Niagara River Riparian Restoration Program Phase 2

Year 2 Update

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for
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Niagara River Riparian Restoration Program – Phase 2

Grant Project Areas:

1. Living Shoreline Restoration Projects
2. Third-party Evaluation of Phase 1 Shoreline projects
3. Native Niagara! Ready, Set, Grow! (seed program)
4. Invasive Water Chestnut Pull Events
5. Website & Educational Tools for Waterfront Landowners

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Native Niagara! Ready, Set, Grow! (Year 2)

- 35 Site Assessments at 11 different natural areas in WNY (including over 2000 GPS tags)
- Continued development of Species Seeding Database
- Developed field reference sheets for volunteers
- Involved 8 Volunteer Interns
- 9 Seed Collection Events (19 species collected)
- Initiated partnership with N. Tonawanda Botanical Gardens for propagation

Black Walnuts

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Native Niagara! Ready, Set, Grow!

Gray dogwood

ID: Gray dogwood seeds are contained within small white fruits called drupes clustered at the terminal ends of branches, looking similar to a bunch of grapes. The berries must be harvested for seed collection before completely ripe, as birds are avidly fond of them. Gray dogwood's flower and berry clusters are conical, whereas other dogwoods have a flattened panicle. The pedicel bearing the fruit may be bright red in color.

Notes: The foliage on dogwoods begins to don its fall adornment as early as August, when the drupes begin to ripen. This is an advertising strategy, to signal birds to 'exit here for a delicious meal!'

Harvesting: Drupes may be picked by hand from accessible branches. As soon as the fruit begins to turn white and its flesh softens they have naturally ripened enough to contain a viable embryo within the seed. Fruit must be collected early to reduce competition from herbivory by birds. Following the harvest, the seeds are to be extracted from the fruit by means of a filter and press to remove the moist flesh of the fruit to minimize loss due to mold and mildew. Remember to limit harvest to 10%!

LEAF

The leaves of dogwoods are simple, smooth edged and oppositely arranged. The veins diverge from the center veins to run parallel. If broken, silky strands are present.

BARK

Gray dogwood is aptly named with its characteristic gray bark. This bark on the older stems is what discerns gray from red-osier and swamp dogwoods which have red and maroon bark.

TWIG

The twigs are arranged in pairs opposite each other along the stem. They are green to brown on young growth, turning gray over the seasons.

Photo credits: Leaf: Jerry Dicker, Rinora Woods Blog, 2013. Ripe fruit: 2007- The Mary T. and Frank L. Hoffman Family Foundation. www.self-reliance.org Other: Joshua Konovitz.

Literature adapted from: USDA-NRCS plant guide and plant fact sheet, USDA-FS Woody Plant Seed Manual, and USDA-FS Silvics Manual vol 2.

Prepared for Buffalo Niagara RIVERKEEPER by Joshua Konovitz under the Niagara River Riparian Restoration Program Buffer II grant.

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spicebush

ID: Spicebush is a deciduous shrub or small tree in the understory of moist woodlands, swamp margins and stream sides. It will grow to 5 meters tall, and has the potential to form clonal thickets by asexual root sprouting reproduction. Soil tolerance ranges from mildly acidic to mildly basic rich, mesic soils. Due to spicebush's affinity for rich woods, settlers and land surveyors quickly learned to use it as an indicator species for productive agricultural land.

The fruit begins to develop in May, turning from yellow to red at maturity from August to October. Each drupe contains a single seed that is violet-brown speckled with darker flecks.

The name spicebush refers to the aromatic leaves, twigs and fruit that have a spicy-sweet fragrance when bruised.

Harvest: The fruit of spicebush should be collected immediately following ripening from August to October. Immature fruits generally have low to no viability and will not germinate. Attention must be paid to harvestable species as they approach maturity, since loss due to herbivory by birds also narrows the window of opportunity to harvest viable seeds. The 6 to 10 mm long, shiny red ellipsoid drupes grow in short stalked clusters along the branches. The fruit is a prized food source for wildlife, who disperse the seed. Seeds generally germinate in the litter on the forest floor the following spring, but may remain viable in the seed bank for years.

LEAF

Leaves are entire, alternately arranged, thin, glabrous (rarely covered in hairs underneath), elliptical in shape, 6-14 cm long, and pointed at both ends. They are attached to petioles 5-12 mm long, that are a distinctive bright green in color.

BARK

Reddish with conspicuous lenticels on younger branches, the bark matures to a ruddy gray-brown. Spicebush may have an individual or multiple trunks. Understory thickets are also common from vegetative reproduction by root sprouting.

TWIG

Alternately branching, the flowers appear before the leaves in March and April in clusters on nodes of the previous year's growth. The species is dioecious, meaning that there are separate male and female plants.

Photo credits: Seed: Steve Hurst, hosted by the USDA-NRCS PLANTS Database. All other photos: Joshua Konovitz.

Literature cited: USDA-NRCS plant guide and plant fact sheet, USDA-FS Woody Plant Seed Manual, and USDA-FS Silvics Manual vol 2.

Prepared for Buffalo Niagara RIVERKEEPER by Joshua Konovitz under the NRRP Buffer II grant.

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Native Niagara! Ready, Set, Grow! (Year 3)

- Further Assess Local Sites for Native Species
- Hold 5-8 seed collection events
- Finalize local growing partnerships
- Maintain native growing database

Sycamore Seedlings at Saratoga Nursery

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Water Chestnut Pull Events (Year 2)

- Continued Invasive Water Chestnut Eradication Strategy with USFWS
- Conducted Additional Inspections of Tonawanda Creek (12 Total)
- Conducted 2 Water Chestnut Volunteer removal events

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Water Chestnut Pull Events

July 2014 – River Academy Pull Event

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Website & Educational Tools (Year 2)

- Revised & Printed 800 copies of the Native Plant Guide:
  Western New York Guide to Native Plants for your Garden
- Educational Intro on the Importance of Native Species
- 90 Native Plant Species
- 6 Garden Type Planting Plans
- Other garden planning, design and planting tips
- Leveraged:
  - $750 in Print Sponsorships
  - 300 copies printed by Erie County
- **Hugely Popular!**

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Website & Educational Tools (Year 3)

- Second Printing of the Native Plant Guide (seeking grants)
- Update Riverkeeper Website
  - Living Shorelines Project Specific Shoreline Restorations
  - Native Niagara! Ready, Set, Grow! Program
  - Volunteer Opportunities
  - Educational Materials (Guides)
  - Invasive Species Best Management Practices
- Revise Waterfront Landowner Stewardship Guide
- Continue to use Social Media to highlight major milestones

www.bnriverkeeper.org

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Third-Party Evaluation (Year 2)

- Contracted with Buffalo State College
- Phase 1 site evaluations conducted July-August 2014
  - 23 sites evaluated (awaiting report from BSC)
- Hosted Graduate Students from BSC's new Great Lakes Ecosystem Sciences Program (summer & fall semesters)

Year 3:

- Incorporate Recommendations into Phase 2 work
- Provide pre-construction monitoring
- Update Landowner Stewardship Guide to address Technical Assistance needs

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Living Shorelines Program

YEAR 2 – Continue Program Setup & Establish Technical Resources:

- Finalized the Program Structure & Process (in-packet)
- Rebranded Program
- Built Technical Resource Library
- Assembled Technical Advisory Committee
- Established Program Goals
- Created Site Evaluation Form
- Staff Trainings

Southern Environmental Law Center's Living Shorelines Program

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Living Shorelines Program

Supporting Healthy Water and Habitat through the Restoration of the Watershed's Living Infrastructure

Goals look to…

1.) Address the complete land-water interface

2.) Restore shorelines to a more naturalized state

3.) Create functional, beautiful & convincing spaces

4.) Connect to restorative & resilient living infrastructure systems

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1.) Address the complete land-water interface

- **In-water:** Habitat creation & improvements
- **Shoreline:** Land-water edge stabilization
- **Upland:** Riparian protection, wildlife corridors, public access

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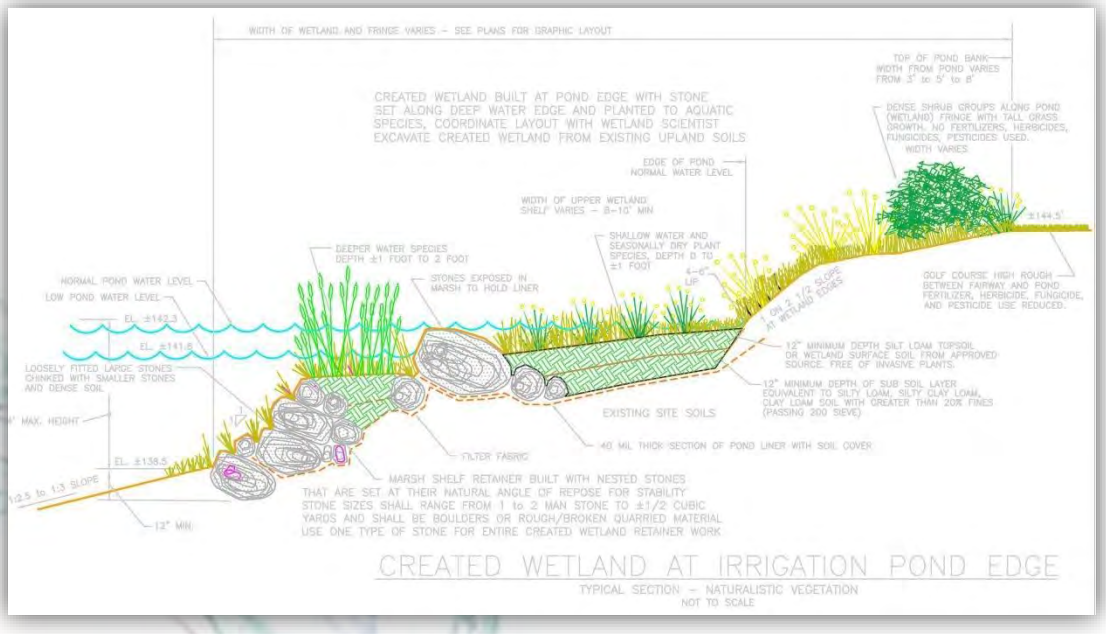
2.) Restore shorelines to a more naturalized state

- Transition away from traditional hardened structures, such as bulkheads or rip rap
- Employ bioengineering techniques to address bank stability and erosion issues
- Restore natural slope and utilize native/naturalized plants



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3.) Create functional, beautiful & convincing spaces

- Design to meet the largest number of goals/benefits
- Incorporate public access (where desired) and maintain a connection/draw to the water
- Create unique spaces that inform, educate, and build replication

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4.) Connect to restorative & resilient living infrastructure

- Create & enhance wetlands, floodplains and riparian corridors.

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Living Shorelines

Year 2 – Site ID, Evaluation, Selection:

- ArcGIS Analysis – 940 properties narrowed to 94 properties
- Top 13 properties ID'd with Technical Advisory Comm.
- 27 Preliminary Site Evaluations conducted to ID smaller sites within the properties
- 3 initially chosen for design:
  - Mayors Park
  - Botanical Gardens (Site B)
  - Sweeney Street Boat Launch
  - Hyde Park Lake (Sites A, C & F)
  - Sandy Beach Park Club

Michigan State University's Natural Shorelines Program

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Living Shorelines

Year 2 – Project Design Stage:

N. Tonawanda Botanical Gardens

- Held discussions and received Letter of Support from City of North Tonawanda
- Developed draft Conceptual Design for Botanical Gardens
- Refined Concept into 1 Final
- July – placed project on hold due to US ACE Aquathol K pilot application project

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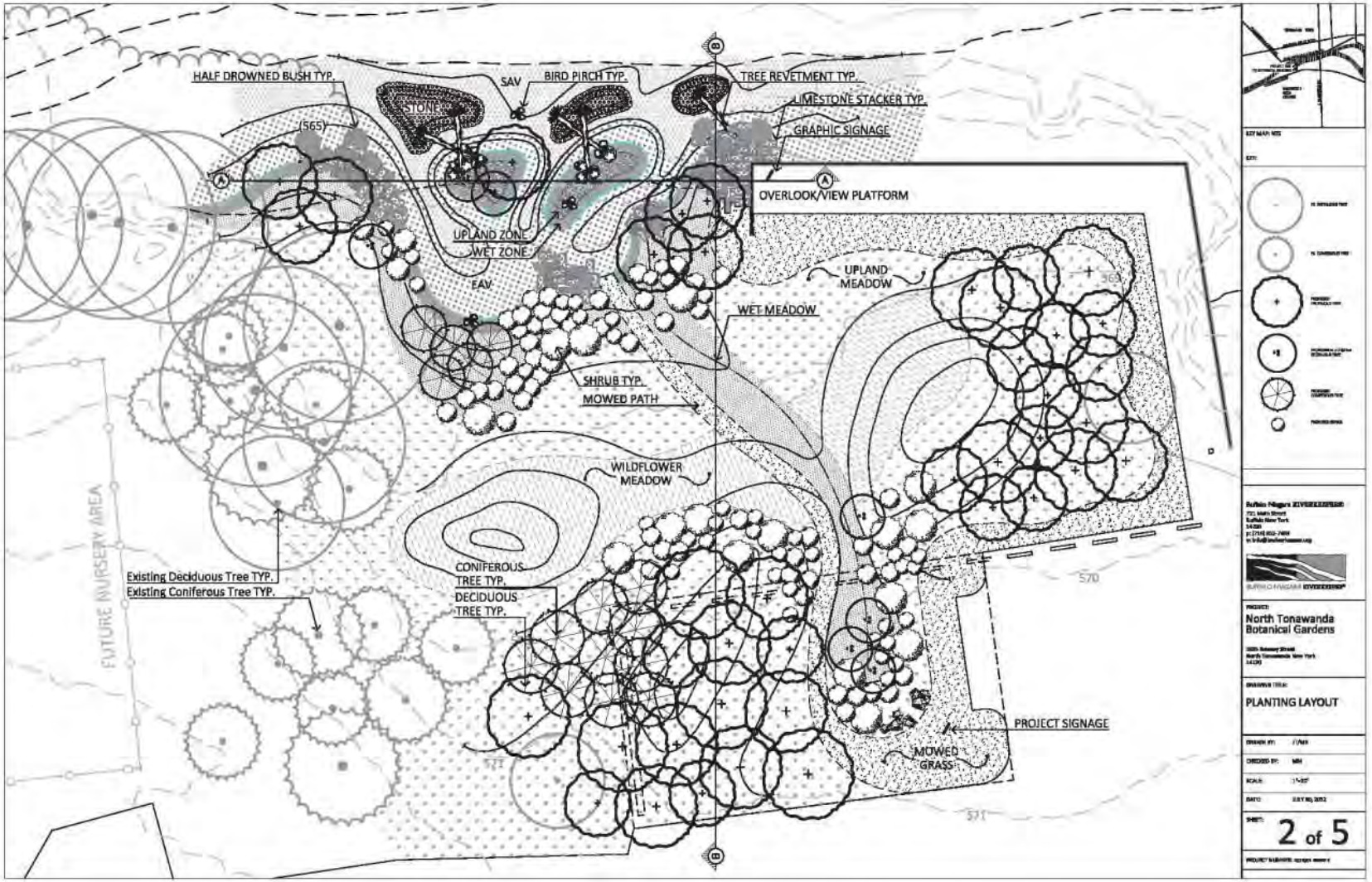
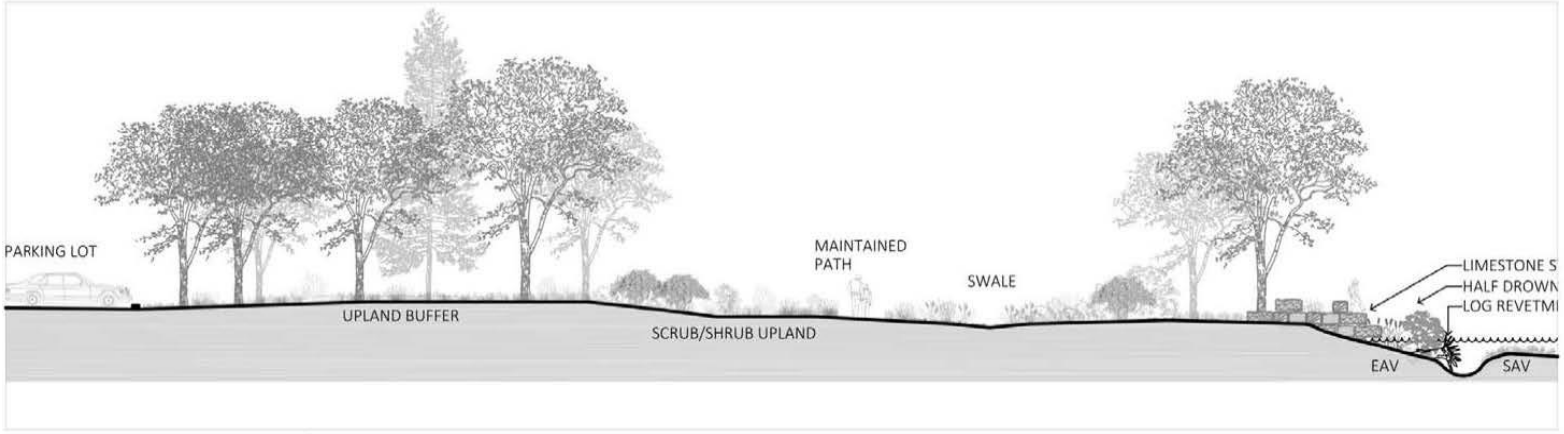
Botanical Gardens Currently

Botanical Gardens Concept



Botanical Gardens Sections

ELEVATION B-B' ENLARGEMENT NTS



ELEVATION B-B' NTS

Living Shorelines

Year 2 – Project Design Stage: Sandy Beach & Hyde Park Lake

- Revisited Potential Site List
- Focused on Hyde Park Lake & Sandy Beach Park Club
- Currently in discussions with owners & drafting Agreements
- Pursuing Hyde Park Lake cost-sharing with ACOE

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Hyde Park Lake

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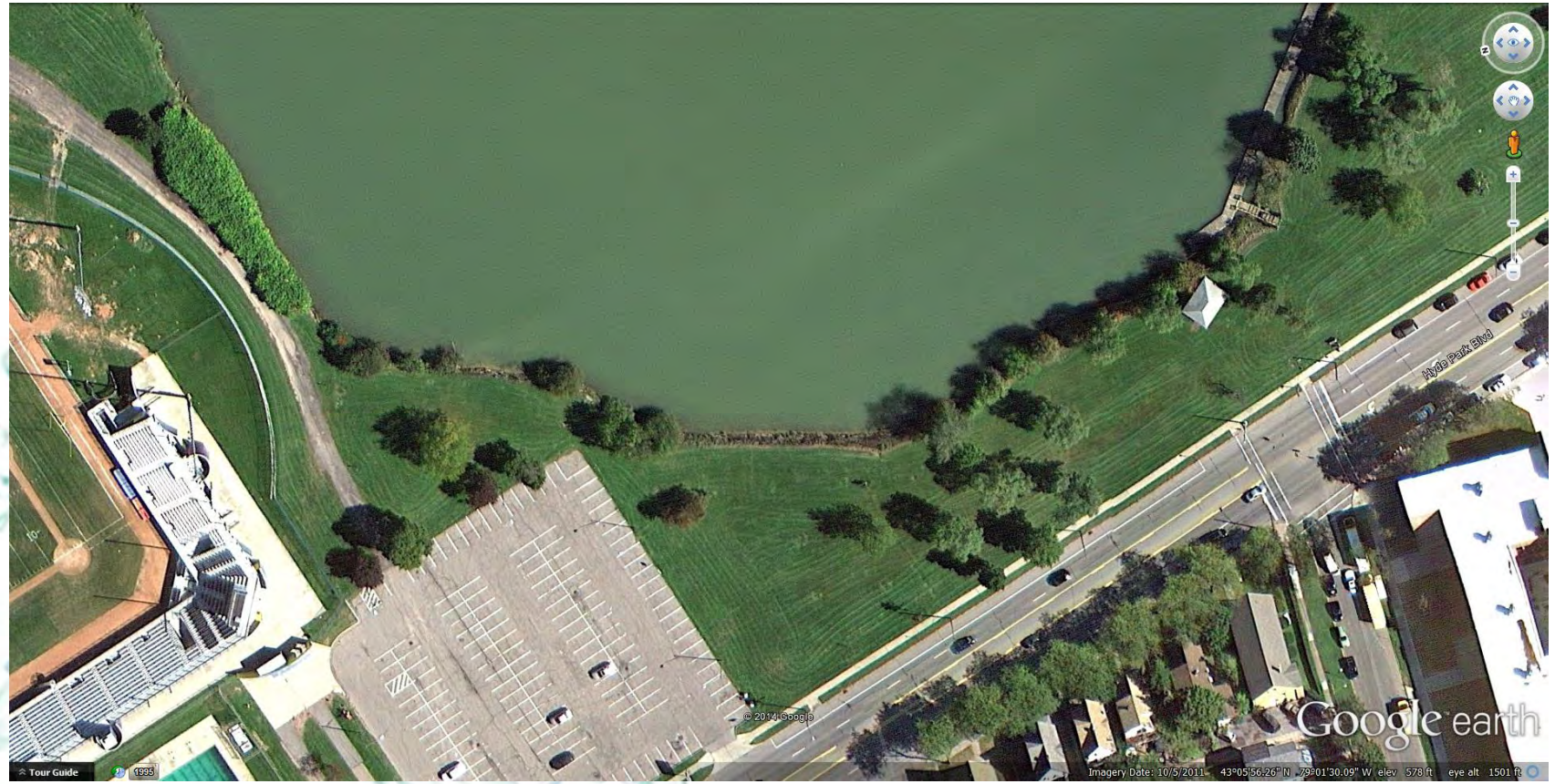
Hyde Park Lake



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Living Shorelines (Year 3)

- Concept Development (2 sites fall): Hyde Park Lake, Sandy Beach & (2 sites summer): TBD
- Secure Technical Services (Survey & Borings in necessary)
- Schematic Development & Cost Estimates
- Present Designs & Costs to GESC – January & March Meetings
- Select Sites to move to Construction Phase
- Develop CDs & Construction Bid Package (if necessary)
- Construct 2 sites & development management plans

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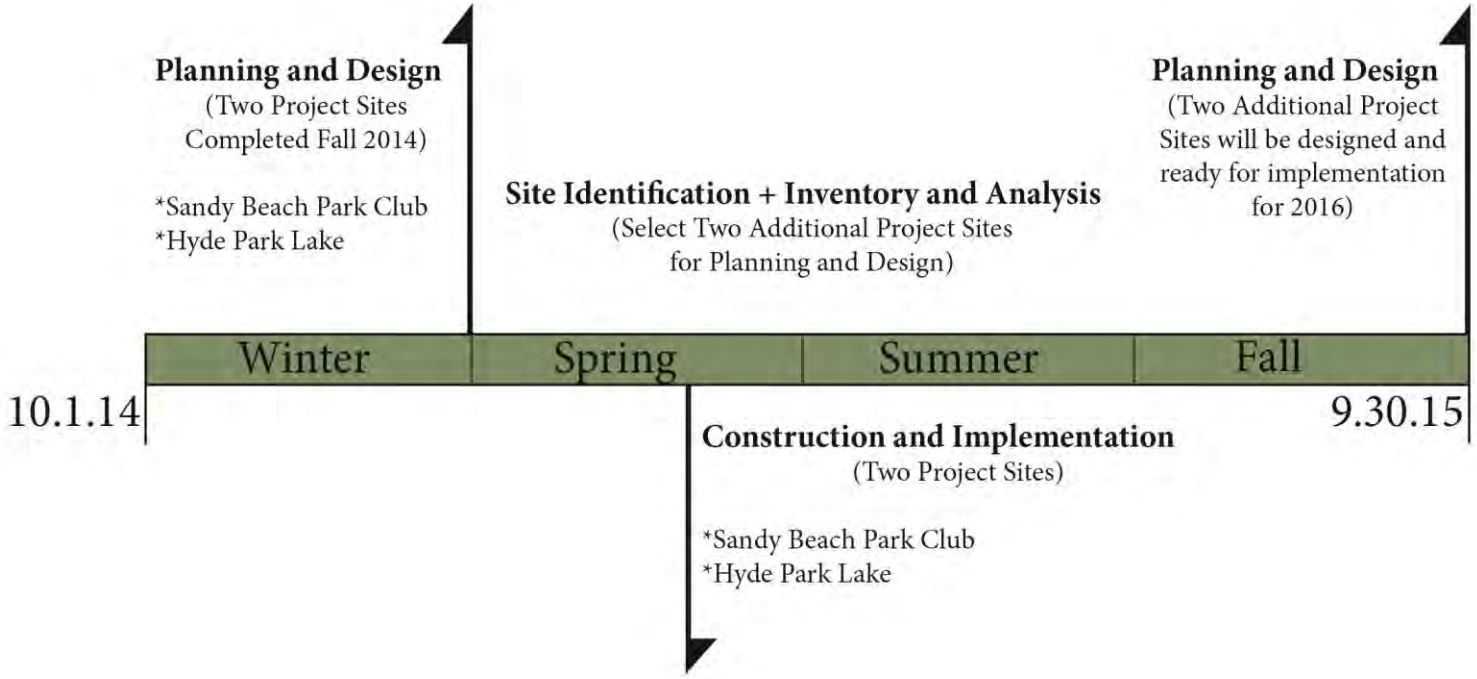
Living Shorelines (Year 3)

Living Shorelines Project Time Line:



GESC Needs moving Forward

Living Shorelines Program

- No-cost time extension to end 2016
  - Delay on Project Management side
  - Expanded complexity of Shoreline Restoration Projects
  - Revised Program Process
  - Consultants (technical services) & Contractors
- Revised shoreline sites constructed based on scope, scale & complexity
- Construction funding approval meetings outside of regularly scheduled GESC meetings
- Release of Year 3 funding

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Questions?

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