dcr MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

Proposed Hammond Pond Access Improvements

DCR Public Meeting #3

6:30 pm – 8:00 pm October 24, 2011

Newton City Hall

Newton, Massachusetts

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Commonwealth of Massachusetts

Governor
Deval L. Patrick

Lieutenant Governor
Timothy Murray

Energy and Environmental Secretary
Richard K. Sullivan, Jr.

Department of Conservation and Recreation Commissioner
Edward M. Lambert, Jr.

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DCR Mission Statement

To protect, promote and enhance our common wealth of natural, cultural and recreational resources.

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Project History - Public Private Partnership

- **Early 2010 –** Michael Rudyak Memorial Fund approached DCR with a vision to improve access to Hammond Pond by funding the installation of a continuous path along the shoreline

- **Spring 2010 –** DCR recommended that the Memorial Fund retain the services of a design professional to refine concept and commence with outreach to the City of Newton and community stakeholders

- **2010-2011 –** Building on the foundation of conceptual work done by Bioengineering Group Inc., DCR's Partnership Matching Funds Program joined with the Memorial Fund to support a feasibility study for a final scope

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Goals and Objectives of Pond Access Improvements

1. Identify potential solutions to enhance the ecological function and biodiversity of the Pond and shoreline area
2. Identify methods for water quality remediation
3. Use sound ecological decisions to promote Low Impact Design stormwater management
4. Improve and increase access to water to maximize public enjoyment of Hammond Pond for fishing, passive boating, and viewing
5. Enhance accessibility on existing trails on DCR land

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Partnership Matching Funds Project Support

DCR	$22,500
Michael Rudyak Memorial Fund	$22,500
Feasibility Study Total Funding	$45,000

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Purpose of Meeting

- Present results of the feasibility study, including proposals for addressing the short- and long-term requirements for ecological improvements to Hammond Pond and its adjacent DCR parkland
- Present preferred design plan for enhanced public access, based on results of feasibility study and public comments
- Review project schedule
- Obtain public consensus on advanced design and implementation plan

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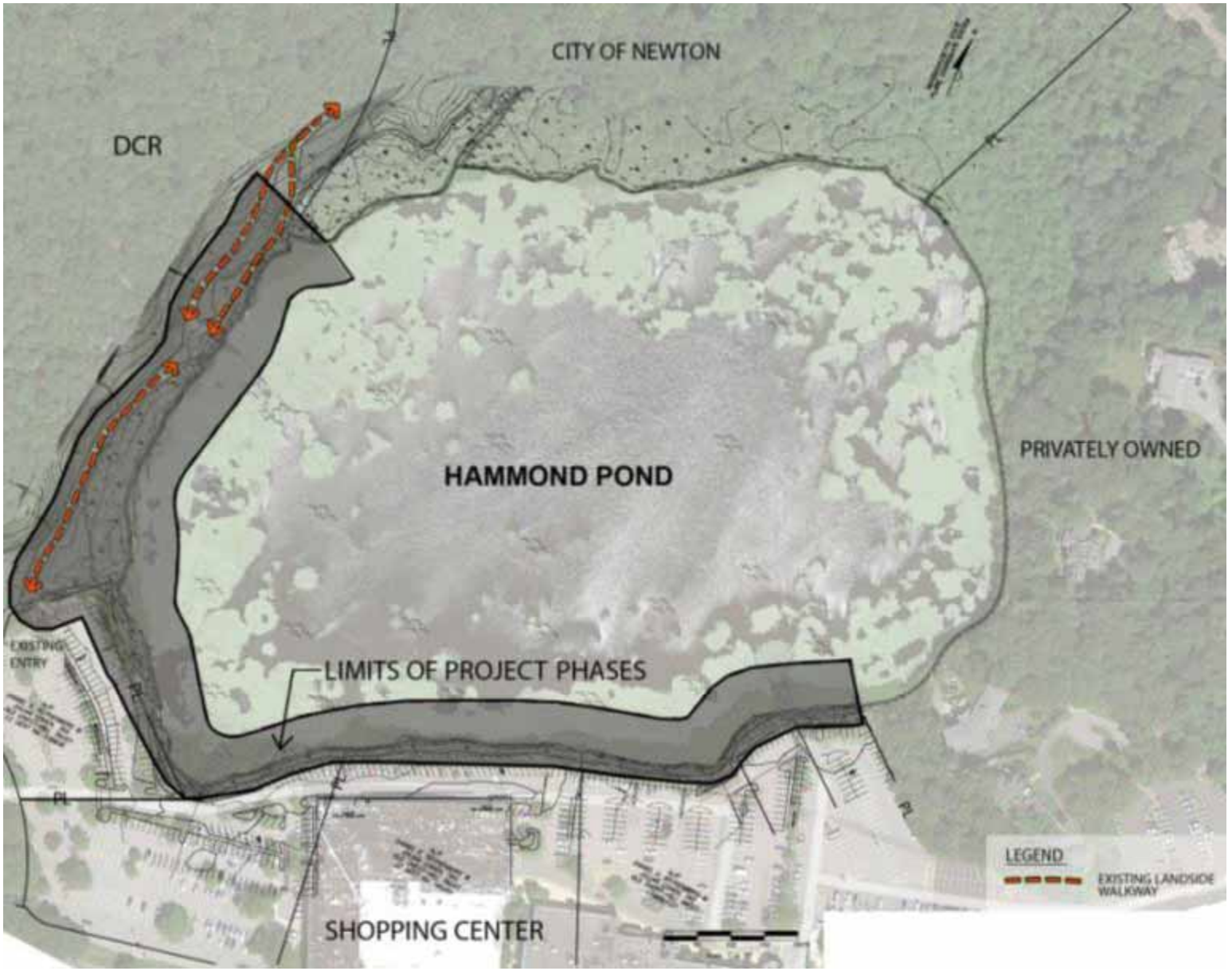
Project Area



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DCR Public Process for Hammond Pond Project

Public Meeting #1 - March 10

- Discuss and obtain public input on proposal to enhance public access around Hammond Pond and to identify solutions for its improved ecological function
- Present information about public private partnership

Public Meeting # 2 – July 7

- Present preliminary findings of feasibility Study
- Present conceptual design plan, factoring in comments received
- Obtain comments on conceptual design plans and collaborate on components of preliminary design
- Review permitting process

Public Meeting # 3 - October 24

- Present DRAFT feasibility study and preferred design
- Obtain public consensus on advanced design and implementation plan

Public Meeting # 4 - Late Winter 2012

- Present final design and construction plans

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Michael Rudyak Memorial Fund - Hammond Pond

Consultant / Design Team

- **Bioengineering Group** –

  Lead consultant. Award-winning multi-disciplinary firm hired by the Fund to ensure design is sensitive to its environmental location.

- **Carol R. Johnson Associates** –

  Nationally-acclaimed landscape architecture firm that has designed many trails adjacent to rivers and ponds.

- **Bourne Consulting Engineering** –

  Professional engineering service firm specializing in waterfront engineering projects.

Restored Planting - Fresh Pond

Overlook - Upper Charles

New Docks - Charles River

Feasibility Study Goals

- Identify potential solutions to enhance ecological function of the pond and shoreline
- Identify methods for water quality improvement
- Identify low impact design options for stormwater management in partnership with MassDOT studies.
- Identify areas where public access should and should not be encouraged along the shoreline and within the pond

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Feasibility Study Approach / Process

Task 1

- Inventory existing resource conditions
- Define problems and opportunities

Task 2

- Develop analysis of existing conditions
- Evaluate effects of alternative plans on pond
- Compare alternatives for benefits, constraints and costs

Task 3

- Select and develop the recommended plan

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Task 1

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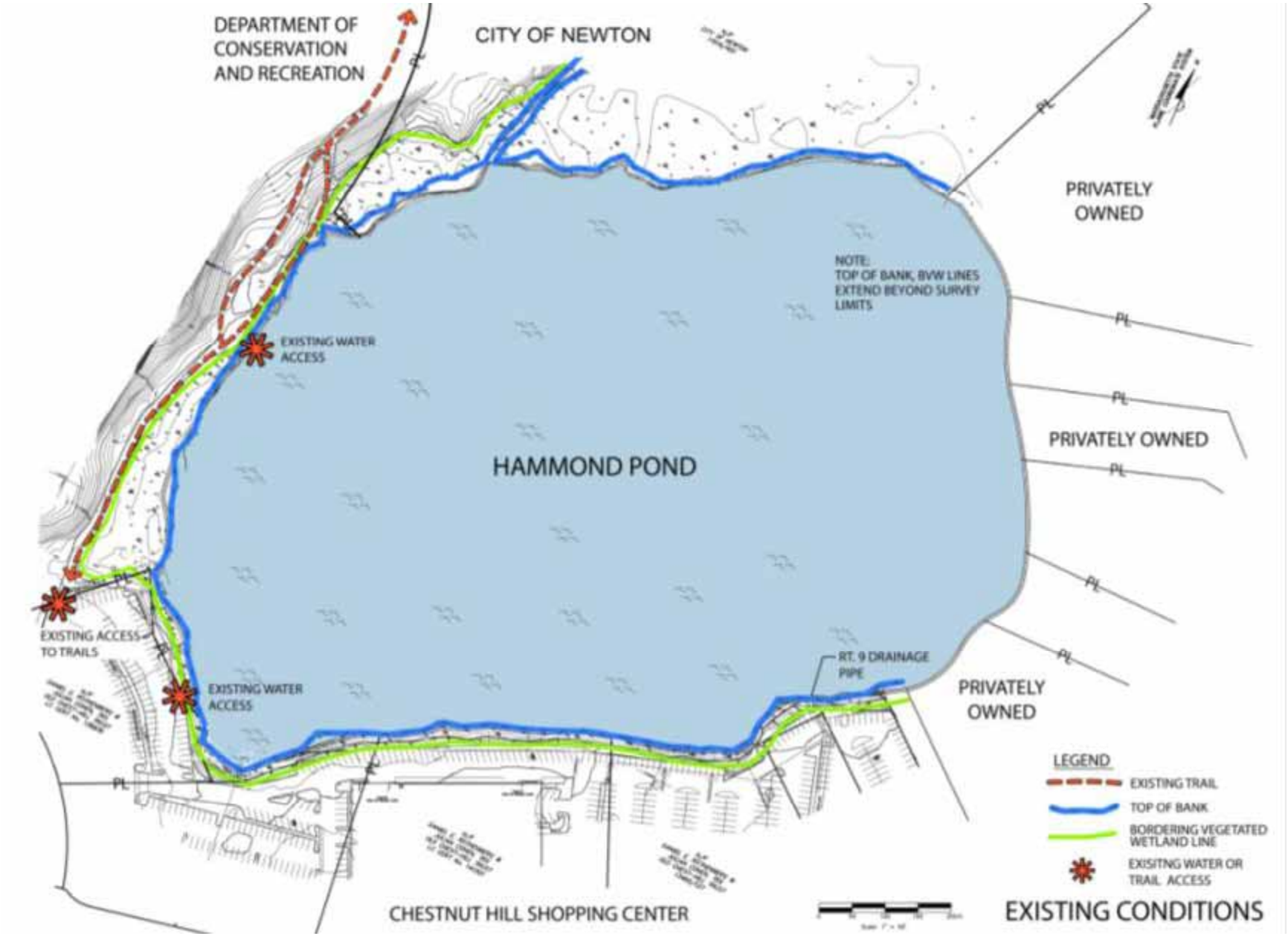
Existing Conditions Plan



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Analysis of Inventory Findings

- Invasive and nuisance species exist, mostly along southern pond banks requiring removal or containment

- Pond habitat/ecosystem in slow decline

- Sediment flows into Hammond Pond from Route 9, adjacent Chestnut Hill Mall and upslope areas

- Opportunities exist to add access, enhance connections to the pond and surrounding trails system

Soils Analysis

- Soils are classified as Hollis, rock outcrop which originate from glacial till
- They are formed by weathering effects from the existing rock cliffs which create the sediments in the soil
- Soils are well drained and have a variable capacity for transmitting water
- Hollis soil changes from a fine sandy loam texture to a cobbly fine sandy loam texture at lower depths
- Unweathered bedrock usually begins at a depth of around 13 inches

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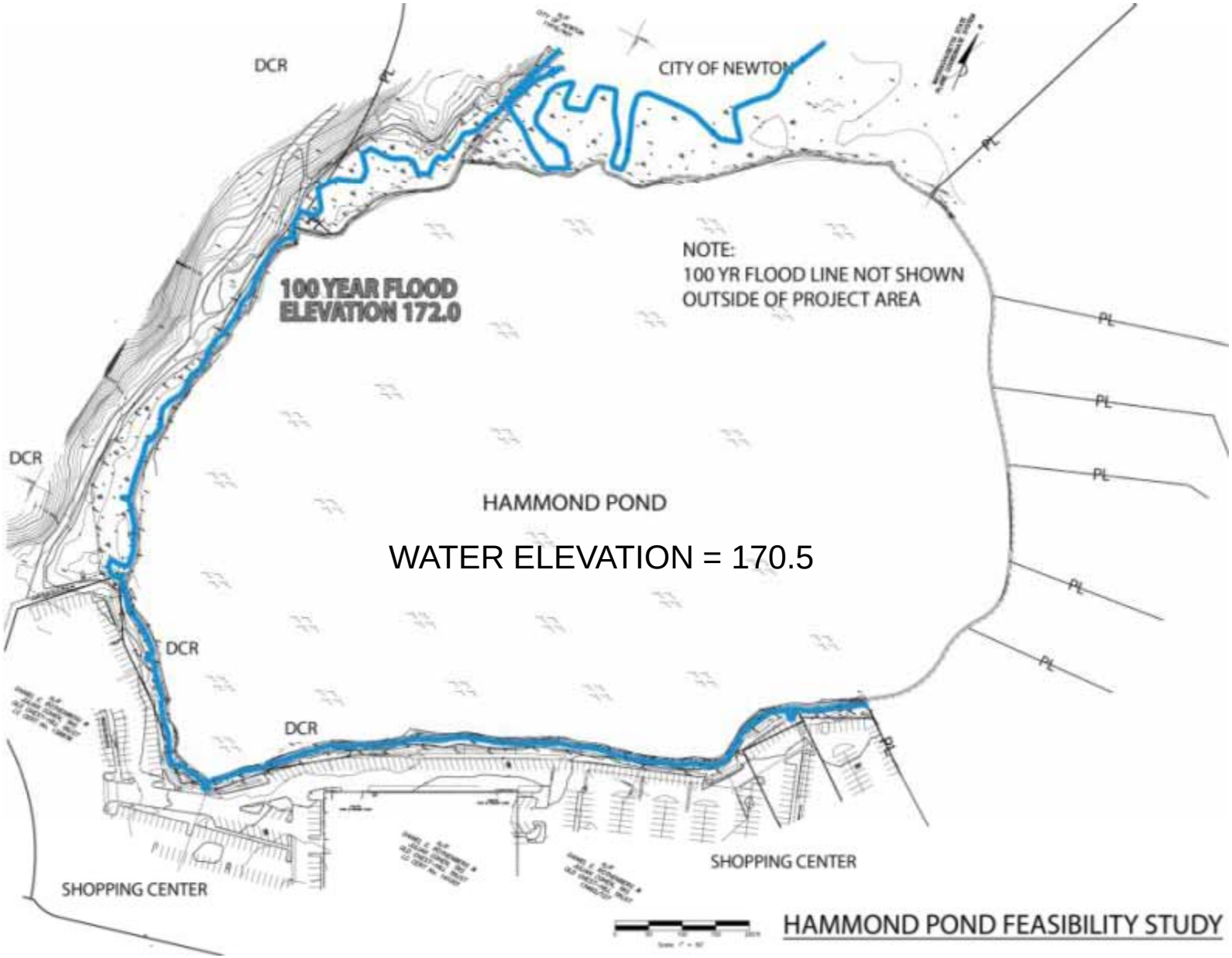
100 Year Flood Map



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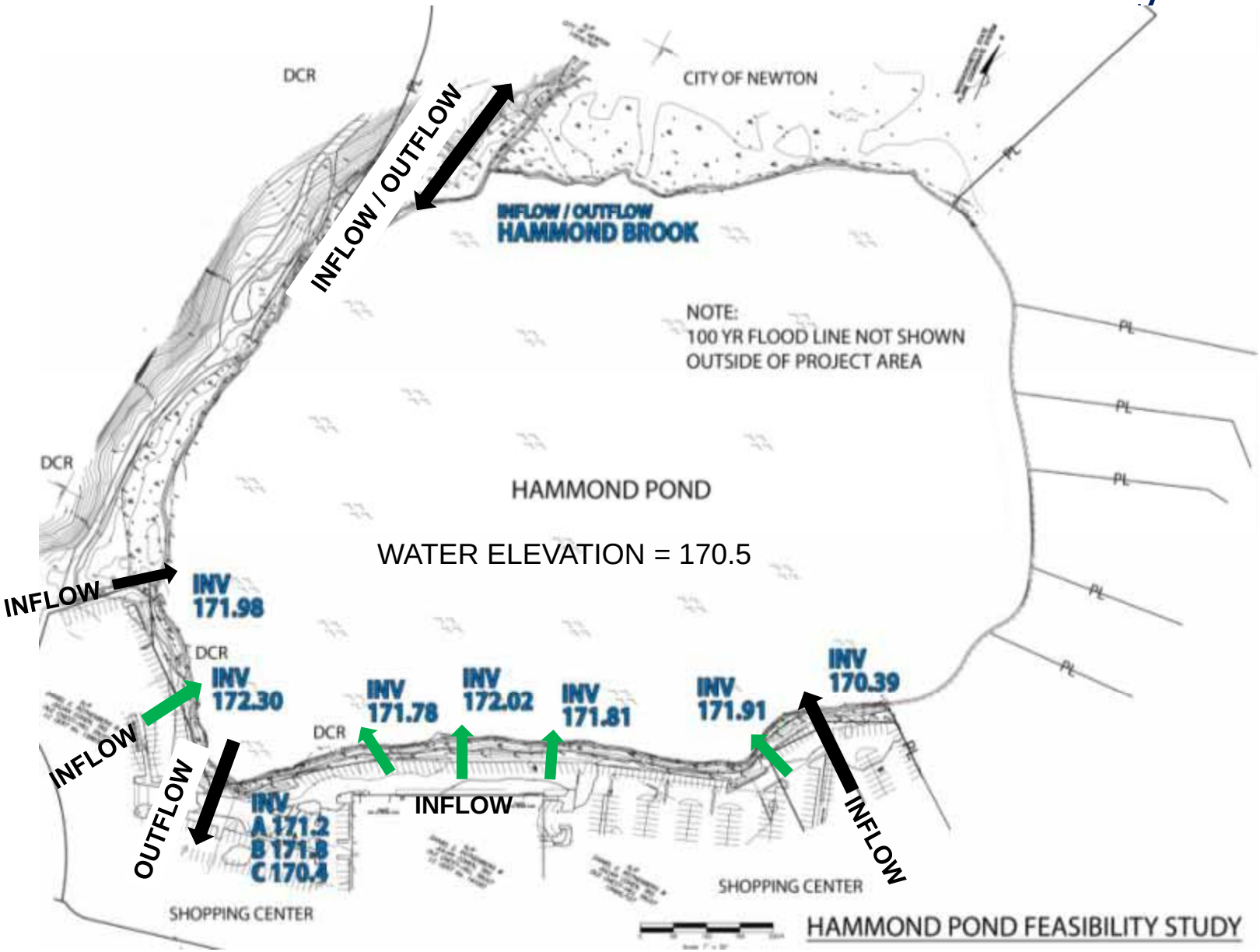
Point Source -Inventory Plan



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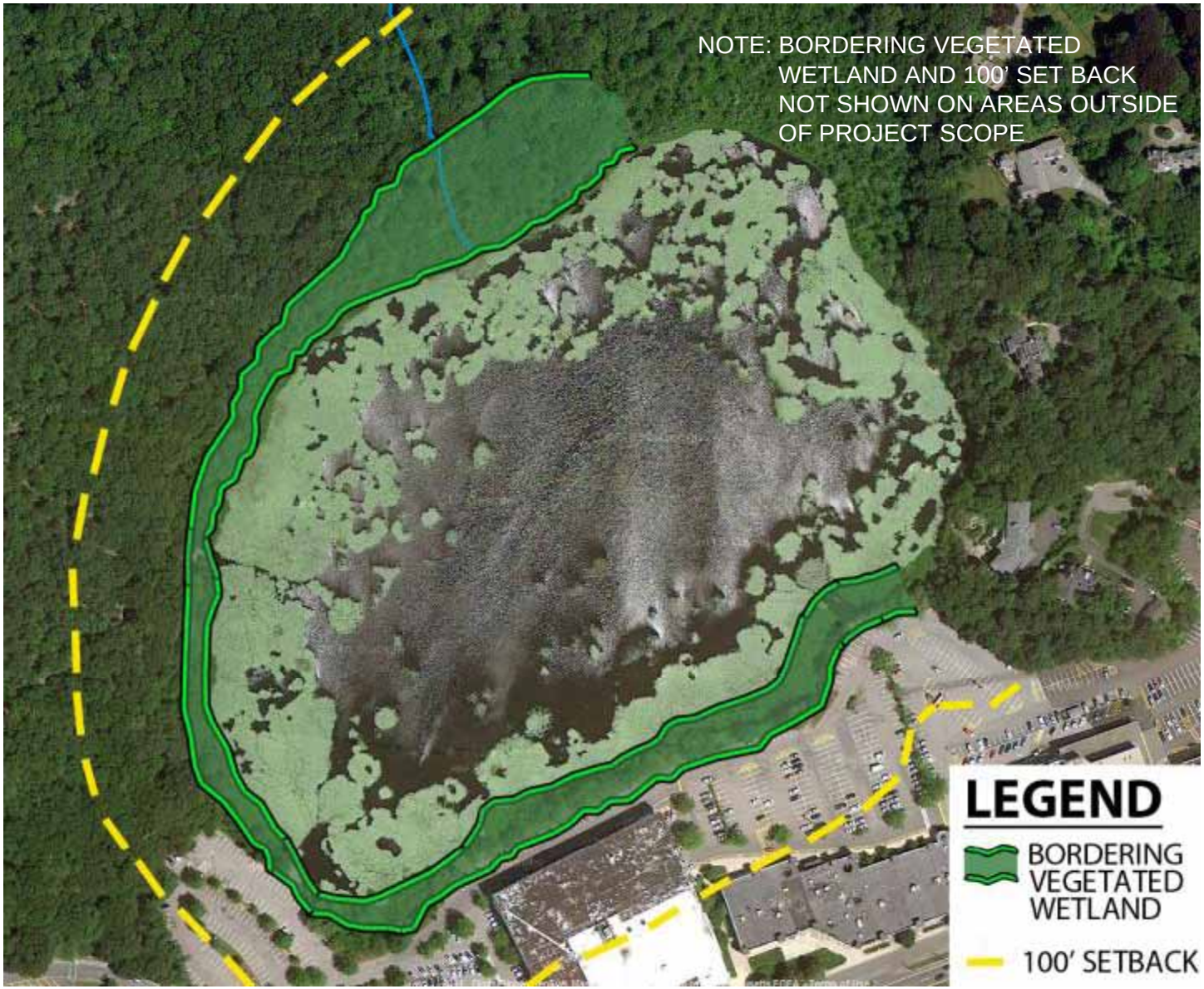
Bordering Vegetated Wetland Plan



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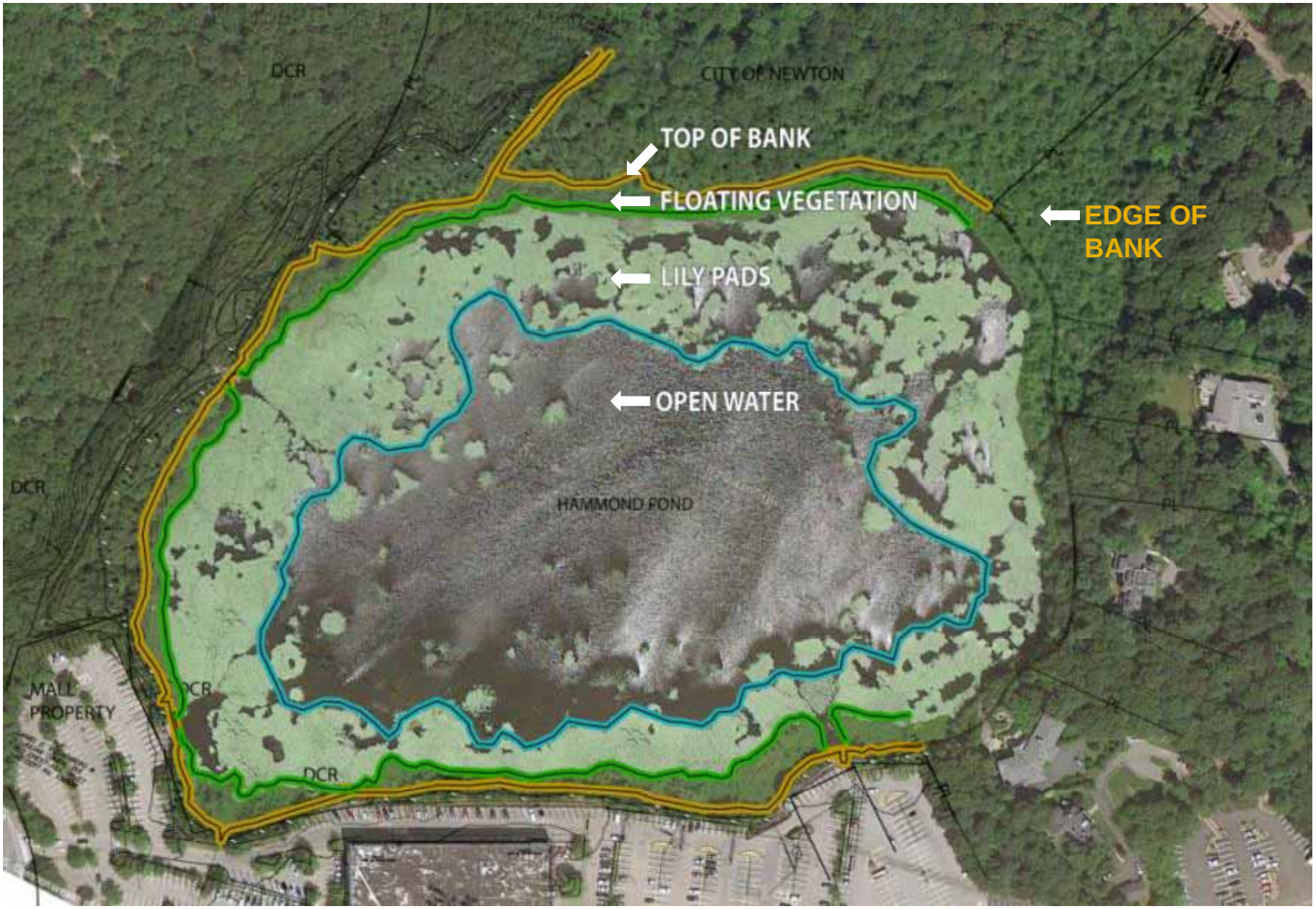
Pond Vegetation Plan



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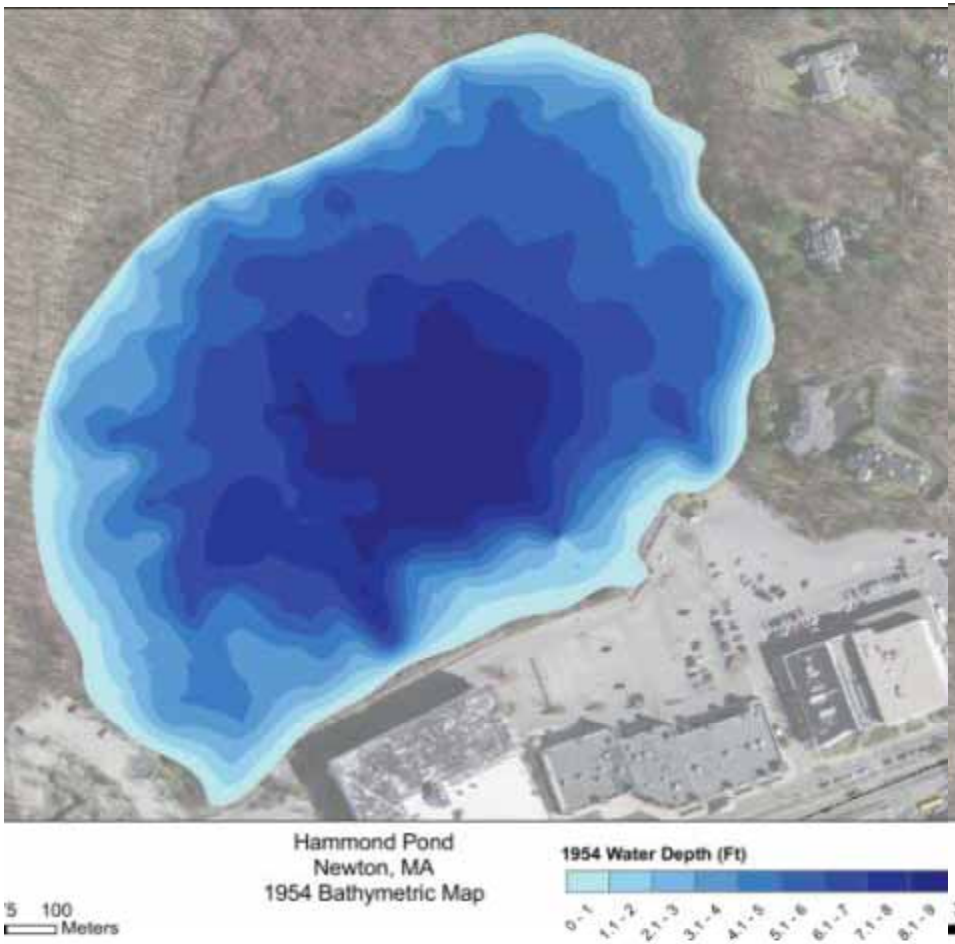
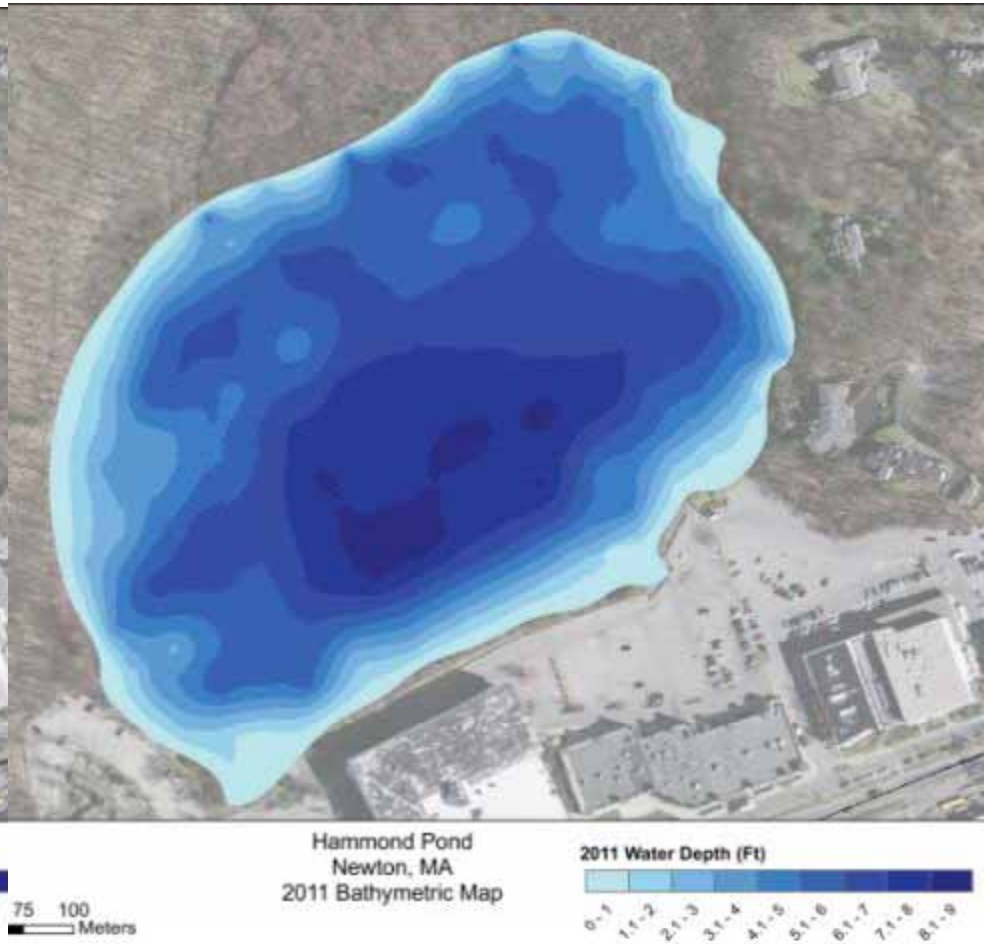
Bathymetry – Water Depth





1954 **2011**

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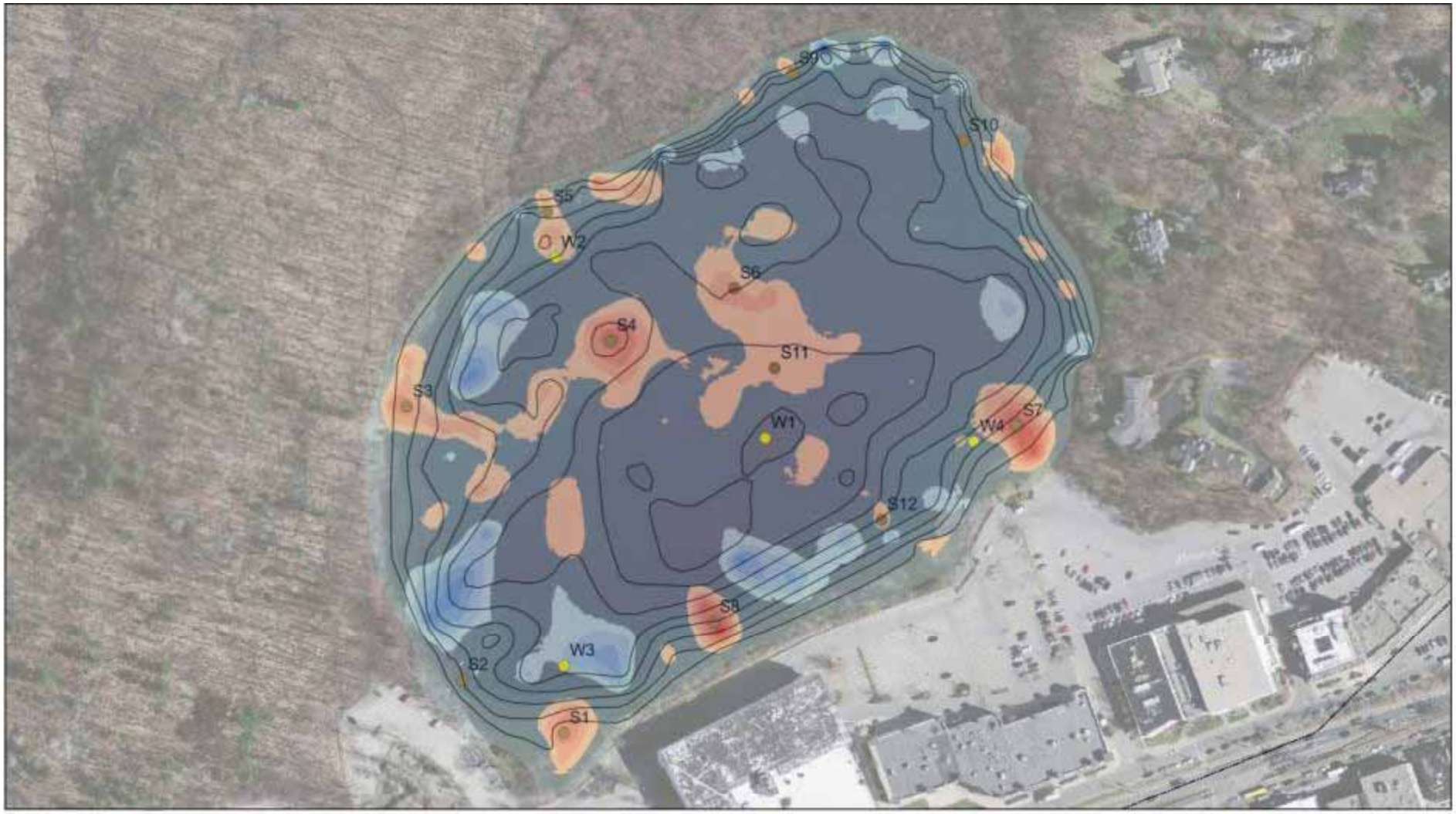
Bathymetry Water Depth and Sediment Accumulation Areas



N
W E
S

0 25 50 75 100 Meters

Hammond Pond
Newton, MA
Sediment Accumulation &
Sampling Locations

Sediment
Water
Sediment Accumulation Since 1954 (Ft)

Note: Negative depths = sediment loss, positve depths = sediment accumulation

AECOM

dcr

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Water Quality Testing

- Maximum water depth has decreased from 9 feet in 1954 to approximately 8.8 feet in 2011 = 2.5 inches
- Sediment accumulation has resulted in a loss of approximately 1 million gallons of capacity since 1954, a 2.75% decrease
- In-lake nutrient concentrations are indicative of eutrophication which can lead to degraded water quality, excessive algal growth, and depleted dissolved oxygen

- Showed expected ranges of pH, turbidity, and dissolved oxygen for an urban pond in Massachusetts
- Wildlife and dog use of the shore/pond or may indicate a potential bacterial source from the stormwater outfall

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Task 2

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Pond Health and Access

Benefits / Constraints

Floating Marsh Mat	Provides shoreline buffer Provides bird and fish wildlife habitat Ecosystem education for visitors Prevents direct water access
Lily Pads	Provide bird and fish wildlife habitat Increased eutrophication due to decaying plant material Prevent boating access Prevent access to deeper water for fishing
Rain Gardens	Limit direct runoff into pond Filter and treat captured storm water Prevent boating access Prevent access to deeper water for fishing

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Pond Health and Access

Benefits / Constraints

Wetlands and Woods Surrounding Pond	Provide shade and cooler water temps
	Provide buffer for pond from urban edge
	Provide high quality habitat area
	Provide ground water recharge
	Filter surface runoff
	Valuable aesthetic and recreational area
	Prevent views of pond
	Limit accessible water locations
Existing Access Points	Provide viewing points for pond
	Frequently used by visitors
	Safety and accessibility concerns
	Sediment and drainage issues
	Limited views of pond

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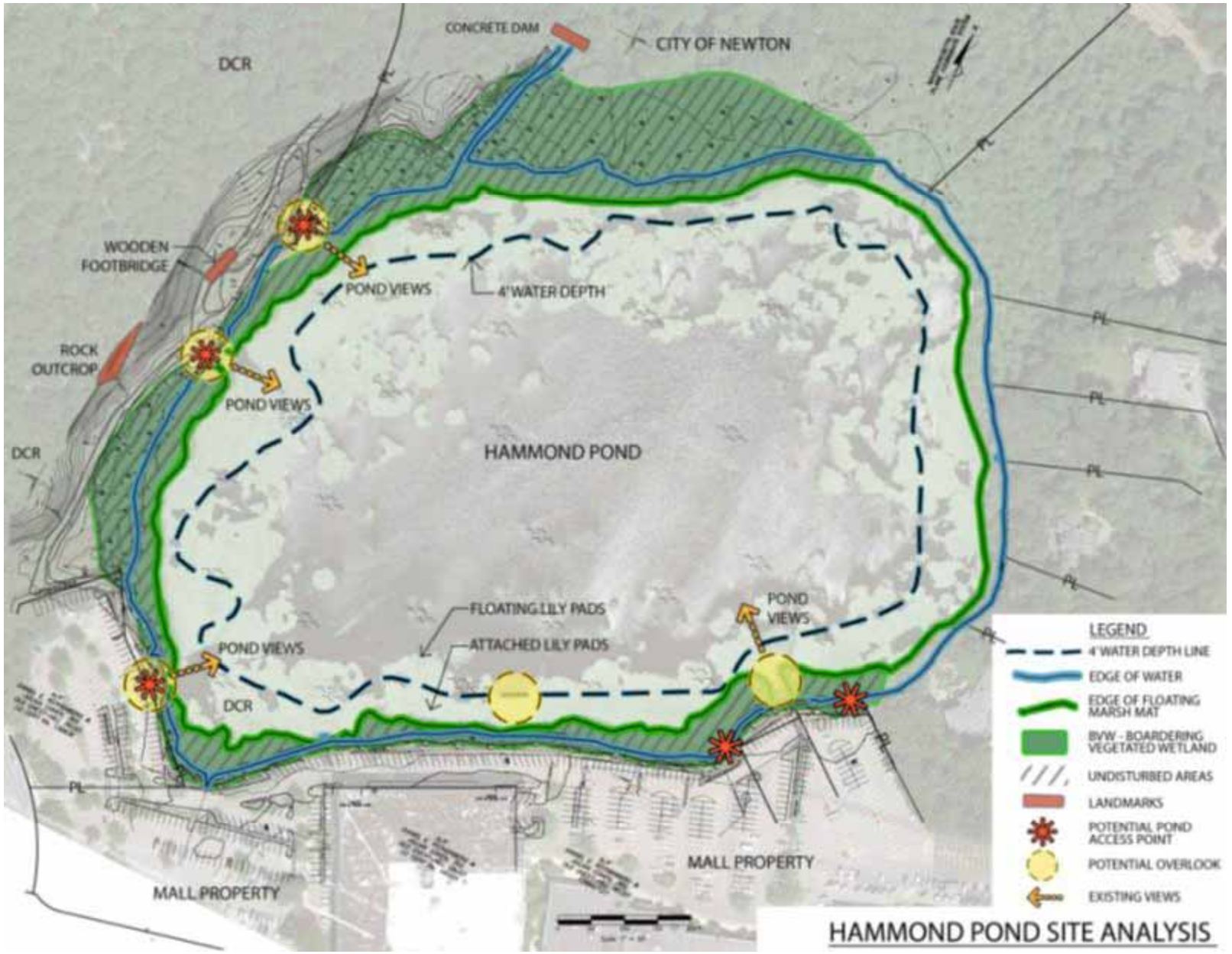
Site Analysis



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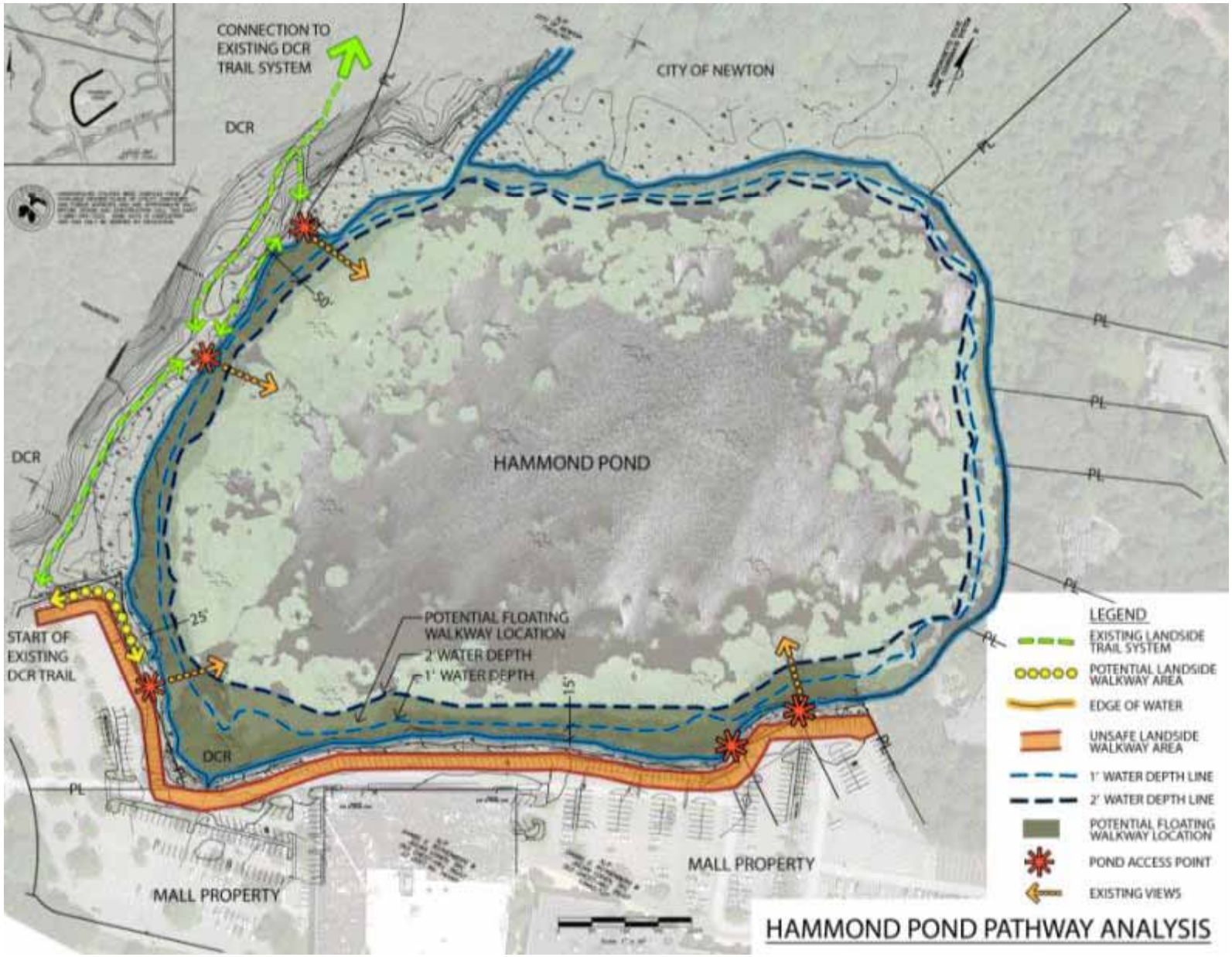
Pathway Analysis



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Task 3

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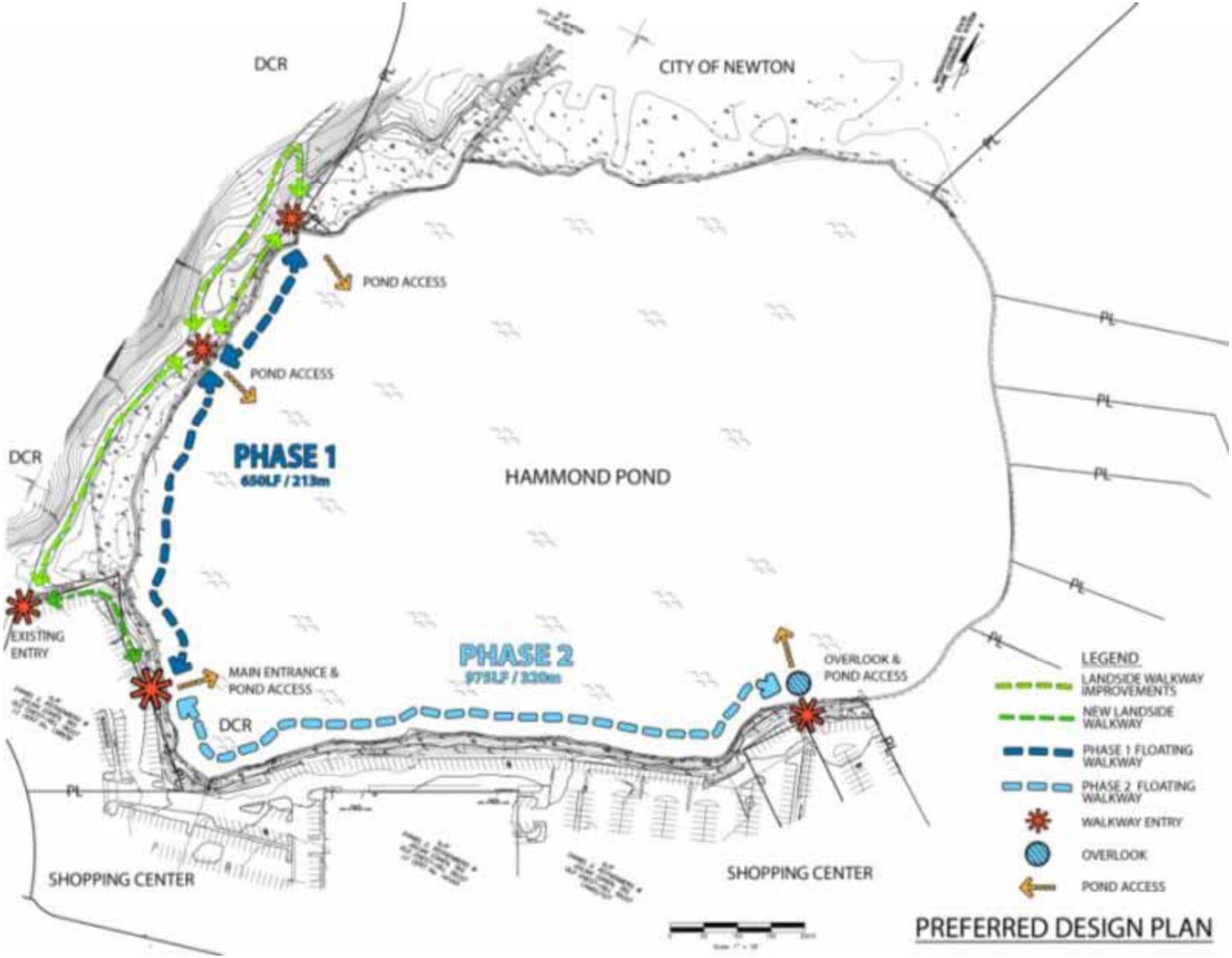
Preferred Design Plan



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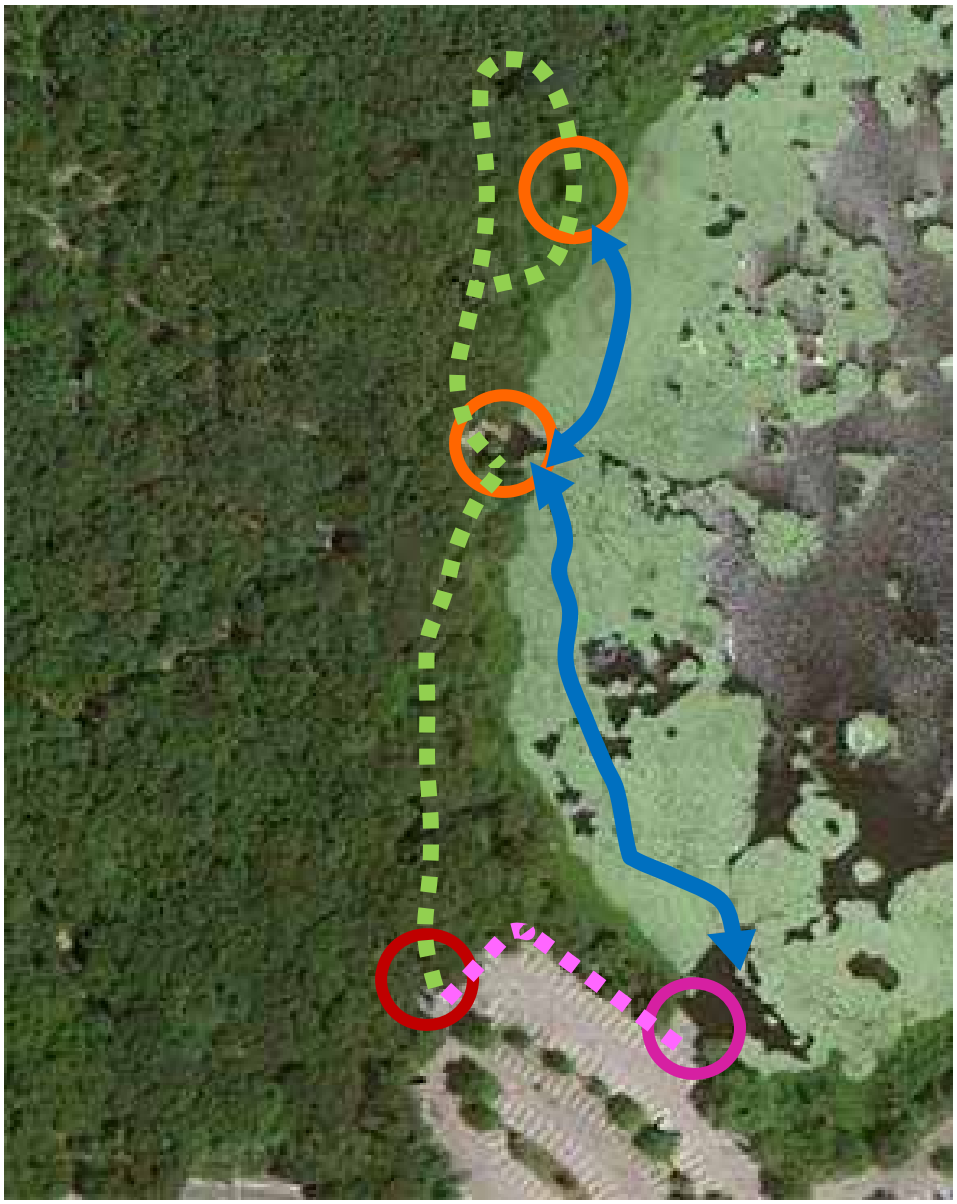
Preferred Design
Landside Walkway

Orientation Map

Floating Walkways
The Beach
The Path to the Trailhead
The Trailhead
The Overlooks
The Woodland Trail



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Existing Condition
Material for Woodland Trail

- Firm footing in upland areas
- Generally wide enough for emergency vehicles
- Universally accessible slopes in most areas
- Good views into surrounding forest
- Soils compacted and surface eroded
- Wet footing in lower elevations
- Some areas not accessible by slope and/or surface

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Preferred Design
Material for Woodland Trail

Stabilized Aggregate

- ADA – Compliant material Provides natural appearance with visually consistent color
- Soft surface
- Pervious and suited to stormwater management goals

- Not appropriate for locations with poor drainage and slopes greater than 3%
- Difficult to maintain for use in winter months

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Preferred Design
Material between Beach and Trailhead

- Pervious bituminous pavement
- Accessible route from the beach
- Reset and/or upgrade all furniture

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Preferred Design Materials

Woodland Trail

Path Material Woodland Trail	Cost / SF	Pervious	Comments
Stabilized Aggregate (Base material included)	$10 SF	Open Voids Between Particles	• ADA-Compliant material • Provides natural appearance and soft surface for walking • Not appropriate for locations with poor drainage and slopes greater than 3% • Difficult to maintain for use in winter months

Route from Beach to Trail Head

Path Material Path to Trailhead	Cost / SF	Pervious	Comments
Pervious Asphalt (Base material included)	$6.50 SF	Open Voids Between Particles	• Color matches existing parking lot color • Rigid walking surface • Requires periodic vacuuming • Repairs by qualified installer
Granite Curb (Base material included)	$ 42 LF	No	• Edge to contain pervious asphalt • 6 inch curb protects trailhead entry area from damage by cars

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Preferred Design
Floating Walkway

Operation Requirements & Issues

- Loads:
  - Pedestrian load – floats 40 psf
  - Wind/Ice lateral load
  - Mooring point loads
- Free board: 12” ±
- Year round installation
- ADA compliance – Universal access
- Railings/curbs - Visual impacts
  - Geese control
- Maintenance requirements minimization

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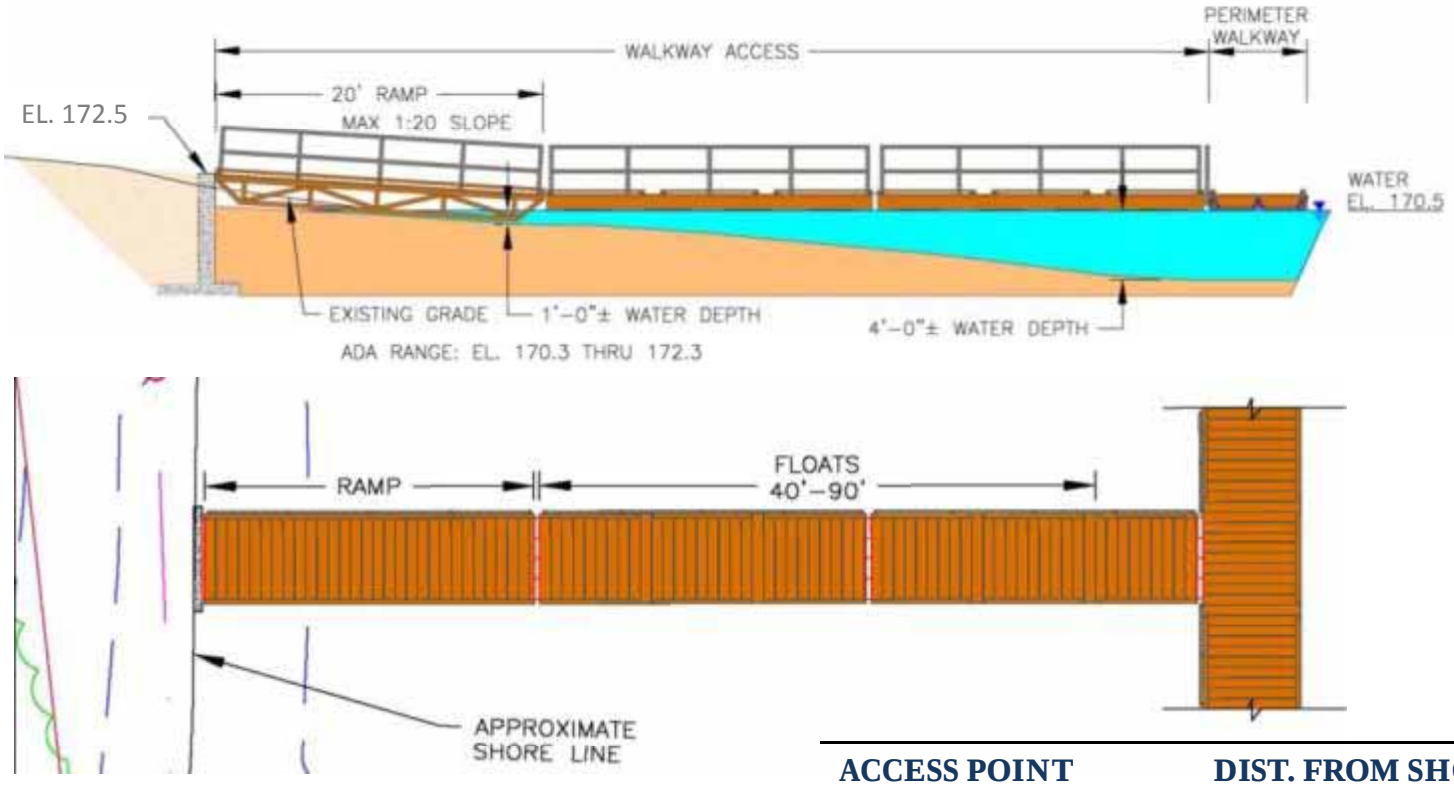
Preferred Design Floating Walkway

Walkway Access - Typical



- Operating Range (ADA): +/-12 inches
- Concrete Abutment or Concrete Footings
- Timber Decked Aluminum Ramp
- Est. Max Deck Live Load 20 psf

ACCESS POINT	DIST. FROM SHORE 1' ± DEPTH	4' ± DEPTH
NORTH END	25' ±	60' ±
MID POINT	12' ±	110' ±
PARKING LOT	30' ±	60' ±
SHOPPING CTR.	25' ±	60' ±

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Preferred Design
Floating Walkway

Recommended Solution

Framing

- Southern Yellow Pine
- Hot dipped galvanized hardware

Decking

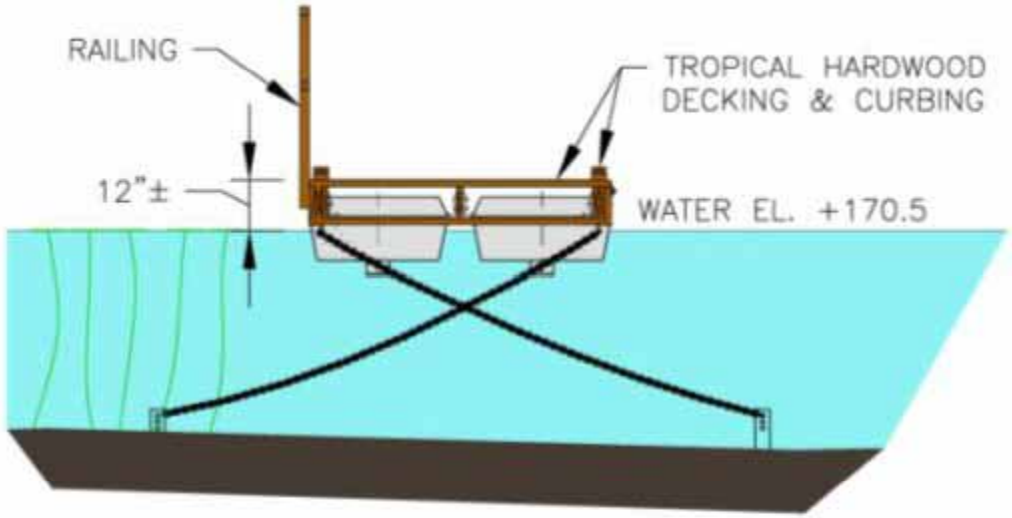
- Tropical Hardwood Decking

Floatation

- Polyethylene encased foam filled units

Anchor System

- Helical Anchor



TIMBER FLOAT W/
HELICAL ANCHORS

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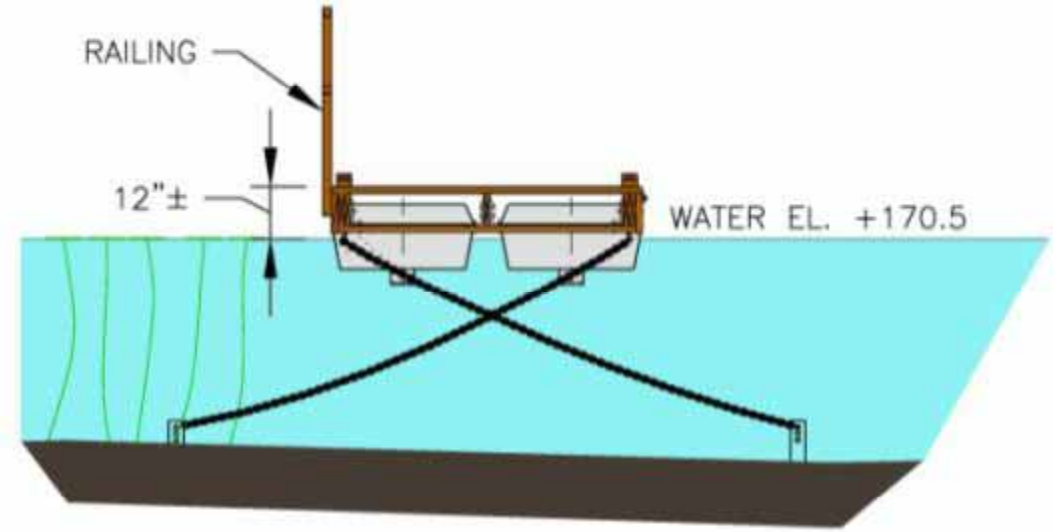
Preferred Design
Floating Walkway

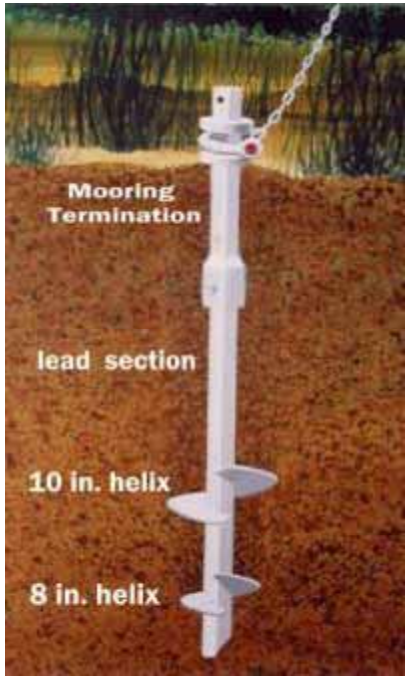
Float System Anchor Options

Helical Anchor

- Lifespan of chain ~10 yrs
- Machine required to install / remove
- Maintenance of chain required
- Stronger, resistant to movement



TIMBER FLOAT W/
HELICAL ANCHORS



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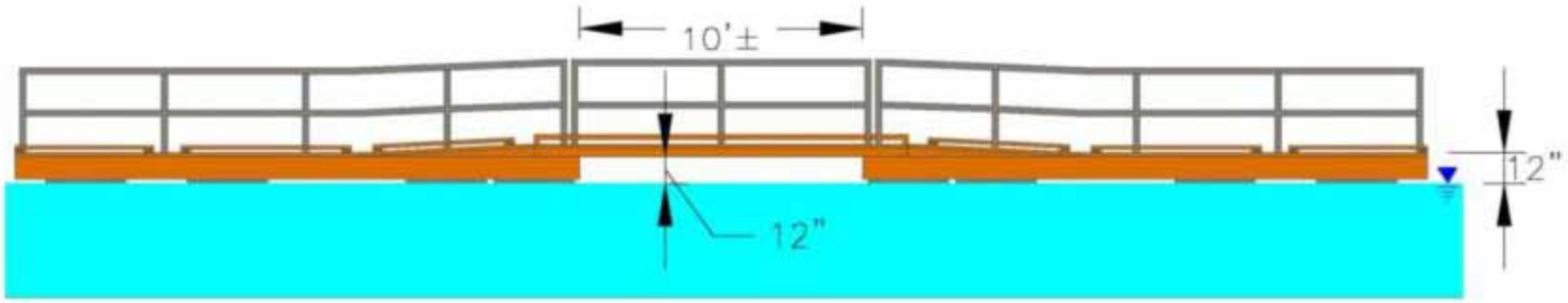
Preferred Design Floating Walkway



Walkway Openings

- Provide for Pond Surface Continuity for fish, amphibians and wildlife access
- Determination of Need and Location
- Widths Limited By Float Capacity

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Existing Conditions
Floating Walkway

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Preferred Design
Floating Walkway

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Preferred Design
Floating Walkway

Floating Walkway	Cost	Pervious	Comments **Walkway : 6 foot wide floats, Total 9750 SF** **Phase 1 = 650LF** **Phase 2 = 975LF** **1625 LF of Float System** **Spacing assumed for cost estimation, actual to be derived in Final design**
Timber Float System **Timber Framing w/ hardwood deck** **PP encased foam filled Floats**	**$50.00/ SF**	**Open Footprint**	• Easier to Repair • 66% coverage
Helical Anchor Mooring System **• 2 Per Location** **• 20' Spacing** **• 20' in length**	**$1000/ Each**	**Permanent option**	• Left in year round • Requires mechanical installation • Chain requires maintenance • Higher capacity / Less bottom impact

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Potential Operations and Maintenance Tasks

Woodland Walkway

- Leaf or vegetative debris clean up
- Trail/surface material maintenance
- Trash/rubbish clean up
- Landscape maintenance
- Weeding
- Snow removal

Water Walkway

- Maintaining structures
- Graffiti removal
- Wood structure moisture control
- Surface treatments, stains
- Wash/clean dirt, debris from deck surface
- Structural repair pontoon
- Structural repair wood
- Replace or reinforce materials
- Freezing – moving or removing floating walkway

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Short-Term Recommendations for Restoration of Hammond Pond Water Quality

1. **Stabilize eroding slopes in woods with bioengineered methods.**

2. **Install infiltration trenches between rock climbing cliff and pond to capture sediment before it enters pond.**

3. **Repair the function of existing rain gardens.**

4. **Increase and maintain water depths greater than 4 feet deep, by adding flash boards at the pond outlet to raise the water elevation.** Requires additional technical studies for feasibility.

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Short Term Recommendations

Existing pipe and flashboards

Rain garden restoration example

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Long –Term Recommendations for Restoring Hammond Pond Water Quality

1. Hydro-raking of water lilies in water walkway location followed by periodic maintenance hydro-raking.

2. Dredge in shallow areas to increase water depth to 4 feet to prevent / limit the growth of water lilies.

3. Increase surface water flows into and/or out of Hammond by dredging sediments from Hammond Brook.

4. Increase surface water flows into and/or out of Hammond by removal of remnants of concrete dam across the brook and north of the pond.

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Long –Term Recommendations for Restoring Hammond Pond Water Quality

5. **Construct a berm-contained settling basin and treatment wetland at the Route 9 stormwater outfall to function as a biological water filter.**

Treatment Wetland Example

Settling Basin Example

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Public Comments Received to Date

- First step should be health of pond with emphasis on ecology
- Interest in improved access to pond
- Concerns with walkways affecting natural look of pond
- South side of site is a logical location for walkway
- Increased traffic around pond might upset pond ecosystem
- Concerns with parking lot runoff and storm drains
- Concerns with ecological impacts of dogs

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Proposed Schedule

October 24	Public Meeting #3
October 24 – November 7, 2011	Public Comment Period
Winter 2011	Construction Documents - Phase 1 and 2
Winter 2011 -2012	Permitting – Phase 1 and 2
Late Winter 2012	Meeting #4 (Final Design and Construction Plans)
Spring 2012	Bidding and Construction – Phase 1

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Questions & Answers

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Additional Information

Web:

http://www.mass.gov/dcr/news/publicmeetings/parklandspast.htm

If you have comments or suggestions:
Phone: 617-626-4974
Email: dcr.updates@state.ma.us
Write: Department of Conservation and Recreation,
Office of Public Outreach,
251 Causeway Street, Suite 600, Boston, MA 02114

Note: Public comments submitted to DCR by email or letter will be posted on the DCR website in their entirety, and no content, including personal information, will be redacted.