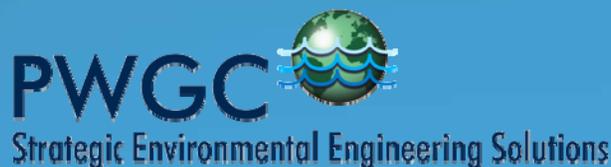


# County of Suffolk Aquatic Invasive Plant Eradication Strategy for Canaan Lake, North Patchogue

Canaan Lake Elementary School

May 5, 2016





# Introduction

- Project Team
  - Legislator Robert Calarco
  - Suffolk County Economic Development and Planning
  - Suffolk County DPW
  - P.W. Grosser Consulting, Inc.
    - USA Environment, LP.

# Study Area





# Path Forward

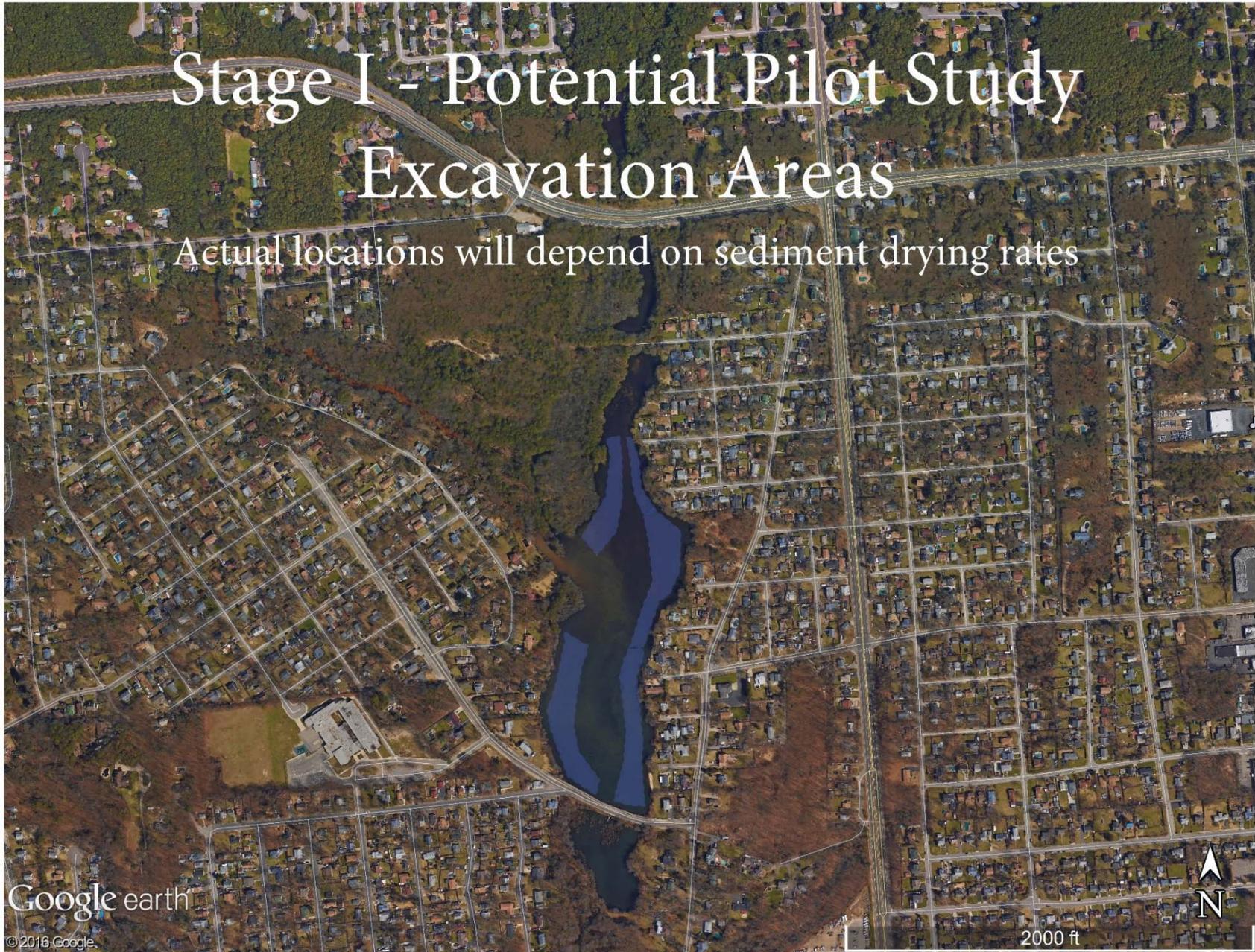
- Phase I - Seasonal Draining of Lake
  - Design, permitting of drainage culvert
  - Plan submittal to NYSDEC
  - Culvert installation
  - Seasonal draining of the Lake – drop water level by 4-7 feet
  - Cold weather kill-off of some invasive plants?
  - Evaluation of sediment drying rates for excavation strategy
  - Evaluation of water inputs into Lake – Additional dewatering needed?
  - Pilot Area Excavation/Sediment Scraping
  - Re-dam the Lake & evaluate invasive species areas

# Canaan Lake - Traction Blvd. Potential Location of Drainage/ Drawdown Culvert



# Stage I - Potential Pilot Study Excavation Areas

Actual locations will depend on sediment drying rates



# Path Forward

- Phase II – Finalize Sediment Layer Removal Strategy
  - Evaluate Phase I results – Design strategy to address remaining invasive species plant areas
  - Obtain additional funding to complete the nutrient rich sediment layer removal where needed
  - Obtain best sediment disposal options – Town landfill, beneficial reuse?
  - Install dewatering system to further drop water levels where needed?
  - Drain lake, remove sediments, restore lake to original footprint?



# Purpose of the Study

- Evaluate Alternatives to Remediate the Aquatic Invasive Species Issue at Canaan Lake
  - To restore and enhance recreational uses such as fishing and canoeing;
  - Remove contaminants and nutrients that are within the soft sediment which has accumulated over the years;
  - Achieve long term aquatic invasive plant growth suppression;
  - Restore and maintain the lake's aesthetics and character



# Meetings with NYSDEC & Town Of Brookhaven

- Discussed issues encountered with Upper Lake dredging
- Discussed remedial alternatives and permitting issues that would help identify best strategies

# Alternatives Evaluated

Potential Remedial Strategy	Major Constraint
Dredge nutrient rich sediment layer, off-site disposal	Permits unlikely Implementation cost Sediment disposal options limited
Drain/dewater lake, excavate nutrient rich sediment layer, off-site, upland/island creation for disposal	Permits unlikely Implementation cost Sediment disposal options limited – can not be utilized in/around lake
Mechanical Harvesting	Does not remove nutrient rich sediment layer or plant roots Constant maintenance required
Herbicide Treatment	Does not remove nutrient rich sediment layer Not effective on all invasive species Would require re-occurring treatments
Carp	Does not remove nutrient rich sediment layer or plant roots Constant maintenance required
Seasonal Drawdown	Does not remove nutrient rich sediment layer Need long lasting freeze to kill off some of the invasive plants species



# Major Constraints

- Permit Approvals
- Access/Staging Space
- Costs - Implementation, Maintenance, Sediment Disposal
- Incoming water volume and quality concerns
- Impacts to downstream watershed
- Impacts to Community

# Estimated Timeline

- 2016
  - Culvert design, permitting
- 2017-2018
  - Culvert installation
  - Drain Lake
  - Evaluate Lake water flow, sediment drying rates
  - Pilot area excavation
  - Determine cost effective sediment disposal options
  - Secure funding for future remedial efforts
- 2018-2020
  - Design strategy to address remaining invasive plant areas
  - Drain lake, remove sediments, restore lake to original footprint

# Thank You

Questions?

