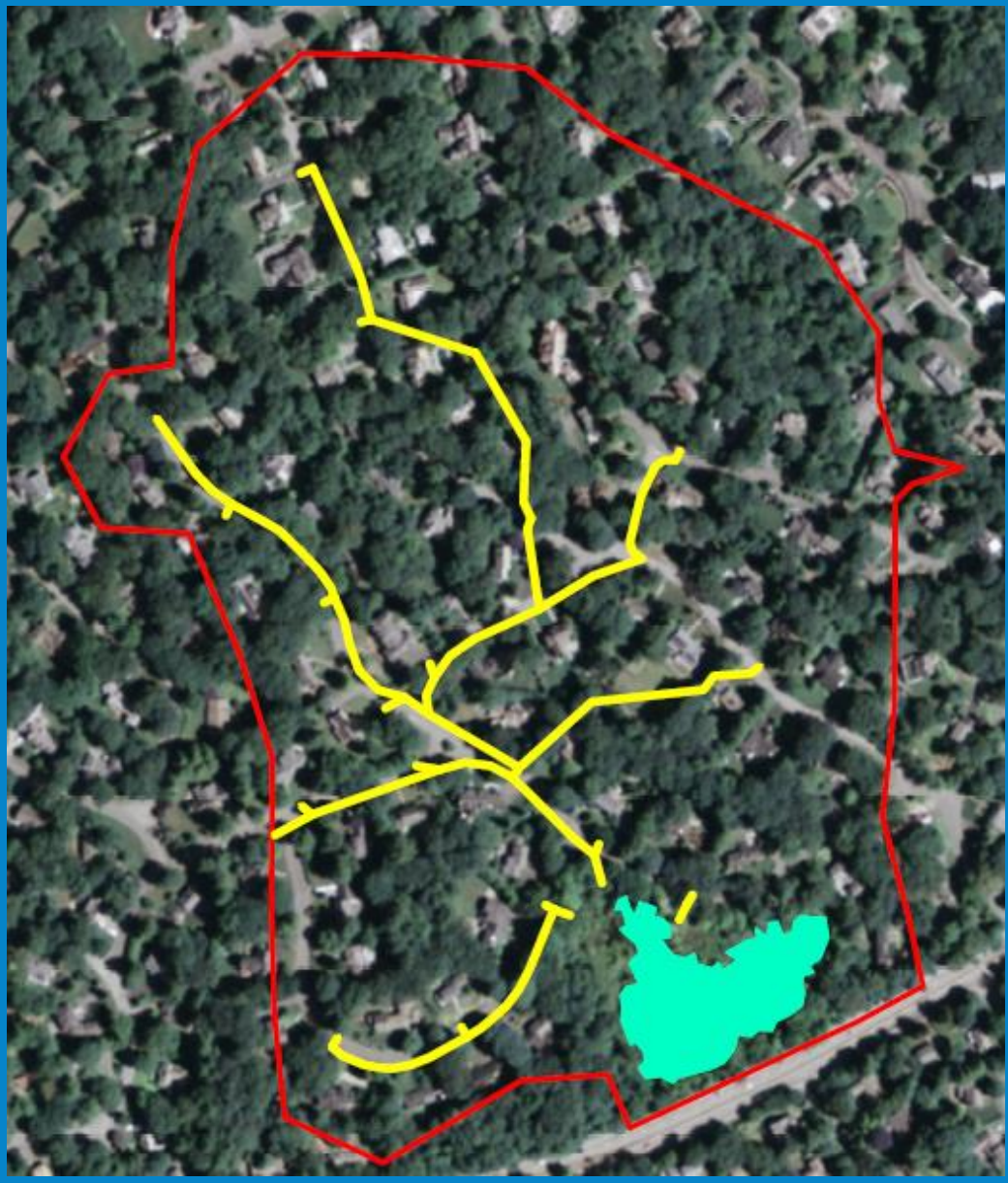
- Watersheds delineated and evaluated
- Mostly urban land, but some ponds mainly in parks
- Storm water runoff is major water quality factor

Comprehensive Management Plan

Abbotts

WS = 56 ac

WS:P = 33



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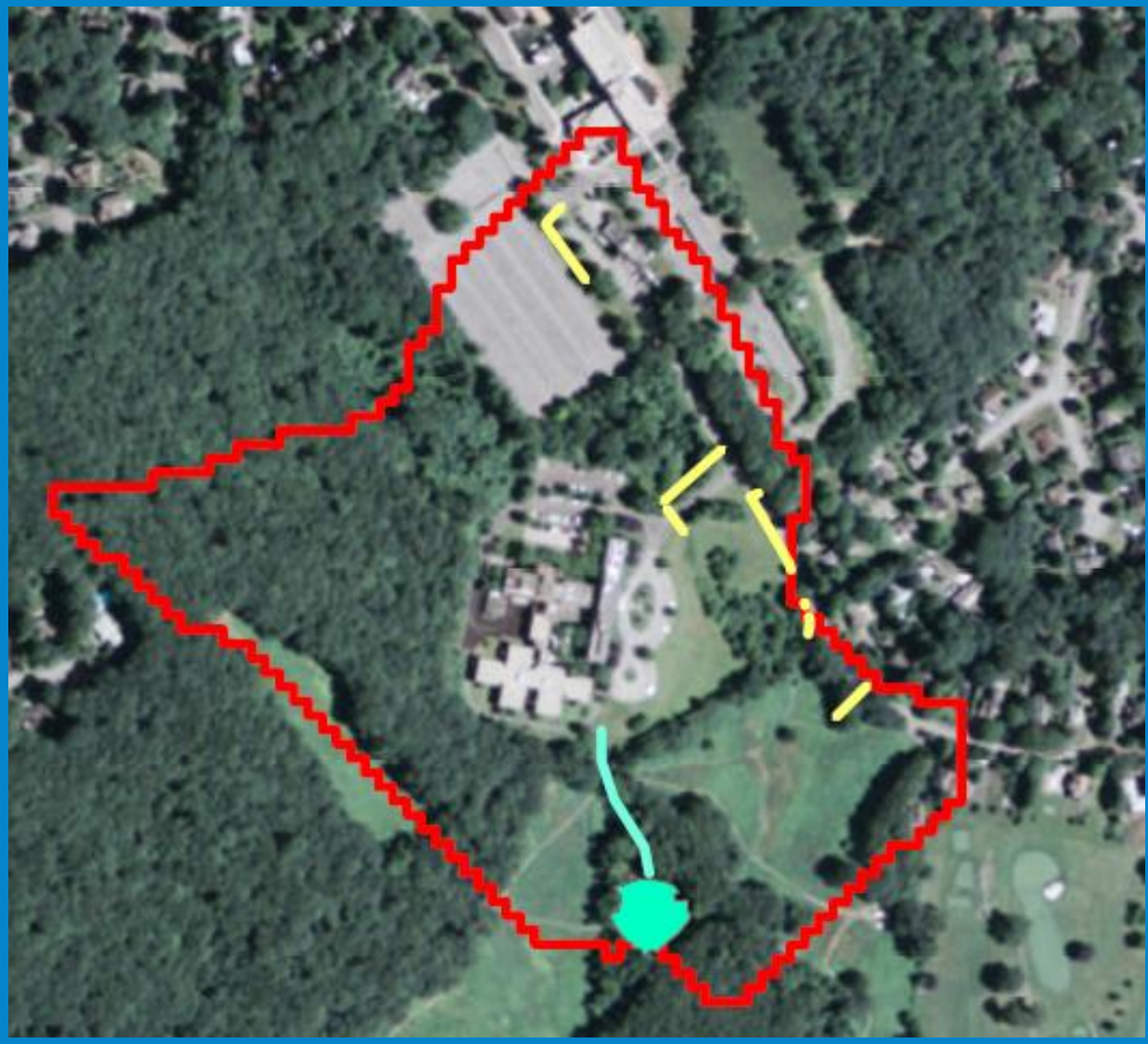
Bezanson

WS=44.8 ac

WS:P=102



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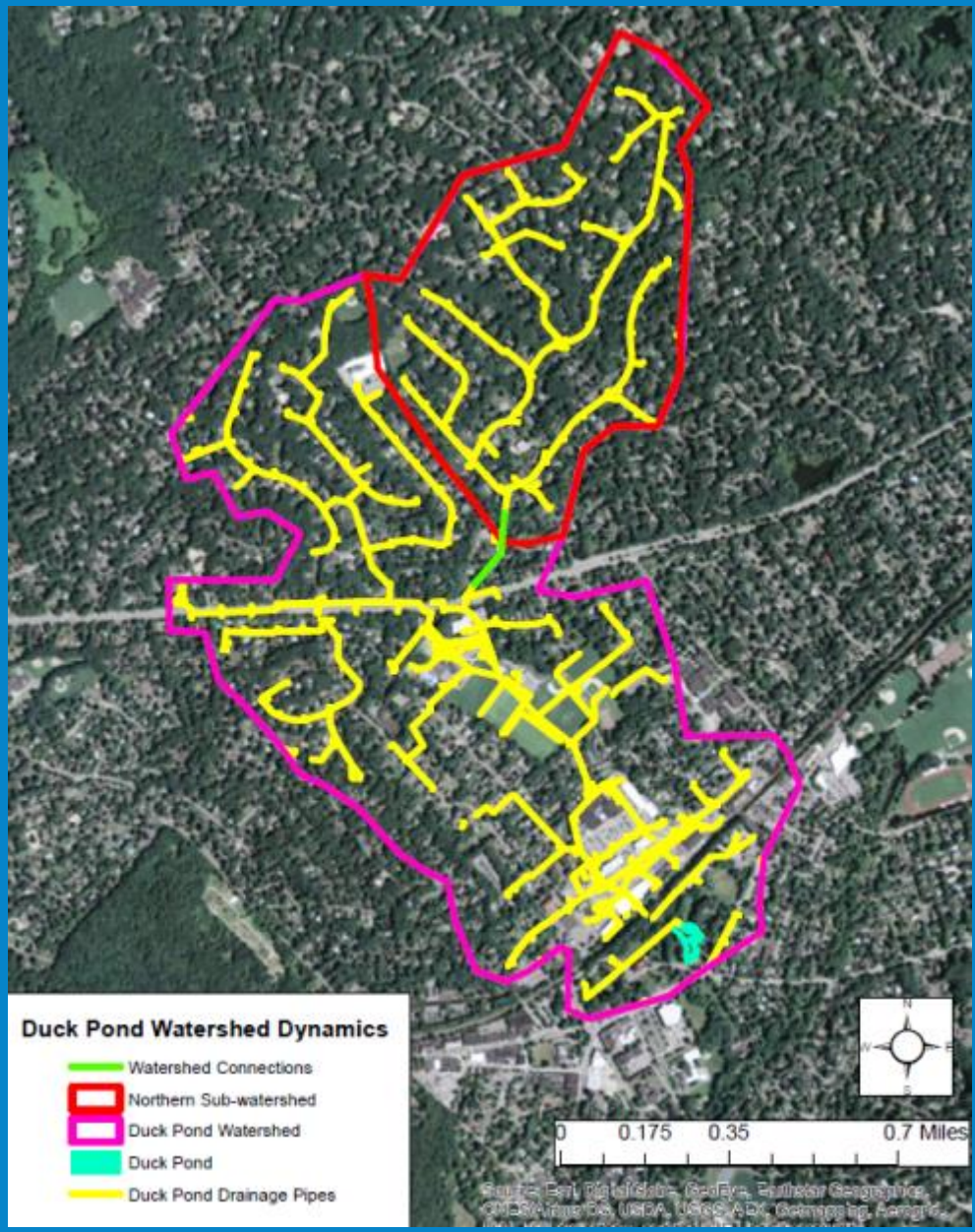
Duck

WS=629 ac

WS:P = 1259



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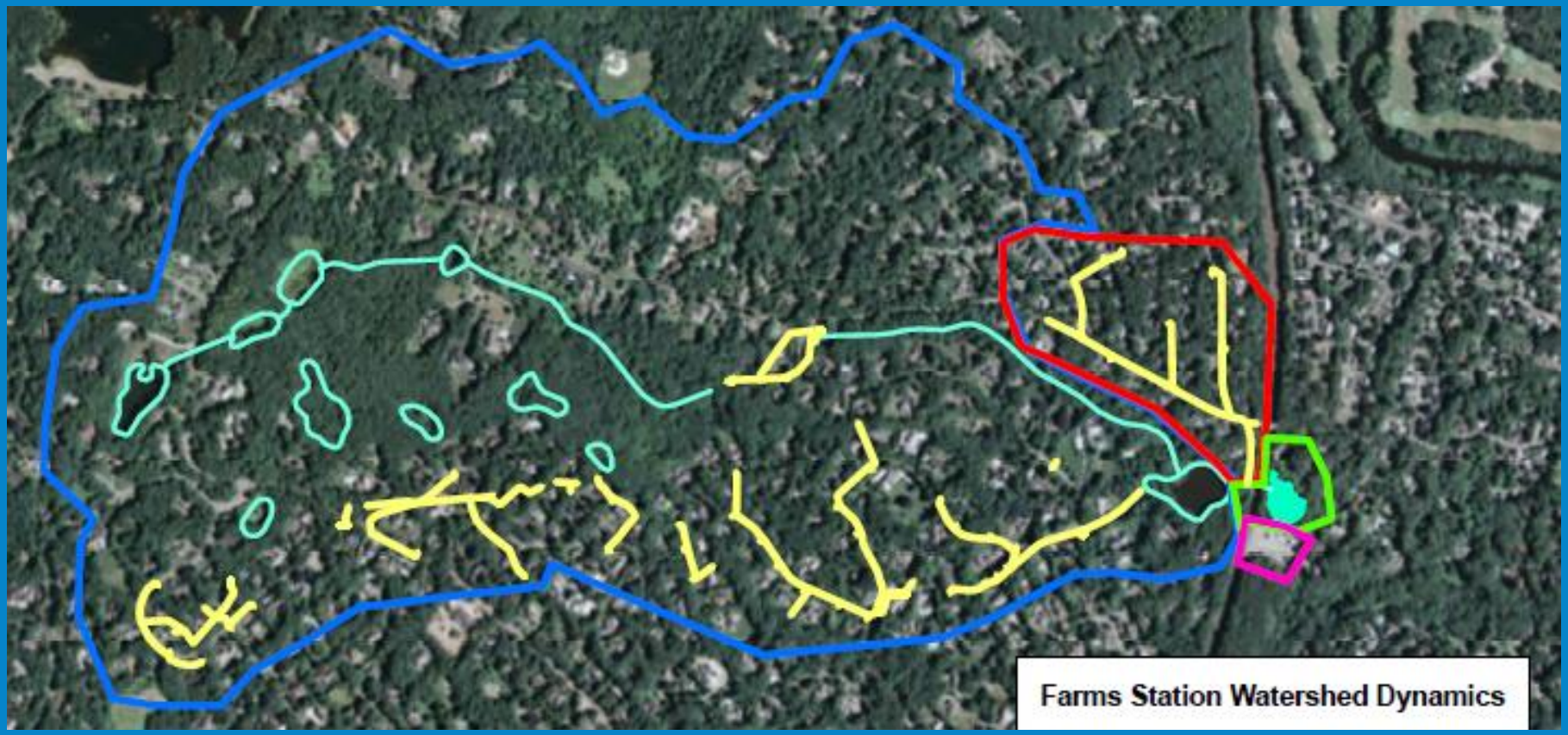
Farms Station

WS=417 ac WS:P=468



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Icehouse

WS=4.4 ac

Or 5300 ac

WS:P=1 or 1152

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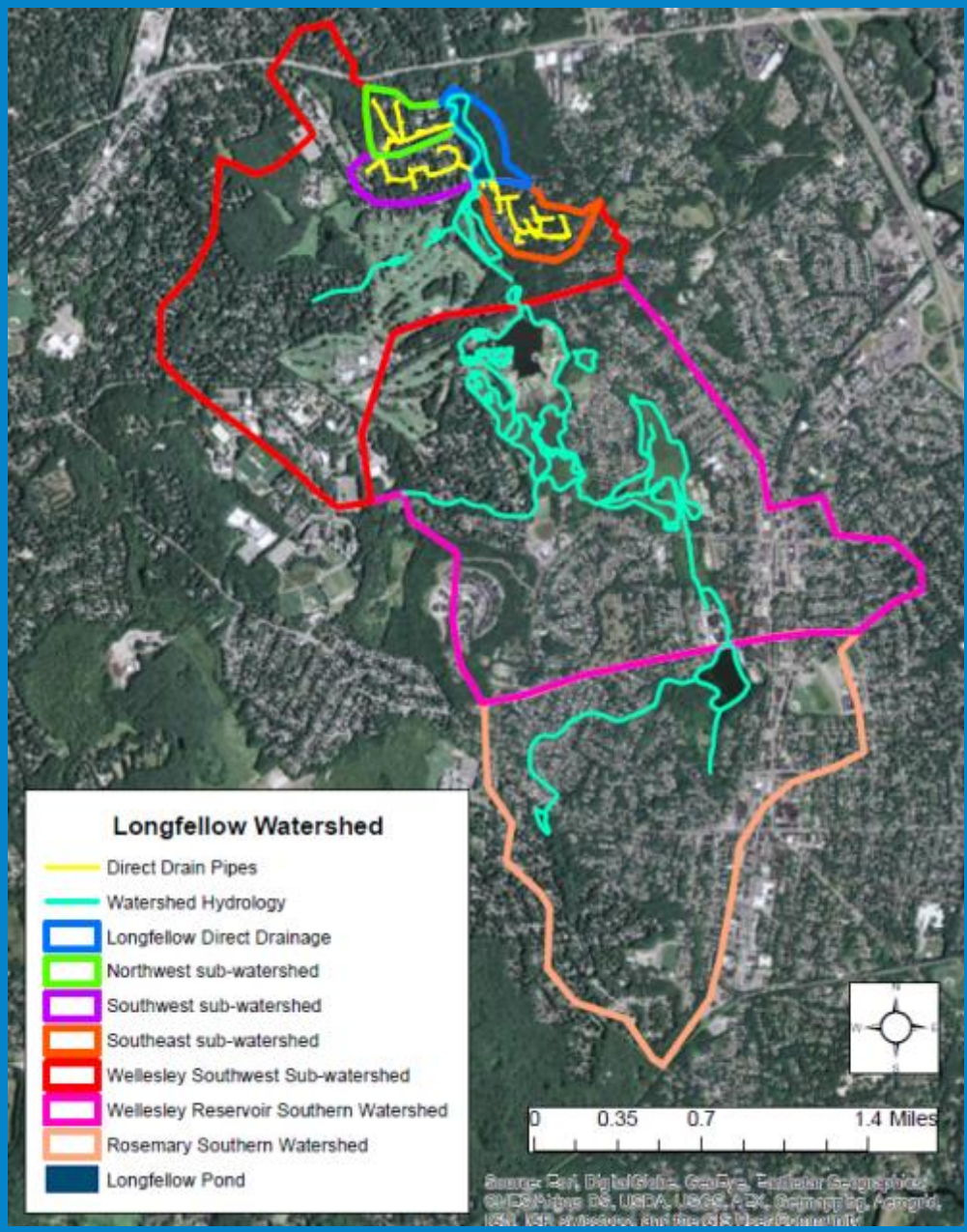
Longfellow

WS=2034 ac

WS:P = 245



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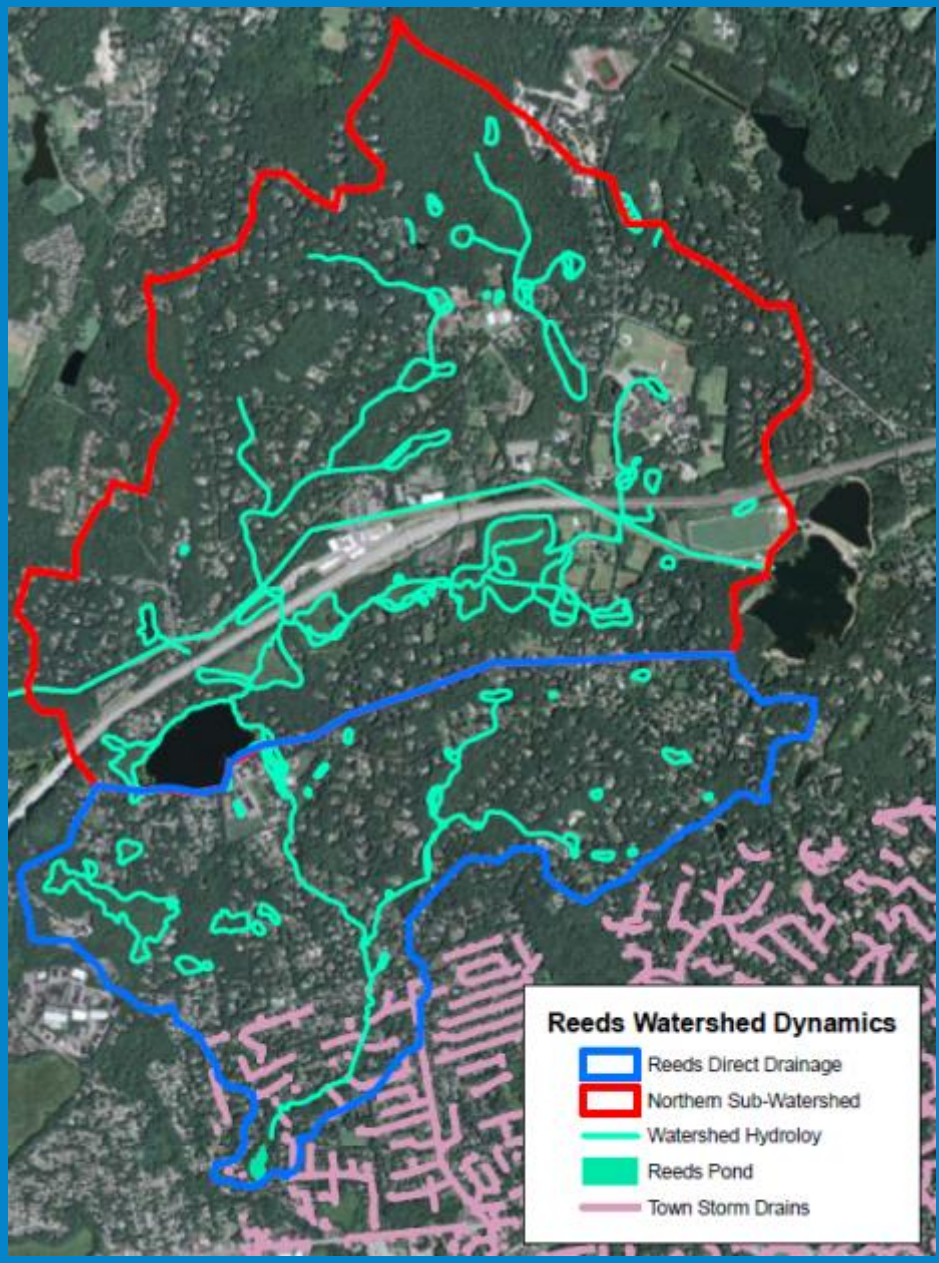
Reeds

WS=2709 ac

WS:P = 1457



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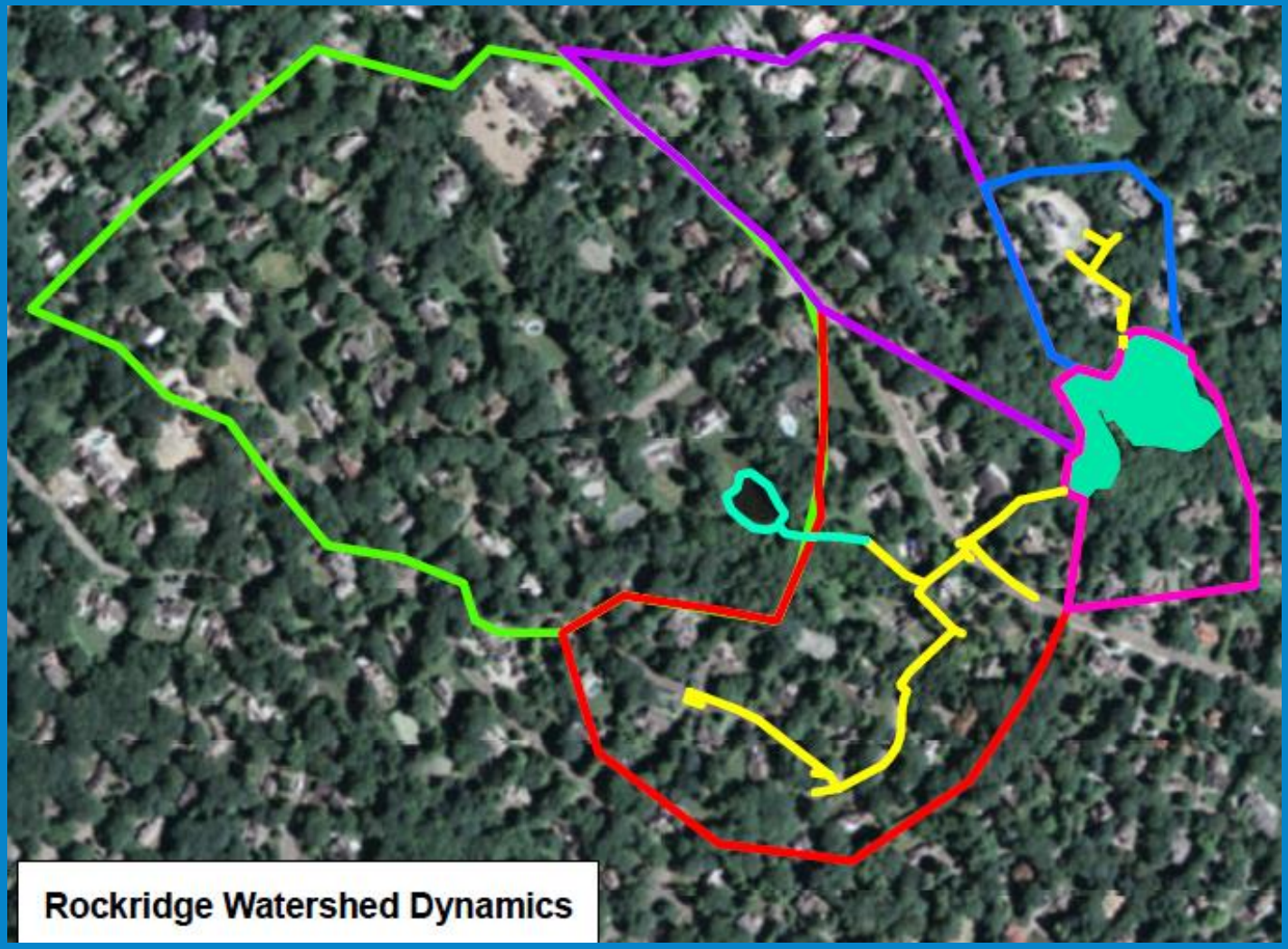
Rockridge WS=96ac WS:P=53



Comprehensive Management Plan

Land use summary

	Developed Land	Agricultural Land	Forest 1 (Upland)	Wetland	Other	Total Watershed Area (ac)
Abbotts Watershed	81.3%	0.0%	17.2%	1.5%	0.0%	55.6
Bezanson Watershed	38.7%	2.4%	41.5%	0.2%	17.2%	44.8
Duck Pond Watershed	78.1%	0.0%	21.7%	0.2%	0.0%	629.2
Farms Station Watershed	54.1%	0.1%	40.4%	4.8%	0.6%	416.8
Icehouse Direct Watershed	11.8%	0.0%	86.1%	0.0%	2.1%	4.4
Total Icehouse Watershed	66.0%	1.0%	22.0%	9.0%	2.0%	5300.0
Longfellow Watershed	71.4%	0.7%	18.2%	8.9%	0.9%	2033.9
Reeds Watershed	32.9%	1.5%	51.9%	12.2%	1.5%	2709.2
Rockridge Watershed	79.5%	0.0%	20.2%	0.3%	0.0%	96.4

Comprehensive Management Plan

Water quality

- Tests for forms of N, forms of P, temperature, oxygen, pH, conductivity, turbidity, chlorophyll
- Sampling in ponds and any inlets (including pipes) under dry and wet conditions
- Late spring and late summer testing

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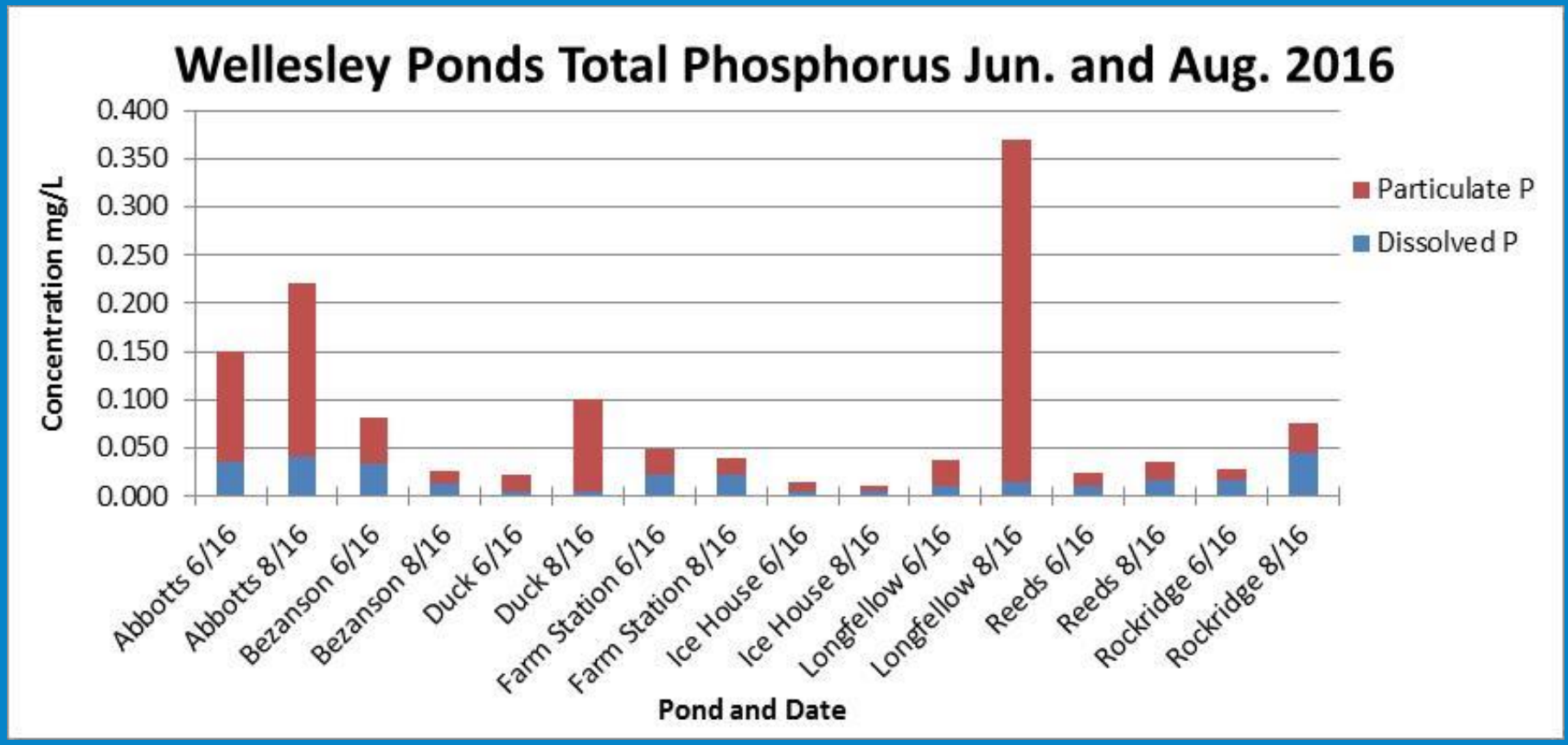
Water quality in the ponds: Phosphorus



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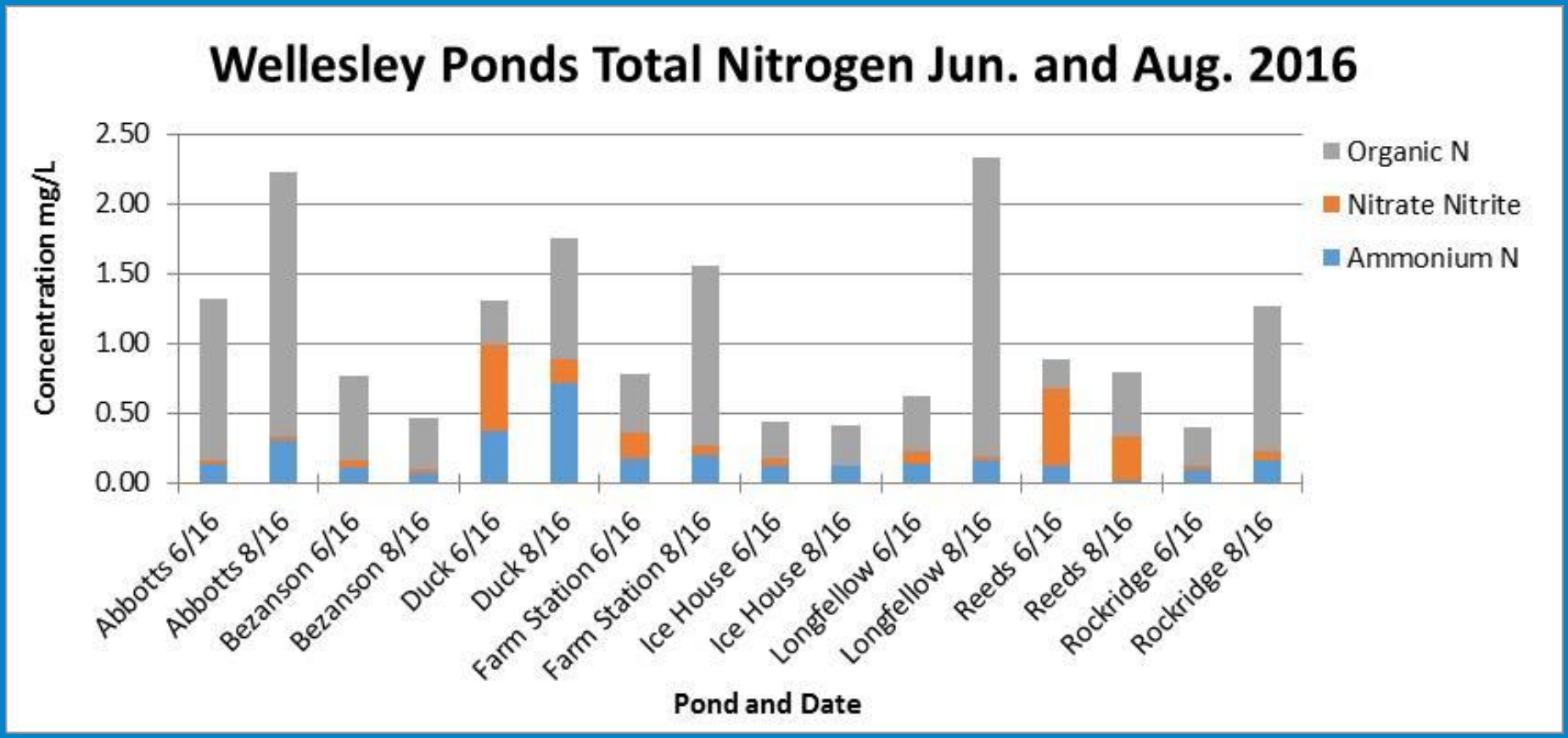
Water quality in the ponds: Nitrogen



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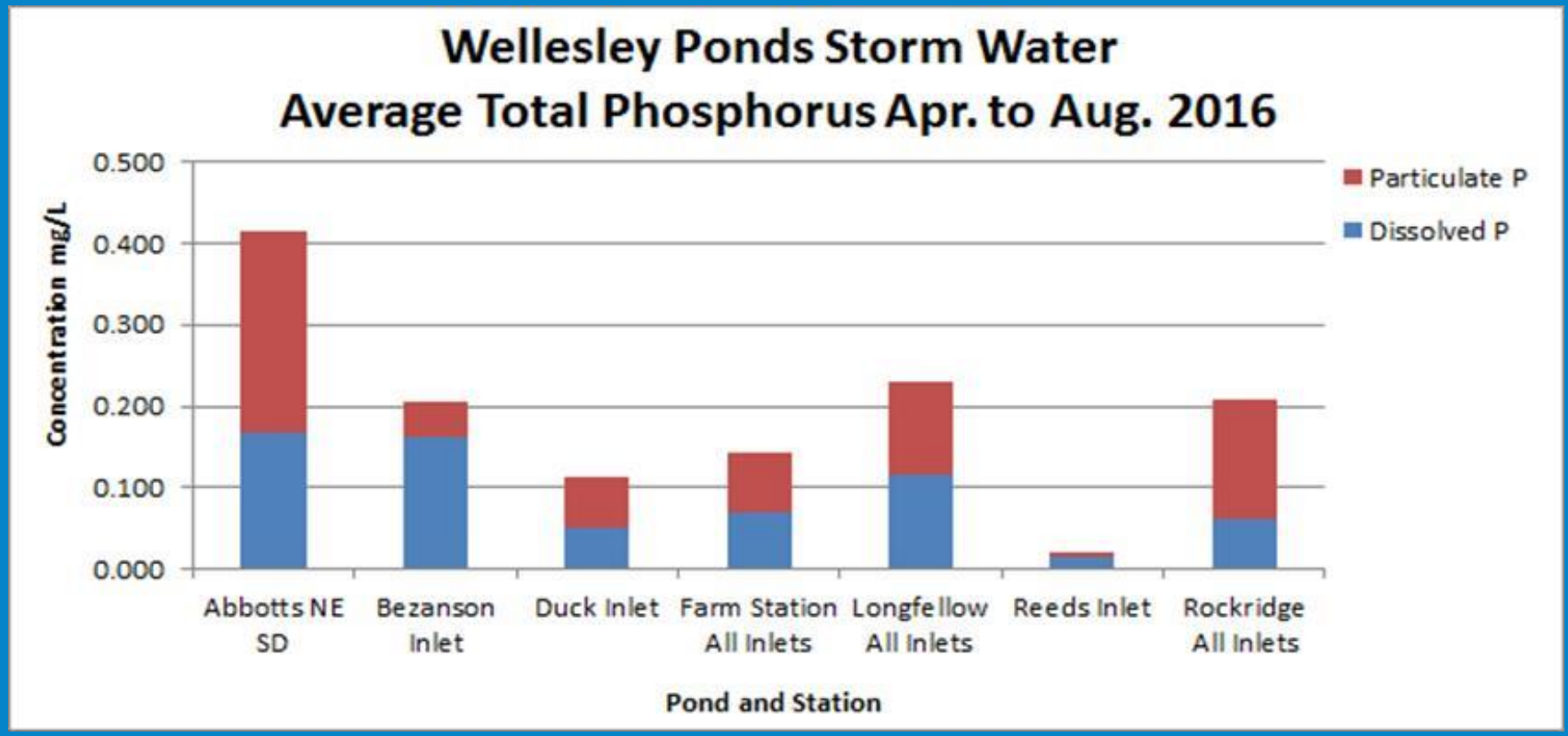
Water quality entering ponds: Phosphorus



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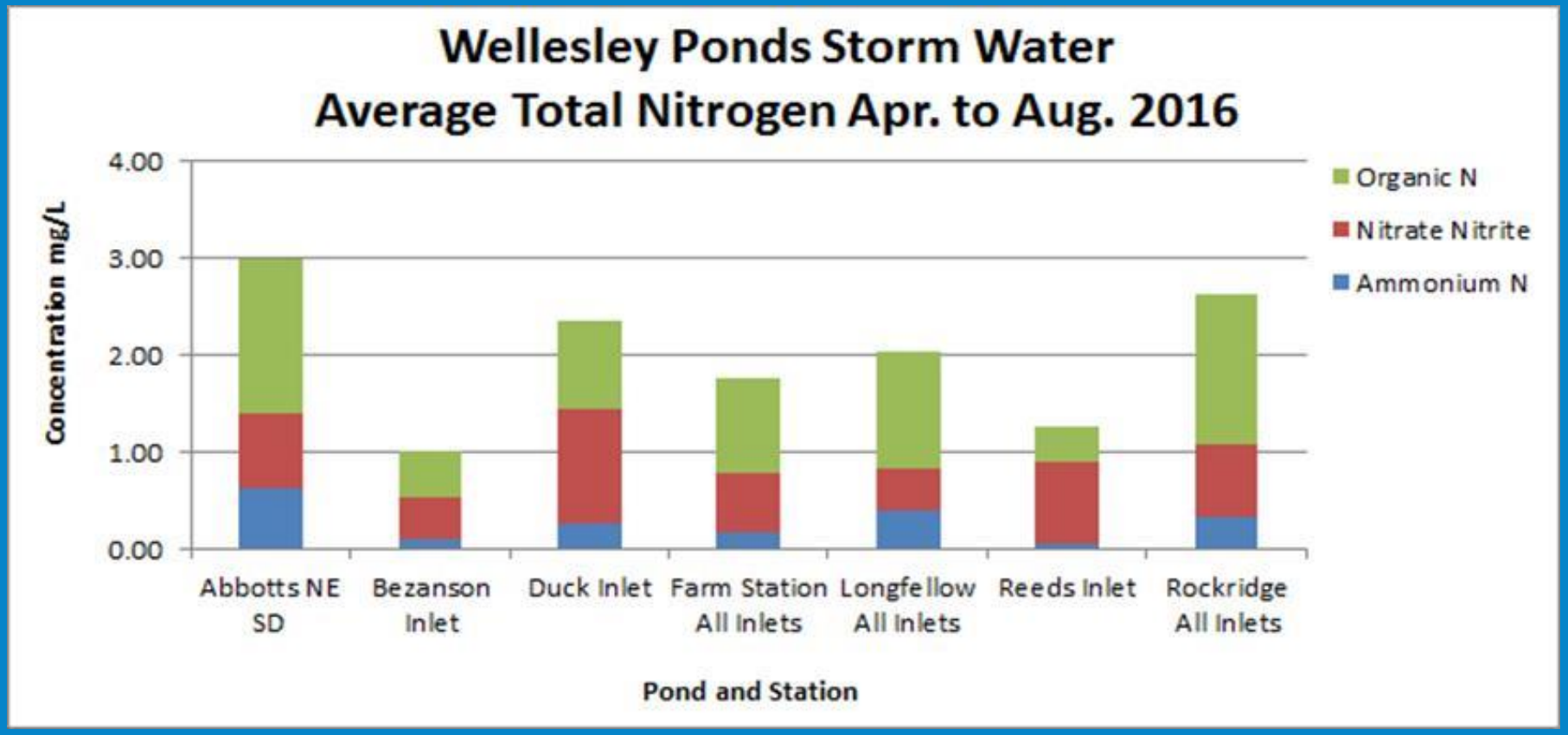
Water quality entering ponds: Nitrogen



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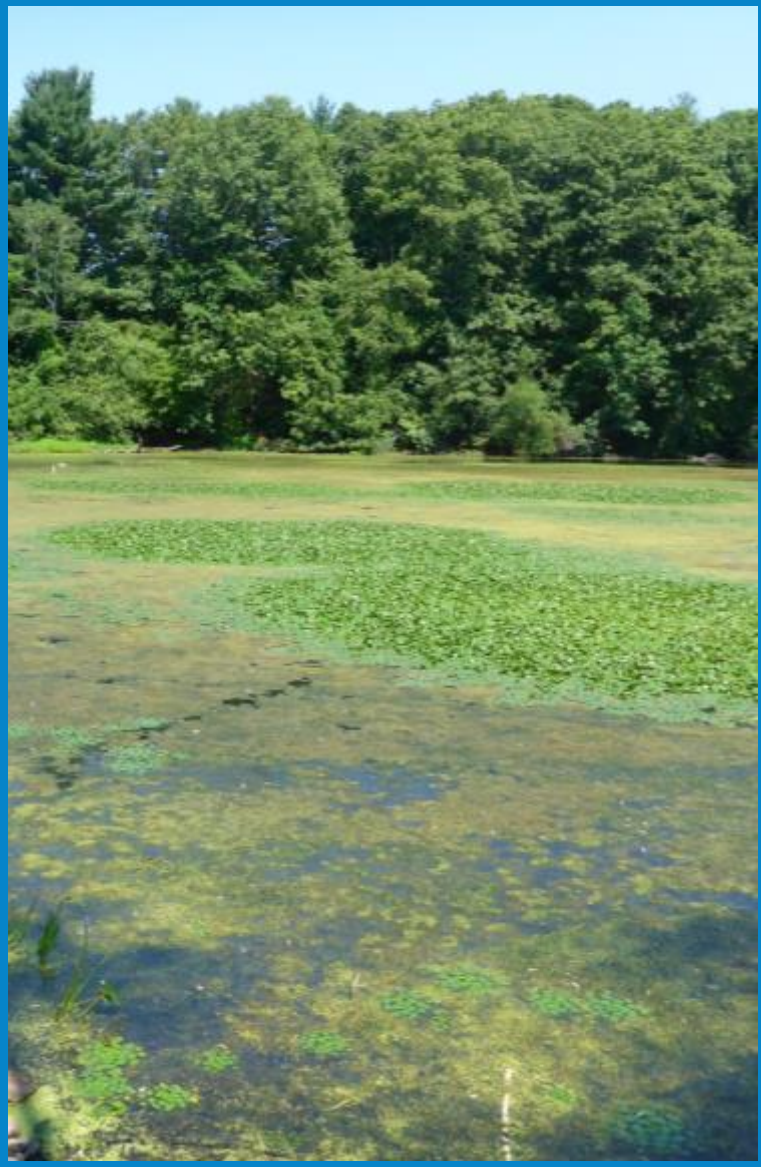
Plants in ponds:

- **Highly variable among ponds, some with very few species and some with very dense coverage**
- **Light and substrate are primary factors in growth**



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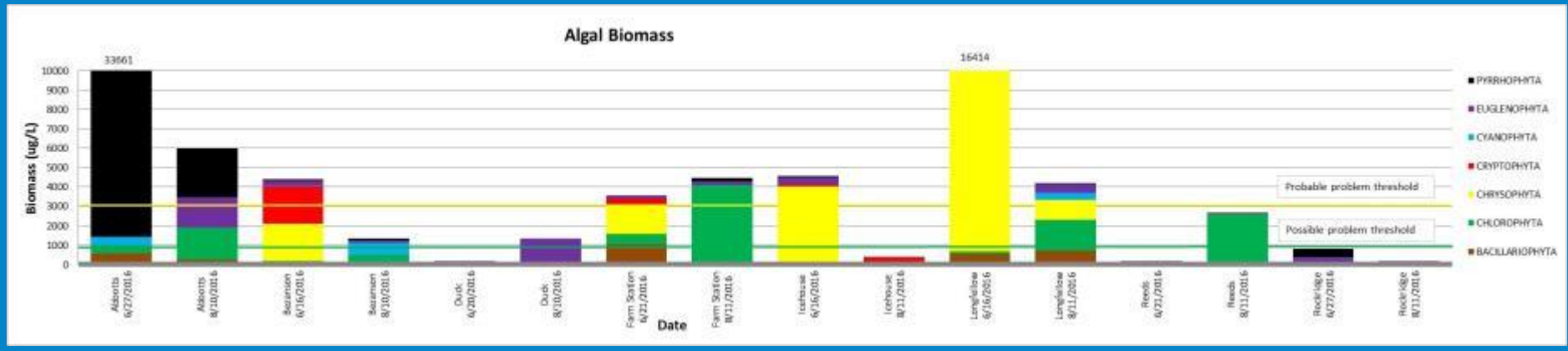
Plants in ponds

Aquatic Plant Species (Summer 2016)		Wellesley Ponds (X= present, D=dominant)							
Common Name	**Scientific Name**	**Abbotts**	**Bezan-son**	**Duck**	**Farm Station**	**Icehouse**	**Long-fellow**	**Reeds**	**Rock-ridge**
Coontail	*Ceratophyllum demersum*		D			X	D	X	X
White water lily	*Nymphaea odorata*					X	X	X	X
Duckweed	*Lemna Minor*				X		X	X	X
Waterweed	*Elodea canadensis*						X	D	D
Curly-leaf pondweed	*Potamogeton crispus*						X	X	X
Yellow water lily	*Nuphar variegatum*					X	X		
Water chestnut	*Trapa natans*						X		X
Flat-stem pondweed	*Potamogeton zosteriformis*					X		X	
Stonewort	*Nitella*			X		X			
Variable watermilfoil	*Myriophyllum heterophyllum*					X			
Eurasian watermilfoil	*Myriophyllum spicatum*					X			
Smartweed	*Polygonum amphibium*					X			
Variable-leaf pondweed	*Potamogeton natans*					X			
Fanwort	*Cabomba caroliniana*					D			
Bladderwort	*Utricularia spp.*					X			
Watermeal	*Wolffia columbiana*						X		
Primrose-willow	*Ludwigia*					X			
Total Species (#)		**0**	**1**	**1**	**1**	**11**	**8**	**6**	**6**

Comprehensive Management Plan

Algae in ponds:

- Highly variable plankton biomass, often below probable problem level, few blue-greens
- More issues with green algae mats



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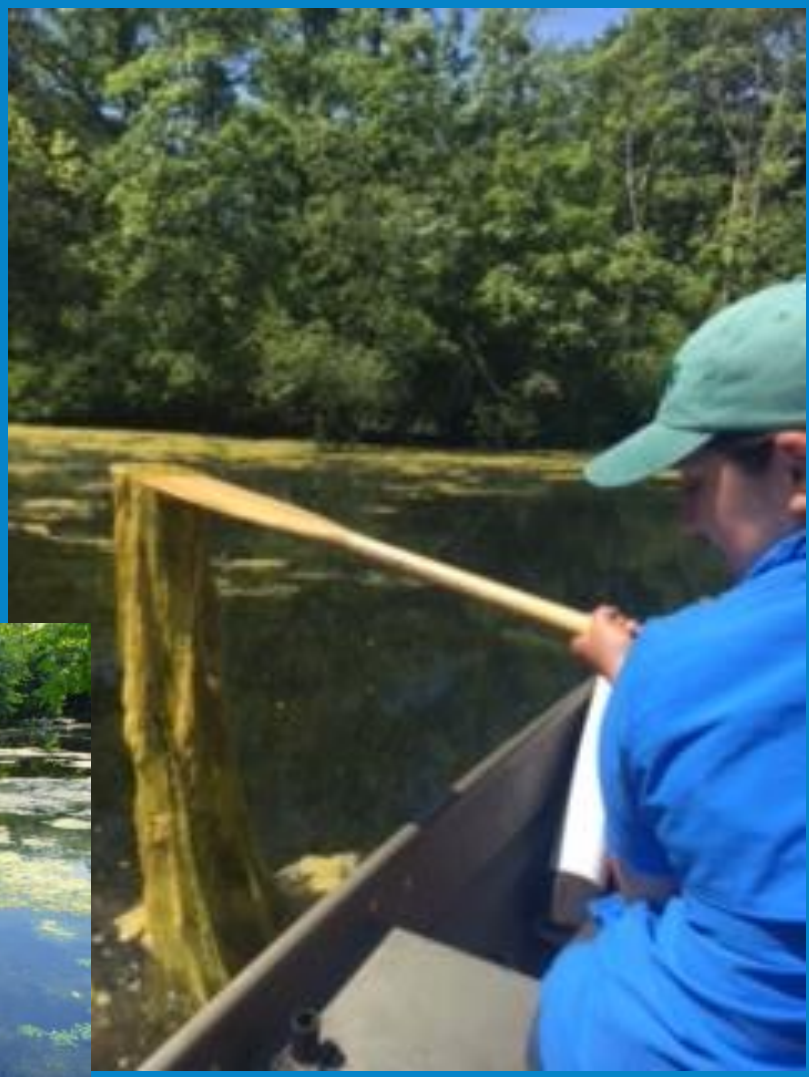
- Mats form on bottom, using nutrients from sediment, then float upward over time



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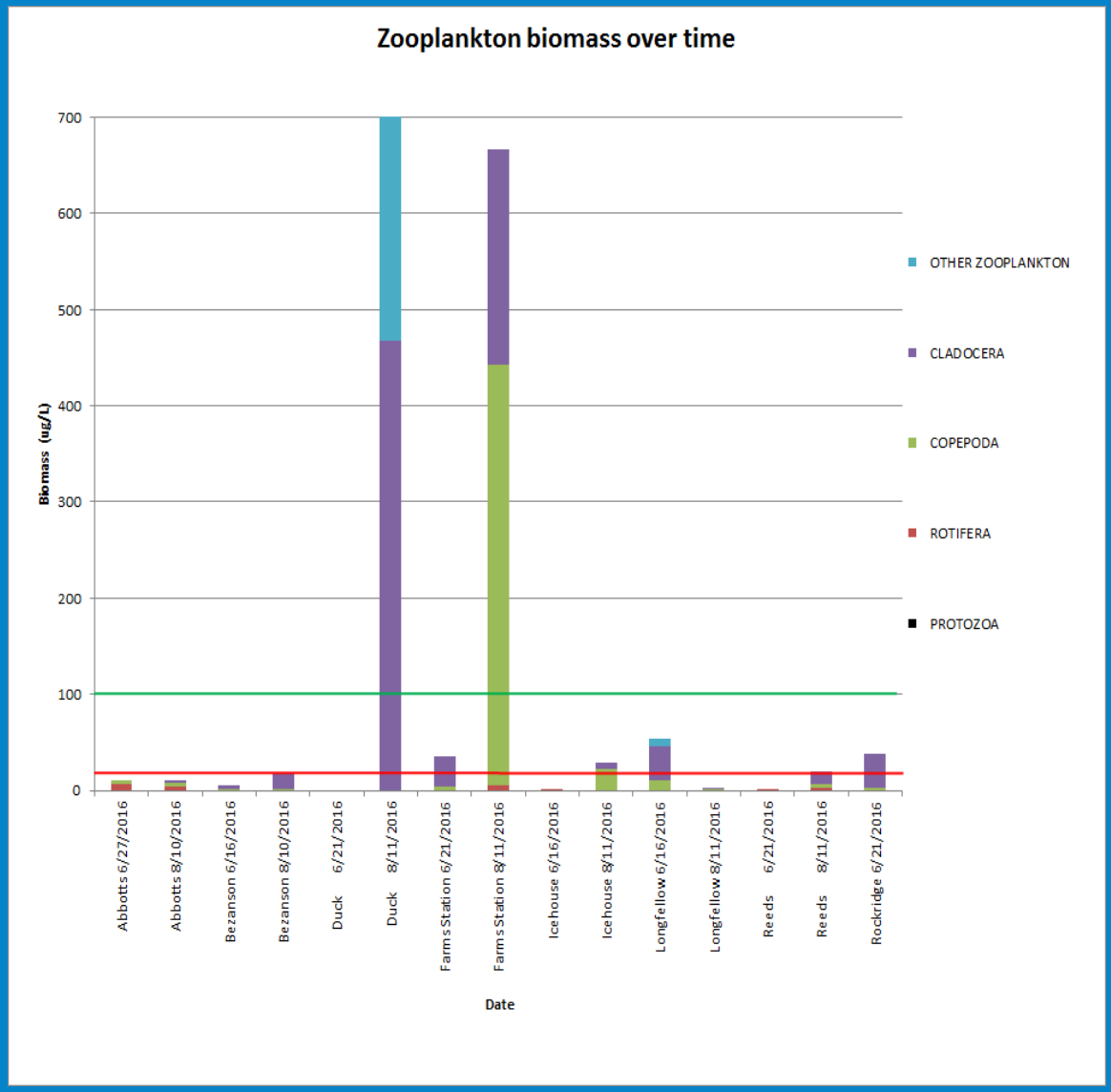
Zooplankton in ponds

- Variable types and biomass
- Most ponds with very little zooplankton



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Fish in the ponds

- This study did not quantify fish, but we know that fishing is a desired use of some ponds
- Duck appears to be fishless
- Bezanson has sunfish
- Longfellow has carp
- Abbotts has minnows
- Rockridge, Reeds, Icehouse, Farms Station have mixed assemblage

Comprehensive Management Plan

Summary thoughts

- All 8 ponds have some storm water influence and have accumulated sediment/contaminants over time.
- Half have been dredged, but still have some soft sediment
- Conditions vary substantially among ponds; no one size fits all solution
- Water quality may best be improved by P inactivation, dredging an option where needed, harvesting of plants applicable, but each pond needs its own plan.

Comprehensive Management Plan

Goals for the ponds

- Aesthetics
- Fishing
- Birdwatching
- Possible non-motorized boating
- Unlikely to support contact recreation (swimming)

- What would you like to see at each?